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Final Draft Regulatory Technical Standards

on the specification of the assessment methodology for competent authorities regarding compliance of an institution with the requirements to use the IRB Approach in accordance with Articles 144(2), 173(3) and 180(3)(b) of Regulation (EU) No 575/2013

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1. Executive Summary

The Capital Requirements Regulation (CRR) and the Capital Requirements Directive (CRD)¹ set out prudential requirements for banks and other financial institutions which have been applied from 1 January 2014. Among others, the CRR contains specific mandates for the EBA to develop draft regulatory technical standards (RTS) to specify the assessment methodology competent authorities shall follow in assessing the compliance of an institution with the requirements to use the Internal Ratings Based Approach (IRB Approach).

These final draft RTS are considered an integral part of the efforts of the EBA to ensure consistency in model outputs and comparability of risk weighted exposure amounts. It is expected that these final draft RTS will enable harmonisation of the supervisory assessment methodology across all EU Member States. They will therefore rectify the issues identified in this regard in the EBA report on the comparability of IRB models and provide enhanced clarity on various aspects of the application of the IRB Approach.

These final draft RTS set out standards for competent authorities in assessing an institution's compliance with minimum IRB requirements as defined in Part Three, Title II, Chapter 3 of the CRR, when the institution initially applies to use the IRB Approach, applies to use the IRB Approach for certain types of exposures in accordance with the sequential implementation plan, applies for implementation of material changes to the IRB Approach or applies to return to the use of less sophisticated approaches. Competent authorities will also use these final draft RTS to assess whether an institution meets the minimum IRB requirements on an ongoing basis as part of the regular review of the IRB Approach and reviews of changes that require notifications from the institution. Consequently, these final draft RTS will need to be embedded in the day-to-day practices of supervisory authorities.

The EBA has given due consideration to the fact that these RTS must be applied in a proportionate manner. While it is important that the assessment is made in a consistent manner, it is also important that the requirements can be applied in a practical manner and do not impose overly onerous burdens on supervisory authorities and institutions in, for instance, the case of minor model changes. The assessment of the initial model application naturally has to be subject to a high degree of scrutiny, whereas changes following notifications, i.e. minor model changes, must be considered, but should not necessarily lead to detailed reviews. A number of proportionality criteria have therefore been embedded in the RTS.

With a view to ensuring uniform interpretation and application by relevant competent authorities across the European Union of all minimum IRB requirements, as defined in the CRR, these final draft

¹ Regulation (EU) No 575/2013 of 26 June 2013 of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012; and Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC.

RTS provide a mapping of these requirements onto fourteen chapters. Each chapter starts with a brief description of the assessment criteria to be used by competent authorities as regards verification requests and of the methods to be used by competent authorities in this context.

These final draft RTS provide further clarification on, among other aspects, the independence of the validation function from the credit risk control unit (CRCU). The level of independence required is based on the proportionality principle; therefore, for global or other systematically important institutions, the separation requirements are stricter.

It is clarified that own-LGD estimates should be calculated as the average based on the number of defaults, i.e. the default-weighted average. This is mainly due to the fact that LGD parameters should be calculated for homogeneous pools or facility grades; hence if risk drivers such as exposure amount are relevant, they should be used for the segregation or risk differentiation of LGD.

The calculation of the difference between expected loss amounts and credit risk adjustments, additional value adjustments and other own funds reductions should be performed on an aggregate level separately for the portfolio of defaulted exposures and the portfolio of exposures that are not in default. This is necessary in order to ensure that the positive amounts resulting from the calculation performed for the defaulted portfolio are not used to offset the negative amounts resulting from the calculation performed for the portfolio of exposures that are not in default.

These final draft RTS will replace the CEBS *Guidelines on the implementation, validation and assessment of Advanced Measurement (AMA) and Internal Ratings Based (IRB) Approaches* (GL-10 CEBS, issued in 2006), limited to Section 2.2.2, Section 3 and Annex III in the context of the assessment methodology used by competent authorities in assessing the compliance of an institution with the requirements to use the IRB Approach.

Implementation

To facilitate the implementation of changes stemming from the regulatory products specified in the EBA's plan for the review of the IRB Approach² for competent authorities as well as for institutions, the EBA has issued an opinion³ specifying the expected general principles and timelines for the implementation process.

Next steps

The draft RTS will be submitted to the Commission for endorsement before being published in the *Official Journal of the European Union*. The technical standards will apply 20 days after their publication in the *Official Journal of the European Union*.

² *The EBA's Regulatory Review of the IRB Approach*, p. 16:

<https://www.eba.europa.eu/documents/10180/1360107/EBA+Report+on+the+regulatory+review+of+the+IRB+Approach.pdf/4f4891fa-79a3-4f0e-97c7-fa974a410688>

³ <https://www.eba.europa.eu/documents/10180/1359456/EBA-Op-2016-01+Opinion+on+IRB+implementation.pdf>

2. Background and rationale

Introduction

For purposes of calculating own funds requirements for credit risk, Article 143(1) of Regulation (EU) No 575/2013 (the Capital Requirements Regulation – CRR) allows competent authorities to permit institutions to use the Internal Ratings Based Approach (IRB Approach), provided that the conditions set out in Part Three, Title II, Chapter 3 of the CRR are met.

In the case of retail exposures, the institution that uses the IRB Approach has to provide own estimates of PD, LGD and conversion factors. In the case of exposures to corporates, institutions central governments and central banks, the institution must specify in its application to use the IRB Approach whether it wants to apply regulatory LGD and conversion factors or use own estimates of those parameters. The permission to use own estimates of LGD and conversion factors is granted by the competent authorities in accordance with Article 151(9) of the CRR.

The risk weighted exposure amounts for equity exposures covered by the IRB Approach can be calculated using one of the following methods: the simple risk weight approach, the PD/LGD approach and the internal models approach, as laid down in Article 155(2)-(4) of the CRR. Permission to use the PD/LGD approach or the internal models approach has to be granted by the competent authorities in accordance with Article 151(4) of the CRR.

Subject to prior permission of the competent authorities, the implementation of the IRB Approach may be carried out sequentially, as laid down in Article 148 of the CRR. The rating systems implemented by the institution according to the plan for sequential implementation of the IRB Approach (the so-called roll-out plan) have to be approved by the competent authorities before the institution starts using them for the purpose of own funds requirements calculation. Additionally, also subject to prior permission of the competent authorities, some exposures may be permanently exempted from the use of the IRB Approach. The permission for permanent partial use (PPU) of the Standardised Approach is granted in accordance with Article 150 of the CRR.

According to Article 143(3) of the CRR, where the competent authorities have already granted permission to use the IRB Approach, the institution has to obtain permission of the competent authorities for any material changes. These include material changes to the range of application of a rating system or an internal models approach to equity exposures that the institution has received permission to use and any material changes to such a rating system or such an internal models approach to equity exposures.

Finally, the assessment of the IRB Approach is performed by the competent authorities not only for the purpose of granting permissions as described above, but also during the ongoing supervision of the institutions. In particular, competent authorities are required to perform the regular review of the IRB Approach at least every 3 years in accordance with Article 101 of Directive (EU) 36/2013 (the Capital Requirements Directive – CRD).

According to Article 144(2) of the CRR the EBA is required to develop draft RTS, to be submitted by the EBA to the Commission, to specify the assessment methodology competent authorities shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach. Additionally, according to Article 173(3) of the CRR, the EBA is required to develop draft regulatory technical standards for the methodologies of the competent authorities to assess the integrity of the assignment process and the regular and independent assessment of risks. Finally, according to Article 180(3)(b) of the CRR the regulatory technical standards should also specify the methodologies according to which competent authorities shall assess the methodology of an institution for estimating the PD. These final draft RTS cover all three mandates described above. They apply to the competent authorities in all situations described in the previous paragraphs, both for the purpose of granting permission in accordance with Articles 143(1)-(3), 148, 150, 151(4) and 151(9) and for ongoing supervision, including the regular review of the IRB Approach.

Similar mandates exist for the advanced approaches to own funds requirements calculation for operational and market risk. The operational risk assessment methodology has already been submitted to the Commission, whereas the market risk assessment methodology is in final stages and expected to be submitted later this year.

These final draft RTS are considered an integral part of the efforts of the EBA to ensure consistency in model outputs and comparability of risk weighted exposure amounts. It is expected that these proposed draft RTS will enable harmonisation of the supervisory assessment methodology across all EU Member States. They will therefore rectify the issues identified in this regard in the EBA report on the comparability of IRB models and provide enhanced clarity on various aspects of the application of the IRB Approach.

Structure and scope of the proposed draft RTS

In order to structure these final draft RTS, all minimum IRB requirements, as defined in Part three, Title II, Chapter 3 of the CRR, have been mapped onto the 14 chapters, covering:

- (i) general rules for the assessment methodology;
- (ii) implementation plan and permanent partial use;
- (iii) internal governance and validation;
- (iv) use test and experience test;
- (v) assignment of exposures to grades and pools;
- (vi) definition of default ;
- (vii) design, operational details and documentation of the rating systems;
- (viii) risk quantification;
- (ix) assignment of exposures to exposure classes;

- (x) stress tests used in assessment of capital adequacy;
- (xi) own funds requirements calculation;
- (xii) data maintenance;
- (xiii) requirement for equity exposures under the internal models approach;
- (xiv) management of changes to the rating systems.

Each chapter starts with a brief description of the assessment criteria (including a reference to the CRR requirements) and the methods to be used by competent authorities in this context. The requirements included in these final draft RTS focus on the main aspects of the IRB Approach and where necessary provide clarification of the CRR requirements.

Additionally, these final draft RTS include introductory general rules in the first chapter, which are intended to link all the other parts of RST and define cross-cutting principles. In particular, this part of the proposed draft RTS specifies the general rules on the conclusions drawn by competent authorities from an assessment performed in accordance with these proposed draft RTS and possible decisions to be taken by competent authorities with regard to the use of the IRB Approach.

It is important to stress that these final draft RTS are not meant to repeat the requirements of the CRR. Regardless of the content of these final draft RTS competent authorities are directly obliged by Article 144(1) of the CRR to verify all requirements as laid down in Part Three, Title II, Chapter 3 of the CRR before granting permission to use the IRB Approach. Additionally, to the extent that the provisions of Part Three, Title II, Chapters 4 and 5 of the CRR are used by the institution for the purpose of the IRB Approach, competent authorities should also verify the compliance of the institution with those requirements.

Main policy decisions and their rationale

General chapter

Permission in case of roll-out plan

In order to ensure consistency and comprehensiveness of the assessment of the overall IRB Approach for subsequent requests for permission on the basis of the approved sequential implementation plan of an institution, competent authorities should base their assessments on at least the rules on the use and experience test, assignment to grades or pools, rating systems and risk quantification, as these aspects of the assessment relate to every individual rating system of the IRB Approach.

Third party involvement

One of the general cross-cutting principles included in these final draft RTS is that all rating systems should be equally verified regardless whether they were built internally by the institution or obtained from a third party vendor. Similarly, all material processes related to the application of the IRB Approach should be assessed in line with these final draft RTS even if they are provided by a third party. The management body of the institution is ultimately responsible for the processes and the performance of rating systems even when they are obtained from a third party vendor; therefore, sufficient in-house understanding and full documentation has to be ensured. As additional risks may be related to the delegation of important tasks, activities or functions it is important to verify that the institution has implemented adequate controls to mitigate those risks and ensure continuity of the delegated processes. The use of the rating models and risk parameters must be embedded in the risk management of the institution and, while delegation of these aspects can be implemented, institutions must understand the rating models and risk parameters in detail.

PPU and roll-out plan

Roll-out plan

The plan for sequential implementation of the IRB Approach has to be approved by the competent authorities. It has been specified in these final draft RTS that this plan should contain at least the scope of application of each rating system, the planned dates of implementation of the IRB Approach with regard to each type of exposure and the information about the current exposure values and risk weighted exposure amounts of those types of exposures. It implies that fixed and reasonable time periods have to be specified with regard to the implementation of all rating systems envisaged by the roll-out plan, except where any of the specific conditions is met.

The IRB Approach goes beyond internal models and technical calculation of own funds requirements; it also affects internal governance, including corporate culture and management of the institution. For that reason, as a general rule, the IRB Approach should be implemented for all exposures, unless the institution has received permission to permanently use the Standardised Approach, subject to strict conditions defined in the CRR. Therefore, it is important that competent authorities closely monitor the implementation of the roll-out plan in order to avoid undue delays in the full implementation of the IRB Approach. Any changes to the roll-out plan have to be approved by the competent authorities and can be allowed only if specific conditions are met that justify the change.

Governance and validation

General and CRCU

As internal governance is significantly affected by the IRB Approach certain aspects of it also have to be assessed by the competent authorities. Sound management processes and adequate involvement of the management body, relevant committees and senior management of the institution are

necessary to ensure proper application of the IRB Approach. In particular, internal reporting in the area of credit risk management should be based in large part on the rating systems.

One of the most important roles in the implementation of the IRB Approach is played by the credit risk control unit or units. They are responsible, among others, for the development of rating systems and their monitoring, as well as for active participation in the implementation and validation of models. Therefore, competent authorities should verify if those units are adequately equipped and managed and that they are located at an adequate level of the institution. In order to perform their tasks in an objective manner these units have to be independent from those originating or renewing exposures.

Independence of the validation function

The main role of the validation function is ensuring good quality of rating systems and their compliance with the relevant requirements. In order to allow objective assessment of the rating systems the validation function should be granted an adequate level of independence from the credit risk control unit that is responsible for the development of the models.

Since highly qualified staff are required both in the credit risk control unit and for the validation function, the assessment of the adequacy of the level of independence should be based on the proportionality principle. As a minimum, in smaller institutions, the staff performing the validation function should be separate from the staff responsible for model design or development. Larger institutions with more complex operations should aim to establish a separate validation unit with adequate independent reporting lines.

Frequency of the validation

The rating systems are the core of the IRB Approach, and their quality may impact significantly the level of own funds requirements calculation. In order to ensure continuous good quality of the rating systems and timely adjustments to changing conditions, validation should be performed on a regular basis. As a minimum the backtesting of each rating system should be carried out at least annually. However, the performance of those rating systems that cover material portfolios of the institution should be fully reviewed by the validation function at least annually.

Internal audit

Internal audit is often referred to as a third line of defence in an institution's internal control system. Although the rating systems are regularly verified by the validation function, internal audit should also review the IRB Approach. The review carried out by internal audit would typically be broader and include all aspects of the IRB Approach. Article 191 of the CRR requires that the review of the IRB Approach should be performed on an annual basis and should include adherence to all applicable requirements. These proposed draft RTS are designed to grant some flexibility to institutions in specifying their audit plans in order to allow efficient use of resources, at the same time ensuring that all areas of the IRB Approach are effectively covered by internal audits. It is therefore expected

that internal audits will perform a general annual review of all aspects of the IRB Approach in order to determine the areas that, due to increased risk, require more thorough review during the year.

Use test and experience test

Use test

The calculation of own funds requirements according to the IRB Approach is based on internal estimates of the risk parameters. In order to ensure that the parameters used for the calculation of own funds requirements truly reflect the level of risk as assessed by the institution, it is required that the same data and parameters are used in the internal risk management and decision-making processes. Any differences in the relevant data and risk estimates have to be properly justified in order to avoid possible underestimation of own funds requirements.

These final draft RTS specify the methodology for assessing the adequacy of the scope of use of the risk estimates in the internal processes of the institution. Within three broader areas, as listed in the CRR, i.e. (i) risk management, credit approval and decision-making processes, (ii) internal capital allocation and (iii) corporate governance functions, more specific expectations have been formulated. Competent authorities should make sure that the relevant risk estimates are properly used in the basic areas of internal processes and that they are sufficiently integrated with the corporate culture of the institution.

Experience test

Article 145 of the CRR requires that an institution has been using rating systems that are broadly in line with the requirements set out in Part Three, Title II, Chapter 3, Section 6 of the CRR for internal risk measurement and management purposes for at least 3 years prior to its qualification to use the IRB Approach. These final draft RTS specify that, in order to assess whether these requirements are met, competent authorities should verify whether the risk parameters have been used at least in the most basic areas of risk management, including credit decisions, competences for the credit approval process, lending policies, risk monitoring and reporting. Additionally, in the experience period the rating systems should be subject to regular monitoring, validation and internal audit reports.

Assignment of exposures to grades and pools

Independence of the assignment of exposures to grades or pools

These final draft RTS specify the methodology for assessing the process of assignment of exposures to grades or pools. In particular, the requirement on the independence of this process from the origination or renewal of exposures has been clarified. This independence is necessary to avoid assigning unduly favourable ratings, and as a result underestimating risk, in particular by inappropriate application of human judgement. Independence of the assignment process is required for non-retail exposures because the application of human judgement is typically necessary in this process. In the case of retail exposures the assignment process is usually fully automatic, based on objective information about the obligor and its transactions. The correctness of the assignment

process is ensured by proper implementation of the rating system in the institution's IT systems and procedures. Nevertheless, if overrides are allowed, human judgement has to be applied in the rating process. Therefore, where overrides are used, even in the case of retail exposures, the assignment process has to be independent from the origination or renewal of exposures.

Treatment of outdated ratings

It is required by the CRR that the assignment of exposures to grades or pools has to be reviewed at least annually or whenever new material information on the obligor or exposure becomes available. A well-established assignment process should ensure that the assignment reflects the actual risk related to an obligor or an exposure, taking into account all currently available material information. According to the general rule, whenever there is uncertainty related to insufficient data or assumptions an increased margin of conservatism should be adopted. Therefore, it has been clarified in the final draft RTS that, where ratings are older than 12 months or where the review of the assignment has not been performed in due time according to the institution's policy, conservative adjustments should be performed in terms of risk weighted assets calculation. The adjustment should be proportional to the length of the period during which the rating or the information underlying the rating has been out of date.

Definition of default

The definition of default as specified in Article 178 of the CRR is the basis for the estimation of risk in the IRB Approach. Therefore, competent authorities should carefully assess the compliance of the definition with the requirements, as well as assessing the application of the definition in practice, paying particular attention to any differences in the definition of default between different types of exposures, legal entities or geographical locations. In order to do this, competent authorities will require the institution to provide detailed documentation in this regard, including on the operationalisation of all indications of unlikelihood to pay.

In order to ensure adequate assessment of risk, and therefore adequate estimation of risk parameters, it is also important that the institution has robust criteria and processes for reclassifying previously defaulted exposures back to non-defaulted status. The criteria should take into account the institution's previous default experience to avoid reclassifying to non-defaulted status obligors that are likely to default again within a short period of time.

Rating systems (models)

Register of rating systems

In order to enable the competent authorities to thoroughly review the rating systems, the institution has to provide detailed documentation on the design and operational details of the rating systems. These final draft RTS specify the minimum content of such documentation. In particular, competent authorities should be provided with a register of rating systems, i.e. a register of all rating systems including all current and past versions of rating systems for a period of at least 3 years. This register, regularly updated by the institution, should be used by the competent authorities to assess the

completeness of the application of the IRB Approach, the scope of application of each rating system, and the requirements related to the sequential implementation of the IRB Approach and permanent partial use of the Standardised Approach. The information about the changes implemented during the last 3 years should be used to assess compliance with the requirements related to the experience test and to perform a supervisory review, which competent authorities are required to carry out at least every 3 years.

General

These final draft RTS specify in detail the methodology for the assessment of the rating systems, including statistical models and other mechanical methods. The main aspects of the assessment are focused on the selection of risk drivers and rating criteria, adequate distribution of obligors and exposures in the grades or pools, risk differentiation, and homogeneity of obligors or exposures assigned to the same grade or pool. In the case of statistical models and other mechanical methods it is important to ensure that the models are based on adequate data, taking into account their quality and representativeness for the current portfolio. The institution should be fully aware of and properly document the model's capabilities and limitations.

Human judgement

In the specification of the methodology for the assessment of the rating systems attention is drawn also to the application of human judgement at various stages of the development and use of rating systems. Human judgement may be used to include in the model additional information that is not reflected in the available data. Reasonable application of human judgement can increase the quality of the model and the accuracy of predictions. Nevertheless, since it changes the estimates based on prior experience in a subjective manner, the application of human judgement should be controlled and justified by a positive impact on the accuracy of predictions.

Human judgement may also be applied after the implementation of the rating system, in particular by overriding the results of the model. In that situation, the quantity of and justification for overrides should be regularly analysed by the institution to identify possible weaknesses of the models. In particular, a large number of overrides of the results of the model might indicate that some important information is not included in the rating system. Any detected weaknesses of the model should be adequately addressed in the model review.

Risk quantification

General and data

These final draft RTS also specify how the competent authorities should assess the quantification of risk parameters. Some aspects of these methods are general and apply to all parameters; others take into account the specificities of the estimation of PD, LGD and conversion factors, as well as specific treatment of purchased receivables. In the general rules, as for the assessment of rating models, emphasis is placed on the adequate selection of data. In addition to ascertaining the appropriate quality, including completeness and representativeness, of data, competent authorities should verify

whether the data reflect the definition of default as required by Article 178 of the CRR and whether a sufficiently long historical observation period was used.

General and margin of conservatism

In all cases the competent authorities should assess whether the institution has adopted a sufficient margin of conservatism, as referred to in Article 179(1)(f) of the CRR. This conservatism should account, in particular, for any identified deficiencies in data or methods used in the risk quantification and for increased uncertainty that might result, for example, from changes in the lending or recovery policy. The competent authorities should ensure that the margin of conservatism is applied irrespective of the requirements of Article 146 of CRR, as that article aims to ensure that models are corrected in a timely manner to meet the requirements of that regulation; hence the application of the margin of conservatism should not be used as an alternative to correcting the models and ensuring their full compliance with the requirements of that regulation.

Long-run average for PD

In particular, PD estimates should reflect the long-run average of one-year default rates in order to ensure that they are relatively stable over time and that extensive cyclicity of own funds requirements is avoided. This means that PD estimates should be based on a period representative of the likely range of variability of default rates in that type of exposures. In practice the institution may not have sufficient data to encompass the likely range of variability of default rates. In that case appropriate methods may be used to estimate the latter. In this situation, due to increased uncertainty, it may be necessary to adopt a greater margin of conservatism.

Default weighted average of LGD

With regard to LGD estimates it has been clarified in these final draft RTS that the estimation should be based on the average weighted by the number of defaults, as required by the CRR. If, however, the exposure value is a material risk driver, it should be used for the segregation or risk differentiation of LGD in order to ensure that the parameter is calculated for homogenous pools or facility grades. This approach ensures consistency with the calculation of the PD parameter and a meaningful application of the risk weight formula. The CRR differentiates the LGD calculation method at the level of individual exposures for the purpose of risk weighted exposure amounts from the LGD calculated at the portfolio level. As opposed to the individual LGD calculation, the LGD floor for exposures secured by immovable property, applied at the overall portfolio level, is defined as an exposure-weighted average LGD.

Treatment of multiple defaults

In order to ensure consistency between the estimates of various risk parameters multiple defaults should be treated in a similar manner. The prudent approach requires that a defaulted exposure that after a return to non-defaulted status has been classified as defaulted again within a short period of time should be treated as constantly defaulted from the first moment when the default occurred. This treatment also reflects the real economic meaning of the default experience. Treatment of

multiple defaults of the same obligor as separate defaults might lead to significant errors in risk parameter estimates, because a higher default rate would lead to higher PD estimates. On the other hand the LGD would be underestimated, because the first default of the obligor would be treated as a cure case with no loss, where in fact the institution had experienced loss on that obligor at the later stage. Therefore, the treatment of multiple defaults should be verified by the competent authorities.

LGD in-default

According to these proposed draft RTS competent authorities should also verify the adequacy of estimation of LGD for defaulted exposures. The methodology for the assessment of LGD estimation recognises that the institution may estimate the LGD for defaulted exposures either directly or as a sum of best estimate of expected loss and an add-on that captures the unexpected loss that might occur during the recovery period. Irrespective of the approach it is expected that the method for the estimation of LGD for exposures in default should take into account additional information available due to the occurred default for such exposures, in particular how long the particular exposure has been in defaulted status and recoveries realised so far, and should consider a possible adverse change in economic conditions during the expected length of the recovery process. LGD for defaulted exposures should reflect the sum of expected loss under current economic circumstances and possible unexpected loss that might occur during the recovery period, whereas the LGD for non-defaulted exposures always reflects downturn conditions.

Collateral management

The requirements of the CRR with regard to the quantification of risk parameters refer also to certain qualitative aspects of risk management processes in institutions. In particular, according to Article 181(1)(f) of the CRR in the case of institutions that use own estimates of LGD it is required that the internal requirements for collateral management should be generally consistent with the requirements of Part Three, Title II, Chapter 4, Section 3 of the CRR. It has been clarified in these final draft RTS that in the assessment of the compliance of an institution with this requirement particular emphasis should be placed on the regular valuation of collaterals and on legal certainty. The valuation should reflect the real market value under current market conditions and the frequency and character of revaluation should be adjusted to the type of collateral. Outdated or inaccurate evaluation might lead to the underestimation of risk related to credit exposures. It is also important to ensure that the collateral is legally effective and enforceable in all relevant jurisdictions. If this condition is not met then the exposure should be treated as unsecured. If, nevertheless, such collateral is recognised in the risk quantification it may lead to the underestimation of risk.

Eligibility of guarantors and guarantees

Additionally, where own estimates of LGD are used, Article 183 of the CRR sets out requirements for the eligibility of guarantors, guarantees and credit derivatives. In order to ensure that the quality of the guarantee and the guarantor is properly assessed when adjusting risk estimates, it is required in these final draft RTS that as a general rule only those guarantors may be treated as eligible that are rated with a rating system approved under the IRB Approach. Other guarantors may also be eligible,

provided that they are classified as an institution, a central government or central bank, or a corporate entity that has a credit assessment by an ECAI, and provided that the guarantee meets the requirements set out in Part Three, Title II, Chapter 4, Section 3 of the CRR that are applicable for the Standardised Approach.

It has also been clarified that the effects of guarantees and credit derivatives can be recognised by adjusting either PD or LGD estimates. Alternatively, in the case of guarantors that are internally rated with a rating system approved under the IRB Approach, the effect of a guarantee can be recognised by applying Article 153(3) of the CRR. Competent authorities should verify that the methods of recognising the effects of collaterals are used consistently and do not lead to underestimation of risk.

Assignment of exposures to exposure classes

Retail exposures

Under the IRB Approach different requirements apply to different exposure classes. Therefore, the methodology for assessing the methodology and process of assigning of exposures to exposure classes has also been defined in these final draft RTS. In this assessment particular attention should be paid to the assignment of exposures to the retail exposures class because of their preferential treatment in terms of the risk weighted exposure amounts calculation.

Sequencing

Competent authorities should assess, among other things, whether the assignment is performed in a consistent and unequivocal manner. Since some exposure classes are defined on the basis of the characteristics of the transaction and the others on the basis of the type of obligor, there may be exposures that fulfil the criteria for more than one exposure class. Therefore, it has been clarified that the assignment process should follow a correct sequence, according to which, first, the assignment of exposures to exposure classes based on the characteristics of the transaction should be performed, then the remaining exposures should be assigned to exposure classes based on the characteristics of the obligor and, finally, all other exposures should be classified as corporate exposures.

Stress tests used in assessment of capital adequacy

Integration of the stress tests with the risk and capital management processes

According to Article 177 of the CRR institutions should have in place sound stress testing processes for use in the assessment of its capital adequacy. Such stress tests should be performed in addition to Pillar 2 stress tests; nevertheless, unless justified by specific circumstances, the methods should be consistent. The IRB stress tests should focus on own funds requirements under stress conditions. It has been clarified in these final draft RTS that the results of the stress tests should be taken into account in the decision making process in the area of risk and capital management processes. The integration of the stress test results in the decision making processes in risk and capital management ensures that the scenarios and their impact on capital requirements are developed and performed in a meaningful manner and that forward-looking aspects of capital requirements are taken into account in managing the institution.

Own funds requirements calculation

The CRR specifies detailed rules for the calculation of own funds requirements with the use of risk parameters, either estimated by the institution or assigned to the exposures according to the requirements. The latter group of parameters include maturity (M), correlation coefficient (R), total sales of an obligor (S) and, in the case of the foundation IRB Approach, also LGD and conversion factors. These final draft RTS specify the methodology for assessing the correctness of the assignment of risk parameters and the calculation of own funds requirements.

The purpose of these final draft RTS was not to repeat the requirements of the CRR; therefore, it is focused rather on the methods of assessment, including reconciliation of the data used for the purpose of own funds requirements calculation with the accounting data and values of risk parameters used for internal purposes. However, these final draft RTS provide clarification on some of those requirements that have caused interpretational problems.

Effective maturity (M)

In particular, it has been clarified that where effective maturity is calculated for revolving exposures it should be based on the expiry date of the facility. Assignment of the M parameter based on the repayment date of a current drawing is not sufficient because it does not account for possible additional drawings. In fact, the institution is at risk for a longer period than the repayment date of the current drawing.

Calculation of IRB shortfall

Furthermore, Article 159 of the CRR requires institutions to calculate the difference between expected loss amounts and credit risk adjustments, additional value adjustments and other own funds reductions for the purpose of own funds recognition (the so-called IRB shortfall). It has been clarified in these final draft RTS that this difference should be calculated at an aggregate level

separately for the portfolio of defaulted exposures and the portfolio of exposures that are not in default.

Separation between defaulted and non-defaulted exposures is necessary in order to ensure that the negative amounts resulting from the calculation performed for the defaulted portfolio are not used to offset the positive amounts resulting from the calculation performed for the portfolio of exposures that are not in default. Apart from that, the overall calculation is in line with the general concept of own funds, according to which own funds should be fully available to cover unexpected losses in case of insolvency of the institution. Since the amount of provisions included in the calculation of IRB shortfall has already been deducted from own funds to cover the expected losses, their excess part on the total EL is fully available to cover losses identified on all defaulted exposures. Therefore, only overall IRB shortfall should be deducted from own funds when the amount of provisions does not fully cover the EL of defaulted exposures. A requirement to calculate the IRB shortfall individually for each defaulted exposure would be too conservative and burdensome.

Data quality

The estimation of risk parameters and calculation of own funds requirements, as well as most of the internal processes at institutions, are based in large part on IT systems and use large quantities of data. In order to ensure the correctness of the calculations and processes the institutions have to attach great importance to the quality of data and reliability of IT systems. Unreliable, inaccurate, incomplete or outdated data may lead to errors in risk estimation and in the calculation of own funds requirements. When used in the risk management processes of the institution they may also lead to incorrect credit and management decisions. The quality of data should therefore be regularly checked and improved if necessary. In addition, the infrastructure related to gathering and storing the information, as well as the relevant procedures, has to be well documented. Furthermore, in their assessment the competent authorities should place adequate emphasis on the quality of data. In order to perform the assessment they will require detailed documentation, including a description of the characteristics and the sources of data that are necessary for their proper use in the risk management and own funds requirements calculation processes.

IT infrastructure

Additionally, the quality of data and the correctness of risk estimation and of calculation of own funds requirements are highly dependent on the reliability of the IT systems used for the purpose of the IRB Approach. The continuity of risk management processes and own funds requirements calculation can only be ensured when the IT systems used for that purpose are safe, secure and reliable, and the IT infrastructure is sufficiently robust. Therefore, competent authorities should also verify the reliability of the institution's IT systems and the robustness of the IT infrastructure.

These final draft RTS specify the methodology for such an assessment, focusing on the aspects considered most important for the proper application of the IRB Approach.

Internal models for equity exposures

Article 155 of the CRR specifies three alternative methods for calculating own funds requirements for equity exposures under the IRB Approach, namely: the simple risk weight approach, the PD/LGD approach and the internal models approach. To those institutions that decide to use internal models approach additional requirements apply. Although this approach is not very popular among EU institutions these final draft RTS specify the methodology to be used by competent authorities assessing such models and the compliance of institutions with the additional requirements related to this approach.

Non-overlapping observations

In particular, competent authorities should verify whether the non-overlapping observations of returns on equity exposures are used both for the development and for the validation of internal models for equity exposures. As far as possible non-overlapping observations should be used, because they ensure higher quality predictions by assigning the same weight to all observations and avoiding excessive correlation between them.

Management of changes to rating systems

An institution that submits an application to use the IRB Approach has to be prepared to manage this approach after permission is granted. The rating systems, risk parameters and all related processes and policies have to be regularly reviewed and, if necessary, modified. Any material changes to the rating systems and the scope of application of the rating systems have to be approved by the competent authorities; other changes have to be adequately notified. Therefore, it is necessary that institutions implement a policy to define the classification of changes and the internal process for management of changes. Detailed criteria should ensure that the classification of changes is consistent and that any arbitrage in that regard is avoided.

These final draft RTS specify the methodology for assessing such policies; in particular, they define the minimum content of the policy that should be required by competent authorities. The policy and its implementation should ensure that all material changes are approved by the competent authorities as required by the CRR and that only changes of good quality are implemented. As a result the policy will contribute to the use of better rating systems both for own funds requirements calculation and in internal risk management processes.

3. Draft regulatory technical standards

FINAL Draft RTS

on the specification of the assessment methodology for competent authorities regarding compliance of an institution with the requirements to use the IRB Approach in accordance with Articles 144(2), 173(3) and 180(3)(b) of Regulation (EU) No 575/2013

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supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards for the specification of the assessment methodology competent authorities shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach in accordance with Articles 144(2), 173(3) and 180(3)(b) of Regulation (EU) No 575/2013

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012⁴, and in particular the third subparagraph of Article 144(2), the third subparagraph of Article 173(3) and the third subparagraph of Article 180(3) thereof,

Whereas:

- (1) The requirement, in Regulation (EU) No 575/2013 for competent authorities to assess the compliance of an institution with the requirements to use the IRB Approach is general, in that relates to all of the requirements for the use of the IRB Approach, irrespective of their degree of materiality, and implies compliance with the requirements at all times. As a result, such an assessment does not only relate to the initial application of an institution for the permission to use the rating systems in accordance with Articles 143(1), 151(4) and (9) of Regulation (EU) No 575/2013, but also applies to: the assessment of any additional applications of an institution for the permission to use the rating systems implemented according to the institution's approved plan of sequential implementation of the IRB Approach as referred to in Article 148 of that Regulation; the assessment of the application for material changes to the internal approaches that the institution has received permission to use in accordance with Article 143(3) of that Regulation and Commission Delegated Regulation (EU) No 529/2014⁵; to the assessment of application to return to the use of less sophisticated approaches in accordance with Article 149 of that Regulation; to

⁴ OJ L 176, 27.06.2013, p. 1.

⁵ Commission Delegated Regulation (EU) No 529/2014 supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards for assessing the materiality of extensions and changes of the Internal Ratings Based Approach and the Advanced Measurement Approach of 12 March 2014 (OJ L 148, 20.5.2014, p.36).

the ongoing review of the IRB Approach that the institution has received permission to use in accordance with Article 101(1) of Directive 2013/36/EU⁶; and to changes to the IRB Approach that require notification in accordance with Article 143(4) of Regulation (EU) No 575/2013 and Delegated Regulation (EU) No 529/2014. Competent authorities should apply the same criteria to all of these particular aspects of the assessment of compliance with the requirements to use the IRB Approach, hence the rules that set out that assessment methodology should apply to all of the above cases, in order to ensure harmonisation of assessment methodologies by competent authorities and mitigate regulatory arbitrage.

- (2) Based on the need to ensure consistency around the Union with regard to the assessment of the IRB Approach, it is necessary that competent authorities embed the same methods for that assessment in their practices. As a result, it is necessary to identify such a set of core methods to be applied by all competent authorities. Nevertheless, given the nature of the model assessment and the diversity and particularities in the models, competent authorities should be allowed to exercise supervisory judgement in the application of these methods. Further, in certain cases such as where recent assessments, which are based on the core methods, have been made for similar rating systems in the same class of exposures, it would be appropriate to use the results of such assessments, rather than repeat them, where, in the competent authorities' supervisory judgement, those remain materially unchanged. This would ensure avoiding complexity, unnecessary burden and duplication of work where such an assessment has been performed previously by the competent authority.
- (3) In such cases as referred above, where competent authorities assess the compliance of an institution with the requirements to use the IRB Approach, other than the initial application for permission by institutions, given that the assessment relates to a particular scope of application of the IRB Approach, competent authorities should apply only and all of those rules that are relevant to the scope of the assessment by the competent authority in each case using the conclusions from the former assessments as the starting point.
- (4) Where the assessment relates to applications for the permissions referred to in Article 20(1)(a) of Regulation (EU) No 575/2013, the regulatory technical standards referred to in paragraph 8 of that Article in relation to the joint decision process apply.
- (5) Article 144(2) of Regulation (EU) No 575/2013 refers to the assessment of compliance with the requirements of that Regulation in their entirety, and at all times. In that context competent authorities are required to verify compliance of institutions with the specific regulatory requirements, as well as evaluate the overall quality of the solutions, systems and approaches implemented by an institution, and request constant improvements and adaptations to changed circumstances in order to achieve continuous compliance with the requirements of the IRB Approach. With that in mind, such an assessment inevitably involves, to a large extent, a subjective judgement by competent authorities. Hence rules for the assessment methodology on one hand should allow the possibility for competent authorities to exercise their discretion as provided in Regulation (EU) No 575/2013 by carrying out additional checks to those specified therein, as necessary and on the other should ensure harmonisation and comparability

⁶ Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (OJ L 176, 27.6.2013, p. 338).

of supervisory practices across different jurisdictions. For the same reasons, competent authorities should avail of the flexibility necessary to apply the most appropriate method or methods for verifying particular requirements, depending, among others, on the materiality of the types of exposures covered by each rating system, the complexity of the models, the particularities of the situation, the specific solution implemented by the institution, the quality of evidence provided by the institution, the resources available to the competent authorities themselves. Further, and for the same reasons, competent authorities should be able to carry out additional tests and verifications which might be necessary in case of doubts regarding the fulfilment of the requirements of the IRB Approach, and in order to be able to apply the assessment methodology in accordance with the principle of proportionality, which is a general principle of EU law, and hence depending on the nature, size and complexity of an institution's business and structure.

- (6) In order to ensure consistency and comprehensiveness of the assessment of the overall IRB Approach, in the case of subsequent requests for permission on the basis of the approved sequential implementation plan of an institution, competent authorities should base their assessment by applying at least the rules on the use and experience test, assignment to grades or pools, rating systems and risk quantification, as these aspects of the assessment relate to every individual rating system of the IRB Approach.
- (7) In order to assess the adequacy of the application of the IRB Approach all rating systems and related processes have to be verified, where there is delegation by an institution to a third party of tasks, activities or functions related to the design, implementation and validation of rating systems, or obtaining a rating system or pooled data from a third party vendor. In particular adequate controls have to be implemented at the institution and full documentation should be available; further as the management body of the institution is ultimately responsible for the delegated processes and the performance of rating systems obtained from a third party vendor, sufficient in-house understanding needs to be ensured. As a result of the above, all tasks, activities and functions that have been delegated, including the rating systems obtained from the third party vendors have to be assessed by competent authorities in a manner similar to the cases where the IRB Approach has been developed fully via internal processes of the institution.
- (8) In order to avoid misuse of the rules on the sequential implementation of the IRB Approach that could lead to the creation of a quasi permanent partial use of the Standardised Approach, a deadline for the implementation of the so-called 'roll-out plan' is necessary, as well as a limitation of possible changes to the roll-out plan. All exposures covered by the roll-out plan need to have a defined and reasonable maximum timeframe for implementation of the IRB Approach.
- (9) It is important to ensure the independence of the validation function from the credit risk control unit in order to allow for an objective assessment of the rating systems, a limited incentive to disguise the model deficiencies and weaknesses, as well as a fresh view on the rating systems by people not involved in the development process. On the other hand, since both in the credit risk control unit as well as in the validation unit highly qualified staff is required, full independence between the two units might be too burdensome for smaller institutions. As a result of the above, competent authorities should verify that an adequate level of independence is in place, based on the proportionality principle.

- (10) As the rating systems are the core of the IRB Approach, and their quality may impact significantly the level of own funds requirements, the performance of the rating systems should be regularly reviewed. Given that rating systems have to be assessed at least annually by competent authorities (as referred to in Article 78 of Directive 2013/36/EU) and by the internal audit (according to Article 191 of Regulation (EU) No 575/2013), and given that, in order for this task to be performed, input from the validation function is necessary, it is appropriate that the validation of the performance of the ratings systems covering material portfolios and back-testing of all other rating systems should be performed at least annually.
- (11) All areas of the IRB Approach should be effectively covered by internal audits. Nevertheless, an efficient use of the internal audit resources should be ensured so that internal audit focuses on the most risky areas. Some flexibility is important particularly in the case of those institutions that use numerous rating systems. As a consequence, competent authorities should verify that annual reviews are performed in order to determine areas that require more thorough reviews during the year.
- (12) In order to ensure a minimum level of harmonisation in relation to the scope of use of the rating systems (the so-called ‘use test’), competent authorities should verify that the rating systems are incorporated in the relevant processes of the institution within the broader processes of risk management, credit approval and decision- making processes, internal capital allocation, and corporate governance functions. These are basic areas where internal processes require the use of risk parameters, therefore if there are differences between the risk parameters used in those areas and those used for the purpose of the calculation of own funds requirements, they have to be well justified.
- (13) In relation to experience test requirements, while assessing whether the rating systems used by the institution prior to the application to use the IRB Approach were ‘broadly in line’ with the IRB requirements, competent authorities should verify in particular that during at least three years before the use of the IRB Approach, the rating system has been used in the internal risk measurement and management processes of the institution and that it has been subject to monitoring, internal validation and internal audit. Such specification is necessary to ensure a minimum level of harmonisation. At least the most basic areas of use have to be covered to prove that the rating systems have been effectively used by the institution and that both the personnel as well as the management are accustomed to those parameters and understand well their meaning and weaknesses. Finally, monitoring, validation and internal audit during the experience period should ensure that the rating systems were compliant with the basic requirements of the IRB Approach and that they were gradually improved during that time.
- (14) Independence of the process of assignment of exposures to grades or pools is required for non-retail exposures because the application of human judgement is typically necessary in the process. In the case of retail exposures the assignment process is usually fully automatic, based on objective information about the obligor and his transactions. The correctness of the assignment process is ensured by proper implementation of the rating system in the institution’s IT systems and procedures. Nevertheless if overrides are allowed human judgement has to be applied in the rating process. As a result, and given that people responsible for origination or renewal of exposures are typically inclined to assign better ratings in order to increase sales and volumes of credits, where overrides are used, including in the case of retail exposures,

the assignment should be approved by an individual or by a committee independent from the persons responsible for the origination or renewal of exposures.

- (15) Where ratings are older than 12 months or where the review of the assignment has not been performed in due time according to the institution's policy, conservative adjustments should be performed in terms of the risk weighted assets calculation. The reasons for that are multiple. If the rating is outdated or based on outdated information the risk assessment might not be accurate. In particular, if the situation of the obligor has deteriorated during the last 12 months it is not reflected in the rating, and the risk is underestimated. In addition, according to the general rule related to the estimation of the risk parameters, whenever there is uncertainty related to insufficient data or assumptions, an increased margin of conservatism should be adopted. The same rule should apply to the process of assignment of exposures to grades or pools, i.e. due to insufficient information having been taken into account in the assignment process, an additional margin of conservatism should be adopted in the calculation of risk weights. The method of applying additional margin of conservatism in the calculation of risk weights should not be specified as the institution may adjust either the rating, the risk parameter estimation or the risk weight directly. The adjustment should be proportional to the length of the period during which the rating or the information underlying the rating is out-of-date.
- (16) Article 175(3) of Regulation (EU) No 575/2013 requires institutions to document the specific definitions of default and loss used internally and ensure consistency with the definitions set out in that Regulation. In assessing this consistency each institution should therefore have clear policies that specify when an obligor or facility is classified as being in default. These should be consistent with the general principles regarding default as referred to in Article 178, paragraphs (1) to (3) of that Regulation. These policies should also be embedded into the institutions' risk management processes and systems since Article 144(1)(b) of Regulation (EU) No 575/2013 requires in particular that internal ratings, i.e. including the assignment to a default rating grade, play an essential role in the risk management and other internal processes of an institution.
- (17) The information on the performance of an obligor and on the exposures in default and those not in-default, is the basis for the institution's internal processes, for the quantification of risk parameters and for the calculation of own funds requirements. Therefore not only the identification of defaulted obligors but also the process of reclassification of defaulted obligors to non-defaulted status should be robust and effective. The prudent reclassification process should make sure that obligors are not reclassified to a non-defaulted status where the institution expects that the exposure will probably return to default in a short period of time.
- (18) In order to provide competent authorities with a consistent and accurate overview of the rating systems that the institution has been using as well as their improvement over time, it is necessary for competent authorities to assess the completeness of the register of the current and historical versions of rating systems used by the institution ('register of rating systems'). Given that the requirements of the experience test relate to the preceding three years from the time of consideration of an application for approval of an internal model, and given that there is also the requirement of overall review of the internal model by competent authorities on a regular basis, and at least every 3 years, as referred to in Article 101 of Directive 2013/36/EU, it would be appropriate for competent authorities to verify that such a register of rating systems covers at least the versions of the internal models used by the institution over the three preceding years.

- (19) Human judgement is used at various stages of the development and use of rating systems. Reasonable application of human judgement can increase the quality of the model and the accuracy of its predictions. Nevertheless, since human judgement changes the estimates based on prior experience in a subjective manner, the application of human judgement should be controlled and justified by a positive impact on the accuracy of predictions. Thus, a large number of overrides of the results of the model might indicate that some important information is not included in the rating system. Therefore competent authorities should verify that the number and justifications for overrides is regularly analysed by institutions and that any detected weaknesses of the model are adequately addressed in the model review.
- (20) In all cases the competent authorities should assess whether the institution has adopted sufficient margin of conservatism, as referred to in Article 179(1)(f) of Regulation (EU) No 575/2013. This conservatism should account, in particular, for any identified deficiencies in data or methods used in the risk quantification and increased uncertainty that might result for example from the changes in the lending or recovery policies. The competent authorities should verify that the margin of conservatism is applied irrespective of the requirements of Article 146 of Regulation (EU) No 575/2013, as that Article aims at ensuring that models are corrected in a timely manner to meet the requirements of that Regulation; hence the application of the margin of conservatism should not be used as an alternative to correcting the models and ensuring their full compliance with the requirements of that Regulation.
- (21) It is desirable that the PD estimates are relatively stable over time in order to avoid the excessive cyclical nature of own funds requirements. To achieve that, the PD estimates should be based on the long-run average of yearly default rates. In addition, as the own funds should help institutions survive in a time of stress, the risk estimates should take into account the possible deterioration in the economic conditions even in the times of prosperity. Finally, whenever there is an increased uncertainty that results from insufficient data, an additional margin of conservatism should be adopted. If the length of available time series does not encompass the expected variability of default rates, appropriate methods should be adopted to account for the missing data.
- (22) The LGD estimation is required to be based on the average weighted by the number of defaults, as provided by Article 181(1)(a) of Regulation (EU) No 575/2013. If however the exposure value is a relevant risk driver, it should be considered among other potential risk drivers for the segregation or risk differentiation of LGD in order to ensure that the parameter is calculated for homogenous pools or facility grades. This approach ensures consistency with the calculation of the PD parameter and a meaningful application of the risk weight formula. Regulation (EU) No 575/2013 distinguishes the LGD calculation method at the level of individual exposures for the purpose of risk weighted exposure amounts from the LGD calculated at the portfolio level. Differently from the individual LGD calculation, the LGD floor for exposures secured by immovable property, applied at the overall portfolio level, is defined as an exposure-weighted average LGD.
- (23) Defaulted exposures that, after the return to non-defaulted status, are classified as defaulted again in a short period of time should be treated as constantly defaulted from the first moment when the default occurred, as the temporary reclassification to non-defaulted status is most likely performed on the basis of incomplete information on the real situation of the obligor. As a result the treatment of multiple defaults as one default better represents the real default experience and competent authorities should treat

multiple defaults of the same obligor within a short period of time as one default. Further, the treatment of multiple defaults of the same obligor as separate defaults might lead to significant errors in risk parameter estimates, because higher default rates would lead to higher PD estimates. On the other hand the LGD would be underestimated, because the first defaults of the obligor would be treated as cure cases with no loss related to them, where in fact the institution experienced loss on that obligor; Additionally, due to the relations between PD and LGD estimates and in order to ensure adequate estimation of expected loss, the treatment of multiple defaults should be consistent for the purpose of PD and LGD estimation.

- (24) The scope of information available for the institution with regard to defaulted exposures is significantly different from the performing exposures. In particular, two additional risk drivers are available, namely the time in-default and recoveries realised. Therefore the estimation of LGD at a time before the default is not sufficient, because the risk estimates should take into account all significant risk drivers. Additionally, for defaulted exposures it is already known what the economic conditions were at the moment of default. Further, LGD for defaulted exposures should reflect the sum of expected loss under current economic circumstances and possible unexpected loss that might occur during the recovery period. Therefore competent authorities should verify that LGD in-default is estimated either directly or as a sum of best estimate of expected loss ('ELbe') and an add-on that captures the unexpected loss that might occur during the recovery period. Irrespective of the approach applied the estimation of LGD in-default should take into account the information on the time in-default and recoveries realised so far and consider a possible adverse change in economic conditions during the expected length of the recovery process.
- (25) In the case of institutions using own-LGD estimates internal requirements for collateral management should be generally consistent with requirements of Section 3, Chapter 4, Title II in Part three of Regulation (EU) No 575/2013. Competent authorities should focus in particular on the requirements of collateral valuation and legal certainty. This is because it is important to ensure regular and reliable valuation of collateral, and that the valuation reflects the real market value under current market conditions. The frequency and character of revaluation should be adjusted to the type of collateral, as outdated or inaccurate evaluation might lead to the underestimation of risk related with the credit exposures. It is also crucial to ensure that the collateral is legally effective and enforceable in all relevant jurisdictions. In the contrary case, the exposure should be treated as unsecured; if nevertheless such collateral is recognised in the risk quantification, it may lead to the underestimation of risk.
- (26) For the purpose of the advanced IRB Approach, i.e. where own-LGD estimates are used, eligible guarantors are those that are rated with a rating system approved under the IRB Approach. Other guarantors may also be eligible, provided that they are classified as an institution, a central government or central bank, or a corporate entity that has a credit assessment by an ECAI, and the guarantee meets the requirements set out in Section 3, Chapter 4, Title II in Part three of Regulation (EU) No 575/2013, which are also applicable for the Standardised Approach. The effect of the guarantee may be recognised through the adjustment of PD or LGD estimates. In the case of the guarantors that are internally rated with a rating system approved under the IRB Approach the effect of the guarantee can alternatively be recognised by applying Article 153(3) of Regulation (EU) No 575/2013. Such an approach towards the eligibility of the guarantors is prudent and ensures that the quality of the guarantee and

the guarantor is properly assessed in order to include it in the risk estimates for the purpose of the calculation of own funds requirements.

- (27) In the assessment of the process of assignment of exposures to exposure classes, competent authorities should focus on the assignment of exposures to retail exposures because of their preferential treatment in terms of risk weighted exposure amounts calculation.
- (28) Some exposure classes are defined on the basis of the characteristics of the transaction and others on the basis of the type of obligor; as a result, there might be exposures that fulfil the criteria of more than one exposure classes. Therefore there is a need for competent authorities to verify that the institution applies the correct sequencing in order to ensure the consistent and unequivocal assignment of exposures to exposure classes.
- (29) The results of the stress tests should be taken into account in the decision making process in the area of risk and capital management processes, because the integration of the stress tests results in the decision making processes ensures that the scenarios and their impact on own funds requirements are developed and performed in a meaningful manner and that forward-looking aspects of own funds requirements are taken into account in managing the institution.
- (30) Institutions that use own-LGD and own conversion factors estimates should calculate effective maturity of the exposures under the IRB Approach for the purpose of the calculation of own funds requirements. In the case of revolving exposures, an institution is at risk for a longer period than the repayment date of the current drawing, given that the borrower may redraw additional amounts. Therefore, competent authorities should verify that the calculation of effective maturity of revolving exposures is based on the expiry date of the facility.
- (31) The calculation of the difference between expected loss amounts and credit risk adjustments, additional value adjustments and other own funds reductions ('IRB shortfall') in line with Article 159 of Regulation (EU) No 575/2013 should be performed on an aggregate level separately for the portfolio of defaulted exposures and the portfolio of exposures that are not in default. The separation between defaulted and non-defaulted exposures is necessary in order to ensure that the negative amounts resulting from the calculation performed for the defaulted portfolio are not used to offset the positive amounts resulting from the calculation performed for the portfolio of exposures that are not in default. Apart from that the overall calculation is in line with the general concept of own funds, according to which the own funds should be fully available to cover unexpected losses in case of insolvency of the institution. Since the amounts of credit risk adjustments, additional value adjustments and other own funds reductions included in the calculation of IRB shortfall have already been deducted from own funds to cover the expected losses ('EL'), their excess part on the total EL is fully available to cover losses identified on all defaulted exposures. Therefore only the overall IRB shortfall, where the amount of provisions does not fully cover the EL of defaulted exposures, should be deducted from the own funds.
- (32) Unreliable, inaccurate, incomplete or outdated data may lead to errors in the risk estimation and in the calculation of own funds requirements. Further, when used in the risk management processes of the institution such data may also lead to wrong credit and management decisions. Consequently, in order to ensure reliability and high quality of data the infrastructure related to gathering and storing of data as well as the

relevant procedures have to be well documented, and there needs to be a full description of the characteristics and the sources of data in order to ensure their proper use in the internal processes and the processes for the calculation of own funds requirements. Hence competent authorities, in the assessment of the IRB Approach, should put particular attention to the quality and documentation of data used in the process of the development of rating systems, in the assignment of exposures to grades or pools and in the calculation of own funds requirements.

- (33) The quality of data and the correctness of risk estimation and of calculation of own funds requirements are highly dependent on the reliability of the IT systems used for the purpose of the IRB Approach. Further, the continuity and consistency of the risk management processes and the calculation of own funds requirements can only be ensured when the IT systems used for those purposes are safe, secure and reliable and the IT infrastructure is sufficiently robust. As a consequence, it is necessary that, in the course of the assessment of the IRB Approach, competent authorities also verify the reliability of the institution's IT systems and the robustness of the IT infrastructure.
- (34) As far as possible non-overlapping observations of returns on equity exposures should be used both for the purpose of development as well as for the validation of internal models for equity exposures. This is because non-overlapping observations ensure higher quality of predictions, given that all observations are assigned the same weight and the observations are not closely correlated to each other.
- (35) The use of the IRB Approach requires approval of the competent authorities and similarly any material changes to that approach have to be approved. As a result, competent authorities should verify that internal process of management and in particular approval of changes ensure that only the changes of good quality are implemented and, in that context, that the classification of changes is consistent in order to avoid any arbitrage.
- (36) The provisions in this Regulation are closely linked, since they all deal with aspects of the assessment methodology that competent authorities are to follow in assessing the compliance of an institution with the IRB Approach. To ensure coherence between those provisions, which should enter into force at the same time, and to facilitate a comprehensive view and compact access to them by persons subject to those obligations, it is desirable to include all of the regulatory technical standards required by Regulation (EU) No 575/2013 in a single Regulation.
- (37) This Regulation is based on the draft regulatory technical standards submitted by the European Banking Authority to the Commission.
- (38) The European Banking Authority has conducted open public consultations on the draft regulatory technical standards on which this Regulation is based, analysed the potential related costs and benefits and requested the opinion of the Banking Stakeholder Group established in accordance with Article 37 of Regulation (EU) No 1093/2010 of the European Parliament and of the Council⁷,

⁷ Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC (OJ L 331, 15.12.2010, p. 12).

HAS ADOPTED THIS REGULATION:

CHAPTER 1

General rules for the assessment methodology

Article 1

Scope of assessment criteria to be applied by competent authorities

Competent authorities shall apply the relevant provisions of this Regulation for the assessment of the compliance of an institution with the requirements to use the Internal Ratings Based Approach ('IRB Approach') referred to in Articles 144(2), 173(3) and 180(3)(b) of Regulation (EU) No 575/2013, in accordance with the nature of the elements to be assessed and in particular in accordance with the following:

- (a) in the course of the assessment of an initial application for the IRB Approach, competent authorities shall apply all of the Chapters of this Regulation;
- (b) where an institution requests the permission to extend the IRB Approach in accordance with the approved sequential implementation plan, competent authorities shall apply only those parts of this Regulation that are relevant to the scope of the request for permission, including in any case, all of the following: Chapter 4 on use test and experience test; Chapter 5 on assignment of exposures to grades or pools; Chapter 7 on rating systems design, operational details and documentation; and Chapter 8 on risk quantification;
- (c) in the course of the assessment of extensions and changes to the IRB Approach, according to Article 143(3) and (4) of Regulation (EU) No 575/2013, competent authorities shall apply all parts of this Regulation that are relevant with regard to the scope of the model change;
- (d) in the course of the ongoing review of the IRB Approach, as required in accordance with Article 101 of Directive 2013/36/EU of 26 June 2013⁸, competent authorities shall decide the scope of the assessment taking into account all particularities of the rating systems and relevant external factors and shall apply all parts of this Regulation that are relevant to the scope of the assessment;
- (e) in the course of the assessment of the application of an institution to return to the use of less sophisticated approaches in accordance with Article 149 of Regulation (EU) No 575/2013, for the purpose of Article 149(3) of this Regulation competent authorities shall apply Chapter 2 on roll-out plans and permanent partial use of Standardised Approach.

Article 2

Scope of methods to be applied by competent authorities

1. In the course of the assessment of an initial application for the IRB Approach and of a request to extend the IRB Approach in accordance with the approved sequential implementation plan, competent authorities shall apply the methods referred to in

⁸ Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (OJ L 176, 27.6.2013, p.338).

each relevant Chapter as compulsory ('core methods'). Competent authorities may also apply the other methods defined in each relevant Chapter ('additional methods'), as well as any other tests and verifications. Competent authorities shall apply such additional methods, other tests and verifications, to the extent appropriate and based on whether they are relevant to the nature, size and degree of complexity of the institution's business and organisational structure, and in particular taking into account:

- (a) the materiality of the types of exposures covered by rating systems;
 - (b) the complexity of the rating models and risk parameters and their implementation.
2. In the course of the assessment of extensions and changes to the IRB Approach, according to Article 143(3) and (4) of Regulation (EU) No 575/2013, competent authorities shall at least review the documents required to be submitted by institutions in accordance with the scope of the change as defined in Article 8 of Commission Delegated Regulation (EU) No 529/2014 of 12 March 2014.
 3. In the course of the regular review of the IRB Approach, as required in accordance with Article 101 of Directive 2013/36/EU of 26 June 2013, competent authorities shall apply those methods, from among the core and additional methods described in each relevant Chapter, which are more appropriate, based on the same considerations as those referred to in points (a) and (b) of paragraph 1.
 4. In the course of the assessment of the application of an institution to return to the use of less sophisticated approaches in accordance with Article 149 of Regulation (EU) No 575/2013, competent authorities shall apply those methods, from among the core and additional methods described in Chapter 2, which are more appropriate, based on the same considerations as those referred to in points (a) and (b) of paragraph 1.
 5. In order to apply the core and additional methods referred to in paragraph 1, competent authorities may take into account the results from recent assessments made by competent authorities, where all of the following conditions are met:
 - (a) the assessment was based at least on the core methods;
 - (b) the assessment was made for a similar rating system in the same class of exposures.

Article 3

Quality and auditability of documentation

1. In the course of the assessment referred to in Article 1, in order to verify compliance of the institution with the documentation requirement set out in point (e) of Article 144(1) of Regulation (EU) No 575/2013, competent authorities shall verify that the documentation on the rating systems as defined in point (1) of Article 142(1) of Regulation (EU) No 575/2013 meet the requirements of paragraphs 2 and 3 with regard to their quality and auditability, respectively.
2. In assessing the quality of the documentation referred to in paragraph 1, competent authorities shall verify that the documentation has been produced in a manner that ensures it is sufficiently detailed and accurate in order to allow it to be efficiently used and shall, in particular, verify that:

- (a) the documentation is approved at the appropriate management level of the institution;
 - (b) the institution has in place policies outlining specific standards to ensure sufficiently detailed and accurate internal documentation, and that the specific persons or units are assigned for ensuring that the documentation maintained is complete, consistent, accurate, updated, approved as appropriate and secure;
 - (c) the documentation contains, with regard to each document, at least the following information:
 - (i) type of document;
 - (ii) author;
 - (iii) reviewer;
 - (iv) authorising agent and owner;
 - (v) dates of development and approval;
 - (vi) version number;
 - (vii) history of changes to the document;
 - (d) the institution adequately documents its policies, procedures and methodologies related to the application of the IRB Approach.
3. For the purposes of this article, to assess the auditability of documentation as referred to in paragraph 1, competent authorities shall verify that the documentation has been produced in a manner that allows third parties to examine and confirm the functioning of the rating systems and shall, in particular, verify that:
- (e) the documentation of the rating system design is sufficiently detailed to allow third parties to understand the reasoning, including the assumptions, mathematical formulas and decisions where human judgement is involved, as well as the procedures underlying the development of the rating system;
 - (f) the documentation of the rating system is sufficiently detailed to allow third parties to understand the operation of each rating model and risk parameter and its limitations and key assumptions and to replicate the model development;
 - (g) the documentation of the rating process is sufficiently detailed to allow third parties to understand the method for and the actual assignment of exposures to grades or pools and to replicate the grade or pool assignment.

Article 4
Third party involvement

- 1. Where an institution has delegated tasks, activities or functions related to the design, implementation and validation of its rating systems to a third party, or has purchased a rating system or pooled data from a third party, competent authorities shall verify that that delegation or purchase does not hinder the application of the methodology referred to in this Regulation.
- 2. For the purpose of paragraph 1, competent authorities shall verify in particular that:
 - (a) the senior management as well as the management body or the committee designated by it are actively involved in the supervision and decision making

- over the tasks, activities or functions delegated to a third party and over the rating systems obtained from third parties;
- (b) the institution's own staff has sufficient knowledge and understanding of the tasks, activities or functions delegated to third parties and of the structure of data and rating systems obtained from a third party;
 - (c) continuity of the outsourced functions or processes is ensured, including by means of appropriate contingency planning;
 - (d) internal audit or other control of the tasks, activities and functions delegated to third parties is not limited or inhibited by the involvement of the third party;
 - (e) full access is granted to competent authorities to all relevant information.
3. Where a third party is involved in the tasks of developing a rating system and risk estimation for an institution, in addition to the requirements laid down in paragraph 2 competent authorities shall verify that the validation activities with regard to those rating systems and those risk estimates are not performed by that third party. However, the third party may provide the institution with the information necessary for those validation activities.
- Where, for the purpose of developing a rating system and risk estimation, the institution uses data that is pooled across institutions and a third party is developing the rating system, the third party may assist the institution in its validation activities by performing those tasks of validation which require access to the pooled data.
4. For the purpose of applying paragraphs 1 to 3, competent authorities shall apply all of the following core methods:
- (a) review the agreements with the third party and other relevant documents which specify the tasks of the third party;
 - (b) obtain written statements or interview the relevant staff and senior management or the management body or the committee of the institution designated by the management body or the third party to whom the task, activity or function is delegated.
5. For the purpose of applying paragraphs 1 to 3, competent authorities may also apply the additional method of reviewing other relevant documents of the institution or of the third party.

Article 5

Temporary non-compliance with the requirements of the IRB Approach

For the purposes of Article 146 of Regulation (EU) No 575/2013, and where the institution does not manage to demonstrate to the satisfaction of competent authorities that the effect of non-compliance is immaterial in accordance with point (b) of that Article, competent authorities, in the context of assessing the fulfilment of the conditions of point (a) of that Article, shall in particular:

- (a) review the institution's plan to return to compliance, in particular assess whether the planned measures are sufficient to remedy the non-compliance and the time schedule is reasonable taking into account the materiality of the non-compliance, the extent of the measures required to return to compliance and the resources available to the institution;

- (b) confirm their agreement with the plan referred to in point (a) or propose and agree with the institution an alternative appropriate plan for return to compliance;
- (c) monitor on a regular basis the progress in the realisation of the institution's plan to return to compliance;
- (d) after the implementation of the plan verify the institution's compliance with the relevant requirements by applying this Regulation in the scope relevant to the scope of previous non-compliance.

CHAPTER 2

Assessment methodology of roll-out plans and permanent partial use of Standardised Approach

Article 6 *General*

1. In order to assess compliance of an institution with the requirements on the implementation of the IRB Approach in accordance with Articles 148 and 150 of Regulation (EU) No 575/2013, competent authorities shall verify in particular both of the following:
 - (a) the institution's initial coverage and plan for sequential implementation of the IRB Approach, according to Article 7;
 - (b) that the exposure classes, types of exposures or business units where the Standardised Approach is applied are eligible for permanent exemption from the IRB Approach, according to Article 8.
2. For the purposes of paragraph 1 competent authorities shall apply all of the following core methods:
 - (a) review the institution's relevant internal policies and procedures, including the calculation methods for the share of exposures to be covered by the sequential implementation of the IRB Approach and the permanent exemption from the IRB Approach;
 - (b) review the roles and responsibilities of the units and management bodies involved in the assignment of particular exposures to the IRB or the Standardised Approach;
 - (c) review the relevant minutes of the institution's internal bodies, including the management body, or other committees;
 - (d) review the relevant findings of the internal audit or of other control functions of the institution;
 - (e) review the relevant progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during audits;
 - (f) obtain written statements or interview the relevant staff and senior management of the institution.

3. For the purposes of paragraph 1, competent authorities may also apply any of the following additional methods:
 - (a) review the functional documentation of the IT systems used in the process of the assignment of particular exposures to the IRB or the Standardised Approach;
 - (b) conduct sample testing and review documents related to the characteristics of the obligors and to the origination and maintenance of the exposures included in the sample;
 - (c) review other relevant documents of the institution.

Article 7

Sequential implementation of the IRB Approach

1. In assessing the initial coverage and the institution's plan for sequential implementation of the IRB Approach as referred to in Article 6(1)(a), competent authorities shall verify that:
 - (a) the plan covers at least the following:
 - (i) a specification of the scope of application of the rating systems, as well as of the types of exposures which are rated using each rating model;
 - (ii) the planned dates of application of the IRB Approach with regard to each type of exposures;
 - (iii) information on the current total exposure values and risk weighted exposure amounts calculated in accordance with the approach currently applied to each type of exposures;
 - (b) the plan comprises all exposures of the institution, or, where applicable, its parent undertaking, and all exposures of the subsidiaries of the institution unless the exposures are assessed in accordance with Article 8;
 - (c) the implementation is planned to be performed in accordance with the second and third subparagraphs of Article 148(1) of Regulation (EU) No 575/2013;
 - (d) where the institution is permitted to use the IRB Approach for any exposure class, that it uses the IRB Approach for equity exposures except for the cases specified in Article 148(5) of Regulation (EU) No 575/2013;
 - (e) the sequence and time periods of the implementation of the IRB Approach are specified on the basis of the real capabilities of the institution, having regard to the availability of data, rating systems and experience periods as referred to in Article 145 of Regulation (EU) No 575/2013 and are not used selectively for the purpose of achieving reduced own funds requirements;
 - (f) the sequence of the implementation of the IRB Approach ensures that implementation with regard to the credit exposures related to the institution's core business is given priority;
 - (g) a definite time period for the implementation of the IRB Approach is identified for each type of exposures and business units and is reasonable on the basis of the nature and scale of the institution's activities.

2. Whether the time period referred to in point (g) of paragraph 1, is reasonable, shall be determined based on all of the following considerations:
 - (a) the complexity of the institution's operations, including those of the parent undertaking and its subsidiaries;
 - (b) the number of business units and business lines within the institution and its subsidiaries, or, where applicable, within its parent undertaking and its subsidiaries;
 - (c) the number and complexity of the rating systems to be implemented by the institution and its subsidiaries, or, where applicable, within its parent undertaking and its subsidiaries;
 - (d) the plans to implement rating systems in subsidiaries located in third countries where significant legal or other difficulties for the approval of IRB models exist;
 - (e) the availability of accurate, appropriate and complete time series;
 - (f) the institution's operational capability to develop and implement the rating systems;
 - (g) the institution's prior experience in specific types of exposures.
3. In the course of their regular assessment of the institution's compliance with the plan for sequential implementation of the IRB Approach, which has been subject to permission of the competent authorities in accordance with Article 148 of Regulation (EU) No 575/2013, competent authorities may approve any changes to the sequence and time period only where any of the following conditions is met:
 - (a) there are significant changes in the business environment and in particular changes in strategy, mergers and acquisitions;
 - (b) there are significant changes in the relevant regulatory requirements;
 - (c) material weaknesses in rating systems have been identified by the competent authority, internal audit or validation function;
 - (d) there are significant changes to the aspects referred to in paragraph 2, or any of the aspects referred to in paragraph 2 were not taken into account adequately in the plan for sequential implementation of the IRB Approach which was approved.

Article 8

Conditions for permanent partial use

1. In assessing the institution's compliance with the conditions for permanent partial use of the Standardised Approach as referred to in Article 6(1)(b), competent authorities shall verify in particular the conditions of paragraphs 2 to 4.
2. For the purpose of paragraph 1, and in relation to points (a) and (b) of Article 150(1) of Regulation (EU) No 575/2013, competent authorities shall verify in particular that:
 - (a) the availability of external data for representative counterparties is assessed and taken into account by the institution;

- (b) the cost to the institution of developing a rating system for the counterparties in the relevant exposure class is assessed in relation to the size of the institution and the nature and scale of its activities;
 - (c) the operational capability of the institution to develop and implement a rating system is assessed in relation to the nature and scale of the institution's activity.
3. For the purpose of paragraph 1, and in relation to point (c) of Article 150(1) of Regulation (EU) No 575/2013, competent authorities shall verify in particular that the institution has assessed and taken into account at least one of the following:
- (a) that the exposures, including the number of separately managed portfolios and business lines are not homogenous enough to allow the development of a robust and reliable rating system;
 - (b) that the risk weighted exposure amount calculated in accordance with the Standardised Approach is significantly higher than the expected risk weighted exposure amount calculated in accordance with the IRB Approach;
 - (c) that the exposures relate to a business unit of the institution which is planned to be discontinued;
 - (d) that the exposures include portfolios subject to proportional consolidation of partly-owned subsidiaries, in accordance with Article 18 of Regulation (EU) No 575/2013.
4. Competent authorities shall verify that the institution implements procedures for regular monitoring of compliance with the requirements of Article 150 of Regulation (EU) No 575/2013.

CHAPTER 3

Assessment methodology of the function of validation of internal estimates and of the internal governance and oversight of an institution

SECTION 1

GENERAL PROVISIONS

Article 9 *General*

1. In order to assess whether an institution is compliant with the requirements on internal governance, including requirements on senior management and management body, internal reporting, credit risk control and internal audit, oversight and validation, as referred to in Articles 144(1)(c) and (f) of Regulation (EU) No 575/2013, competent authorities shall verify all of the following:
- (a) the robustness of the arrangements, mechanisms and processes of validation of rating systems of an institution and the appropriateness of the personnel responsible for the performance of the validation ('validation function') as

referred to in Articles 174(d), 185 and 188 of Regulation (EU) No 575/2013, in accordance with Section 2, and more in particular:

- (i) the independence of the validation function, in accordance with Article 10;
 - (ii) the completeness of the validation process, also in terms of frequency, in accordance with Article 11;
 - (iii) the adequacy of the validation methods and procedures, in accordance with Article 12;
 - (iv) the soundness of the reporting process and the process for addressing the validation conclusions and recommendations in accordance with Article 13;
 - (b) the internal governance and oversight of the institution, including the credit risk control unit and the internal audit of the institution, as referred to in Articles 189 to 191 of Regulation (EU) No 575/2013 in accordance with Section 3, and more in particular:
 - (i) the role of senior management and management body, in accordance with Article 14;
 - (ii) the internal reporting, in accordance with Article 15;
 - (iii) the credit risk control unit, in accordance with Article 16;
 - (iv) the internal audit, in accordance with Article 17.
2. For the purposes of paragraph 1, competent authorities shall apply all of the following core methods:
- (a) review the institution's relevant internal policies and procedures;
 - (b) review the relevant minutes of the institution's internal bodies, including the management body, or other committees;
 - (c) review the relevant reports relating to the rating systems, as well as any conclusions and decisions taken on the basis of those reports;
 - (d) review the relevant reports on the activities of all functions referred to in paragraph 1 prepared by the staff responsible for each of those functions or by any other control function of the institution, as well as their conclusions and recommendations;
 - (e) obtain written statements or interview the relevant staff and senior management of the institution.
3. For the assessment of the validation function, referred to in paragraph 1(a), in addition to the methods referred to in paragraph 2, competent authorities shall apply all of the following core methods:
- (a) review the roles and responsibilities of all staff involved in the validation function;
 - (b) review the adequacy and appropriateness of the annual validation work plan;
 - (c) review the validation manuals used by the validation function;

- (d) review the process of categorization of the findings and the relevant recommendations in accordance with their materiality;
 - (e) review the consistency of the conclusions, findings and recommendations of the validation function;
 - (f) review the role of the validation function in the internal approval procedure of rating systems and all related changes;
 - (g) review the action plan of each relevant recommendation, also in terms of its follow-up, as approved by the appropriate management level.
4. For the assessment of the credit risk control unit, referred to in paragraph 1(b)(iii), in addition to the requirements referred to in paragraph 2, competent authorities shall apply all of the following core methods:
- (a) review the roles and responsibilities of all relevant staff and senior management of the credit risk control unit;
 - (b) review the relevant reports submitted by the credit risk control unit and the senior management, to the management body or to the designated committee thereof.
5. For the assessment of the internal audit or any other comparable independent auditing unit, referred to in paragraph 1(b)(iv), in addition to the requirements referred to in paragraph 2, competent authorities shall apply all of the following core methods:
- (a) review the relevant roles and responsibilities of all relevant staff involved in the internal audit;
 - (b) review the adequacy and appropriateness of the annual internal audit work plan;
 - (c) review the relevant auditing manuals, the relevant work programs, the findings and the recommendations included in the relevant audit reports;
 - (d) review the action plan of each relevant recommendation, also in terms of its follow-up, as approved by the appropriate management level.

SECTION 2

METHODOLOGY FOR ASSESSING THE VALIDATION FUNCTION

Article 10

Independence of the validation function

1. In assessing the independence of the validation function as referred to in Article 9(1)(a)(i), competent authorities shall verify that both of the following conditions are met:
 - (a) that the unit responsible for the validation function is independent from the personnel and management function responsible for originating or renewing exposures and for the model design or development;
 - (b) that the validation function reports directly to senior management.
2. Where the unit responsible for the validation function is organisationally separate from the credit risk control unit and both units report to different members of the senior management, then competent authorities shall verify, in particular both of the following:

- (a) that the validation function has at its disposal adequate resources, including experienced and qualified personnel to perform its tasks;
 - (b) that the remuneration of the staff and senior managers responsible for the validation function is not linked to the performance of the tasks relating to credit risk control and to originating or renewing exposures.
- 3. Where the unit responsible for the validation function is organisationally separate from the credit risk control unit but both units report to the same member of the senior management, competent authorities shall verify in particular all of the following:
 - (a) that the validation function has at its disposal adequate resources, including experienced and qualified personnel to perform its tasks;
 - (b) that the remuneration of the staff and senior managers responsible for the validation function is not linked to the performance of the tasks relating to credit risk control and to originating or renewing exposures;
 - (c) that there is a decision-making process in place to ensure that the conclusions, findings and recommendations of the validation function are properly taken into account by the senior management of the institution;
 - (d) that no undue influence is exercised on the validation conclusions;
 - (e) that all necessary corrective measures are decided and implemented in a timely manner;
 - (f) that internal audit regularly assesses the fulfilment of the conditions referred to in points (a) to (e).
- 4. Where no separate validation unit exists, but the staff performing the validation function is different from the staff responsible for the design and development of the rating system, and from the staff responsible for the credit risk control function, competent authorities shall, verify in particular all of the following:
 - (a) that the validation function has at its disposal adequate resources, including experienced and qualified personnel to perform its tasks;
 - (b) that the remuneration of the staff and senior managers responsible for the validation function is not linked to the performance of the tasks relating to credit risk control and to originating or renewing exposures;
 - (c) that there is a decision-making process in place to ensure that the conclusions, findings and recommendations of the validation function are properly taken into account by the senior management of the institution;
 - (d) that no undue influence is exercised on the validation conclusions;
 - (e) that all necessary corrective measures are decided and implemented in a timely manner;
 - (f) that internal audit regularly assesses the fulfilment of the conditions referred to in points (a) to (e);
 - (g) that there is effective separation between the staff performing the validation function and the staff performing the other tasks;

- (h) that the institution is not a global or other systemically important institution in the meaning of Article 131 of Directive 2013/36/EU.
5. In performing the assessment of the independence of the validation function, competent authorities shall also assess whether the choice of the institution with regard to their organisational options among those referred to in paragraphs 2 to 4 is adequate, taking into account the nature, size and scale of the institution and the complexity of the risks inherent in its business model.

Article 11

Frequency and completeness of the validation process

1. In assessing the completeness of the validation function as referred to in Article 9(1)(a)(ii) competent authorities shall verify that:
- (a) the institution has defined and documented a complete validation process for all rating systems;
 - (b) the institution performs the validation process referred to in point (a) with an adequate frequency.
2. In assessing the completeness of the validation process as referred to in paragraph 1(a), competent authorities shall verify that the validation function:
- (a) critically reviews all the aspects of the specification of the internal ratings and risk parameters, including the procedures for data collection and data cleansing, the choices of the methodology and model structure, and the process for the selection of the variables;
 - (b) verifies the adequacy of the implementation of internal ratings and risk parameters in IT systems and that grade and pool definitions are consistently applied across departments and geographic areas of the institution;
 - (c) verifies the performance taking into account at least risk differentiation and quantification and the stability of the internal ratings and risk parameters and the model specifications;
 - (d) verifies all changes related to internal ratings and risk parameters and their materiality in accordance with the relevant provisions of Delegated Regulation (EU) No 529/2014 and, in particular, that it consistently follows up on its own conclusions and recommendations.
3. In assessing the frequency of the validation process as referred to in paragraph 1(b), competent authorities shall verify that the validation process is performed regularly for all rating systems of the institution following an annual work plan and, more in particular, that:
- (a) for all rating systems the process referred to in point (b) of Article 185 of Regulation (EU) No 575/2013 ('backtesting') is performed at least once annually;
 - (b) for the rating systems covering material types of exposures, the performance of the rating systems as referred to in point (c) of paragraph 2, takes place at least once annually.

4. Where an institution applies for permission to use the internal ratings and risk parameters of a rating system or for any material changes to internal ratings and risk parameters of a rating system, competent authorities shall verify that the institution performs the validation referred to in points (a) to (c) of paragraph 2 before the rating system is used for the calculation of own funds requirements and for internal risk management purposes.

Article 12

Adequacy of the methods and procedures of the validation function

In assessing the adequacy of the validation function methods and procedures as referred to in Article 9(1)(a)(iii), competent authorities shall verify that validation methods and procedures of the institution allow for a consistent and meaningful assessment of the performance of the internal rating and risk estimates as required by Article 185 of Regulation (EU) No 575/2013, and more in particular by verifying that:

- (a) the validation methods and procedures are appropriate for assessing the accuracy and consistency of the rating system;
- (b) the validation methods and procedures are appropriate to the nature, degree of complexity and scope of application of the institution's rating systems and data availability;
- (c) the validation methods and procedures clearly specify the validation objectives, standards and limitations, a description of all validation tests and datasets, as well as data cleansing, data sources and reference time periods, and the fixed targets and tolerances for defined metrics, which may be different for the initial and regular validation;
- (d) the validation methods, in particular the tests performed, the reference dataset used for the validation and the respective data cleansing are applied consistently over time;
- (e) the validation methods include back-testing and benchmarking as referred to in points (b) and (c), respectively, of Article 185 of Regulation (EU) No 575/2013;
- (f) the validation methods take account of the way business cycles and the related systematic variability in default experience are considered in the internal ratings and risk parameters, especially regarding PD estimation.

Article 13

Soundness of the reporting process and the process to address the validation conclusions, findings and recommendations

In assessing the soundness of the reporting process and the process to address the validation conclusions, findings and recommendations, as referred to in Article 9(1)(a)(iv), competent authorities shall verify, in particular, that:

- (a) the validation reports identify and describe the validation methods used, the tests performed, the reference dataset used and the respective data cleansing processes and include the results of those tests, the conclusions, the findings and the relevant recommendations;

- (b) the conclusions and recommendations of the validation reports are directly communicated to senior management and to the management body of the institution or to the committee designated by it;
- (c) the conclusions and recommendations of the validation report are reflected in changes and improvements in the design of internal ratings and risk estimates, including in the situations referred to in the first sentence of point (e) of Article 185 of Regulation (EU) No 575/2013;
- (d) the decision making process of the institution takes place at the appropriate management level.

SECTION 3

METHODOLOGY FOR ASSESSING INTERNAL GOVERNANCE AND OVERSIGHT

Article 14

Senior management and management body

In assessing the soundness of the institution's internal governance as referred to in Article 9(1)(b)(i), competent authorities shall verify in particular that:

- (a) the decision-making process of the institution, its hierarchy, reporting lines and levels of responsibility, are clearly laid down in the internal documentation of the institution and consistently reflected in the minutes of its internal bodies;
- (b) both the management body or the committee designated by it and the senior management approve at least all of the following material aspects of the rating systems:
 - (i) all relevant policies related to the design and implementation of rating systems and application of the IRB Approach, including the policies related to all material aspects of the rating assignment and risk parameter estimation and validation processes;
 - (ii) all relevant risk management policies including those related to IT infrastructure and contingency planning;
 - (iii) the risk parameters of all rating systems used in internal risk management processes and in the calculation of own funds requirements;
- (c) the management body or the committee designated by it sets the appropriate organisational structure for the sound implementation of the rating systems by way of a formal decision;
- (d) the management body or the committee designated by it approves by way of a formal decision the specification of the acceptable level of risk, taking into account the internal rating system scheme of the institution;
- (e) the senior management has a good understanding of all rating systems of the institution, of their design and operation, the requirements for the IRB Approach and the institution's approach to meeting those requirements;
- (f) the senior management provides notice to the management body or the committee designated by it, of material changes to or exceptions from

established policies that materially impact the operations of the institution's rating systems;

- (g) the senior management is in a position to ensure on an ongoing basis the good functioning of the rating systems;
- (h) the senior management takes relevant measures where weaknesses of the rating systems are identified by the credit risk control, the validation, the internal audit or any other control function.

Article 15
Internal reporting

In assessing the adequacy of the internal reporting as referred to in Article 9(1)(b)(ii), competent authorities shall, in particular, verify that:

- (a) the internal reporting includes all of the following:
 - (i) a risk profile of the obligors or exposures, by grade;
 - (ii) the migration across grades;
 - (iii) an estimation of the relevant parameters per grade;
 - (iv) a comparison of realised default rates, and, to the extent that own estimates are used, of realised LGDs and realised conversion factors against expectations;
 - (v) stress test assumptions and results;
 - (vi) information about the performance of the rating process, areas needing improvement and the status of efforts to improve previously identified deficiencies of the rating systems;
 - (vii) validation reports;
- (b) the form and the frequency of internal reporting correspond to the significance and type of the information and to the level of recipient, taking into account the institution's organizational structure;
- (c) the internal reporting facilitates the senior management's monitoring of the credit risk in the overall portfolio of exposures covered by the IRB Approach;
- (d) the internal reporting is proportionate to the nature, size, and degree of complexity of the institution's business and organizational structure.

Article 16
Credit risk control unit

1. In assessing the internal governance and oversight of the institution in relation to the credit risk control unit, as referred to in Article 9(1)(b)(iii), competent authorities shall verify in particular that:
 - (a) the credit risk control unit or units are separate and independent from the personnel and management functions responsible for originating or renewing exposures;

- (b) the credit risk control unit or units are adequate and functional for the purposes of performing their tasks.
2. In the course of the assessment referred to in paragraph 1(a), competent authorities shall verify in particular that:
- (a) the credit risk control unit or units are one or more distinct organisational structures within the institution;
 - (b) the head or heads of the credit risk control unit or units are part of the senior management as defined in point (9) of Article 3(1) of Directive 2013/36/EU taking into account the principles set out in Article 76(5) of that Directive;
 - (c) the staff and the senior management responsible for the credit risk control unit or units are not responsible for originating or renewing exposures;
 - (d) senior managers of the credit risk control unit or units and of units responsible for originating or renewing exposures report to different members of the management body of the institution or the committee designated by it;
 - (e) the remuneration of the staff and senior management responsible for the credit risk control unit or units is not linked to the performance of the tasks relating to originating or renewing exposures.
3. In the course of the assessment referred to in paragraph 1(b), competent authorities shall verify, in particular, that:
- (a) the credit risk control unit or units are proportionate to the nature, size and degree of complexity of the institution's business and organizational structure, and in particular to the complexity of the rating systems and their implementation;
 - (b) the credit risk control unit or units have adequate resources, and experienced and qualified personnel to undertake all relevant activities;
 - (c) the credit risk control unit or units are responsible for the design or selection, implementation and oversight and the performance of the rating systems, as referred to in the second sentence of Article 190(1) of Regulation (EU) No 575/2013 and the areas of responsibility referred to in Article 190(2) of that Regulation;
 - (d) the credit risk control unit or units regularly inform the senior management about the performance of the rating systems, areas needing improvement, and the status of efforts to improve previously identified deficiencies.

Article 17
Internal audit

4. In assessing the internal governance and oversight of the institution in relation to the internal audit or another comparable independent auditing unit, as referred to in Article 9(1)(b)(iv), competent authorities shall verify in particular that:
- (a) the internal audit or another comparable independent auditing unit reviews at least annually all rating systems of the institution as defined in Article 142(1) of Regulation (EU) No 575/2013 and the operations of the credit risk control function, credit approval process and internal validation function;

- (b) the review referred to in point (a) facilitates the specification in the annual work plan of areas that require a detailed review of compliance with all applicable requirements laid down in Chapter 3, Title II, Part three of Regulation (EU) No 575/2013;
 - (c) the internal audit or another comparable independent auditing unit are adequate and functional for performing their tasks.
5. In the course of the assessment of paragraph 1(c), competent authorities shall verify in particular that:
- (a) the internal audit or another comparable independent auditing unit provide sufficient information to the senior management and the management body of the institution on the compliance of the rating systems with all applicable requirements for the IRB Approach;
 - (b) the internal audit or another comparable independent auditing unit is proportionate to the nature, size and degree of complexity of the institution's business and organizational structure, and in particular to the complexity of the rating systems and their implementation;
 - (c) the internal audit or another comparable independent auditing unit has adequate resources, and experienced and qualified personnel to undertake all relevant activities;
 - (d) the internal audit or other comparable independent auditing unit is not involved in any aspect of the operation of the rating systems which it reviews in accordance with paragraph 1(a);
 - (e) the internal audit or another comparable independent auditing unit is independent from the personnel and management responsible for originating or renewing exposures and report directly to senior management;
 - (f) the remuneration of the staff and senior management responsible for the internal audit function is not linked to the performance of the tasks relating to originating or renewing exposures.

CHAPTER 4

Assessment methodology of use test and experience test

Article 18 *General*

1. In order to assess whether an institution is compliant with the requirements on the use of rating systems, as referred to in Articles 144(1)(b), 145, 171(1)(c), 172(1)(a), 172(1)(b), 172(1)(c), 172(2) and 175(3) of Regulation (EU) No 575/2013, competent authorities shall verify, in particular, that:
 - (a) internal ratings and default and loss estimates of the rating systems used in the calculation of own funds play an essential role in the risk management, credit approval and decision making process in accordance with Article 19;
 - (b) internal ratings and default and loss estimates of the rating systems used in the calculation of own funds play an essential role in the process of the internal capital allocation in accordance with Article 20;
 - (c) internal ratings and default and loss estimates of the rating systems used in the calculation of own funds play an essential role in the corporate governance functions in accordance with Article 21;
 - (d) data and estimates used by the institution for the calculation of own funds and those used for internal purposes are consistent, and that, where discrepancies exist, these are fully documented and reasonable;
 - (e) rating systems broadly in line with the requirements set out in Part Three, Title II, Chapter 3, Section 6 of Regulation (EU) No 575/2013 have been applied by the institution at least three years prior to the use of the IRB Approach, as set out in Article 145 of Regulation (EU) No 575/2013, in accordance with Article 22.
2. For the purpose of paragraph 1 competent authorities shall apply all of the following core methods:
 - (a) review the institution's relevant internal policies and procedures;
 - (b) review the relevant minutes the institution's internal bodies, including the management body, or other committees involved in the credit risk management governance;
 - (c) review the documented allocation of powers to take credit decisions, the credit management manuals and the commercial channels schemes;
 - (d) review the institution's analysis of the credit approvals and the data on rejected credit applications, including the decisions deviating from the standard credit policy ('exceptions'), the instances where human judgement results in deviation from the inputs or outputs of the rating systems ('overrides') and the non-rated exposures including their justifications, the manual decisions and the cut-off points;
 - (e) review the institution's credit restructuring policies;
 - (f) review the documented regular reporting on credit risk;

- (g) review the documentation on calculation of internal capital of the institution and the allocation of the internal capital to types of risk, subsidiaries and portfolios;
 - (h) review the relevant findings of the internal audit or of other control functions of the institution;
 - (i) review the progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during relevant audits;
 - (j) obtain written statements or interview the relevant staff and senior management of the institution.
3. For the purpose of paragraph 1, competent authorities may also apply any of the following additional methods:
- (a) review the documentation of early warning systems;
 - (b) review the credit risk adjustments methodology and the documented analysis of its coherence with the calculation of own funds requirements;
 - (c) review the documented analysis of the risk-adjusted profitability of the institution;
 - (d) review the procedures for the collection and recovery of debts;
 - (e) review the planning manuals and reports on budgeting of the cost of risk;
 - (f) review the remuneration policy and the minutes of the remuneration committee;
 - (g) review other relevant documents of the institution.

Article 19

Use test in risk management, decision making and credit approval process

1. In assessing whether internal ratings and default and loss estimates of the rating systems used in the calculation of own funds requirements play a substantial role in the institution's risk management, credit approval and decision-making processes as referred to in Article 18(1)(a), competent authorities shall verify in particular that:
- (a) the number of non-rated exposures and outdated ratings is immaterial;
 - (b) those internal ratings and default and loss estimates play an important role, in particular, in:
 - (i) making a decision on the approval, rejection, restructuring and renewal of a credit facility;
 - (ii) the lending policies by influencing either the maximum exposure limits, or the mitigation techniques and credit enhancements required or any other aspect of the institutions global credit risk profile;
 - (iii) the monitoring process of obligors and exposures;
2. In the course of the assessment referred to in paragraph 1, and where the institution meets the requirements referred to in that paragraph also by virtue of either of the following practices, competent authorities shall also evaluate whether these internal ratings and default and loss estimates are taken into consideration by the institution for the purposes of, in particular:
- (a) pricing each credit facility or obligor;

- (b) the early warning systems used for the credit risk management;
- (c) determining and implementing the collection and recovery policies and processes;
- (d) calculating credit risk adjustments, where this is in line with the applicable accounting framework;
- (e) allocating or delegating competence for the credit approval process by the management board to internal committees, to the senior management and to the staff.

Article 20

Use test in the internal capital allocation

3. In assessing whether internal ratings and default and loss estimates of the rating systems used in the calculation of own funds requirements play an essential role in the institution's internal capital allocation as referred to in Article 18(1)(b), competent authorities shall evaluate whether these ratings and estimates play an important role, in particular, in:
 - (a) the assessment of the amount of internal capital that the institution considers adequate to cover the nature and level of the risk to which it is or might be exposed, in accordance with Article 73 of Directive 2013/36/EU;
 - (b) the allocation of the internal capital among types of risk, subsidiaries and portfolios.
4. In the course of the assessment referred to in paragraph 1, where the institution seeks to meet the requirements referred therein also by virtue of budgeting the cost of risk, competent authorities shall also evaluate whether the ratings and estimates are taken into consideration by the institution for the purpose of the budgeting the cost of risk of the institution.

Article 21

Use test in corporate governance functions

1. In assessing whether internal ratings and default and loss estimates of the rating systems used in the calculation of own funds requirements play an essential role in the institution's corporate governance functions as referred to in Article 18(1)(c), competent authorities shall evaluate whether these ratings and estimates play an important role, in particular, in:
 - (a) the institution's internal reporting;
 - (b) the portfolio credit risk monitoring.
2. In the course of the assessment referred to in paragraph 1, and where the institution seeks to meet the requirements referred therein also by virtue of either of the following practices, competent authorities shall also evaluate whether these ratings and estimates are taken into consideration by the institution for the purpose of, in particular:
 - (a) the internal audit planning;
 - (b) the design of the remuneration policies.

Article 22
Experience test

3. In assessing whether the rating systems are broadly in line with the requirements set out in Part Three, Title II, Chapter 3, Section 6 of Regulation (EU) No 575/2013 and have been applied by the institution at least three years prior to the use of the IRB Approach for the purpose of the calculation of the own funds requirements, as referred to in Article 18(1)(e), competent authorities shall verify in particular that:
 - (a) those rating systems have been used at least during the three years' period in the internal risk measurement and management processes referred to in Article 19(1) (b);
 - (b) adequate documentation of the effective operation of the rating systems for at least the last three years is available, in particular with regard to the respective monitoring, validation and audit reports.
4. Paragraph 1 shall apply also in the case of sequential implementation of the IRB Approach taking into account prior experience in accordance with Article 145(3) of Regulation (EU) No 575/2013.

CHAPTER 5
Assessment methodology for assignment of exposures to grades or pools

Article 23
General

1. In order to assess the institution's process of assignment of obligors or exposures to grades or pools in accordance with Articles 169, 171, 172 and 173 of Regulation (EU) No 575/2013, competent authorities shall verify, in particular, both of the following:
 - (a) the adequacy of definitions, processes and criteria used by the institution for assigning or reviewing the assignment of exposures to grades or pools, as referred to in Articles 169, 171 and 172 of Regulation (EU) No 575/2013 including the treatment of overrides, in accordance with Article 24;
 - (b) the integrity of the assignment process including the independence of the assignment process, as referred to in Article 173 of Regulation (EU) No 575/2013, as well as the reviews of the assignment, in accordance with Article 25.
2. For the purposes of paragraph 1, competent authorities shall apply all of the following core methods:
 - (a) review the institution's relevant internal policies and procedures;
 - (b) review the roles and responsibilities of units responsible for origination and renewal of exposures and units responsible for the assignment of exposures to grades or pools;
 - (c) review the relevant minutes of the institution's internal bodies, including the management body, or other committees;

- (d) review the institution's internal reports regarding the performance of the assignment process;
 - (e) review the relevant findings of the internal audit or of other control functions of the institution;
 - (f) review the progress reports on the effort of the institution to correct shortfalls in the assignment or review process and mitigate risks detected during relevant audits;
 - (g) obtain written statements or interview the relevant staff and senior management of the institution;
 - (h) review the criteria used by the personnel responsible for the human judgement in the assignment of exposures to grades or pools.
3. For the purposes of paragraph 1, competent authorities may also apply any of the following additional methods:
- (a) review the functional documentation of the relevant IT systems;
 - (b) conduct sample testing and review documents related to the characteristics of an obligor and to the origination and maintenance of the exposures;
 - (c) perform their own tests on the data of the institution or request the institution to perform tests proposed by the competent authorities;
 - (d) review other relevant documents of the institution.

Article 24

Assignment definitions, processes and criteria

1. In assessing the adequacy of definitions, processes and criteria used by the institution to assign or review the assignment of exposures to grades or pools as referred to in point (a) of Article 1(1), competent authorities shall, in particular, verify that:
- (a) there are adequate procedures and mechanisms in place that ensure a consistent assignment of obligors or facilities to an appropriate rating system;
 - (b) there are adequate procedures and mechanisms in place to ensure that each exposure held by the institution is assigned to a grade or pool as required by the rating system;
 - (c) for exposures to corporates, institutions and central governments and central banks, and for equity exposures where an institution uses the PD/LGD approach set out in Article 155(3) of Regulation (EU) No 575/2013, there are adequate procedures and mechanisms in place to ensure that all exposures to the same obligor are assigned to the same obligor grade, including exposures along different lines of business, departments, geographical locations, legal entities within the group and IT systems, and to ensure the correct application of the exceptions from the assignment to the same obligor grade, laid down in Articles 170(2) and 172(1)(e) of Regulation (EU) No 575/2013;
 - (d) the assignment's definitions and criteria are sufficiently detailed to facilitate a common understanding and consistent assignment by all the responsible personnel in all business lines, departments, geographical locations, legal entities within the group and for all different IT systems used;

- (e) there are adequate criteria, procedures and mechanisms in place to obtain all relevant information about the obligor and the facilities;
 - (f) all relevant, currently available and most up-to-date information is taken into account, including, in the case of exposures to corporates, institutions and central governments and central banks, and for equity exposures where an institution uses the PD/LGD approach, both financial and non-financial information;
 - (g) where the information is not fully available, the institution has set tolerances for defined metrics and rules to account for missing or not up-to-date information that is required for the rating assignment in an adequate and conservative way, and for financial statements older than 24 months that are required for the rating assignment in an adequate and conservative way;
 - (h) the assignment to grades or pools makes part of the credit approval process, according to the methodology specified in Chapter 4 on use test and experience test;
 - (i) the criteria for assignment to grades or pools are consistent with the institution's lending standards and policies for handling troubled obligors and facilities, according to the methodology specified in Chapters 7 on rating systems design, operational details and documentation and 8 on risk quantification.
2. In the course of the assessment referred to in paragraph 1, competent authorities shall assess the situations where human judgement is used to override any inputs or outputs of the rating system in accordance with Article 172(3) of Regulation (EU) No 575/2013, and they shall, in particular, verify that:
- (a) there are documented policies specifying possible reasons for and maximum extent of overrides and at what stage of the assignment process the overrides are allowed;
 - (b) the overrides are sufficiently justified in accordance with the policies referred to in point (a) and whether this justification is documented;
 - (c) the institution regularly carries out an analysis of the performance of exposures the rating of which has been overridden, including an analysis of overrides per member of staff applying the overrides, and that the results of this analysis are taken into account in the decision making process at an appropriate management level;
 - (d) the institution collects full information on overrides, including information both before and after the override, monitors on a regular basis the number and justifications for overrides, and analyses the effect of overrides on the model's performance;
 - (e) the number and justifications for overrides do not indicate significant weaknesses of the rating model.
3. In the course of the assessment referred to in paragraph 1, competent authorities shall verify, in particular, that the assignment definitions, processes and criteria achieve all of the following:
- (a) identify groups of connected clients, as defined in point (39) of Article 4(1) of Regulation (EU) No 575/2013;

- (b) include information on the ratings and defaults of other relevant entities within the group of connected clients in an obligor grade assignment in such a way that the rating grades of each relevant entity in the group reflects the different situation of each relevant entity and its relations with the other relevant entities of the group;
- (c) ensure that the cases where the obligors are assigned to a better grade than their parent entities are documented and justified.

Article 25
Integrity of assignment process

1. In assessing the independence of the assignment process referred to in point (b) of Article 23(1), competent authorities shall verify in particular that:
 - (a) the staff and management responsible for the final approval of the assignment or review of the assignment of exposures to grades or pools are not involved in or responsible for the origination or renewal of exposures;
 - (b) senior managers of units responsible for the final approval of the assignment or review of the assignment of exposures to grades or pools and senior managers of units responsible for the origination or renewal of exposures report to different members of the management body or the relevant designated committee of the institution;
 - (c) the remuneration of the staff and management responsible for the final approval of the assignment or review of the assignment of exposures to grades or pools does not depend on the performance of the tasks related to the origination or renewal of exposures.
 - (d) the same practices as those referred to in points (a), (b) and (c) apply to overrides in the retail exposure class.
2. In assessing the frequency and adequacy of the assignment process referred to in point (b) of Article 23(1), competent authorities shall, in particular, verify that:
 - (a) adequate and detailed policies specify the frequency of the review, and the criteria for the necessity of more frequent review having regard to the higher risk of obligors or problematic exposures and that those policies are applied consistently over time;
 - (b) the review and necessary adjustments of the assignment are carried out when new material information on the obligor or the exposure becomes available, and within a maximum of twelve months after the approval of the current assignment;
 - (c) the institution has defined criteria and processes for assessing the materiality of new information and the subsequent need for reassignment and that these criteria and processes are applied consistently;
 - (d) in the review of the assignment the most recent information available is used;
 - (e) where there are practical impediments that result in situations where the assignment is not reviewed in accordance with the requirements laid down in points (a) to (d), that adequate policies are in place and that measures are taken

- to ensure return to compliance with the requirements referred to in points (a) to (d);
- (f) senior management is regularly informed about the performance of the process of review of assignment of exposures to grades or pools, in particular with regard to the delays of the review of the assignment referred to in point (e);
 - (g) there are adequate policies to allow for effective obtaining and regular updating of relevant information, and in particular that this is reflected appropriately in the terms of contracts with the obligors.
3. In the course of the assessment referred to in paragraph 1, competent authorities shall assess the value and number of exposures that have not been reviewed in accordance with points (a) to (d) of paragraph 2, and verify that those exposures are treated in a conservative manner in terms of risk weighted assets calculation. Such assessment shall be carried out separately for each rating system and each risk parameter.

CHAPTER 6

Assessment methodology for definition of default

Article 26 *General*

1. In order to assess whether the institution effectively identifies all defaults in accordance with Article 178 of Regulation (EU) No 575/2013 competent authorities shall verify in particular all of the following:
 - (a) the compliance of an institution with, and the operationalization of, the triggers for identification of default of an obligor, in accordance with Article 27;
 - (b) the robustness and effectiveness of the process used by an institution for the identification of default of an obligor, in accordance with Article 28;
 - (c) the triggers and process used by an institution for the reclassification of a defaulted obligor to a non-defaulted status, in accordance with Article 29.
2. For the purposes of paragraph 1 competent authorities shall apply all of the following core methods:
 - (a) review the institution's internal policies and procedures with regard to establishing whether a default has occurred ('definition of default') and the treatment of defaulted exposures;
 - (b) review the roles and responsibilities of the units and management bodies involved in the identification of the default of an obligor and management of defaulted exposures;
 - (c) review the relevant minutes of the institution's internal bodies, including the management body, or other committees;
 - (d) review the relevant findings of the internal audit or of other control functions of the institution;

- (e) review the progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during relevant audits;
 - (f) obtain written statements or interview the relevant staff and senior management of the institution;
 - (g) review the criteria used by the personnel responsible for the manual assignment of default to an obligor or exposure and of the return to the non-defaulted status.
3. For the purposes of paragraph 1, competent authorities may also apply any of the following additional methods:
- (a) review the functional documentation of the IT systems used in the process of identification of default of an obligor;
 - (b) conduct sample testing and review documents related to the characteristics of an obligor and to the origination and maintenance of the exposures;
 - (c) perform their own tests on institution's data or request the institution to perform tests proposed by the competent authorities;
 - (d) review other relevant documents of the institution.

Article 27

Trigger events for the default of an obligor

1. In assessing the compliance with and operationalization of the triggers for identification of default of an obligor applied by the institution as referred to in Article 26(1)(a), competent authorities shall verify in particular that:
- (a) there is an adequate policy in place with regard to the counting of days past due, including in particular re-ageing of facilities, granting of extensions, amendments or deferrals, renewals and netting of existing accounts;
 - (b) the definition of default applied by the institution includes at least all of the triggers of default as referred to in Articles 178(1) and (3) of Regulation (EU) No 575/2013;
 - (c) where an institution uses multiple definitions of default within one or more legal entities, that the scope of application of each definition of default is clearly specified and that the differences between the definitions are justified.
2. For the purpose of paragraph 1, competent authorities shall assess whether the definition of default is sufficiently implemented and detailed enough to be applied consistently by all members of staff for all types of exposures in order to ensure, in particular whether all of the following potential indicators of unlikeliness to pay are sufficiently specified:
- (a) the non-accrued status;
 - (b) events that constitute specific credit risk adjustments resulting from a significant perceived decline in credit quality;
 - (c) sales of credit obligations that constitute a material credit-related economic loss;
 - (d) events that constitute a distressed restructuring;
 - (e) events that constitute a similar protection as bankruptcy;

- (f) other indications of unlikelihood to pay.
3. Competent authorities shall verify that the policies and procedures do not allow classifying the obligor as non-defaulted in situations where any of the default triggers apply.

Article 28

Robustness and effectiveness of the process of identification of default of an obligor

1. In assessing the robustness and effectiveness of the process of identification of default of an obligor as referred to in Article 26(1)(b), competent authorities shall verify, in particular, that:
 - (a) there are adequate procedures and mechanisms in place to ensure that all defaults are identified in a timely manner, in particular that the gathering and updating of relevant information are effective and take place with sufficient frequency;
 - (b) where the identification of default of an obligor is based on automatic processes, the correctness of implementation of the default definition in the IT system is evidenced by the relevant implementation tests;
 - (c) where the identification of default of an obligor is based on human judgement the definitions and trigger events of default are sufficiently detailed to ensure consistency in the identification of defaults by all relevant staff;
 - (d) where the institution applies the definition of default at the obligor level, there are adequate procedures and mechanisms in place to ensure that once default is identified for an obligor all exposures to that obligor are registered as being in default across all relevant systems, business lines and geographical locations within the institution and its subsidiaries, or where applicable, within its parent undertaking, and its subsidiaries;
 - (e) where there is a time delay with regard to the assignment of the defaulted status across all exposures to an obligor as referred to in point (d), that time delay does not lead to errors or inconsistencies in risk management, risk reporting, the calculation of own funds requirements or the use of data in risk quantification.
2. For the purpose of paragraph 1, competent authorities shall assess the application of the materiality threshold in the default definition and its consistency with the materiality threshold of a credit obligation past due, defined by the competent authorities in accordance with Commission Delegated Regulation adopting the technical standards laid down in Article 178(6) of Regulation (EU) No 575/2013, and shall verify, in particular, that:
 - (a) there are adequate procedures and mechanisms in place to ensure that all credit obligations that are past due above the threshold are assigned the defaulted status;
 - (b) the process of counting of days past due is consistent with the contractual or legal obligations of an obligor, reflects adequately partial payments and is applied consistently.
3. In the case of retail exposures, in addition to the verification laid down in paragraph 1 and the assessment laid down in paragraph 2, competent authorities shall verify that:

- (a) the institution has a clear policy with regard to the application of the default definition for retail exposures either at the level of the obligor or at the level of the individual credit facility;
- (b) the policy referred to in point (a) is aligned with the institution's risk management and is applied consistently;
- (c) where the institution applies the definition of default at the level of the individual facility:
 - (i) there are adequate procedures and mechanisms in place to ensure that once a credit facility is identified as being in default, that credit facility is marked as being in default across all relevant systems within the institution;
 - (ii) where there is a time delay with regard to the assignment of the defaulted status of a facility across all relevant systems as referred to in point (i), that time delay does not lead to errors or inconsistencies in risk management, risk reporting, the calculation of own funds requirements or the use of data in risk quantification.

Article 29

Return to non-defaulted status

4. In assessing the robustness of the trigger events and process of reclassification of a defaulted obligor to a non-defaulted status as referred to in Article 26(1)(c), competent authorities shall verify in particular that:
 - (a) the trigger events for reclassification are determined for each trigger of default and that the treatment of credit obligations subject to distressed restructuring is specified;
 - (b) reclassification is possible only after no trigger of default continues to apply and all relevant conditions for reclassification are met;
 - (c) the trigger events and process of reclassification are prudent, in particular that reclassification to a non-defaulted status is not performed where the institution expects that the credit obligation will probably not be paid in full without recourse by the institution to actions such as realising security.
5. For the purpose of paragraph 1, competent authorities shall verify that the institution's policies and procedures do not allow for reclassification of a defaulted obligor to a non-defaulted obligor status only as result of changes in the terms or conditions of the credit obligations, unless the institution has assessed that those changes enable the obligor to be considered as no longer being unlikely to pay.
6. Competent authorities shall assess the robustness of the institution's analysis on which it has based its approach on reclassification. They shall verify that the analysis takes into account the institution's previous default experience and the portion of defaulted obligors that return to non-defaulted status and default again within a short period of time.

CHAPTER 7

Assessment methodology for rating systems design, operational details and documentation

SECTION 1

GENERAL

Article 30

General

1. In order to assess whether an institution is compliant with the requirements on the design, management and documentation of rating systems, as referred to in Article 144(1)(e) of Regulation (EU) No 575/2013, competent authorities shall verify in particular all of the following:
 - (a) the adequacy of the documentation on the design, operational details and rationale of the rating systems, as referred to in Article 175 of Regulation (EU) No 575/2013, according to the provisions of Section 2;
 - (b) the adequacy of the structure of the rating systems, as referred to in Article 170 of Regulation (EU) No 575/2013, according to the provisions of Section 3;
 - (c) the application by the institution of the specific requirements for statistical models or other mechanical methods, as referred to in Article 174 of Regulation (EU) No 575/2013, according to the provisions of Section 4.
2. For the purposes of paragraph 1, competent authorities shall apply all of the following core methods:
 - (a) review the institution's relevant internal policies;
 - (b) review the institution's technical documentation on methodology and process of the rating systems development;
 - (c) review the development manuals, methodologies and processes on which the rating systems are based;
 - (d) review the minutes of the institution's internal bodies responsible for approving the rating systems, including the management body or other committees designated by it;
 - (e) review the reports on the performance of the rating systems and the recommendations of the credit risk control unit, validation function, internal audit function or any other control function of the institution;
 - (f) review the progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during monitoring, validations and relevant audits;
 - (g) obtain written statements or interview the relevant staff and senior management of the institution.
3. For the purposes of paragraph 1, competent authorities may also apply any of the following additional methods:
 - (a) request and analyse data used in the process of developing the rating systems;

- (b) conduct their own estimations or replicate those of the institution performed during the development and monitoring of the rating systems using relevant data supplied by the institution;
- (c) request additional documentation or that the institution carries out analysis substantiating the choice of methodology for designing the rating system and the results obtained from the institution;
- (d) review the functional documentation of the IT systems relevant to the scope of the assessment of this Chapter;
- (e) perform their own tests on the data of the institution or request the institution to perform tests proposed by the competent authorities;
- (f) review other relevant documents of the institution.

SECTION 2

METHODOLOGY FOR ASSESSING THE DOCUMENTATION ON THE DESIGN AND OPERATIONAL DETAILS OF RATING SYSTEMS

Article 31

Documentation of rating systems

In assessing the documentation on the design, operational details and rationale of the rating systems as referred to in point (a) of Article 30(1), competent authorities shall verify both of the following:

- (a) the completeness of the documentation, in accordance with Article 32;
- (b) the procedures for gathering and storing the information on the rating systems, in accordance with Article 33.

Article 32

Completeness of the documentation

1. In assessing the completeness of the documentation on the design, operational details and rationale of the rating systems, competent authorities shall verify that the documentation fully covers all of the following areas:
 - (a) the adequacy of the rating system and the models used within the rating system taking into account the portfolio characteristics;
 - (b) a description of data sources and data cleansing practices;
 - (c) definitions of default and loss;
 - (d) methodological choices;
 - (e) technical specification of the models;
 - (f) the models' weaknesses and limitations and possible mitigating factors thereof;
 - (g) the results of whether the implementation of the models in IT terms was successful and error-free;
 - (h) a self-assessment of compliance with regulatory requirements for the Internal Ratings Based Approach as referred to in Section 6, Chapter 3, Title II, Part three of Regulation (EU) No 575/2013.

2. For the purposes of paragraph 1(a), competent authorities shall verify that:
 - (a) the documentation clearly outlines the purpose of the rating system and the models;
 - (b) the documentation includes a description of the scope of application of the rating system and the models, that specifies the type of exposures covered by each model within the rating system, both in a qualitative and in a quantitative manner, and the type of outputs including where they will be used and for what reason;
 - (c) the documentation includes an explanation about how the information obtained by means of the rating system and the models results is taken into account for the purposes of risk management, decision making and credit approval processes ,as referred to in Article 19.
3. For the purposes of paragraph 1(b), competent authorities shall verify that the documentation includes:
 - (a) detailed information regarding all data used for the model development, including a precise definition of the content of the model, its source, format and coding and, where applicable, exclusions of data from it;
 - (b) any data cleansing procedures including procedures for data exclusions, outlier detection and treatment and data adaptations, as well as explicit justification for their use and an evaluation of their impact.
4. For the purposes of paragraph 1(c), competent authorities shall verify whether the definitions of default and loss used in the development of the model are adequately documented, in particular where different definitions of default are used for the purpose of model specification than that which is actually being used by the institution in accordance with Article 178 of Regulation (EU) No 575/2013.
5. For the purposes of paragraph 1(d), competent authorities shall verify that the documentation includes:
 - (a) detail on the design, theory, assumptions, and logic underlying the model;
 - (b) detailed descriptions of the model methodologies and their rationale, statistical techniques and approximations and, where appropriate, the rationale and details on segmentation methods, the outputs of statistical processes and the diagnostics and measures of predictive power of the models;
 - (c) the role of business experts in developing the rating system and models, including a detailed description of the consultation process with the business experts in the design of the rating system and models as well as outputs and rationale provided by the business experts;
 - (d) an explanation on how the statistical model and human judgement are combined to derive the final model output;
 - (e) an explanation of the manner in which the institution takes into account unsatisfactory quality of data, lack of homogeneous pools of exposures, changes in business processes, economic or legal environment and other factors relating to quality of data that may affect the performance of the rating system or model;

- (f) a description of the analyses performed for the purposes of statistical models or other mechanical methods, as applicable:
 - (i) the univariate analysis of the variables considered and respective criteria for variable selection;
 - (ii) the multivariate analysis of the variables selected and respective criteria for variable selection;
 - (iii) the procedure for the design of the final model: final selection of variables, including adjustments based on human judgement to the variables resulting from the multivariate analysis, variables' transformations, assignment of weights to the variables and the method of composition of model components, in particular where the contribution of qualitative and quantitative component is joined.
- 6. For the purposes of paragraph 1(e), competent authorities shall verify that the documentation includes:
 - (a) the technical specification of the final model structure, including final model specification, input components including type and format of selected variables, weights applied for variables and output components including type and format of output data;
 - (b) references to the computer codes and tools used in terms of IT-languages and programs allowing a third party to reproduce the final results. This third party may be the vendor in the case vendor models.
- 7. For the purposes of paragraph 1(f), competent authorities shall verify that documentation includes a description of the weaknesses and limitations of the model, an assessment of whether the key assumptions of the model are met and an anticipation of situations where the model may perform below expectations or become inadequate as well as an assessment of the significance of model weaknesses and possible mitigating factors thereof.
- 8. For the purposes of paragraph 1(g), competent authorities shall verify that:
 - (a) the documentation specifies the process to be followed when a new or changed model is implemented in the production environment;
 - (b) the documentation covers the results of the tests of the implementation of the rating models in the IT systems, including the confirmation that the rating model implemented in the production system is the same as the one described in the documentation and is operating as intended.
- 9. For the purposes of paragraph 1(h), competent authorities shall verify that the institution's self-assessment of compliance with regulatory requirements for the Internal Ratings Based Approach is performed separately for each rating system and is reviewed by the internal audit or another comparable independent auditing unit.

Article 33

Register of rating systems

- 1. In assessing the procedures for gathering and storing the information on the rating systems as referred to in Article 31(b), competent authorities shall verify that the institution has implemented and keeps updated a register of all rating systems

- including all current and past versions of rating systems for the period of at least three years ('register of rating systems').
2. For the purposes of paragraph 1, competent authorities shall verify that the procedures for the register of rating systems include the recording of at least the following information:
 - (a) the scope of the rating system, specifying which types of exposures shall be rated by each rating model;
 - (b) the approval body and date of approval, the date of notification to the competent authorities, the date of the approval by the competent authorities, where applicable, and the date of implementation of the version;
 - (c) a brief description of all changes performed relatively to the last version, including the aspects of the rating system changed and reference to model documentation;
 - (d) the change category assigned in accordance with Commission Delegated Regulation (EU) No 529/2014 of 12 March 2014 and reference to the criteria for assignment to a change category.

SECTION 3

METHODOLOGY FOR ASSESSING THE STRUCTURE OF RATING SYSTEMS

Article 34

Structure of rating systems

In order to assess the structure of rating systems in accordance with Article 30(1)(b), competent authorities shall verify all of the following:

- (a) the structure of the rating system in terms of risk drivers and rating criteria, in accordance with Articles 170(1)(a), (c) and (e), 170(3)(a) and 170(4) of Regulation (EU) No 575/2013, as set out in Article 35;
- (b) the distribution of obligors and exposures in the grades or pools, in accordance with Articles 170(1)(b) (d) (f), 170(2) and 170(3)(c) of Regulation (EU) No 575/2013, as set out in Article 36;
- (c) the ability of the rating system to differentiate risk, in accordance with Articles 170(1) and (3)(b) and (c) of Regulation (EU) No 575/2013, as set out in Article 37;
- (d) the homogeneity of obligors and exposures assigned to the same grade or pool, in accordance with Article 170(1) and (3)(c) of Regulation (EU) No 575/2013, as set out in Article 38.

Article 35

Risk drivers and rating criteria

1. In assessing the risk drivers and rating criteria used in the rating system in accordance with Article 34(a), competent authorities shall in particular verify all of the following:

- (a) the selection process of the relevant risk drivers and rating criteria, including the definition of potential risk drivers, criteria for selection of risk drivers and decisions taken on the relevant risk drivers;
 - (b) the consistency of the selected risk drivers and rating criteria and their contribution to the risk assessment with the expectations of the business users of the rating system;
 - (c) the consistency of the risk drivers and rating criteria selected on the basis of statistical methods with the statistical evidence on risk differentiation associated with each grade or pool.
2. The potential relevant risk drivers and rating criteria to be analysed according to paragraph 1(a) shall include the following, where available for a given type of exposures:
- (a) obligor risk characteristics, including:
 - (i) for exposures to corporates and institutions: financial statements, qualitative information, industry risk, country risk, support from parent entity;
 - (ii) for retail exposures: financial statements or personal income information, qualitative information, behavioural information, socio-demographic information.
 - (b) transaction risk characteristics, including type of product, type of collateral, seniority, loan-to-value ratio;
 - (c) information on delinquency, internal information or derived from external sources as credit bureaus.

Article 36

Distribution of obligors and exposures in the grades or pools

1. In assessing the distribution of obligors and exposures within the grades or pools of each rating system in accordance with Article 34(b), competent authorities shall verify that:
- (a) the number of rating grades and pools is adequate to ensure a meaningful risk differentiation and a quantification of the loss characteristics at the grade or pool level, in particular that:
 - (i) for exposures to corporates, institutions, central governments and central banks and specialised lending exposures, the obligor rating scale has at least the number of grades set out in Article 170(1)(b) and (2) of Regulation (EU) No 575/2013, respectively;
 - (ii) for purchased receivables classified as retail exposures, that the grouping reflects the seller's underwriting practices and the heterogeneity of its customers.
 - (b) the concentration of numbers of exposures or obligors is not excessive in any grade or pool, unless supported by convincing empirical evidence of homogeneity of risk of those exposures or obligors;

- (c) the rating and facility grades or pools for retail exposures, do not have too few exposures or obligors in a single grade or pool, unless supported by convincing empirical evidence of adequacy of the grouping of those exposures or obligors or direct estimates of risk parameters for individual obligors or exposures are used in accordance with Article 169(3) of Regulation (EU) No 575/2013;
 - (d) the rating and facility grades or pools for exposures to corporates, institutions, central governments and central banks, where sufficient data is available, do not have too few exposures or obligors in a single grade or pool, unless supported by convincing empirical evidence of adequacy of the grouping of those exposures or obligors or direct estimates of risk parameters for individual obligors or exposures are used in accordance with Article 169(3) of Regulation (EU) No 575/2013.
2. For the purpose of paragraph 1, and in addition to the verification laid down in paragraph 1, competent authorities shall assess, where appropriate, the criteria applied by the institution when determining:
 - (a) the maximum and minimum overall number of grades or pools;
 - (b) the proportion of exposures and obligors assigned to each grade or pool.
 3. For the purposes of paragraphs 1 and 2, competent authorities shall take into account the current and past observed distributions of the number of exposures and obligors and of the exposure values, including the migration of exposures and obligors between different grades or pools.

Article 37

Risk differentiation

1. In assessing the risk differentiation of each rating system in accordance with Article 34(c) for retail exposures, competent authorities shall verify all of the following:
 - (a) that the tools used to assess risk differentiation are sound and adequate considering the available data, and are also evidenced with records of time series of realised default rates or loss rates for grades or pools under various economic conditions;
 - (b) that the expected performance of the rating system in terms of risk differentiation is defined by the institution in terms of clearly established fixed targets and tolerances for defined metrics and tools as well as actions to rectify deviations from these targets or tolerances; separate targets and tolerances may be defined for the initial development and the ongoing performance;
 - (c) that the targets and tolerances for defined metrics and tools and mechanisms applied to meet those targets and tolerances ensure sufficient differentiation of risk.
2. Paragraph 1 shall also apply in the case of exposures other than retail whenever sufficient quantity of data is available.

Article 38
Homogeneity

1. In assessing the homogeneity of obligors or exposures assigned to the same grade or pool as referred to in Article 34(d), competent authorities shall assess the similarity of the obligors and transaction loss characteristics included in each grade or pool with regard to all of the following factors:
 - (i) internal ratings;
 - (ii) estimates of PD;
 - (iii) where applicable, own estimates of LGD;
 - (iv) where applicable, own estimates of conversion factors;
 - (v) where applicable, own estimates of total losses.

Competent authorities shall assess the above factors, for each rating system in the case of retail exposures, and for those ratings systems in the case of exposures other than retail, where sufficient quantity of data is available.

2. For the purposes of paragraph 1, competent authorities shall assess the range of values and the distributions of the obligor and transaction loss characteristics included within a single grade or pool.

SECTION 4
**METHODOLOGY FOR ASSESSING SPECIFIC REQUIREMENTS FOR STATISTICAL
MODELS OR OTHER MECHANICAL METHODS**

Article 39
General

In assessing the specific requirements for statistical models or other mechanical methods as referred to in Article 30(1)(c), competent authorities shall verify in particular:

- (a) the data vetting process and representativeness of data, as referred to in Article 174(b) and (c) of Regulation (EU) No 575/2013, in accordance with Article 40;
- (b) the model design including identification of its weaknesses, as referred to in Article 174(a) of Regulation (EU) No 575/2013, in accordance with Article 41;
- (c) the proportionate and adequate incorporation of human judgement, as referred to in Article 174(e) of Regulation (EU) No 575/2013, in accordance with Article 42;
- (d) the predictive power of the model, as referred to in Article 174(a) of Regulation (EU) No 575/2013, in accordance with Article 43.

Article 40
Data requirements

1. In assessing the process for vetting data inputs into the model as referred to in Article 39(a), competent authorities shall verify in particular:

- (a) the reliability and quality of the internal and external data sources and the range of data obtained from those sources, as well as the time period the sources cover;
 - (b) the process of data merging, where the model is fed with the data from multiple data sources;
 - (c) the rationale and scale of data exclusions broken down by reason for exclusion, using statistics of the share of total data which each exclusion covers, where certain data were excluded from the model development sample;
 - (d) the procedures for dealing with erroneous and missing data and treatment of outliers and categorical data, and that, where there has been a change in the type of categorization, this did not lead to decreased data quality or structural breaks in the data;
 - (e) the data transformation processes, including standardization and other functional transformations and the appropriateness of those transformations in terms of the risk of model overfitting.
2. In assessing the representativeness of the data used as referred to in Article 39(a), competent authorities shall verify:
- (a) the comparability of the structure of exposures covered by a particular rating model as regards risk characteristics of the obligors or facilities;
 - (b) the comparability of the underwriting and recovery standards with the ones applied at the time of the reference data set used for the modelling;
 - (c) the consistency of default definition over time in the data used for the modelling, in particular:
 - (i) that adjustments have been made to achieve consistency with the current default definition where the default definition has been changed during the observation period;
 - (ii) that adequate measures have been adopted by the institution, where the institution operates in several jurisdictions having different default definitions;
 - (iii) that the default definition used for the purposes of model specification does not have a negative impact on the structure and performance of the rating model where this definition is different from the definition of default used by the institution in accordance with Article 178 of Regulation (EU) No 575/2013;
 - (d) the relevance and adequacy of external data or data pooled across institutions for the institution's exposures, products and risk profile, where such data is used in the model development.

Article 41
Model design

In assessing the rating model design as referred to in Article 39(b), competent authorities shall verify:

- (a) the adequacy of the model having regard to its specific application;

- (b) the institution's analysis of alternative assumptions or alternative approaches to those chosen in the model;
- (c) the institution's methodology for model development;
- (d) that the institution's relevant staff fully understands the model's capabilities and limitations, in particular that the model documentation of the institution:
 - (i) describes which of the model limitations are related to the model inputs, uncertain assumptions, the processing component of the model, or whether the model output is performed manually or in the IT system;
 - (ii) identifies situations where the model can perform below expectations or become inadequate as well assesses the materiality of model weaknesses and possible mitigating factors thereof.

Article 42
Human judgement

In assessing the human judgement applied in the development of the rating model and the process of assignment of exposures to grades or pools as referred to in Article 39(c), competent authorities shall verify that:

- (a) the manner in which human judgement is applied is justified, fully documented and its impact on the rating system is assessed, including if possible the computation of the marginal contribution of human judgement to the performance of the rating system;
- (b) all relevant information not considered in the model is taken into account and an adequate level of conservatism is applied;
- (c) where the process of assignment of exposures to grades or pools in a rating system requires the application of human judgement in the form of subjective input data or where the credit policy allows for overrides of inputs or outputs of the model, that all of the following applies:
 - (i) the manual for model users clearly defines the input data and the situations where the input data can be adjusted by human judgement;
 - (ii) the situations where the input data have actually been adjusted are limited;
 - (iii) the manual for model users clearly defines the situations where the input or output of rating models may be overridden and the procedures for overriding the input or output of the models;
 - (iv) all data regarding the application of human judgement and the situations where the inputs or outputs of the rating models have been overridden are stored and analysed periodically by the credit risk control unit or validation function in terms of its impact on the rating model;
- (d) the application of human judgement is appropriately managed and proportionate to the type of exposures for each rating system.

Article 43
Model performance

In assessing the predictive power of the model, as referred to in Article 39(d), competent authorities shall verify that the institution's internal standards:

- (a) provide an outline of the assumptions and theory underlying the metrics chosen by the institution for the purpose of the assessment of the model's performance;
- (b) specify the application of the metrics, indicate whether the use of each metric is compulsory or discretionary and when it is to be used and ensure that the metrics are used coherently;
- (c) specify the conditions of the applicability and acceptable thresholds and accepted deviations for the metrics and set out whether and, if so, how statistical errors related to the values of those metrics are incorporated in the assessment process, and, where more than one metric is calculated, establishes the methods of aggregating several test results to one single assessment;
- (d) determine a process for escalating events of model performance deterioration leading to the breach of the thresholds referred to in point (c) to the higher management levels, with clear guidance on how the outcomes of the metrics are considered by relevant parties responsible for taking final decision as regards implementation of the necessary changes to the model.

CHAPTER 8

Assessment methodology for risk quantification

SECTION 1 **GENERAL**

Article 44
General

1. In order to assess compliance of an institution with the requirements on quantification of risk parameters, as referred to in Article 144(1)(a) of Regulation (EU) No 575/2013, competent authorities shall, in particular, verify the institution's:
 - (a) compliance with the overall requirements for estimation as referred to in Article 179 of Regulation (EU) No 575/2013, in accordance with Section 2;
 - (b) compliance with the requirements specific to PD estimation as referred to in Article 180 of Regulation (EU) No 575/2013, in accordance with Section 3;
 - (c) compliance with the requirements specific to own-LGD estimates as referred to in Article 181 of Regulation (EU) No 575/2013, in accordance with Section 4;
 - (d) compliance with the requirements specific to own-conversion factor estimates as referred to in Article 182 of Regulation (EU) No 575/2013, in accordance with Section 5;

- (e) compliance with the requirements for assessing the effect of guarantees and credit derivatives as referred to in Article 183 of Regulation (EU) No 575/2013, in accordance with Section 6;
 - (f) compliance with the requirements for purchased receivables as referred to in Article 184 of Regulation (EU) No 575/2013, in accordance with Section 7.
2. For the purposes of paragraph 1, competent authorities shall apply all of the following core methods:
- (a) review the institution's relevant internal policies;
 - (b) review the institution's technical documentation of relevant estimation methodology and process;
 - (c) review and challenge the relevant model development manuals, methodologies and processes;
 - (d) review the relevant minutes of the institution's internal bodies, including the management body, model committee, or other committees;
 - (e) review the reports on risk parameters' performance and the recommendations made by the credit risk control unit, validation function, internal audit function or any other control function of the institution;
 - (f) assess progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during relevant audits, validations and monitoring;
 - (g) obtain written statements or interview the relevant staff and the senior management of the institution.
3. For the purposes of paragraph 1, competent authorities may also apply any of the following additional methods:
- (a) request the provision of additional documentation or analysis substantiating the institution's methodological choices and the results obtained;
 - (b) conduct their own or replicate the institution's estimations of risk parameters using the relevant data supplied by the institution;
 - (c) request and analyse the data used in the process of estimation;
 - (d) review the functional documentation of the IT systems which are relevant to the scope of the assessment;
 - (e) perform own tests on the data of the institution or request the institution to perform tests proposed by the competent authorities;
 - (f) review other relevant documents of the institution.

SECTION 2

METHODOLOGY FOR ASSESSING OVERALL REQUIREMENTS FOR QUANTIFICATION OF RISK PARAMETERS

Article 45 *Data requirements*

1. In assessing the overall requirements for estimation and the quality of the data used for the quantification of risk parameters as referred to in Article 44(1)(a), competent authorities shall verify:
 - (a) the completeness of the quantitative and qualitative data and other information in relation to the methods used for the quantification of risk parameters to ensure that all relevant historical experience and empirical evidence are used;
 - (b) the availability of the quantitative data that provides a breakdown of the loss experience by the factors which drive the respective risk parameters as referred to in Article 179(1)(b) of Regulation (EU) No 575/2013;
 - (c) the representativeness of the data used to estimate the risk parameters for certain types of exposures;
 - (d) the adequacy of the number of exposures in the sample and the length of the data period referred to in Articles 48, 50 and 56, used for the quantification to ensure that the estimates of the institution are accurate and robust;
 - (e) the justification and documentation of all data cleansing, including the exclusion of some observations from the estimation and the confirmation that this does not bias the risk quantification; in particular for PD estimates, that the impact of the data cleansing on the long-run average default rate is justified and documented;
 - (f) the consistency between the data sets used for the risk parameters estimation, in particular with regard to the default definition, treatment of defaults, including multiple defaults as described in Articles 49 and 52, and the sample composition.
2. For the purposes of point (c) of paragraph 1, competent authorities shall assess the representativeness of the data used to estimate the risk parameters for certain types of exposures, in particular by assessing:
 - (a) the structure of exposures covered by each rating model and the different risk characteristics of the obligors or facilities, and whether the current portfolio is comparable to the required degree to the portfolios constituting the reference data set;
 - (b) the comparability of the current underwriting and recovery standards with the ones applied at the time of the reference data set;
 - (c) the consistency of default definition in the observation period, in particular:
 - (i) where the default definition has been changed in the observation period, the description of the adjustments performed in order to achieve the required level of consistency with current default definition;

- (ii) where default definitions vary across the jurisdictions in which the institution operates, the adequacy of measures and conservatism adopted by the institution;
 - (d) where external data and data pooled across institutions are used in the quantification of risk parameters, the relevance and appropriateness of these data for the institution's exposures, products and risk profile and the definition of default;
 - (e) where the external or pooled data are not consistent with the institution's internal default definition, the description of adjustments to the external or pooled data performed by the institution in order to achieve the required level of consistency with the internal default definition.
3. In assessing the quality of the data pooled across institutions that is used for quantification of risk parameters, competent authorities shall apply the requirements laid down in paragraphs 1 and 2 in addition to the requirements laid down in Article 179(2) of Regulation (EU) No 575/2013.

Article 46
Review of estimates

In assessing the regular revision of risk parameter estimates as referred to in Article 179(1)(c) of Regulation (EU) No 575/2013, competent authorities shall verify that:

- (a) the process and the annual plan for the review of estimates provide for the timely review of all estimates;
- (b) criteria for the identification of situations which trigger a more frequent review have been identified;
- (c) the methodologies and data used for the estimation of risk parameters reflect changes in the underwriting process and in the composition of the portfolios;
- (d) the methodologies and data used for the LGD estimation reflect changes in the recovery process, the types of recoveries and the duration of the recovery process;
- (e) the methodologies and data used for the conversion factor estimation reflect changes in the monitoring process of undrawn amounts;
- (f) the data set used for the estimation of risk parameters includes the relevant data from the latest observation period, and are updated at least on an annual basis;
- (g) the technical advances and other relevant information are reflected in the risk parameters estimates.

Article 47
Margin of conservatism

1. Competent authorities shall assess whether an appropriate margin of conservatism is included in the estimated values of risk parameters as referred to in Article 179(1)(f) of Regulation (EU) No 575/2013, in particular where any of the following considerations apply:

- (a) the methods and data do not provide sufficient certainty of the risk parameter estimates, including where there are high estimation errors;
 - (b) relevant deficiencies in the methods, information and data have been identified by the credit risk control unit, validation function or internal audit function or any other function of the institution;
 - (c) relevant changes to the standards of underwriting or recovery policies or changes in the institution's risk appetite.
2. The requirements laid down in paragraph 1 shall not prevent an application of the requirements laid down in Article 146 of Regulation (EU) No 575/2013 and any related corrective actions by the institution, but shall apply in addition to them.

SECTION 3

METHODOLOGY FOR ASSESSING REQUIREMENTS SPECIFIC FOR PD ESTIMATION

Article 48

Length of the historical observation period

In assessing the length of the historical observation period and the calculation of one- year default rates as referred to in Articles 180(1)(e) and (h), 180(2)(e), 180(3)(a) of Regulation (EU) No 575/2013, competent authorities shall verify in particular:

- (a) that the length of the historical observation period covers at least the minimum length in accordance with the requirements laid down in Article 180(1)(h) and Article 180(2)(e) of Regulation (EU) No 575/2013 and, where applicable, the Commission Delegated Regulation adopting technical standards laid down in Article 180(3)(a) of Regulation (EU) No 575/2013;
- (b) where the available historical observation period is longer than the minimum required by Article 180(1)(h) and Article 180(2)(e) of Regulation (EU) No 575/2013 for a data source and the data obtained from it are relevant, that the information for that longer period is used in order to estimate the long-run average of one-year default rates;
- (c) for retail exposures where the institution does not give equal importance to all historical data used, that this is justified by better prediction of default rates and that a zero or very small weight applied to a specific period should either be duly justified or lead to more conservative estimates;
- (d) that there is consistency between underwriting standards and the rating systems in place and that comparable underwriting standards were used at the time of generating the internal default data or that changes in underwriting standards and rating systems have been addressed by applying the margin of conservatism as referred to in Article 47(1)(c);
- (e) for exposures to corporates, institutions, central governments and central banks, that the definition of highly leveraged obligors and obligors whose assets are predominantly traded assets as well as the identification of periods of stressed volatilities for those obligors as referred to in Article 180(1)(a) of Regulation (EU) No 575/2013 are adequate.

Article 49
Method of PD estimation

1. In assessing the method of PD estimation, as referred to in Article 180 of Regulation (EU) No 575/2013, competent authorities shall verify that the requirements of paragraphs 2 to 10 are met.
2. For the purposes of paragraph 1, competent authorities shall verify that the one-year default rate for each grade or pool is calculated in a manner consistent with the characteristics of the one-year default rate as defined in Article 4(1)(78) of Regulation (EU) No 575/2013, and they shall verify, in particular, that:
 - (a) the denominator of the one-year default rate includes the obligors or exposures which are not in default and which are assigned to that rating grade or pool at the beginning of a one year period;
 - (b) the numerator of the one-year default rate includes those of the obligors or exposures referred to in point (a) that have defaulted within that one year period; multiple defaults for the same obligor or exposure, determined in accordance with point (b) of Article 52, which have been observed during the one year period relating to the default rate, are considered to be a single default having occurred on the date of the first of those multiple defaults.
3. For the purposes of paragraph 1, competent authorities shall verify that the method of PD estimation by obligor grade or pool is based on the long-run average of one-year default rates. To this effect, competent authorities shall consider that the period used by the institution is adequate for the estimation of the long-run average of one-year default rates in a given type of exposures where the relevant period is representative of the likely range of variability of default rates in that type of exposures.
4. Where observed data used for the modelling are not likely to be representative of the range of variability of the default rate of a type of exposures, competent authorities shall verify that both of the following conditions are met:
 - (a) the institution uses an appropriate method for estimating the average of one-year default rates over a period that is representative of the variability of the default rates of that type of exposures;
 - (b) an appropriate margin of conservatism is applied where, after applying an appropriate method as referred to in point (a), the estimation of the averages of default rates is found to be unreliable or to have other limitations ,.
5. For the purposes of paragraph 1, competent authorities shall verify that all of the following are adequate to the type of exposures to which they are applied:
 - (i) the functional and structural form of the estimation method;
 - (ii) assumptions regarding the estimation method;
 - (iii) the cyclicity of the estimation method;
 - (iv) the length of data series used in accordance with Article 48;
 - (v) the margin of conservatism in accordance with Article 47;
 - (vi) the human judgement and, where applicable, the choice of risk drivers.

6. For the purposes of paragraph 1, for exposures to corporates, institutions, central governments and central banks, where the obligors are highly leveraged or with predominantly traded assets, competent authorities shall verify that the PD reflects the performance of the underlying assets in the periods of stressed volatility as referred to in Article 180(1)(a) of Regulation (EU) No 575/2013.
7. For the purposes of paragraph 1, for exposures to corporates, institutions, central governments and central banks, where the institution makes use of an ECAI rating scale, competent authorities shall verify the institution's analysis of compliance with the requirements laid down in Article 180(1)(f) of Regulation (EU) No 575/2013, and check that that analysis takes into account the representativeness of the types of exposures rated by ECAI to the institution's types of exposures and the time horizon for the credit assessment of ECAI.
8. For the purposes of paragraph 1, for retail exposures, where the institution derives the estimates of PD or LGD from an estimate of total losses and an appropriate estimate of PD or LGD as referred to in Article 180(2)(d) of Regulation (EU) No 575/2013, competent authorities shall verify the institution's analysis of compliance with all relevant criteria on PD and LGD estimation laid down in Articles 178 to 184 of Regulation (EU) No 575/2013.
9. For the purposes of paragraph 1, for retail exposures, competent authorities shall verify that the institution regularly analyses and takes into account the expected changes of PD over the life of credit exposures ('seasoning effects') as referred to in Article 180(2)(f) of Regulation (EU) No 575/2013.
10. In the assessment of statistical models for PD estimation, competent authorities shall, in addition apply the considerations referred to in Articles 39 to 43 of Chapter 7 on rating systems design, operational details and documentation.

SECTION 4

METHODOLOGY FOR ASSESSING REQUIREMENTS SPECIFIC TO OWN-LGD ESTIMATES

Article 50

Length of the historical observation period

In assessing the length of the periods used for LGD estimation as referred to in Article 181(1)(j), Article 181(2) and Article 181(3)(b) of Regulation (EU) No 575/2013 ('historical observation period'), competent authorities shall verify that:

- (a) the length of the historical observation period covers at least the minimum length in accordance with the requirements laid down in Article 181(1)(j) and Article 181(2) of Regulation (EU) No 575/2013 and, where applicable, the Commission Delegated Regulation adopting technical standards laid down in Article 181(3)(b) of Regulation (EU) No 575/2013;
- (b) where the available historical observation period is longer than the minimum required in Article 181(1)(j) and Article 181(2) of Regulation (EU) No 575/2013 for a data source, and the data obtained from it are relevant, that the information for that longer period is used;
- (c) for retail exposures, where the institution does not give equal importance to all historical data used, that this is justified by better prediction of loss rates

and that a zero or very small weight applied to a specific period is either duly justified or leads to more conservative estimates.

Article 51
Method of LGD estimation

In assessing the method of LGD estimation, as referred to in Article 181 of Regulation (EU) No 575/2013, competent authorities shall verify that:

- (a) the institution assesses LGD by homogenous facility grade or pool;
- (b) the average realized LGD by facility grade or pool is calculated using the number of default weighted average.
- (c) all observed defaults within the data sources are used in particular that the incomplete recovery processes are taken into account in a conservative manner for the purposes of LGD estimation, and that the choice of workout period and methodologies for estimating additional costs and recoveries beyond that period and, where necessary, within that period, are relevant;
- (d) the LGD estimates of secured exposures are not solely based on the estimated market value of the collateral and that they take into account the realised revenues from past liquidations and the potential inability of an institution to gain control and liquidate the collateral;
- (e) the LGD estimates of secured exposures take into account the potential decreases in collateral value from the point of LGD estimation to the eventual recovery;
- (f) the degree of dependence between the risk of the obligor and collateral as well as the cost of liquidating the collateral are taken into account conservatively;
- (g) the unpaid late fees that have been capitalised in the institution's income statement are added to the institution's measure of exposure and loss;
- (h) future drawings are taken into account appropriately in the LGD estimation for retail exposures, unless they have been included in the conversion factor estimation for those exposures;
- (i) the functional and structural form of the estimation method, the assumptions regarding this method, its downturn effect, the length of data series used, the margin of conservatism, the human judgement and, where applicable, the choice of risk drivers, are adequate to the type of exposures to which they are applied.

Article 52
Consistency in the treatment of multiple defaults

For the treatment of obligors that default and recover several times in a limited period of time as defined by the institution ('multiple defaults'), competent authorities shall assess the adequacy of the methods used by the institution and shall verify, in particular that:

- (a) explicit conditions are defined before a facility can be considered to be cured for the purposes of LGD estimation, including the definition of the length of the probation period before reclassification to non-defaulted status;

- (b) multiple defaults identified within a period of time specified by the institution are recognised as a single default for the purpose of LGD estimation, using the default date of the first observed default as the relevant default date and considering the recovery process from that date until the end of the recovery process from the last observed default in this period;
- (c) the length of the probation period and the length of period within which multiple defaults are recognised as a single default are supported by the institution's internal policies and analysis of the default experience;
- (d) defaults used for the purpose of PD and conversion factors estimation are treated consistently to defaults used for the purpose of LGD estimation.

Article 53

Use of LGD estimates appropriate for economic downturn

In assessing whether the requirements for LGD estimates are appropriate for an economic downturn as laid down in Article 181(1)(b) of Regulation (EU) No 575/2013, competent authorities shall verify in particular that:

- (a) the institution uses LGD estimates that are appropriate for an economic downturn, where those are more conservative than the long-run average;
- (b) the institution provides both long-run averages and estimates appropriate for an economic downturn for justification of its choices;
- (c) the institution applies a rigorous and well documented process for assessing the effects of an economic downturn on recovery rates and for producing LGD estimates consistent with downturn conditions, and that the institution appropriately specifies the nature, severity and duration of an economic downturn;
- (d) the institution incorporates in the LGD estimates any adverse dependencies that have been identified between selected factors representing downturn conditions versus recovery rates.

Article 54

LGD, ELbe and UL estimation for exposures already in-default

1. In assessing the requirements for LGD estimates for the exposures already in default, and for the best estimate of expected losses ('ELbe') as referred to in Article 153(1)(ii), Article 154(1)(i) and Article 181(1)(h) of Regulation (EU) No 575/2013, competent authorities shall verify that the institution uses one of the following approaches and shall assess the approach used by the institution:
 - (a) direct estimation of LGD ('LGD in-default') and ELbe for defaulted exposures;
 - (b) direct estimation of ELbe and estimation of LGD in-default as the sum of ELbe and an add-on capturing the unexpected loss related with exposures in default that might occur during the recovery period.
2. In assessing the approaches listed in paragraph 1, competent authorities shall verify that:
 - (a) the LGD in-default estimation methods, either as direct estimation or as an add-on to ELbe, include possible additional unexpected losses during the recovery

- period, in particular considering possible adverse change in economic conditions during the expected length of the recovery process;
- (b) the LGD in-default, either as direct estimation or as an add-on to ELbe, and ELbe estimation methods take into account the information on the time in-default and recoveries realized so far;
 - (c) where the institution use a direct estimation of LGD in-default, the estimation methods are consistent with the requirements of Articles 50, 51 and 52;
 - (d) the LGD in-default estimate is higher than the ELbe, or, where the LGD in-default is equal to the ELbe, that such cases for individual exposures are limited and duly justified by the institution;
 - (e) the ELbe estimation methods take into account all currently available and relevant information and in particular consider current economic circumstances;
 - (f) where the specific credit risk adjustments exceed the ELbe estimates the differences between the two are analysed and duly justified;
 - (g) the LGD in-default, either as direct estimation or as an add-on to ELbe, and ELbe estimation methods are clearly documented.

Article 55

Requirements on collateral management, legal certainty and risk management

In assessing whether the institution has established internal requirements for collateral management, legal certainty and risk management which are generally consistent with those set out in Chapter 4, Section 3 of Regulation (EU) No 575/2013, as referred to in Article 181(1)(f) of that Regulation, competent authorities shall verify that at least policies and procedures of the institution relating to the internal requirements for collateral valuation and legal certainty are fully consistent with the requirements of Section 3 of Chapter 4 of Title II in Part three of Regulation (EU) No 575/2013.

SECTION 5

METHODOLOGY FOR ASSESSING REQUIREMENTS SPECIFIC TO OWN- CONVERSION FACTOR ESTIMATES

Article 56

Length of the historical observation period

In assessing the length of the historical observation period used for conversion factors estimation, as referred to in Article 182(2), (3) and (4) of Regulation (EU) No 575/2013, competent authorities shall verify that:

- (a) the length of the historical observation period covers at least the minimum length in accordance with the requirements laid down in Article 182(2) and (3) of Regulation (EU) No 575/2013 and, where applicable, the Commission Delegated Regulation adopting technical standards laid down in Article 182(4)(b) of Regulation (EU) No 575/2013;
- (b) where the available observation period is longer than the minimum period laid down in Article 182(2) and (3) of Regulation (EU) No 575/2013 for a source,

and the data obtained from it are relevant, that the information for that longer period is used;

- (c) for retail exposures, where the institution does not give equal importance to all historical data used, that this is justified by better prediction of conversion factors and that specific weights applied to realised conversion factors are significantly higher than zero.

Article 57

Method of conversion factors estimation

In assessing the method of conversion factors estimation, as referred to in Article 182 of the Regulation (EU) No 575/2013, competent authorities shall verify that:

- (a) the institution assesses estimates of conversion factors by facility grade or pool;
- (b) the average realised conversion factors by facility grade or pool are calculated using a number of default weighted average;
- (c) all observed defaults within the data sources are used for conversion factors estimation;
- (d) the possibility of additional drawings are taken into account in a conservative manner, unless for retail exposures they are included in the LGD estimates;
- (e) the institution's policies and strategies regarding account monitoring, including limit monitoring, and payment processing are reflected in the conversion factors estimation;
- (f) all of the following are adequate to the type of exposures to which they are applied:
 - (i) the functional and structural form of the estimation method;
 - (ii) assumptions regarding the estimation method;
 - (iii) where applicable the method of estimation of the downturn effect;
 - (iv) length of data series used in accordance with Article 56;
 - (v) margin of conservatism in accordance with Article 47;
 - (vi) the human judgement;
 - (vii) where applicable, the choice of risk drivers.

Article 58

Use of conversion factor estimates appropriate for economic downturn

In assessing the requirements for conversion factor estimates as referred to in Article 182 of Regulation (EU) No 575/2013, competent authorities shall verify that:

- (a) the institution uses conversion factor estimates that are appropriate for an economic downturn, where those are more conservative than the long-run average;
- (b) the institution provides both the long-run averages and the estimates appropriate for an economic downturn as justification for its choices;

- (c) the institution applies a rigorous and well documented process for assessing any effects of economic downturn conditions on drawing of credit limits and for producing conversion factor estimates consistent with downturn conditions, and more in particular that the institution:
 - (i) specifies the nature, severity and duration of an economic downturn in accordance with the technical standards referred to in Article 182(4)(a) of Regulation (EU) No 575/2013;
 - (ii) incorporates in the conversion factor estimates any adverse dependencies that have been identified between selected credit and economic factors versus drawing of credit limits.

Article 59

Requirements on policies and strategies for account monitoring and payment processing

In order to assess the estimation of the conversion factors as referred to Articles 182(1)(d) and (e) of Regulation (EU) No 575/2013, competent authorities shall verify that the institution has policies and strategies in place in respect of account monitoring and payment processing, and has adequate systems and procedures to monitor facility amounts on a daily basis.

SECTION 6

METHODOLOGY FOR ASSESSING THE EFFECT OF GUARANTEES AND CREDIT DERIVATIVES

Article 60

Eligibility of guarantors and guarantees

In assessing the effect of guarantees and credit derivatives on risk parameters, as referred to in Article 183 of Regulation (EU) No 575/2013, competent authorities shall verify that:

- (a) the institution has clearly specified criteria for identifying the situations where PD estimates are to be adjusted and those situations where LGD estimates are to be adjusted in order to incorporate mitigating effects of guarantees, and that those criteria are used consistently over time;
- (b) where the PD of the protection provider is to be used for the purpose of risk weighted exposure amount in accordance with Article 153(3) of Regulation (EU) No 575/2013, the mitigating effects of guarantees are not included in the estimates of LGD or PD of the obligor;
- (c) the institution has clearly specified criteria for recognising guarantors and guarantees for the calculation of risk weighted exposure amount, in particular through own estimates of LGD or PD;
- (d) the institution documents the criteria for adjusting own estimates of LGD or PD to reflect the impact of guarantees;
- (e) in the own estimates of LGD or PD the institution recognises only the guarantees that meet the following criteria:
 - (i) where the guarantor is internally rated by the institution with a rating system that has already been approved by the competent authorities for the purpose of the IRB Approach, the guarantee meets the

requirements laid down in Article 183(1)(c) of Regulation (EU) No 575/2013;

- (ii) where the institution has received permission to use the Standardised Approach for exposures to entities such as the guarantor pursuant to Articles 148 and 150 of Regulation (EU) No 575/2013, the guarantor is classified according to Article 147 of that Regulation as an institution, a central government, a central bank or a corporate entity that has been given a credit assessment by an ECAI, and the guarantee meets the requirements set out in Articles 205 to 217 of that Regulation that are applicable for the Standardised Approach;
- (f) the institution meets the requirements of points (a) and (e) also for the single-name credit derivatives.

SECTION 7

METHODOLOGY FOR ASSESSING THE REQUIREMENTS FOR PURCHASED RECEIVABLES

Article 61

Risk parameter estimates for purchased corporate receivables

1. For purchased corporate receivables, where the institution derives PD or LGD for purchased corporate receivables from an estimate of EL in accordance with Article 160(2) and Article 161(1)(e) and an appropriate estimate of PD or LGD, competent authorities shall verify in particular that:
 - (a) EL is estimated from the long-run average of one-year total loss rates or by another meaningful approach;
 - (b) the process for estimating the total loss is consistent with the concept of LGD as set out in Article 181(1)(a) of Regulation (EU) No 575/2013;
 - (c) that the institution is able to decompose its EL estimates into PDs and LGDs in a reliable way;
 - (d) in the case of purchased corporate receivables where Article 153 (6) of Regulation (EU) No 575/2013 is applied sufficient external and internal data are used.
2. In assessing the adequacy of PD and LGD estimates for purchased corporate receivables in cases other than those referred to in paragraph 1, competent authorities shall:
 - (a) assess those estimates in accordance with Articles 45 to 55;
 - (b) verify that the requirements of Article 184 of Regulation (EU) No 575/2013 are met.

CHAPTER 9

Assessment methodology for assignment of exposures to exposure classes

Article 62 *General*

1. In order to assess compliance of an institution with the requirement to assign each exposure to a single exposure class consistently over time as laid down in Article 147 of Regulation (EU) No 575/2013, competent authorities shall assess the following:
 - (a) the institution's assignment methodology and its implementation, in accordance with Article 63;
 - (b) the sequence of the process of the assignment of exposures to exposure classes, in accordance with Article 64;
 - (c) whether specific considerations with regard to the retail exposure class have been taken into account by the institution, in accordance with Article 65.
2. For the purposes of paragraph 1, competent authorities shall apply all of the following core methods:
 - (a) review the institution's relevant internal policies, procedures and assignment methodology;
 - (b) review the relevant minutes of the institution's internal bodies, including the management body, or other committees;
 - (c) review the relevant findings of the internal audit or of other control functions of the institution;
 - (d) review the progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during relevant audits;
 - (e) obtain written statements or interview the relevant staff and senior management of the institution;
 - (f) review the criteria used by the personnel responsible for the manual assignment of exposures to exposure classes.
3. For the purpose of paragraph 1, competent authorities may also apply any of the following additional methods:
 - (a) conduct sample testing and review documents related to the characteristics of an obligor and to the origination and maintenance of the exposures;
 - (b) review the functional documentation of the relevant IT systems or perform own tests on institution's data;
 - (c) match the institution's data with data publicly available, including data recorded in the EBA databases in accordance with Article 115(2) of Regulation (EU) No 575/2013 and in Commission's decisions issued in accordance with Articles 107(4), 114(7), 115(4) and 116(5) of Regulation (EU) No 575/2013 or in the databases held by the competent authorities;

- (d) perform own tests on the data of the institution or request the institution to perform tests proposed by the competent authorities;
- (e) review other relevant documents of the institution.

Article 63

Assignment methodology and its implementation

1. In assessing the institution's assignment methodology as referred to in Article 62(1)(a), competent authorities shall, in particular, verify that:
 - (a) the methodology is fully documented and complies with all requirements laid down in Article 147 of Regulation (EU) No 575/2013;
 - (b) the methodology reflects the assigning sequence referred to in Article 64;
 - (c) the methodology includes a list of third countries' regulatory and supervisory regimes considered equivalent to those applied in the Union by relevant competent authorities or EU Commission, in accordance with the Commission's decisions as referred to in Articles 107(4), 114(7), 115(4) and 116(5) of Regulation (EU) No 575/2013, when such an equivalence is required for the assignment of an exposure to a specific class.
2. In assessing the implementation of the assignment methodology as referred to in Article 62(1)(a), competent authorities shall verify, in particular, that:
 - (a) the procedures governing the input and transformations of data in the IT systems are sufficiently robust to ensure correct assignment of each exposure to an exposure class;
 - (b) sufficiently detailed criteria are available for the personnel responsible for the assignment of the exposures to ensure a consistent assignment;
 - (c) the assignment to the exposure classes referred to in Article 147(2)(e) and (f) and Article 147(8) of Regulation (EU) No 575/2013 is performed by personnel who are aware of the terms and conditions and of relevant details of the transaction that results in the exposure that is subject to the assignment;
 - (d) the assignment is performed using the most recent data available.
3. For exposures to CIU, competent authorities shall assess that institutions make every effort to assign the underlying exposures to adequate exposure classes in accordance with Article 152 of Regulation (EU) No 575/2013.

Article 64

Assigning sequence

In assessing the compliance of the sequence in which the institution assigns exposures to exposure classes as referred to in Article 62(1)(b), competent authorities shall verify in particular that:

- (a) first, exposures eligible to be classified under equity, items representing securitization positions and other non-credit obligation assets listed in points (e), (f) and (g) of Article 147(2) of Regulation (EU) No 575/2013 are assigned;

- (b) second, exposures not eligible for classification in accordance with point (a) are assigned to the classes listed in points (a), (b), (c) and (d) of Article 147(2) of Regulation (EU) No 575/2013;
- (c) third, all remaining exposures are assigned to the class of exposures to corporates, as referred to in Article 147(2)(c) of Regulation (EU) No 575/2013.

Article 65

Specific requirements for retail exposures

1. In assessing the assignment of exposures to the retail exposure class as referred to in Article 62(1)(c), competent authorities shall, in particular, verify that:
 - (a) the institution distinguishes between exposures to natural persons and to SMEs based on clear criteria in a consistent manner;
 - (b) the institution has in place adequate procedures and mechanisms to monitor the limit laid down in Article 147(5)(a)(ii) of Regulation (EU) No 575/2013 for the following purposes:
 - (i) to identify groups of connected clients and to aggregate relevant exposures that each institution and its parent or subsidiaries maintain against this group of connected clients;
 - (ii) to assess cases where the limit has been exceeded;
 - (iii) to ensure that an exposure to small and medium enterprises ('SME') for which the limit has been exceeded is re-assigned to the corporate exposure class without undue delay;
 - (c) that the conditions of paragraphs 2 to 4 are met.
2. In verifying that retail exposures are not managed as individually as exposures in the corporate exposure class in the meaning of Article 147(5)(c) of Regulation (EU) No 575/2013, competent authorities shall take into consideration at least the following components of the credit process:
 - (i) marketing and sales activities;
 - (ii) type of product;
 - (iii) rating process;
 - (iv) rating system;
 - (v) credit decision process;
 - (vi) credit risk mitigation methods;
 - (vii) monitoring processes;
 - (viii) collection and recovery process.
3. In determining whether the criteria laid down in Article 147(5)(c) and (d) of Regulation (EU) No 575/2013 are met, competent authorities shall in particular examine whether the assignment of exposures is consistent with the institution's business lines and the way they are managed.

4. Competent authorities shall verify that the institution assigns each retail exposure to a single category of exposures to which the relevant correlation coefficient applies in accordance with Article 154 of Regulation (EU) No 575/2013, and in particular:
 - (a) for the purposes of verifying compliance with Article 154(4)(d) and (e) of Regulation (EU) No 575/2013, competent authorities shall verify that:
 - (i) the volatility of loss rates for qualifying revolving retail exposures portfolio is low relative to their average level of loss rates, by assessing an institution's comparison of the volatility of loss rates for qualifying revolving retail exposures portfolio as opposed to other retail exposures or to other benchmark values;
 - (ii) the risk management of qualifying revolving retail exposures portfolio is consistent with the underlying risk characteristics, including loss rates;
 - (b) for the purposes of verifying compliance with Article 154(3) of Regulation (EU) No 575/2013, competent authorities shall verify in particular that all exposures where the immovable property collateral is used in the own-LGD estimates in accordance with 181(1)(f) of Regulation (EU) No 575/2013, a coefficient of correlation as referred to in Article 154(3) of Regulation (EU) No 575/2013 is assigned.

CHAPTER 10

Assessment methodology for stress test used in assessment of capital adequacy

Article 66 General

1. In order to assess the soundness of an institution's stress test used in the assessment of its capital adequacy in accordance with Article 177(2) of Regulation (EU) No 575/2013, competent authorities shall verify in particular all of the following:
 - (a) the adequacy of methods used in designing the stress test, in accordance with Article 67;
 - (b) the robustness of organisation of the stress test process, in accordance with Article 68;
 - (c) the integration of the stress test with the risk and capital management processes, in accordance with Article 69.
2. For the purposes of paragraph 1, competent authorities shall apply all of the following core methods:
 - (a) review the institution's internal policies, methods and procedures on the design and execution of stress test;
 - (b) review the institution's outcomes of the stress test;
 - (c) review the roles and responsibilities of the units and management bodies involved in designing, approval and execution of the stress test;
 - (d) review the relevant minutes of the institution's internal bodies, including the management body, or other committees;

- (e) review the relevant findings of the internal audit or of other control functions of the institution;
 - (f) review the progress reports on the effort of the institution to correct shortcomings and mitigate risks detected during relevant audits;
 - (g) obtain written statements or interview the relevant staff and senior management of the institution.
3. For the purpose of paragraph 1, competent authorities may also apply, any of the following additional methods:
- (a) review the functional documentation of the IT systems used for the stress test;
 - (b) request the institution to perform a computation of the stress test based on alternative assumptions;
 - (c) perform own stress test calculations based on the institution's data for certain types of exposures;
 - (d) review other relevant documents of the institution.

Article 67

Adequacy of methods used in designing the stress tests

1. In assessing the adequacy of methods used in designing the stress test used by the institution in the assessment of the capital adequacy as referred to in Article 66(1)(a), competent authorities shall verify in particular that:
- (a) the tests are meaningful, reasonably conservative and capable of identifying the effect of severe, but plausible, recession scenarios on the institution's total capital requirements for credit risk;
 - (b) the scope of the tests contains at least all material IRB portfolios;
 - (c) the methods are consistent to the extent appropriate with methods used by the institution for the purpose of internal capital allocation stress tests;
 - (d) the documentation of the methodology of stress tests including internal and external data as well as expert judgment input is detailed enough to allow third parties to understand the rationale for the chosen scenarios and to replicate the stress test.
2. For the purpose of paragraph 1(a), competent authorities shall verify that the stress tests include at least the following steps:
- (a) the identification of the scenarios including severe, but plausible, recession scenarios and, where the treatment referred to in Article 153(3) of Regulation (EU) No 575/2013 is used, the scenario envisaging deterioration of credit quality of protection providers;
 - (b) the assessment of impact of identified scenarios on the institution's risk parameters, rating migration, expected losses and the calculation of own funds requirements for credit risk;
 - (c) the assessment of adequacy of own funds requirements.
3. In assessing the adequacy of scenarios as referred to paragraph 2(a), competent authorities shall verify the soundness of the following methodologies in particular:

- (a) the methodology for identifying a group of economic drivers;
- (b) the methodology for building stress scenarios, including their severity, duration and likelihood of occurrence;
- (c) the methodology for projecting the impact of each scenario on the relevant risk parameters.

Article 68

Robustness of the organisation of the stress tests process

In assessing the robustness of the organisation of the stress tests process used by the institution in the assessment of the capital adequacy as referred to in Article 66(1)(b), competent authorities shall verify in particular that:

- (a) the stress test is performed regularly and at least on a yearly basis;
- (b) the roles and responsibilities of the unit or units in charge of the design and execution of the stress test are clearly defined;
- (c) the results of stress test are approved on an adequate management level and that senior management is informed of the results in a timely manner;
- (d) the IT infrastructure effectively supports the performance of stress tests.

Article 69

Integration of the stress tests with the risk and capital management processes

In assessing the integration of the stress tests with the risk and capital management processes of the institution as referred to in Article 66(1)(c), competent authorities shall verify in particular that:

- (a) the institution takes into account the results of stress tests in its decision making process and in particular with regard to risk and capital management;
- (b) the institution takes into account the results of stress tests within the capital management processes so as to check the forward looking nature of capital requirements;

CHAPTER 11

Assessment methodology of the calculation of own funds requirements

Article 70

General

1. In order to assess whether an institution calculates the own funds requirements using its risk parameters for different exposure classes in accordance with Articles 110(2) and (3), 144(1)(g), 151 to 168 and 500 of Regulation (EU) No 575/2013 and is able to submit the reporting required by Article 99 of Regulation (EU) No 575/2013, competent authorities shall verify in particular all of the following:
 - (a) the reliability of the system used for the calculation of own funds requirements, in accordance with Article 71;

- (b) the data quality, in accordance with Article 72;
 - (c) the correctness of the implementation of the methodology and procedures for different exposure classes, in accordance with Article 73;
 - (d) the organization of the calculation of own funds requirements process, in accordance with Article 74.
2. For the purpose of paragraph 1 competent authorities, where applicable, shall take in due consideration the structure of the banking group and the established roles and responsibilities of the parent institution and its subsidiaries in the calculation of own funds requirements.
3. For the purposes of paragraphs 1 and 2, competent authorities shall apply all of the following core methods:
- (a) review the institution's internal policies and procedures with regard to the process of calculation of own funds requirements, including the sources of data, calculation methods and controls applied;
 - (b) review the relevant roles and responsibilities of the different units and internal bodies involved in the process of calculation of own funds requirements ;
 - (c) review the relevant minutes of the institution's internal bodies, including the management body, or other committees;
 - (d) review the documentation of the tests of the calculation system, including the scenarios covered in the tests, their results and approvals;
 - (e) review the relevant control reports, including the reconciliation results;
 - (f) review the relevant findings of the internal audit or of other control function of the institution;
 - (g) review the progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during relevant audits;
 - (h) obtain written statements or interview the relevant staff and senior management of the institution.
4. For the purpose of paragraphs 1 and 2, competent authorities may also apply any of the following additional methods:
- (a) review the functional documentation of the IT systems used for the calculation of own funds requirements;
 - (b) request the institution to perform a live computation of the own funds requirements for certain types of exposures;
 - (c) perform own sample testing of the calculation of own funds requirements on institution's data for certain types of exposures;
 - (d) perform own tests on the data of the institution or request the institution to perform tests proposed by the competent authorities;
 - (e) review other relevant documents of the institution.

Article 71

Reliability of the system used for the calculation of own funds requirements

In assessing the reliability of the institution's system used for the calculation of own funds requirements as referred to in Article 70(1)(a), in addition to the requirements of Chapter 12 on data maintenance, competent authorities shall verify in particular that:

- (a) the control tests performed by the institution to provide confirmation that the calculation of own funds requirements is compliant with Articles 151 to 168 of Regulation (EU) No 575/2013 are complete;
- (b) the control tests performed by the institution are reliable, and in particular the calculations made in the system used for the own funds requirements are coherent with the calculation in an alternative calculation tool;
- (c) the frequency of the control tests performed by the institution is adequate and the tests take place at least at the moment of the implementation of the algorithms for the calculation of own funds requirements and in all other cases where changes to the system are made.

Article 72

Data quality

1. In assessing the data quality used for the calculation of own funds requirements referred to in Article 70(1)(b), in addition to the requirements of Article 76, competent authorities shall verify the mechanisms and procedures implemented by the institution for identifying the exposure values with all relevant characteristics, including data related to risk parameters and credit risk mitigation techniques. In particular, competent authorities shall verify that:
 - (a) the risk parameters are complete, including in cases where missing parameters are substituted by default values, and that where such a substitution has taken place, it is conservative, justified and documented;
 - (b) the range of the parameters values takes into account the regulatory thresholds specified in Articles 162 to 164 of Regulation (EU) No 575/2013;
 - (c) the data used in the calculation of own funds requirements is consistent with the data used in other internal processes;
 - (d) the application of risk parameters is in accordance with the exposure characteristics, and in particular that the LGD assigned is accurate and consistent with the type of exposure and collateral used to secure the exposure in accordance with Articles 164 and 230(2) of Regulation (EU) No 575/2013;
 - (e) the calculation of the exposure value is correct, and in particular the netting agreements and the classification of off-balance sheet items are used in accordance with Article 166 of Regulation (EU) No 575/2013;
 - (f) where the PD/LGD method is applied for equity exposures, the classification of the exposures and the application of risk parameters is correct in accordance with Article 165 of Regulation (EU) No 575/2013.
2. In assessing the coherence of the data used for the calculation of own funds requirements with the data used for the internal purposes in accordance with Chapter 4 on the use test

and experience test and for accounting purposes, competent authorities shall verify in particular that:

- (a) there are adequate control and reconciliation mechanisms in place to ensure that the values of risk parameters used in the calculation of own funds requirements are consistent with the value of parameters used for internal purposes in accordance with Chapter 4 on the use test and experience;
- (b) there are adequate control and reconciliation mechanisms in place to ensure that the value of exposures for which the own funds requirements are calculated is consistent with the accounting data;
- (c) the calculation of own funds requirements for all exposures included in the general ledger of the institution is complete, and that the split between the exposures under the IRB and the Standardised Approach complies with Articles 148 and 150 of Regulation (EU) No 575/2013.

Article 73

Correctness of the implementation of the methodology and procedures for different exposure classes

In assessing the correctness of the implementation of the methodology and procedures for different exposure classes as referred to in Article 70(1)(c), competent authorities shall in particular verify that:

- (a) the RW formula is implemented correctly in accordance with Articles 153 and 154 of Regulation (EU) No 575/2013, taking into account the assignment of exposures to exposure classes;
- (b) the calculation of the correlation coefficient ('R') is done in accordance with the characteristics of certain exposures, in particular that the total sales ('S') parameter is applied on the basis of consolidated financial information;
- (c) the credit risk mitigation techniques are applied in accordance with Article 153(3) of Regulation (EU) No 575/2013 on the basis of all of the following considerations:
 - (i) that the information on the PD of the protection provider is applied correctly;
 - (ii) that for those exposures where the PD of the obligor has been replaced with the PD of the protection provider, an adequate protection from an eligible provider is available and the credit protection meets the requirements of Article 217 of Regulation (EU) No 575/2013;
 - (iii) that the PD of the protection provider is estimated with the use of the rating system that has been approved by the competent authorities under the IRB Approach;
- (d) the calculation of the maturity (M) parameter is correct, and in particular:
 - (i) that the expiry date of the facility is used for the purpose of calculation of the maturity parameter in accordance with Article 162(2)(f) of Regulation (EU) No 575/2013;

- (ii) that the exemptions from the 1 year maturity floor are adequately justified and documented for the purpose of Article 162(3) of Regulation (EU) No 575/2013;
- (e) the floors for the exposure-weighted average LGD for retail exposures secured by residential property and commercial real estate, which are not benefiting from guarantees of central governments in accordance with Article 164(4) and (6) of Regulation (EU) No 575/2013, are calculated at the aggregated level of all retail exposures secured by residential property and commercial real estate respectively, and that, where the exposure-weighted average LGD at the aggregated level is below the respective floors, relevant adjustments are applied consistently over time by the institution;
- (f) the application of different approaches for different equity portfolios where the institution itself uses different approaches for internal risk management in accordance with Article 155 of Regulation (EU) No 575/2013, is correct, in particular considering that the choice of the approach:
 - (i) does not lead to underestimation of own funds requirements;
 - (ii) is made consistently, including over time;
 - (iii) is justified by internal risk management practices;
- (g) where the Simple risk weight approach is used in accordance with Article 155(2) of Regulation (EU) No 575/2013, the application of risk weights is correct, in particular that the risk weight of 190% is used only for sufficiently diversified portfolios, where the institution has proven that significant reduction of risk has been achieved as a result of the diversification of the portfolio in comparison to the risk of individual exposures in the portfolio;
- (h) the calculation of the difference between expected loss amounts and credit risk adjustments, additional value adjustments and other own funds reductions in line with Article 159 of Regulation (EU) No 575/2013 is correct, and in particular:
 - (i) that the calculation is performed separately for the portfolio of defaulted exposures and the portfolio of exposures that are not in default;
 - (ii) where the calculation performed for the defaulted portfolio results in a negative amount, that this amount is not used to offset the positive amounts resulting from the calculation performed for the portfolio of exposures that are not in default;
 - (iii) that the calculation is performed gross of tax effects;
- (i) the various approaches for the treatment of exposures in the form of units or shares in CIUs are applied correctly, and in particular:
 - (i) whether the institution correctly distinguishes between exposures in CIUs subject to the look-through approach according to Article 152(1) and (2) of Regulation (EU) No 575/2013 and other exposures in CIUs;

- (ii) whether the exposures in CIUs treated according to Article 152(1) or (2) of Regulation (EU) No 575/2013 meet the requirements of Article 132(3) of that Regulation;
- (iii) where the institution uses the approach referred to in Article 152(4) of Regulation (EU) No 575/2013 for the calculation of the average risk weighted exposure amounts, whether:
 - the correctness of the calculation is confirmed by an external auditor;
 the multiplication factors of Article 152(2)(b)(i) and (ii) of Regulation (EU) No 575/2013 are applied correctly;
 - where the institution relies on a third party for the calculation of the risk-weighted exposure amounts, whether the third party meets the requirements of Article 152(4)(a) and (b) of Regulation (EU) No 575/2013.

Article 74

Organization of the process for the calculation of own funds requirements

In assessing the soundness of the process for the calculation of own funds requirements as referred to in Article 70(1)(d), competent authorities shall verify in particular that:

- (a) the allocation of responsibilities of the unit or units in charge of the control and management of the calculation process and in particular with regard to the specific controls to be performed at each step of the calculation process, is clearly defined;
- (b) relevant procedures, including back-up procedures, ensure that the calculation of own funds requirements is carried out at least on a semi-annual basis in accordance with Article 99(1) of Regulation (EU) No 575/2013;
- (c) all input data, including the values of risk parameters as well as previous versions of the system are stored to allow replication of the calculation of own funds requirements;
- (d) the results of the calculation are approved on an adequate management level and that senior management is informed about possible errors or inadequacies of the calculation and the measures to be taken.

CHAPTER 12

Assessment methodology of data maintenance

Article 75

General

1. In order to assess compliance of an institution with the requirements on data maintenance, as referred to in Articles 144(1)(d) and 176 of Regulation (EU) No 575/2013, competent authorities shall evaluate in particular all of the following:
 - (a) the quality of the internal, external or pooled data, including the data quality management process, in accordance with Article 76;

- (b) the data documentation and reporting, in accordance with Article 77;
 - (c) the relevant IT infrastructure, in accordance with Article 78.
2. For the purpose of paragraph 1, competent authorities shall apply all of the following core methods:
- (a) review the data quality management policies, methods and procedures relevant for the data used in the IRB Approach;
 - (b) review the relevant data quality reports, as well as their conclusions and recommendations;
 - (c) review the IT infrastructure policies and IT systems management procedures, including the contingency planning policies, relevant for the IT systems used for the purpose of the IRB Approach;
 - (d) review the relevant minutes of the institution's internal bodies, including management body, or other committees;
 - (e) review the relevant findings of the internal audit or of other control functions of the institution;
 - (f) review the progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during relevant audits;
 - (g) obtain written statements or interview the relevant staff and senior management of the institution.
3. For the purpose of paragraph 1, competent authorities may also apply any of the following additional methods:
- (a) perform own tests on the data of the institution or request the institution to perform tests proposed by the competent authorities;
 - (b) review other relevant documents of the institution.

Article 76
Data quality

1. In assessing the quality of internal, external or pooled data, which the institution uses to support its credit risk measurement and management process, as referred to in Article 75(1)(a), competent authorities shall, in particular, verify that:
- (a) the values are present in the attributes that require them ('completeness');
 - (b) the data is substantively error-free ('accuracy');
 - (c) a given set of data can be matched across different data sources of the institution ('consistency');
 - (d) the data values are up to date ('timeliness');
 - (e) the aggregate data is free from any duplication given by filters or other transformations of source data ('uniqueness');
 - (f) the data is founded on an adequate system of classification, rigorous enough to compel acceptance ('validity');

- (g) the history, processing and location of data under consideration can be easily traced ('traceability').
2. In assessing the data quality management process as referred to in Article 75(1)(a), competent authorities shall, in particular, verify that:
- (a) all of the following are in place:
- (i) adequate data quality standards that set the objectives and the overall scope of the data quality management process;
 - (ii) adequate policies, standards and procedures for data collection, storage, migration, actualisation and use;
 - (iii) a practice of the continuous updating and improving of the data quality management process;
 - (iv) a set of criteria and procedures for determining conformity with the data quality standards, and in particular the general criteria and process of data reconciliation across and within systems including among accounting and internal ratings-based data;
 - (v) adequate processes for internally assessing and constantly improving data quality, including the process of issuing internal recommendations to address problems in areas which need improvement and the process of implementing these recommendations with a priority based on their materiality and more in particular the process for addressing material discrepancies arising during the data reconciliation process;
- (b) there is adequate degree of independence of the data collection from the data quality management process, including a separation of the organizational structure and staff, where appropriate.

Article 77

Data documentation and reporting

1. In assessing the data documentation as referred to in Article 75(1)(b), which the institution uses to support its credit risk measurement and management process, competent authorities shall, in particular, evaluate all of the following:
- (a) the specification of the set of databases and in particular:
- (i) the global map of databases involved in the calculation systems used for the purpose of the IRB Approach;
 - (ii) the relevant sources of data;
 - (iii) the relevant processes of data extraction and transformation and criteria used in this regard;
 - (iv) the relevant functional specification of databases, including their size, date of construction, data dictionaries specifying the content of the fields and of the different values inserted in the fields with clear definitions of data items;

- (v) the relevant technical specification of databases, including the type of database, tables, database management system, data base architecture; and data models given in any standard data modelling notation;
 - (vi) the relevant work-flows and procedures relating to data collection and data storage;
 - (b) the data management policy and allocation of responsibilities, including users' profiles and data owners;
 - (c) the transparency, accessibility and consistency of the controls implemented in the data management framework.
2. In assessing data reporting as referred to in Article 75(1)(b), competent authorities shall verify, in particular, that data reporting:
- (a) specifies the scope of reports or reviews, the findings and, where applicable, the recommendations to address weaknesses or shortfalls detected;
 - (b) is communicated to the senior management and management body of the institution with an adequate frequency and that the level of the recipient of the data reporting is consistent with the institution's organizational structure, and the type and significance of the information;
 - (c) is performed regularly and where appropriate, also on an *ad hoc* basis;
 - (d) provides adequate evidence that the recommendations are sufficiently addressed and properly implemented by the institution.

Article 78
IT infrastructure

1. In assessing the architecture of the IT systems, which are of relevance to the institution's rating systems and to the application of the IRB Approach as referred to in Article 75(1)(c), competent authorities shall, in particular, evaluate all of the following:
- (a) the IT systems architecture including all applications, their interfaces and interactions;
 - (b) a data flow diagram showing a map of the key applications, databases and IT components involved in the application of the IRB Approach and related to rating systems;
 - (c) the assignment of IT systems owners;
 - (d) the capacity, scalability and efficiency of IT systems;
 - (e) the manuals of the IT systems and databases.
2. In assessing the soundness, safety and security of the IT infrastructure that is of relevance to the institution's rating systems and to the application of the IRB Approach, competent authorities shall in particular verify that:
- (a) the IT infrastructure is deemed sound, on the basis that it can support the ordinary and extraordinary processes of an institution in a timely, automatic and flexible manner;

- (b) the IT infrastructure is deemed safe, on the basis that the risk of suspension of its abilities ('failures'), the risk of loss of data and the risk of incorrect evaluations ('faults') are appropriately addressed;
 - (c) the IT infrastructure is deemed secure, on the basis that it is adequately protected against theft, fraud, manipulation or sabotage of data or systems by malicious insiders or outsiders.
3. In assessing the robustness of the IT infrastructure that is of relevance to the institution's rating systems and to the application of the IRB Approach, competent authorities shall verify in particular that:
- (a) the procedures to back up the IT systems, data and documentation are implemented and tested on a periodic basis;
 - (b) continuity action plans are implemented to critical IT systems;
 - (c) the recovery procedures of IT systems in case of failure are defined and tested on a periodic basis;
 - (d) the management of IT systems users is compliant with the institution's relevant policies and procedures;
 - (e) audit trails are implemented for critical IT systems;
 - (f) the management of changes of IT systems is adequate and the monitoring of changes covers all IT systems.
4. In assessing whether the IT infrastructure, that is of relevance to the institution's rating systems and to the application of the IRB Approach, is reviewed both regularly and on an *ad hoc* basis, competent authorities shall verify, in particular that:
- (a) regular monitoring and *ad hoc* reviews result in recommendations to address weaknesses or shortfalls, where detected;
 - (b) the findings and the recommendations referred to in point (a) are communicated to the senior management and management body of the institution;
 - (c) there is adequate evidence that the recommendations are properly addressed and implemented by the institution.

CHAPTER 13

Assessment methodology of internal models for equity exposures

Article 79 *General*

1. In order to assess whether an institution is able to develop and validate the internal model for equity exposures and to assign each exposure to the range of application of an internal models approach for equity exposures, as referred to in Articles 144(1)(f) and (h) and 186 to 188 of Regulation (EU) No 575/2013, competent authorities shall in particular evaluate all of the following:
- (a) the adequacy of the data used, in accordance with Article 80;
 - (b) the adequacy of the models, in accordance with Article 81;

- (c) the comprehensiveness of the stress-testing programme, in accordance with Article 82;
 - (d) the integrity of the model and modelling process, in accordance with Article 83;
 - (e) the adequacy of the assignment of exposures to the internal models approach, in accordance with Article 84;
 - (f) the adequacy of the validation function, in accordance with Article 85.
2. For the purposes of paragraph 1, competent authorities shall apply all of the following core methods:
- (a) review the institution's relevant internal policies and procedures;
 - (b) review the institution's technical documentation on the methodology and process of the development of the internal model for equity exposures;
 - (c) review and challenge the relevant development manuals, methodologies and processes;
 - (d) review the roles and responsibilities of the different units and internal bodies involved in the design, validation and application of the internal model for equity exposures;
 - (e) review the relevant minutes of the institution's internal bodies, including the management body, or other committees;
 - (f) review the relevant reports on the performance of the internal models for equity exposures and the recommendations by the credit risk control unit, validation function, internal audit function or any other control function of the institution;
 - (g) review the relevant progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during monitoring, validations and audits;
 - (h) obtain written statements or interview the relevant staff and senior management of the institution.
3. For the purposes of paragraph 1, competent authorities may also apply any of the following additional methods:
- (a) request and analyse data used in the process of development of internal models for equity exposures;
 - (b) conduct their own or replicate the institution's VaR estimations using relevant data supplied by the institution;
 - (c) request the provision of additional documentation or analysis substantiating the methodological choices and the results obtained;
 - (d) review the functional documentation of the IT systems used for the VaR calculation;
 - (e) review other relevant documents of the institution.

Article 80
Adequacy of the data

In assessing the adequacy of the data used to represent the actual return distributions on equity exposures in accordance with Article 79(1)(a), in addition to the requirements of Article 75(1)(a) and (b), competent authorities shall verify that:

- (a) the data represents the risk profile of the institution's specific equity exposures;
- (b) the data is sufficient to provide statistically reliable loss estimates, or it has been adequately adjusted in order to attain model outputs that achieve appropriate realism and conservatism;
- (c) the data used comes from external sources or, where internal data is used, it is independently reviewed by a relevant control function of the institution;
- (d) the data reflects the longest available period in order to provide a conservative estimate of potential losses over a relevant long-term or business cycle, and in particular that it includes the period of significant financial stress relevant to the institution's portfolio;
- (e) where converted-quarterly data from a shorter horizon is used, that the conversion procedure is supported by empirical evidence through a well-developed and documented approach and applied conservatively and consistently over time;
- (f) the longest time horizon is chosen which allows the estimation of the 99 percentile with non-overlapping observations.

Article 81
Adequacy of the models

In assessing the adequacy of the models used to estimate the equity return distributions for the calculation of own funds requirements in accordance with Article 79(1)(b), competent authorities shall verify in particular that:

- (a) the model is appropriate for the risk profile and complexity of an institution's equity portfolio, and that where the institution has material holdings with values that are highly non-linear in nature, the model accounts for that in an appropriate manner;
- (b) the mapping of individual positions to proxies, market indices and risk factors is plausible, intuitive and conceptually sound;
- (c) the selected risk factors are appropriate and effectively cover both general and specific risk;
- (d) the model adequately explains the historical price variation;
- (e) the model captures both the magnitude and changes in the composition of potential concentrations.

Article 82
Comprehensiveness of the stress-testing programme

1. In assessing the comprehensiveness of the stress-testing programme in accordance with Article 79(1)(c), competent authorities shall verify in particular that the

institution is able to provide loss estimates under alternative adverse scenarios and that those scenarios are different from the ones used by the internal model but still likely to occur.

2. For the purpose of paragraph 1, competent authorities shall verify in particular that:
 - (a) the stress scenarios are relevant to the specific holdings of the institution, reflect significant losses to the institution and capture effects which are not reflected in the outcomes of the model;
 - (b) the outcomes of the model under the stress scenarios are used in the actual risk management for the equity portfolio and they are periodically reported to senior management;
 - (c) the stress scenarios are periodically reviewed and updated.

Article 83

Integrity of the model and modelling process

1. In assessing the integrity of the model and modelling process in accordance with Article 79(1)(d), competent authorities shall verify in particular that:
 - (a) the internal model is fully integrated into the management of the non-trading book equity portfolio, the overall management information systems of the institution and the institution's risk management infrastructure and it is used to monitor the investment limits and the risk of equity exposures;
 - (b) the modelling unit is competent and independent from the unit responsible for managing the individual investments.
2. For the purpose of paragraph 1(a), competent authorities shall verify that:
 - (a) the institution's management body and senior management are actively involved in the risk control process in the sense that they have, at least, endorsed a set of investment limits based, among other factors, on the internal model's results;
 - (b) the reports produced by the risk control unit are reviewed by a level of management with sufficient authority to enforce reductions of positions as well as reduction in the institution's overall risk exposure;
 - (c) action plans are in place for market crisis situations affecting activities within the model's scope, describing the events that trigger them and the planned actions.
3. For the purpose of paragraph 1(b), competent authorities shall verify in particular that:
 - (a) the staff and the senior management responsible for the modelling unit do not perform tasks related to managing the individual investments;
 - (b) the senior managers of modelling units and of units responsible for managing the individual investments have different reporting lines at the level of the management body of the institution or the committee designated by it;
 - (c) the remuneration of the staff and of the senior management responsible for the modelling unit is not linked to the performance of the tasks relating to managing the individual investments.

Article 84

Adequacy of assignment of exposures to the internal models approach

In assessing the adequacy of the assignment of each exposure in the range of application of an approach for equity exposures to the internal models approach in accordance with Article 79(1)(e), competent authorities shall evaluate in particular the definitions, processes and criteria for assigning or reviewing the assignment.

Article 85

Adequacy of the validation function

In assessing the adequacy of the validation function in accordance with Article 79(1)(f), competent authorities shall apply Articles 10 to 13 and in addition they shall verify in particular that:

- (a) the institution compares the 1st percentile of the actual equity returns with the modelled estimates at least on a quarterly basis;
- (b) the comparison referred to in point (a) makes use of an observation period equal at least to one year and of a time horizon that allows the computation of the 1st percentile based on non-overlapping observations;
- (c) where the percentage of observations below the estimated 1st percentile of equity returns is above 1%, this is adequately justified and relevant remedial actions are taken by the institution.

CHAPTER 14

Assessment methodology for management of changes to rating systems

Article 86

General

1. In order to assess an institution's compliance with the requirements on the management of changes to the range of application of a rating system or an internal models approach to equity exposures, or of changes to the rating systems or internal models approach to equity exposures in accordance with Articles 143(3) and (4) and 175(2) of Regulation (EU) No 575/2013, competent authorities shall verify that the institution's policy related to changes to rating systems and, where applicable, internal models approach to equity exposures ('change policy') has been implemented adequately and meets the requirements of Delegated Regulation (EU) No 529/2014.
2. For the purposes of paragraph 1, in addition to reviewing the change policy itself, competent authorities shall apply all of the following core methods:
 - (a) review the relevant minutes of the institution's internal bodies, including the management body, model committee, or other committees;
 - (b) review the relevant reports on the management of changes to the rating systems and the recommendations by the credit risk control unit, validation function, internal audit function or any other control function of the institution;

- (c) review the relevant progress reports on the effort of the institution to correct shortfalls and mitigate risks detected during monitoring, validations and audits;
 - (d) obtain written statements or interview the relevant staff and the senior management of the institution.
3. For the purposes of paragraph 1, competent authorities may also review other relevant documents of the institution.

Article 87

Change policy content

In assessing an institution's change policy, as referred to in Article 86(1), competent authorities shall verify that the change policy includes provisions relating to the operationalization of the requirements of Regulation (EU) No 575/2013 as well as of the criteria laid down in Delegated Regulation (EU) No 529/2014 suitable for the IRB Approach taking into account in particular:

- (a) responsibilities, reporting lines and procedures for the internal approval of changes, taking into account the institution's organisational characteristics and approach specificities;
- (b) definitions, methods and, where applicable, metrics for the classification of changes;
- (c) procedures to identify, monitor, notify and apply for permission on changes to competent authorities;
- (d) procedures for the implementation of changes, including their documentation.

CHAPTER 15

Final provision

Article 88

Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

For the Commission
The President
On behalf of the President

4. Accompanying documents

4.1 Draft cost-benefit analysis/impact assessment

Introduction

Articles 144(2), 173(3) and 180(3)(b) of the CRR require the EBA to develop draft regulatory technical standards (RTS) that specify the assessment methodology competent authorities (CAs) shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach.

Article 10(1) of the EBA Regulation provides that when any regulatory technical standards developed by the EBA are submitted to the Commission for adoption, they should be accompanied by an analysis of 'the potential related costs and benefits'. This analysis should provide an overview of the findings regarding the problem to be dealt with, the solutions proposed and the potential impact of these options.

This annex presents an impact assessment with a cost-benefit analysis of the provisions included in the RTS described in the present final draft RTS.

EBA survey

For the impact assessment, the EBA prepared a qualitative survey addressed to the competent authorities. The qualitative survey aimed to collect data and information on the baseline and the expected costs and benefits of the draft RTS for the industry. The section of the survey that is related to the baseline aims to indicate the level of current practices in each Member State in relation to the draft RTS. In particular, the survey collected information on the current practices compared against each chapter of the draft RTS to understand the extent to which the current practices overlap with the standards to be introduced under the draft RTS. Secondly, the section of the survey that is related to the expected costs and benefits of the draft RTS aims to capture a negative correlation between the current practice and the potential costs and benefits of the draft RTS. In other words, if the current practice in a Member State is very similar to the standards to be introduced under the draft RTS, the corresponding costs for that Member State are expected to be negligible, while the benefits may be negligible or they may be greater due to positive externalities⁹. The presentation of the baseline and the analysis of the costs and benefits are based on the responses to the survey.

A total of 16 Member States (AT, BG, CZ, DE, ES, FR, HR, LT, LU, LV, NL, PT, SE, SI, SK, UK) responded to the survey. The sample, given the data/information as of mid-2014, covers 47 parent institutions, 58 subsidiaries¹⁰ and 44 stand-alone institutions. The total asset value of the institutions and subsidiaries in the sample is about EUR 23 164 billion, which is about 67% of the total assets in the entire banking

⁹ Even if the current practice in a Member State is 'fully compliant', i.e. overlaps with the draft RTS, the benefits for the Member State may be great due to positive externalities. This largely depends on practices in other EU Member States.

¹⁰ In BG one subsidiary is in the process of receiving authorisation to use an IRB model.

sector covered by the sample. The coverage in terms of the asset share of the entities that use the IRB Approach in the entire banking sector in each Member State varies from 7% to over 95%.

Problem definition

Under the current regulatory framework there are no common standards for assessing the compliance of institutions with the requirements to use the IRB Approach. The criteria and procedures that CAs may use in their assessments vary across jurisdictions.

The lack of common standards for the assessment of the IRB Approach may lead to:

- an uneven playing field: two institutions located in two different jurisdictions may be treated differently if the conditions and parameters for the assessment of the rating systems are not consistent between jurisdictions;
- regulatory arbitrage: institutions may have large leeway to decide on a specific model and related assumptions that are not necessarily prudent; in certain cases, the objective of the institution may be to reduce own funds requirements rather than to decide on an appropriate level of capital; and
- asymmetric information and lack of comparability in home-host coordination: this may result when authorities handle cross-border cases.

On a larger scale, such problems in the regulatory framework may prevent the effective and efficient functioning of the EU banking sector and the internal market.

Objectives

The objective of the draft RTS is to establish a harmonised regulatory framework by introducing a set of criteria and methods that CAs have to use in the assessment of the application of the IRB Approach by institutions for the purpose of own funds requirements calculation.

The policy intervention is expected to provide CAs with more information in terms of benchmarking and cross-jurisdiction comparison when they assess the robustness, consistency and accuracy of the rating systems used by the institutions.

Baseline scenario

At the consolidated level, there are currently more than 5 400 IRB models, including 2 639 PD IRB models, 1 618 LGD IRB models and 1 153 CCF IRB models, assessed by the home competent authorities in 17 Member States. Of the total IRB models about 30% (1 556 cases) have a cross-border element, i.e. home-host cooperation takes place in the assessment of the IRB models.

Due to the high number of IRB models used in Member States such as Spain, Germany, the UK and the Netherlands, the draft RTS are expected to have the greatest impact on these Member States in absolute terms. These Member States have a share of about 65% of the total number of IRB models in the European Union.

The form and the scope of the current practices related to the supervision of the IRB Approach vary across Member States. Overall, most Member States (70%) currently have national rules or relevant practices to regulate the use of the IRB Approach and, when such rules or practices are available, in most cases they are in the form of non-public rules (45%) such as handbooks, standards and principles used only by CAs and terms and conditions formulated by CAs, or in the form of public and non-binding rules (28%) such as national guidelines, working papers and recommendations. In 27% of cases, Member States rely on public and binding rules such as national legislation.

The majority of the responses indicated that the current practices in Member States are either in full compliance (65%) or mostly compliant (33%) with the proposed requirements in the draft RTS. The level of compliance and the basis of the current practice in Member States depend also on the chapter in question in the draft RTS. Table 1 presents the basis of the current practices and the aggregate level of compliance with the draft RTS by chapter.

Table 1 Current practices and the level of compliance with respect to the draft RTS by chapter (sample level)

	Availability of national rules/practices	Form of the national rules/practices			Overall level of compliance with the draft RTS			
		Yes	Non public	Public and binding	Public and non-binding	Not complied	Partially complied	Mostly complied
Chapter 1	88%	36%	43%	21%	0%	14%	21%	64%
Chapter 2	69%	36%	36%	27%	0%	9%	45%	45%
Chapter 3	81%	46%	23%	31%	0%	0%	31%	69%
Article 10	69%	55%	18%	27%	9%	0%	27%	64%
Chapter 4	69%	27%	36%	36%	0%	0%	18%	82%
Chapter 5	75%	50%	17%	33%	0%	0%	42%	58%
Chapter 6	81%	33%	42%	25%	0%	0%	31%	69%
Chapter 7	75%	58%	17%	25%	0%	0%	42%	58%
Chapter 8	81%	54%	15%	31%	0%	8%	31%	62%
Article 51	75%	50%	25%	25%	17%	8%	33%	42%
Chapter 9	75%	50%	17%	33%	0%	0%	25%	75%
Chapter 10	56%	44%	22%	33%	0%	0%	33%	67%
Chapter 11	69%	55%	27%	18%	0%	0%	27%	73%
Article 75	63%	50%	30%	20%	0%	10%	50%	40%
Chapter 12	63%	60%	20%	20%	0%	0%	40%	60%
Chapter 13	44%	43%	29%	29%	0%	0%	43%	57%
Chapter 14	56%	33%	33%	33%	0%	0%	33%	67%
Average*	70%	45%	27%	28%	0%	2%	33%	65%

Source and notes: EBA analysis

*Average based on the overall scores for the chapters and excluding percentages specific to Articles 10, 51 and 75. The totals may not equal 100% due to rounding.

The variations in the national practices from the content of the draft RTS are mainly related to the following issues:

- Some Member States apply less restrictive rules specific to outsourcing [Chapter 1].
- Some Member States have more flexible rules and allow institutions more discretion in the assessment methodologies of roll-out plans and permanent partial use [Chapter 2].
- With regard to the independence of the validation function, compared with the draft RTS some Member States currently apply more stringent rules, i.e. organisational separation of the validation function from the credit risk control unit; some others do not have any requirements [Article 10, Chapter 3].
- The definition of default is more conservative and strict in certain jurisdictions and it is more flexible in some others than that of the draft RTS [Chapter 6].
- The provision of a register of rating systems by institutions is not required in some Member States, and it is included in the draft RTS [Chapter 7].
- A number of Member States currently apply exposure-weighted average of LGD as opposed to the default-weighted average specified in the draft RTS [Article 51, Chapter 8].
- In some Member States the framework does not cover models for equity exposures [Chapter 13].

Despite some variations, the survey results show that almost all Member States (98% of the sample) are mostly or fully compliant with the content of the draft RTS; therefore, the costs (e.g. operational, administrative) are expected to be somewhat negligible or low at the EU level.

Assessment of the technical options

Technical options

Options related to governance and validation

Independence of the validation function

Option 1a: No specific independence requirement

Option 1b: Specification of the independence of the validation function on the basis of the proportionality principle

Option 1c: Specification of the independence requirements in terms of staff, organisational units and reporting lines up to the level of the management board

Options related to risk quantification

Weighted average of loss given default (LGD)

Option 2a: Default weighted average of loss given default (LGD)

Option 2b: Exposure weighted average of loss given default (LGD)

Options related to RWA calculation

Calculation of the IRB shortfall

Option 3a: Calculation of the IRB shortfall separately for the defaulted exposures and non-defaulted exposures portfolios

Option 3b: Calculation of the IRB shortfall for defaulted exposures individually

Option 3c: Calculation of the IRB shortfall at the level of a homogenous sub-portfolio

Assessment of the technical options and the preferred options

a. Independence of the validation function

The current regulatory framework does not provide clear criteria for the independence of the validation function, leaving room for various interpretations. No requirement for the independence of the validation function in the draft RTS (option 1a) means that the setup of the validation function would remain unchanged, with significant differences across jurisdictions in terms of supervisory expectations. Such flexibility could allow better adjustment of the setup of the validation function to the needs and complexity of the institution. However, in cases where the framework fails to achieve independence from the credit risk control unit (CRCU), the quality of the rating systems may decrease

due to the lack of objective assessment of the models. In addition, option 1a is not expected to address the identified problems and achieve the policy objectives.

Option 1c introduces full independence for all institutions in terms of staff, organisational units and reporting lines up to the level of management board. Full independence is expected to ensure objective review of the models and therefore constant improvements of the models by addressing identified weaknesses. However, one major argument against the option is that it does not respect the concept of proportionality. A full independence requirement may be disproportionately burdensome for small institutions because the qualified staff for the CRCU and validation unit would be required to operate separately.

It is expected that independence of the validation function based on the proportionality principle (option 1b) is the optimum requirement: it finds a balance between a sufficient level of independence and proportionality. This approach to the requirements for the independence of the validation function from the CRCU:

- ensures an objective assessment of the rating systems and limited pressure on the results of the validation;
- allows an objective and robust view of the rating systems by staff who are not involved in the development process; and
- accounts for the concept of proportionality.

Given these arguments, option 1b is selected as the preferred option.

b. Weighted average of loss given default (LGD)

Under option 2a, institutions would calculate the weighted average of LGD by the number of defaults. The major arguments for this option are the following:

- The LGD parameter should be calculated for homogenous pools or facility grades; therefore, if risk drivers such as exposure amount are relevant, they should be used for the segregation or risk differentiation of LGD.
- The PD parameter is calculated in accordance with the number of default weighted average; for the sake of consistency the LGD measurement approach should also follow this method.
- For the IRB Approach, individual risk estimation is necessary for single exposures and obligors. This is different from Pillar 2, where risk is measured directly at portfolio level and risk measures for single exposures and obligors are not applicable. Therefore, weighting by exposure is applied to Pillar 2 models, and for models under the IRB Approach the LGD is weighted by number of defaults, the information on exposure value is applied as a separate component (EAD) in the final RWA calculation.

- The LGD floor for exposures secured by immovable property is defined as an exposure-weighted average LGD. For LGD quantification the CRR uses the notion of default-weighted average LGD. If the default-weighted average LGD is interpreted as the number of defaults, then it is possible to argue that the exposure-weighted floor should be applied at portfolio level, whereas default weighted LGD should be applied at single exposure level.
- If LGD is exposure-weighted, a few major observations can have a disproportionate effect on LGD. Given that LGD is derived from far fewer observations than PD, the impact of a few 'big defaults' could lead to a less robust estimation.

Option 2b proposes that the default weighted average is treated as the exposure weighted average of LGD. Major arguments for this option include the following:

- The exposure-weighted LGD equals the LGD at portfolio level given all the underlying LGDs of the individual exposures.
- The LGD floor for exposures secured by immovable property is defined as an exposure-weighted average LGD. The floor calculation method should be the same as the calculation method for the LGD in order to replace the lower LGDs where necessary in the RWA calculation.
- For retail portfolios, e.g. retail mortgages, exposure-weighted average LGD yields more conservative results. These exposures default mostly in the first years of the loan and thus the larger exposures have worse ratings.

Given these arguments, option 2a is selected as the preferred option.

c. Calculation of the IRB shortfall

The IRB shortfall is the difference between the expected loss amounts and credit risk adjustments, additional value adjustments and other own funds reductions. The calculation of the IRB shortfall is carried out in line with Article 159 of the CRR and is performed on an aggregate level separately for the portfolio of defaulted exposures and the portfolio of exposures that are not in default (option 3a). The practice suggested under option 3a ensures that the negative amounts resulting from the calculation for the defaulted portfolio are not used to offset the positive amounts resulting from the calculation for the portfolio of exposures that are not in default.

Secondly, according to Article 36 of the CRR, when the amount of provisions does not fully cover the expected losses of defaulted exposures, the difference should be deducted from Tier 1 capital. This is because the purpose of own funds is to ensure that the unexpected losses are fully covered in case of insolvency of the institution. The amounts of provisions cover the expected losses and are therefore deducted from Tier 1 capital. On the other hand, when the amount of provisions exceeds the amount of expected losses, the excess amount of provisions on the total expected losses can be allocated to cover the unexpected losses and can therefore be added to Tier 2 capital, up to a limit defined in Article 62 of the CRR. Similarly, when the amount of provisions on one defaulted

exposure exceeds the expected loss on that exposure, the excess amount can be allocated to cover the expected loss on another defaulted exposure where the amount of provisions is not sufficient. Therefore, the calculation of the IRB shortfall should be performed at an aggregate level for all defaulted exposures. Similarly, the IRB shortfall should be calculated at an aggregate level for all non-defaulted exposures.

Thirdly, in the case of defaulted exposures the loss has already been identified; therefore, most of the amount of defaulted exposures is covered by the provisions for the expected loss and the capital requirement for the unexpected loss is typically lower. For defaulted exposures, institutions have to calculate the best estimate of expected loss that takes into account all available information about the obligor and the transaction. This expected loss should be covered by provisions, but in some cases the provisions may be calculated in a simpler way, leading to IRB shortfall or excess. If calculating the IRB shortfall for defaulted exposures on an individual level is required, institutions may have incentives to avoid excessive deductions from Tier 1 capital by aligning their best estimate for the expected loss with the value of provisions. However, the approach to be followed should not discourage institutions from making an appropriate calculation of expected loss and RWA for their defaulted exposures.

Option 3b proposes the calculation of the IRB shortfall for defaulted exposures at an individual level. It is reasonable to argue that the individual calculation of the IRB shortfall for these exposures is a more prudent approach. The calculation of the IRB shortfall at the aggregate level pools exposures to counterparties and allows for the netting of individual shortfalls/excesses of provisions. An individual approach, on the other hand, is expected to avoid the 'subsidisation' effect of individual shortfalls/excesses. This, therefore, would lead to the deduction of the sum of all individual shortfalls from Tier 1 capital and the addition of the sum of all individual excesses to Tier 2 capital (up to a limit of 0.6% of RWA). In the case of institutions that currently use a less strict approach this rule would lead to a significant shift in own funds and a decrease in capital adequacy ratios. On the other hand, with regard to institutions that currently calculate the IRB shortfall at the level of individual exposures the opposite effect – the transfer of part of Tier 2 own funds to Tier 1 own funds and a possible increase in total own funds – would be avoided.

A more conservative approach with regard to the calculation of IRB shortfall may be desirable in order to account for potential weaknesses in the calculation of the best estimate of expected loss and loss given default (LGD) for defaulted exposures. However, the individual approach to calculating IRB shortfall may be disproportionately burdensome for institutions and may lead to excessive conservatism in the recognition of own funds.

Another shortcoming of option 3b is that, according to Article 159 of the CRR and for the purpose of the IRB shortfall calculation, a) both specific and general credit risk adjustments, b) additional value adjustments in accordance with Articles 34 and 110 of the CRR and c) other own funds reductions related to these exposures should be taken into account. There is currently not an explicit requirement for the calculation methodology for these adjustments, i.e. whether the calculation should be done at individual exposure level or at portfolio or global level. The calculation approach may depend on the specificities of different accounting frameworks. The requirement to allocate all the above mentioned adjustments to individual exposures would be burdensome. Furthermore, the results of the calculation of the IRB shortfall would differ under different accounting rules while one

of the major principles of the Basel framework is that the calculation of the expected losses and risk weighted exposures should be independent of the accounting framework.

In addition, the Basel framework requires the calculation of the IRB shortfall for exposures at the aggregate level, and the individual calculation of the IRB shortfall might lead to unfavourable treatment of EU institutions vis-à-vis the non-EU institutions that are subject to Basel framework.

Calculation of the IRB shortfall at the level of a homogenous sub-portfolio (option 3c) has also been considered. Calculation of the IRB shortfall at the sub-portfolio level may provide a balance between the relatively lax approach (IRB shortfall calculation at a global level) and the relatively conservative approach (IRB shortfall calculation at an individual level). It may therefore mitigate the possible cliff effect of the adoption of unified rules.

However, there is currently not a legal basis for the adoption of such an approach under the CRR and it would be difficult to define the homogenous sub-portfolios for the purpose of IRB shortfall calculation.

Given the arguments and reasoning set out above, option 3a is selected as the preferred option.

Cost and benefit analysis

The qualitative survey asked the CAs about potential costs and benefits that could occur in their jurisdictions with the application of the draft RTS. The CAs were requested to indicate the expected costs and benefits associated with each chapter of the draft RTS. Table 2 shows the expected levels of costs and benefits for CAs.

Table 2 Expected levels of costs and benefits for CAs by chapter (sample level)

	Costs				Benefits			
	Negligible	Small	Medium	Large	Negligible	Small	Medium	Large
Chapter 1	47%	27%	20%	7%	20%	47%	27%	7%
Chapter 2	40%	40%	20%	0%	36%	36%	21%	7%
Chapter 3	20%	47%	33%	0%	20%	27%	47%	7%
Article 10	33%	47%	20%	0%	33%	20%	40%	7%
Chapter 4	40%	33%	27%	0%	33%	20%	40%	7%
Chapter 5	40%	40%	20%	0%	27%	27%	40%	7%
Chapter 6	40%	33%	20%	7%	33%	20%	40%	7%
Chapter 7	33%	33%	33%	0%	7%	40%	40%	13%
Chapter 8	27%	47%	27%	0%	20%	33%	40%	7%
Article 51	33%	40%	13%	13%	20%	33%	40%	7%
Chapter 9	53%	33%	13%	0%	27%	40%	27%	7%
Chapter 10	13%	40%	40%	7%	27%	20%	47%	7%
Chapter 11	40%	40%	20%	0%	27%	27%	40%	7%
Article 75	33%	53%	13%	0%	33%	27%	33%	7%
Chapter 12	33%	27%	40%	0%	27%	20%	40%	13%
Chapter 13	47%	40%	13%	0%	40%	27%	27%	7%
Chapter 14	60%	20%	20%	0%	27%	33%	33%	7%
Average*	38%	36%	25%	1%	26%	30%	36%	8%

Source and notes: EBA analysis

*Average based on the overall scores for the chapters and excluding percentages specific to Articles 10, 51 and 75. The totals may not equal 100% due to rounding.

About 74% of respondents believed that the draft RTS would have a negligible or small cost impact on CAs. It was considered that most of these costs would emerge from the administration of the assessment of compliance, training staff and amendments to supervisory procedures, rules and practices to comply with the draft RTS. Some Member States also mentioned that, given the detailed requirements introduced by the draft RTS, the CAs' workload would increase.

With regard to [Chapter 1] some Member States highlighted that the RTS would increase costs for outsourcing, e.g. visiting vendor sites and dealing with vendors.

Some Member States expected minor amendments to the current inspection techniques of CAs, in order to ensure the use of the inspection techniques listed in the draft RTS. In addition, the analysis of the roll-out portfolios may be completed in a shorter timeline, which may lead to more frequent inspections [Chapter 2].

With regard to [Chapter 4], some Member States mentioned that minor amendments are expected to the current inspection techniques. Some inspection techniques are not mandatory (e.g. Article 18, paragraph 3) but, if CAs decide to apply them, then they will have to perform additional analyses such as the analyses of early warning systems, collection and recovery processes and risk budgetary planning.

The RTS introduce a set of specifications for the requirements under the CRR. For example, for exposures in default for LGD, additional drivers which are not available for LGD for performing loans should be considered. This may imply changes to current practices [Chapter 8]. As a result of the same chapter, additional costs are expected for some CAs because the CAs will need to amend current rules and/or practices, to monitor the implementation of the RTS by institutions and to assess the redevelopment of the LGD models by institutions where exposure weighted LGD is currently applied [Article 51].

In [Chapter 10] the stress test requirements will have a cost impact on CAs, as in some Member States the stress test is a Pillar 2 requirement and their CAs will need to move the requirement under Pillar 1 supervision and make amendments to their assessment methods.

Approximately 43% of the respondents expected a medium or large beneficial impact as a result of the revised supervisory practice. The sources of these benefits would be:

- harmonisation of and consistency among national practices
- building a sound and clear legal basis
- providing positive externalities

- minimising regulatory arbitrage
- creating a level playing field in the industry, and improving cooperation between the colleges.

Table 3 shows the expected levels of costs and benefits for institutions by chapter. About 65% of respondents expected the costs to the institutions to be negligible or small.

Table 3 Expected levels of costs and benefits for institutions by chapter (sample level)

	Costs				Benefits			
	Negligible	Small	Medium	Large	Negligible	Small	Medium	Large
Chapter 1	33%	20%	27%	20%	33%	20%	47%	0%
Chapter 2	43%	21%	29%	7%	57%	14%	29%	0%
Chapter 3	27%	33%	33%	7%	36%	7%	57%	0%
Article 10	27%	33%	27%	13%	36%	7%	50%	7%
Chapter 4	40%	33%	20%	7%	43%	21%	36%	0%
Chapter 5	40%	27%	27%	7%	43%	7%	50%	0%
Chapter 6	33%	20%	40%	7%	43%	14%	43%	0%
Chapter 7	20%	33%	33%	13%	36%	21%	43%	0%
Chapter 8	27%	33%	20%	20%	36%	21%	43%	0%
Article 51	33%	13%	27%	27%	43%	14%	43%	0%
Chapter 9	60%	20%	13%	7%	38%	31%	31%	0%
Chapter 10	33%	13%	40%	13%	36%	14%	43%	7%
Chapter 11	40%	40%	13%	7%	46%	23%	31%	0%
Article 75	40%	40%	7%	13%	38%	15%	46%	0%
Chapter 12	40%	27%	20%	13%	38%	15%	38%	8%
Chapter 13	47%	40%	7%	7%	46%	31%	23%	0%
Chapter 14	53%	20%	20%	7%	38%	23%	38%	0%
Average*	38%	27%	24%	10%	41%	19%	39%	1%

Source and notes: EBA analysis

*Average based on the overall scores for the chapters and excluding percentages specific to Articles 10, 51 and 75. The totals may not equal 100% due to rounding.

The expected costs associated with the relevant chapters are as follows:

- The institutions will have one-off costs associated with the implementation of the requirements, including amendments to processes and methodologies and the adaptation of new elements [Chapters 1-14, Article 10, Article 75], especially in terms of model development, review and validation [Chapter 1], IRB roll-out plans [Chapter 2], LGD calculation [Article 51], remuneration schemes [Chapter 3] and stress testing [Chapter 10].
- Additional training for members of staff [Chapter 1, Article 10] and changes in IT systems [Article 51, Chapter 11] may be necessary.
- Where the current practice is less prescriptive and more flexible (as indicated in the baseline section) institutions will need to adjust their IRB models/internal rules accordingly [Chapters 1-14].
- Some costs may be related to the recovery of historical information/data

in order to improve/complete the documentation [Chapters 1-14].

- The definition of a definite time period for the implementation of the IRB Approach may represent additional costs of implementation, given that the institutions will have to comply with this deadline [Chapter 2].
- Where the scope of use of internal ratings and risk parameters is not sufficient according to the use test and experience test requirements, institutions will be required to implement changes in their internal processes [Chapter 4].
- Assignment of exposures to grades and pools as envisaged in the draft RTS may lead to an increase in own funds requirements [Chapter 5].
- A map of models will need to be provided or an existing one adjusted [Chapter 7].
- Additional costs due to additional data analysis and calculations are expected to occur as a result of the assessment of the representativeness of the data [Chapter 8, Article 49].
- The introduction of a clear rule with regard to the weighting of the average LGD will mean that all or some institutions in some Member States will need to redevelop their LGD models and CAs will have to assess the changes to the models [Article 51].

On the other hand, about 60% of respondents expected negligible or small benefits from the draft RTS and only 1% of respondents expect a significant change. The respondents believed that the benefits of the draft RTS derived from clear, explicit and harmonised rules. This framework is expected to increase legal certainty, generate positive externalities and create a level playing field in the industry.

In addition, some Member States think that the draft RTS will:

- minimise regulatory arbitrage [Chapters 2 and 3, Article 10];
- enforce the validation function [Article 10];
- increase comparability of RWA levels across Member States [Chapters 8-9, Article 51];
- make stress tests more robust and resilient [Chapter 10];
- improve data management practices [Chapter 12].

4.2 Views of the Banking Stakeholder Group (BSG)



CONSULTATION ON EBA/CP/2014/36 ON
“DRAFT REGULATORY TECHNICAL STANDARDS
ON THE SPECIFICATION OF THE ASSESSMENT METHODOLOGY
FOR COMPETENT AUTHORITIES REGARDING
COMPLIANCE OF AN INSTITUTION
WITH THE REQUIREMENTS TO USE THE IRB APPROACH”

General Comments and Replies to Questions

BY THE EBA BANKING STAKEHOLDER GROUP

London, 9th March 2015

BANKING STAKEHOLDER GROUP
Foreword

The EBA Banking Stakeholder Group (“BSG”) welcomes the opportunity to comment on the Consultation Paper 2014/36 CP/2014/36 on “Draft Regulatory Technical Standards on the specification of the assessment methodology for competent authorities regarding compliance of an institution with the requirements to use the IRB Approach in accordance with Articles 144(2), 173(3) and 180(3)(b) of Regulation (EU) No 575/2013”

This response has been prepared on the basis of comments circulated and shared among the BSG members and the BSG’s Technical Working Group on Capital and Risk Analysis.

As in the past, the BSG supports an initiative that aims at harmonizing supervisory rules and practices across Europe, in order to ensure fair conditions of competition between institutions and more efficiency for cross-border groups. The BSG also expects these initiatives to facilitate data sharing between European supervisors and avoid reporting duplications for banks. However, the BSG identifies a number of issues which, unless properly addressed, could lead to unintended results.

This response outlines some general comments by the BSG, as well as our detailed answers to some questions indicated in the CP.

General comments

The draft Regulatory Technical Standard (“RTS”) illustrated in CP 2014/36 addresses three mandates assigned to the EBA by the Capital Requirements Regulation (“CRR”): the EBA is required to submit draft Technical Standards to the European Commission covering the methodologies that Competent Authorities (“CAs”) must follow when assessing whether an institution complies with

- i) the regulatory requirements for using Internal Ratings-Based (“IRB”) models (Article 144.2);
- ii) the integrity of the assignment process and the regular and independent assessment of risks (Article 173.3);
- iii) the requirements for the estimation of the obligors’ PDs (Article 180.3b).

The above-mentioned methodologies should apply both to first time applicants and to institutions having their internal models significantly updated or periodically reviewed.

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Ensuring consistency, transparency and comparability across the banks' internal models has become a priority for supervisors, due the fact that risk weights based on the IRB approach have prompted increasing scepticism among market participants, scholars and rule makers.

Additional ratios based on plain (i.e., un-weighted) assets have been introduced by a number of national authorities and are being finalised internationally. In a similar vein, the risk weights originated by internal models are increasingly being constrained through various "floors" designed for specific portfolios. As far as the latter are concerned, one should mention that the Basel Committee is currently consulting on new floors, which would draw on a significantly revised standardised approach where references to external ratings are complemented/replaced by different indicators¹. The implications of such innovations look potentially huge, and the risk of unintended consequences is material.

Whilst we believe that "plain" ratios, if carefully engineered and gradually implemented, may help in providing a "backstop" to reduce incentives for some banks to "tweak" their IRB risk-weights, there remains a concrete risk that - in an attempt to curb opportunistic behaviours - external constraints on internal ratings end up weakening their risk sensitivity. This would jeopardise a large part of the improvements achieved - under the Basel II Accord - to endow banks with a consistent, enterprise-wide framework to measure, price and manage credit risk.

Although we understand the desire to apply standardised, simplified and conservative tools to assess bank capital requirements, the scope of application of such standards should be carefully evaluated. Internal models are intrinsically aimed at assessing the creditworthiness of customers and assisting in the pricing of credit risk when originating loans. Simplified standards may give rise to biases that are even more significant than those they are supposed to address, thus distorting credit origination practices and credit markets. This is especially true for markets such as corporate credit in Europe which - unlike in the US where traded securities play a pivotal role - remain focused on bank loans to provide adequate funding flows to non-financial companies.

To avoid such an unwelcome scenario, efforts to improve the accountability and credibility of the banks' internal ratings are urgently required. Ensuring consistency across institutions and national jurisdictions is a crucial part of this process, and the RTS discussed in CP 36 may have a positive and significant impact.

¹ Basel Committee on Banking Supervision, "Revisions to the standardised approach for credit risk - consultative document", December 2014; Basel Committee on Banking Supervision, "Capital floors: the design of a framework based on standardised approaches - consultative document", December 2014.

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The draft RTS includes an introductory section and 13 chapters, covering different profiles and steps of the development/management of an internal ratings system. Some are technical in nature (such as those dealing with data requirements, PD estimation and risk quantification), while others focus mostly on organisational issues (e.g., internal governance, oversight, use and experience test). In the following section we comment in detail on several of these chapters, providing our feedback to the questions outlined in the consultative package.

Overall, we believe that all key areas of IRB/PD validation have been appropriately addressed by CP 36; however, as shown below, some specific requirements that are outlined in the draft RTS should be better clarified, ensuring that the proportionality principle is applied extensively to avoid unnecessary compliance costs for smaller institutions.

Finally, while we understand that the RTS relates to methodologies, as per the mandates assigned to the EBA by the CRR, we also believe that the EBA should make an additional effort to develop tools that can be used to effectively compare validation practices used by national authorities, and to benchmark validation outcomes across banks and jurisdictions. A framework for identifying and challenging outliers could, for example, be developed, based on a comply-or-explain paradigm, so that the validation processes used by local supervisors can be assessed through actual case studies and subjected to peer review. We therefore wholeheartedly support EBA's efforts to stimulate a public discussion on its preliminary proposals to improve the IRB regulatory framework², hoping that such proposals will provide a basis for swift action by Competent Authorities in the European Union.

Replies to Questions

1. What views do you have on the nature and appropriateness of the proportionality principle in Article 1(2)?

There are areas in the RTS that require further clarification, as well as definitions that need further elaboration to optimise their impact on the supervisory assessment process. For example, it should be better clarified how the proportionality principle applies for less significant portfolios and entities at solo level.

Furthermore, the reference to "additional methods" should be defined more carefully, to avoid lack of transparency, since the basis for supervisory assessment cannot be understood based on CRR articles alone.

Comprehensive definitions should also be provided concerning a number of additional relevant criteria in the assessment methodology, besides those already

² European Banking Authority, "Discussion Paper - Future of the IRB Approach", 4 March 2015.

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stated in the CRR. This includes, for example, the frequency of the assessment, the level of aggregation, the exact meaning assigned to the concepts of “complexity” and “size”, all of which might differ significantly across member states. Unless such criteria are better specified, there is a risk that the RTS requirements may not be applied uniformly across the European Union.

Finally, an explicit clarification would be helpful, concerning the timeframe required when an institution develops new ratings replacing the ones already in use, indicating whether the three-year minimum mentioned in article 145 also applies to this case.

2. Do you agree with the required independence of the validation function in Article 4(3) and Article 10? How would these requirements influence your validation function and your governance in general?

We agree that the validation function should be separate from the function responsible for originating and renewing exposures. Furthermore, we agree that some degree of independence is also desirable between the personnel involved in model validation and those involved in model development; however, it should be better clarified how deep such separation is expected to be. For instance, when no separate validation unit exists (see Article 10.1.d) the draft RTS requires that the staff performing validation be separate from the remaining staff in the unit responsible for “model design or development” or in the “credit risk control function”. Does this require that, as a rule, the validation function has to be separate from both the credit control function and the staff involved in model development? How does such a proposal align with the provisions of Article 190.2 of the CRR (letters e and f), where it states that the credit risk control function should review “the rating criteria to evaluate if they remain predictive of risk” and perform an “active participation in the design or selection, implementation and validation of models used in the rating process”? This apparently suggests that (at least as long as the model development function is separate) the model validation unit and the credit risk control unit should at least belong to the same office or department. Additionally, Article 190 also seems to indicate that some overlap should still exist between the model development unit and credit risk control unit, even if the two are separate functions.³³

In defining organisational requirements for model development and validation, one should be aware that considerable amounts of resources are required by such functions as IRB models are initially rolled out. On the other hand, once models have been extended to an adequate portion of an institution’s credit portfolio, the focus of activities can be shifted towards validating model performance and amending existing methodologies. In that second, “mature” phase, a strict separation between model development and validation function makes less sense

³³ A similar remark applies to Article 10.1 (c) of the draft RTS.

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and may prove especially inefficient for small to mid-sized institutions. In that phase, as the ongoing review and validation of the models become core activities for the credit risk control function, it could become more difficult to keep them separate from the remaining tasks of the credit risk control unit.

In more general terms, it may prove difficult for small-to-medium sized banks to perform an effective separation between the staff involved in model validation and the remaining personnel. Model development and validation (as well as some aspects of credit risk control) require very similar skills, and it seems wise to allow a bank (except, possibly, very large ones) to use specialised experts across the two areas. A tight separation would trigger undue costs, especially for smaller institutions, and would make it harder for smaller banks to attract specialised personnel, if they are only allowed to participate in a limited range of activities.

To increase flexibility in the use of human resources, and to improve the consistency of these provisions with the proportionality principle, the RTS may simply require that - in smaller institutions - the staff responsible for the validation of one model be separate from that in charge of the development of *that model*. To increase independence, documentation on model development and validation could be periodically reviewed by independent experts, as well as through internal audit assessments.

The requirements in Art. 4 (3) would lead to considerable difficulties for banks that use joint rating systems developed on the basis of pooled data (pool models). For the participating banks, pool models have numerous advantages: the use of pooled data allows them to develop and use sophisticated rating systems that they would not be able to develop on their own. Especially the discriminatory power and the forecasting quality are significantly enhanced by the use of larger data sets.

In some pool models the participating banks have outsourced the development and the operation of the rating systems to a common central unit. At the same time, this unit also provides a basic validation of the rating systems at the level of the data pool. Thereby it provides a valuable input for the comprehensive validation activities performed by the individual member banks.

As Art. 4 (3) prohibits a third party to be involved in both the model development and the validation coincidentally, this requirement would constitute a severe drawback for the use of pool models. In order to comply with it banks would either have to perform the validation themselves or they would have to establish a separate unit that is responsible for the validation of the rating systems only. Both would be extremely costly if not impossible. Since many of the advantages of these systems depend on the use of a central unit, Art. 4 (3) would challenge the very existence of pool models.

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We therefore strongly recommend allowing the involvement of the central unit in the tasks of the validation function of the banks if certain conditions of independence are fulfilled.

3. Are the provisions introduced in Article 49(3) on the calculation of the long-run average of one-year default rates sufficiently clear? Are there aspects which need to be elaborated further?

We consider the provisions introduced in Article 49(3) to be reasonably clear and based on sound methodological practice. However, one aspect that could be clarified is the definition of “observed data” as mentioned in Article 49.3 b (whereby, if a reconstruction method is used, “this method does not lead to a less conservative calculation of long-run average of one-year default rates than those estimated from the *observed data*”). If “observed data” only refers to *internal* data, then such a condition may prove overly demanding. In fact, there are circumstances where reconstruction methods should be allowed to produce a less conservative long-run default rate than the one emerging from internal data only. For example, if internal data are available only for a recession period, and relevant external data is available for a whole economic cycle, then it would be quite logical to allow banks to use an estimate for long-run default rates that falls below the average of internal data. Unless this is recognised, institutions may refrain from rolling out internal ratings for portfolios where internal data would generate (unrealistically) high long-run PDs.

4. Do you agree with the required number of default weighted average LGD calculation method introduced in Article 51(1)(b) and supportive arguments? How will this requirement influence your current LGD calculation method? More generally, what are your views as to balance of arguments for identifying the most appropriate method?

The proposal looks appropriate (and consistent with the approach dictated for PD estimation) for “standard” portfolios where the number of defaults is large enough and EAD concentration risk (granularity risk) is acceptable.

However, banks may also have to estimate LGD for low-default portfolios and/or for portfolios that include a small number of large exposures. An example is the case of highly-rated corporates, which historically have experienced a low number of defaults, and that are often exposed to EAD concentration risk. In such cases, it may be advisable to find ways to take into account the riskiness of each individual exposure. Generally speaking, supervisors should ensure that LGD estimates provide a conservative measure of long-run averages. If that requirement is met, then banks should be permitted to calculate exposure-weighted LGDs if that makes their estimates more reliable.

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5. Are the provisions introduced in Article 52 on the treatment of multiple defaults sufficiently clear? Are there aspects which need to be elaborated further?

We regard the provisions provided under Article 52 as appropriate and reasonable. We consider it correct not to provide rigid indications on (or set boundaries to) the length of the “cure period”: in fact, differences in the length of such periods may be justified by national legal frameworks and/or by the institution-specific features of early recovery procedures, without prejudice to the accuracy and reliability of IRB models. The approach chosen by the EBA (to request that institutions explicitly justify their chosen cure periods and ensure that such choice is consistent with empirical default experience and internal policy) seems adequate to mitigate the risk that cure periods are defined in an arbitrary or opportunistic way, e.g. to minimise capital requirements.

6. Are the provisions introduced in Article 60 on the treatment of eligible guarantors for the purpose of own-LGD estimates sufficiently clear? Are there aspects which need to be elaborated further?

We see some benefit in a clarification on how to include the impact from credit mitigation through guarantees into capital requirement calculations. There should not be any doubts about how institutions should treat the impact of guarantees in the models.

7. Do you support the view that costs for institutions arising from the implementation of these draft RTS are expected to be negligible or small? If not, could you please indicate the main sources of costs?

While we appreciate that greater consistency in validation methodologies across the EU will bring about clear benefits in terms of a more level playing field and increased credibility of capital requirements, we would not go as far as to say that the implementation costs of the RTS discussed in CP 36 will always be small or negligible.

In fact, for several institutions implementing some of the requirements set out in this RTS will trigger significant costs, not least the costs associated with changes in the criteria applicable to ongoing approval processes that are already being negotiated with local supervisors. Accordingly, it would be helpful if the RTS could clarify how banks should deal with the interactions between the new rules and the earlier guidelines issued by local Competent Authorities.

Areas where expected costs appear significant include new rules for multiple defaults, as well as rules for PD estimation through a complete economic cycle. Other cost-sensitive issues comprise reconstruction methods for models where the observed data are not representative: in such cases, costs may also arise from higher estimated PDs affecting the viability of business lines that significantly

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depend on IRB models, e.g. in terms of loan approval and pricing (and/or lead to a material increase in risk-based regulatory capital).

The impact of the new validation rules on some banks' business models may, to some extent, be exacerbated by the joint introduction of IFRS 9, the new standardised approach that is currently being discussed by the Basel Committee along with the related floors.

Even when the new rules do not lead to significant changes in risk parameters, the costs associated with transforming data and reconstructing models may prove significant.

While we understand that the benefits associated with better model validation, enhanced transparency and greater cross-country uniformity may well offset the costs experienced by most banks, we recommend that every effort be made to minimise unnecessary burdens, especially for small-to-medium sized banks, also through a careful and pragmatic use of the proportionality principle.

8. What are the main benefits for institutions that you expect by the adoption of these draft RTS?

The RTS reduces the scope for subjective interpretations of the regulatory requirements set out by the CRD4 and CRR, and we firmly believe in the benefits associated with increased consistency, greater harmonisation and enhanced accountability of local supervisors, above all if some provisions can be better specified in a way that recognises the difference between large and smaller institutions. We are positive that greater consistency across Competent Authorities, jurisdictions and banks should be swiftly achieved through common rules such as those stated in CP 36. Failing that, the whole Basel 2 framework, based on risk-sensitive requirements and internal models, might be replaced by a system of simplified rules, capital floors and basic indicators that provide no real incentive for banks to develop sophisticated credit risk models.

9. Do you expect that these draft RTS will trigger material changes to the rating systems (subject of the RTS on materiality of model changes)? If yes, could you please indicate the main sources of the changes (please list the relevant Articles of these draft RTS)?

The sources of change are most likely to depend on each bank's internal rating system, as well as on the rules and guidelines followed by local supervisors in the past. Some changes - although material - may be desirable, inasmuch as they amend competitive distortions across EU countries, due to different validation practices.

The true risk, in our view, is that of introducing rules that - in some cases - may prove unnecessarily conservative and burdensome. The criteria on reconstruction



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methods and “original data” that were discussed under Question 3, unless appropriately clarified, may provide an example. Similarly, rules on separation among model development and validation – unless they are made reasonably flexible through a careful use of the proportionality principle – may trigger organisational shifts which, while expensive in terms of extra costs and reduced effectiveness, may not deliver the expected benefits.

* * *

Submitted on behalf of the EBA Banking Stakeholder Group

David T. Llewellyn
Chairperson



4.3 Summary of responses to the consultation and the EBA's analysis

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
General comments			
	A number of respondents commented that the RTS prescribe a set of requirements beyond those required by the CRR.	The draft RTS are subject to legal review before being published to ensure that they do not include provisions which exceed the mandate. However, the RTS provide in some cases guidance on assessment criteria which might exceed the scope of the binding regulation. These are phrased explicitly as 'additional' or as provisions which might be (but do not have to be) taken into account.	
	One respondent requested a multi-year convergence process for the implementation of the RTS.	The RTS specify requirements for competent authorities. Where a competent authority identifies that an institution does not meet the requirements it is anticipated that a plan for a timely return to compliance will be implemented.	
	Several respondents requested that the requirements contained within these RTS be implemented taking into consideration the other technical standards currently being developed by the EBA.	The report on the review of the IRB Approach and the opinion on its implementation (published by the EBA on 4 February 2016) explicitly propose a coordinated approach to the changes being made to the IRB regime.	
	One respondent stated that flexibility is required in	The RTS are aimed at competent authorities to	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	the way that models are built and used to ensure continued consistency with the economic environment.	provide a harmonised approach to the assessment of the IRB Approach. However, the comment may be considered in the EBA's future work on the guidelines on PD and LGD estimation.	
	One respondent stated that the use of human judgement should not be limited to the detriment of a forward looking approach.	There is significant scope for the use of human judgement within the IRB Approach. The RTS aims to manage and control the impact of human judgement when it is poorly applied, but this approach should not adversely affect forward looking ratings.	
	One respondent requested further clarity on the manner in which competent authorities will be required to implement triennial reviews of the IRB regime, noting that this information is required to answer question 7.	In order to harmonise the IRB Approach competent authorities should generally assess the same criteria using the same methods when validating a particular aspect of a rating system, regardless of whether the assessment is triggered by initial application, model change or ongoing review.	Guidance regarding the scope and the methods to be applied in the case of ongoing review has been introduced in Articles 1 and 2.
	One respondent stated that a consistent interpretation of the IRB Approach is essential, especially for cross-border entities. In particular, it stated that the RTS should 'not give mandate to further increased general supervisory judgements, such as add-ons or the use of requirements, which prevent further harmonisation.'	The RTS have been drafted in a balanced manner that increases harmonisation while allowing competent authorities to exercise the powers provided by the CRR that allow them to implement the IRB regime in an appropriate manner.	
	One respondent stated the RTS fail to make a distinction between the appropriate lines of	The RTS specify a number of methods that competent authorities should use when making	Clarification on the use of results from



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	defence, with each line of defence replicating the role of the line beneath it. The respondent asserted that this will result in considerable investment of resources by competent authorities with little supervisory benefit (as the competent authorities will duplicate actions performed by other functions).	assessments. These methods include the requirement for competent authorities to review the outputs from institutions' own assessments. For example, Article 9(3) requires that competent authorities review the findings of the internal validation function.	recent assessments has been introduced in Article 2 and is explained in recital 2.
	One respondent stated that the cost of compliance with the RTS will be considerable and that the supervisory approach prescribed does not take account of the fact that institutions are incentivised to create rating systems that discriminate effectively. The respondent recommended that the approach should focus on ensuring that capital distortion is kept to a minimum.	The RTS are aimed at competent authorities and aim to ensure consistency in model outputs and comparability of risk weighted exposure amounts. The EBA report on comparability of IRB models has identified different supervisory practices as a driver for unjustified RWA variability which cannot be prevented by the incentive to create rating systems that discriminate effectively.	
	One respondent noted that the approach described is poorly suited to an environment where risk management is constantly improving, as the approach places a considerable workload on competent authorities, as they need to perform thorough examinations of all aspects of model changes. This provides a disincentive to institutions to improve their rating systems.	It is clarified in the recitals that in the case of model changes competent authorities should apply only and all of those rules that are relevant to the scope of the change in each case, using the conclusions from previous assessments as a starting point.	Clarification on the use of results from recent assessments has been introduced in Article 2 and is explained in recital 2.
	One respondent suggested that it should be made clear that the objective of the supervisory review should be to ensure that capital requirements are	Under the provisions of the CRR, the objective of the supervisory review is to ensure that the requirements of the CRR are met.	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	not distorted.		
	One respondent noted that the framework repeatedly confuses economic cycles with long-run averages and long-run averages with observation periods.	<p>The reference to the economic cycle in Article 49 has been dropped and the requirements regarding the estimation of long-run averages have been clarified, also with respect to the relevant observation period.</p> <p>However, future EBA work is planned to clarify the relationship between long-run averages and economic cycles.</p>	Article 49 has been revised. The reference to the economic cycle has been dropped.
	Two respondents noted that the proposed requirements set out a significant amount of work for competent authorities and argued that time limits should be applied to the assessments performed by competent authorities.	Applying time limits to the reviews performed by competent authorities is outside the mandate of these RTS. It is also likely to be counterproductive if it imposes unreasonable requirements on competent authorities and may force competent authorities to reject models for minor reasons if sufficient resource is not available to perform a full review within the specified time period.	
	One respondent noted that there is no reference to supervisory benchmarking (Article 78 of the CRD) as a supervisory tool.	<p>The benchmarking referred to in Article 78 of the CRD is based on a predefined benchmarking portfolio; therefore, its results cannot be generally applied to assess a specific rating system.</p> <p>Nevertheless, if applicable, the results may fall under any other tests and verifications, as referred to in Article 2(1) of the RTS.</p>	
	One respondent stated that it would support the	From the feedback provided it is not clear how the	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	inclusion of a systemic risk factor for inclusion within rating systems for specific groups of institutions.	<p>respondent envisaged that the systemic factor would be incorporated into the rating system.</p> <p>There are significant risks if competent authorities specify that a single system factor be incorporated into all rating systems in a specific manner, as a mistake in the specification, or a change in the manner in which the systemic factor relates to default rates or losses, could result in a systemic underestimation of risk.</p>	
	However, the same respondent noted that in some countries competent authorities have required add-ons or floors to address anticipated future risks. The respondent requested clarification of the approach in order to secure a more consistent approach.	<p>We assume that these future risks relate to downturn scenarios.</p> <p>The specification of downturn conditions is not an issue for the assessment methodology, but for the RTS on downturn conditions referred to in Article 181(3) of the CRR. The finalisation of these RTS has been postponed to allow considerations on this topic by the BCBS to be taken into account.</p>	
	Two respondents had concerns regarding analogous work currently being performed within Basel workstreams and requested that the EBA ensure that these RTS are consistent with the outputs of these workstreams.	While the EBA cannot guarantee that the RTS will be consistent with the considerations of the Basel workstreams, as work within these workstreams is still ongoing, the EBA maintains close links with these workstreams, which should reduce the risk of discrepancies.	
Responses to questions in Consultation Paper EBA/CP/2014/36			
CHAPTER 1 – General rules for the assessment methodology			



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Question 1. What views do you have on the nature and appropriateness of the proportionality principle in Article 1(2)?	<p>A number of institutions asked for greater clarity in the definitions provided.</p> <p>Specific examples where further clarity was requested are:</p> <ul style="list-style-type: none"> • how the proportionality principle will be applied, for example to less significant operations or portfolios; • how the proportionality principle and RTS will be applied to entities at an individual level; • the meaning of the term ‘additional methods’; • terms such as ‘frequency of assessment’, ‘level of aggregation’, ‘complexity’ and ‘size’, ‘materiality of exposures’ and ‘complexity of the rating models’. 	<p>Careful consideration has been given to the wording used. Overly rigid wording can lead to anomalies and inconsistencies that were not foreseen at the time when the RTS were created, and which will tie competent authorities into inappropriate practices. Where appropriate, the RTS specify several constraints on the frequency of assessments. However, it would not be appropriate to specify more detail.</p> <p>The current wording refers to obligatory (‘core’) methods if it starts with ‘competent authorities shall’. Then, in each chapter, additional methods are proposed which should be applied based on the proportionality principle; these start with ‘competent authorities may also’. The level of application of these RTS is determined in accordance with Title II of Part I of the CRR at the level of the individual institution, be it a stand-alone institution or a parent or a subsidiary. Therefore, any additional clarification specific to subsidiaries is not necessary.</p>	
	One respondent noted that, when considering materiality, the complexity of the entire rating system should be considered, rather than model	The list specified under amended Article 2(1) provides important areas for consideration when determining the scope of the assessment to be	



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	<p>and risk parameter complexity and their implementation as in Article 1(2)(b).</p> <p>Moreover, a number of respondents noted that materiality and complexity should not be the only elements to be considered when determining proportionality.</p> <p>A number of respondents noted that the CRR states that that Regulation should respect the principle of proportionality, referring specifically to smaller entities within a larger group, or simpler rating systems, and requesting that provision be made for a lighter assessment in such cases.</p>	<p>carried out by competent authorities.</p> <p>However, the wording of Article 2 and the corresponding explanation in recital 5 imply that the elements listed in Article 2(1)(a) and (b) should not be the only ones taken into account when applying the proportionality principle, but that the scope of the assessment should depend ‘among others, on the materiality of the types of exposures covered by each rating system, the complexity of the models, the particularities of the situation, the specific solution implemented by the institution, the quality of evidence provided by the institution, the resources available to the competent authorities themselves.’</p>	
	<p>One respondent noted that proportionality is necessary to avoid making reviews unbearable burdens for institutions and competent authorities.</p> <p>A number of respondents noted that the proportionality principle as specified in Article 1 of the consultation paper only goes one way; it does not allow more limited assessments for rating systems or institutions that pose limited risk.</p> <p>One respondent (AFME) suggested replacing the wording ‘additional methods’ with ‘alternate methods’ when warranted to ensure</p>	<p>It is important that consistent and thorough reviews are performed by competent authorities of all rating systems used in institutions’ implementation of the IRB Approach. Different supervisory rules and practices were identified as drivers of unjustified RWA variability, among other things, in the report on the comparability and procyclicality of capital requirements published by the EBA in December 2013. In addition, the CRR requires that competent authorities grant IRB permissions only where they are satisfied that the requirements of the IRB Approach are met.</p>	<p>Articles 1 and 2 were amended accordingly.</p>



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	<p>proportionality.</p> <p>A number of respondents suggested that the principle be expanded upon through a categorisation system and that the categories be linked to supervisory requirements. They also suggested that a lighter framework be applied to the sequential implementation of smaller portfolios.</p> <p>One respondent anticipated that the practical application of the numerous technical standards that have, or will, come into force will be likely to reveal instances where a strict application may contradict the spirit of the regulation or standard. The respondent suggested that the principle of proportionality be used to support 'economically more appropriate' interpretations of the regulation where appropriate and still prudent.</p>	<p>However, categorisation, as suggested, was introduced based on the triggers for a supervisory assessment (application, change or review). It is proposed that a minimum obligatory set of methods (the 'how' to assess) has to be applied for all assessments of initial applications and roll-out. Furthermore, additional methods have been described that can be used to the extent considered appropriate. In the case of ongoing review or the assessment of changes in rating systems, competent authorities may apply core or additional methods defined in each chapter, to the extent appropriate depending on the scope of the assessment.</p> <p>The criteria to be assessed (the 'what' to assess) stem from the CRR and are derived from the scope of the assessment (portfolios and parameters related to application, change or review). While carrying out an assessment, competent authorities have to be satisfied that all criteria relevant to the scope of the assessment are met.</p>	
	<p>One respondent suggested that, where several smaller institutions mutualise risk assessment functions, or specialised subsidiaries apply the IRB Approach as part of a group policy, the assessment methodology should be consistent with institutions' technical abilities and that work at the entity level should be restricted to functions where subsidiaries have a 'margin of discretion.'</p>	<p>The EBA acknowledges that the requirements placed on institutions under the IRB Approach are demanding. However, these requirements are in place to ensure that those institutions permitted to determine their own capital requirements have sufficiently robust processes and rating systems in place to ensure that the capital requirements calculated are robust and are not underestimated.</p>	



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		<p>The proportionality principle should, however, provide an appropriate level of flexibility. In particular, consideration is given to the fact that smaller institutions can be effectively managed using simpler organisational structures, and this is acknowledged within the RTS, in particular in Chapter 3.</p> <p>It would not be appropriate to devolve the responsibilities of subsidiaries with regard to the IRB Approach to group functions, nor for competent authorities responsible for subsidiaries to ignore assessments of the IRB Approach within them. The legal status of subsidiaries reduces the responsibilities of the group for the subsidiary and also imposes a responsibility on the host competent authority.</p>	
	<p>One respondent commented that the RTS allow competent authorities to apply additional requirements or restrictions over and above those stated in the RTS and the CRR.</p>	<p>We believe that this respondent is referring to Article 2(1), which refers to additional methods and not requirements or restrictions.</p>	
	<p>One respondent suggested that the wording creates the impression that the RTS is a minimum standard that can be extended by the competent authorities. The respondent stated that the rating models are 'all approved by the competent supervisory bodies, and hence we fail to see why such a fact already accepted by the supervisory bodies should lead to greater examination effort</p>	<p>Article 2(1) states that, where relevant, competent authorities may apply tests and verifications additional to those set out within the RTS to determine whether the requirements of the IRB Approach are met. Article 144 of the CRR requires that competent authorities grant IRB permissions only if they are satisfied that the requirements of the IRB Approach are met. It is conceivable that there</p>	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	on the part of the institutions’.	will be situations where, for a particularly complex rating system, the use of additional alternate methods proves more efficient.	
	One respondent commented that the requirements will set a higher and more costly target for challenger institutions seeking IRB permission and questioned whether this was the intention of Article 143(5) of the CRR.	<p>The requirements specified within these RTS are designed to ensure that competent authorities verify whether institutions satisfy the IRB requirements before granting IRB permissions. However, as is required by EU legislation, a proportionality principle is embedded within the RTS.</p> <p>In addition, the EBA notes that these RTS do not address the mandate specified in Article 143(5), which was addressed by Commission Delegated Regulation (EU) No 529/2014.</p>	
	One respondent requested that proportionality be better explained in various parts of the document. An example given was Article 54(2)(b); the respondent stated that this article ‘should clearly be considered only for organizations of a particularly relevant size and complexity, for which the rating system may have developed this kind of feature’.	<p>Where appropriate, proportionality requirements are specifically considered in the main chapters of the RTS, in particular in Chapter 3.</p> <p>With regard to the example given, paragraph 2 of Article 171 of the CRR requires that all relevant information is taken into account when assigning obligors to grades or pools, but acknowledges that this may be incorporated using human judgement where such information is not incorporated within a statistical model (Article 174(e)). This still holds true for LGD in-default estimation and should therefore be verified if relevant to the scope of a supervisory assessment.</p>	



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Article 3	<p>One respondent stated that it believes the prescriptiveness of the article is excessive. In particular, it recommended removing paragraph (e) to allow competent authorities to assess ‘the finer details of the documentation on a proportionality basis’.</p>	<p>We assume that the respondent is referring to Article 3(2).</p> <p>We do not believe that the requirement specified within this subparagraph is excessive or unreasonable even for documents relating to immaterial rating systems. In fact, it is simply a generalisation of common practice in many institutions.</p>	
Article 4	<p>One respondent noted that Article 4(2) does not permit institutions to outsource to areas other than those explicitly permitted under relevant legislation. This would prohibit many current outsourcing practices, for example IT outsourcing, as these rarely receive explicit permission. The respondent requested that the word ‘explicitly’ be deleted.</p> <p>Another respondent argued that pool providers should not be considered ‘third party vendors’ as pool providers do not have ‘full method sovereignty for the development and validation procedures’.</p> <p>A number of respondents pointed out that Article 4(3) does not permit pool providers to be involved in the validation process. This creates significant difficulties for the operation of the</p>	<p>Since Article 4 of the RTS is not meant to set out requirements regarding the assessment of different national outsourcing legislation but to provide for suitable regulation regarding the participation of a third party in an institution’s model development and validation activity, Article 4 has been redrafted to reflect special cases where a model is developed on pooled data by a pool provider.</p> <p>Instead of using the term ‘outsourcing’, it now refers to third party involvement. This means external third parties.</p>	Article 4 has been revised.



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	pooling approach, where a pool provider executes a number of tasks, including model development and model validation. In particular, the respondents argued that it is important that pool providers who develop rating models and have access to the development data are involved in the validation process.		
CHAPTER 2 – Assessment methodology of roll-out plans and permanent partial use of Standardised Approach			
Article 7(2)	<p>A number of respondents stated that they do not believe that the RTS should specify a maximum timeframe of 5 years. Instead, they argued that the timeframe should be agreed by individual competent authorities.</p> <p>One institution noted that CP/2014/10 on sequential implementation and permanent partial use explicitly states that ‘determining the overall time period [for sequential implementation] is solely a matter for the competent authorities’.</p>	<p>The RTS require a definite time period for the implementation of the IRB Approach to increase harmonisation. However, Article 7(2) has been redrafted such that competent authorities shall assess whether the time period envisaged in an institution’s roll-out plan is reasonable.</p> <p>However, while Article 148(6) of the CRR provides a mandate for the EBA to specify the conditions that competent authorities shall consider for roll-out plans, Article 148(2) of the CRR states that competent authorities should determine the time period for implementation of the IRB Approach and that this shall be one that competent authorities consider appropriate on the basis of the nature and scale of the activities of the institutions, and the number and nature of rating systems to be implemented.</p>	Article 7(2) has been redrafted.
Article 7(2)	One respondent noted that, if the experience test is applied at a rating system level, the experience	Article 22 clarifies that the requirements regarding the experience test generally also apply in the case	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	test could conflict with fulfilling the requirement of a five-year implementation.	of sequential implementation, taking into account prior experience with the rating system in question.	
Article 7(3)	One respondent noted that Article 7(3) limits the situations under which competent authorities can approve changes to roll-out plans, claiming that institutions do not seek approval of all changes to their roll-out plans.	Article 7(3) clearly states that in the course of their regular assessment of the institution's compliance with the plan for sequential implementation of the IRB Approach competent authorities may approve changes to the roll-out plan if one of the aspects mentioned under Article 7(3)(a)-(d) hold true.	
Article 7(3)	One respondent noted that roll-out plans may need to be amended due to potential dependencies such as IT requirements, new regulatory requirements and the audit readiness date. The respondent suggested that the RTS be amended to allow changes to roll-out plans so long as the overall time period of the implementation plan is not amended.	It is noted that under the current wording of the RTS, the conditions under which roll-out plans may legitimately be altered are limited. There may be cases where implementation plans fail due to reasons such as changes in regulatory requirements, IT failures or mistakes in the creation of rating systems. It is also conceivable that under such circumstances the roll-out plan would need to be extended. The current wording of the RTS requires that such situations be managed through Article 146 of the CRR and that a plan for a timely return to compliance be created and approved.	
Article 7	One respondent requested further clarity on sequential implementation, in particular with regard to on what basis and with what frequency roll-out plans should be submitted.	Article 148 of the CRR states that competent authorities should determine the sequential implementation plans for institutions and Article 7(3) specifies the conditions under which these plans may be changed. Where an institution fails to comply with these requirements it is obliged by Article 146 of the CRR to notify the competent	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
		<p>authority and provide either a plan for a return to compliance or evidence that the non-compliance is immaterial. Therefore, the regulations do not require regular submissions of roll-out plans. Instead, if the institution fails to meet the requirements of its original roll-out plan, the regulations require that roll-out plans be updated and that in such cases a plan for a return to compliance be submitted to the competent authority.</p>	
Article 8	<p>One respondent suggested that Article 8(2) should refer to Article 150(1)(c) as well as Article 150(1)(a) and Article 150(1)(b).</p>	<p>The EBA is of the opinion that the criteria to be assessed as laid down in Articles 150(1)(a) and 150(1)(b) regarding partial use for exposure to governments and central banks as well as to institutions are sufficiently clear.</p>	
CHAPTER 3 – Assessment methodology of the function of validation of internal estimates and of the internal governance and oversight of an institution			
<p>Question 2. Do you agree with the required independence of the validation function in Article 4(3) and Article 10? How would these requirements influence your validation function and your governance in general?</p>			
	<p>A number of respondents stated that they believe the requirements specified in Article 10 exceed the requirements specified in the CRR, in particular</p>	<p>Article 185(a) of the CRR requires that institutions have robust systems in place to validate the accuracy and consistency of rating systems and the estimation</p>	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>with regard to the independence of the validation function and the credit risk control unit.</p> <p>One respondent stated that it believes that it should be sufficient for an institution to procedurally ensure that different staff are responsible for model development and validation and that it should be left up to the institution to determine its own structures.</p> <p>Others stated that they believe many institutions are already compliant with the relevant requirements of the CRR but would now be forced to implement costly redesigns of their organisational structure as a result of the RTS.</p> <p>Moreover, one respondent stated that it believes competent authorities should be free to approve organisational structures.</p>	<p>of all relevant risk parameters. Article 144 of the same regulation requires that competent authorities be satisfied that the requirements of the IRB Approach, including Article 185, are met.</p> <p>Ensuring that validation tasks are performed robustly is extremely difficult as there are strong incentives within an organisation to approve rating systems that are not accurate.</p> <p>The EBA is of the view that independence of the model development and validation functions is necessary to ensure that validation work is performed robustly. The EBA notes that the body responsible for model development is usually responsible for ensuring that models are implemented according to a predefined schedule, that schedules are often demanding and that the necessary skilled resource to execute the plans is in short supply. The EBA also notes that model development is not an exact science. Any serious defects identified by the validation function will consequently be unwelcome as these will divert model development resource and may mean that pre-agreed plans are not met. Such delays may result in failures to deliver to roll-out plans agreed with competent authorities as conditions of IRB permissions. It therefore follows that there will be a strong incentive for those responsible for delivering the plans to ignore or play down serious problems that should be identified by the validation function.</p>	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>A number of respondents suggested using a 'comply or explain' approach whereby, if an institution chose a different approach, that institution would need to demonstrate that its approach met the objectives.</p>	<p>As noted above, the EBA believes that separation of staff is necessary to ensure that the validation work is performed robustly.</p>	
	<p>A number of respondents stated that the current drafting of Article 10 needs clarification as there is an apparent conflict with paragraph (f) of Article 190(2) of the CRR, which states that the credit risk control unit should have active participation in the validation of models used in the rating process.</p> <p>One stated that paragraphs (e), (f) and (h) of Article 190(2) of the CRR makes the credit risk control unit responsible for key parts of the validation. This respondent also argued strongly that there are significant benefits to having the validation work performed by those with expertise in and knowledge of the model development process and the other functions that are performed by the credit risk control unit.</p> <p>The respondent also argued that the independence requirement is stronger than that specified within Article 369(1) of the CRR and that this article does not refer to systemically important institutions.</p>	<p>Article 190(f) of the CRR requires that the credit risk control unit have active participation in the validation of models used in the rating process. This does not mean that it requires that the credit risk control unit should perform the validation of rating systems, nor is attainment of the requirement precluded by a separation of the staff and reporting lines of the validation function and the credit risk control unit. The EBA also notes that it is common for both model development and monitoring functions and the independent validation function to separately perform validation-related tasks, for example reviewing rating criteria used, and does not interpret paragraph (h) of Article 190(2) of the CRR as preventing the establishment of a validation function that is independent of the credit risk control unit.</p> <p>The EBA notes that Article 369(1) of the CRR falls under own funds requirements for market risk, and that this article requires independent internal validation. The reference to systemically important institutions in Article 10 facilitates the consistent application of the proportionality principle.</p>	



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	<p>A number of respondents requested greater clarity about how Articles 4 and 10 apply to institutions that comprise groups of related entities and the meaning of ‘third parties’ and ‘outsourcing’ in this context. Several argued that the group should comprise all entities within the global consolidation of the institution and that systems developed by one part of the group but used by another should not be considered outsourced.</p> <p>One respondent stated that clarification is required so that it is clear that the proportionality principle applies to institutions on an individual basis if they are not subject to consolidated own funds requirements, and therefore that Article 10(1)(d) can be applied to the subsidiaries of a global or other systemically important institution when relevant.</p>	<p>Validation by parent institutions in the case of consolidation at EU level should not be treated as external third party involvement; on the other hand, when a parent institution is not subject to consolidation at EU level (third countries) any participation of the parent in validation activities should be treated as external third party involvement.</p> <p>The EBA agrees that in the case of systemically important institutions if a subsidiary is not consolidated for own funds requirements the requirements of Article 10(1)(d) may apply taking into account the proportionality principle but subject to approval by the competent authorities.</p>	
	<p>One respondent stated that the proportionality principle is extremely important for pooled approaches and should not bar the use of such approaches.</p>	<p>We agree that the proportionality principle should not bar the use of approaches such as data pooling. However, such approaches, if used under the IRB Approach, do need to be subject to appropriate scrutiny. It can be argued that, under the proportionality principle, a pooled approach requires significant scrutiny as an error in a model created using data pooling and used by several institutions will have greater consequences than an error in a model used by a single institution. We note that if the same model is used by many institutions a failure of the model can have a significant systemic</p>	



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	<p>One respondent stated the requirement of Article 10 is ill suited to specialised industry subsidiaries, as requiring independent validation at the subsidiary level would be a major shift in IRB practice.</p> <p>Another respondent noted that the BCBS consultative paper 'Guidance on accounting for expected credit losses' accepts that validation may be outsourced and pointed out that these RTS do not allow institutions to outsource the validation function.</p>	<p>impact.</p> <p>The RTS preclude neither the utilisation of a central validation function nor the delegation of validation activities to external third parties. However, they do require the independence of the validation function and, for global and other systemically important institutions, that the validation function be organisationally separate from the credit risk control unit.</p> <p>The EBA agrees that harmonisation of the prudential framework for the calculation of capital requirements with the accounting framework would be desirable. However the consultation paper mentioned does not refer to the validation of IRB models.</p>	
	<p>A number of respondents stated that the proportionality principle should be taken into account, or that the provisions in this regard in Article 10 are not adequate.</p> <p>One respondent noted that it is extremely difficult for small and medium-sized institutions to hire senior staff experienced in rating systems.</p> <p>Another respondent stated that it is not clear 'as to what extent the level of separation of the functions should differ based on the proportionality principle' and that 'The independence of the validation function, including</p>	<p>Article 10(1)(d) allows competent authorities to approve IRB permission for institutions where independence of the validation function is weaker if such institutions are not global or other systemically important institutions. This facilitates a proportionate approach for less systemically important institutions.</p> <p>The EBA notes that the IRB Approach entails stringent requirements for institutions and that these may require changes in the manner in which institutions operate. The EBA is of the view that, in order for the IRB Approach to be effective, strong independence of the model validation function from</p>	



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	<p>separate reporting lines, may require considerable re-organisation by the bank.'</p> <p>One respondent suggested that the wording of Article 10 should be amended as follows:</p> <p style="padding-left: 40px;">Organizational options other than those referred to in point (b) to (d) of paragraph 1 can also be accepted provided that:</p> <ul style="list-style-type: none"> (i) The institution can prove that all validation function activities are effectively performed, and this in an independent way; (ii) The institution obtains a specific approval for this organisation from its competent authority. <p>Another respondent suggested that it should be clarified whether subparagraphs (b), (c) and (d) of Article 10 should be implemented in such a way that greater separation is required consistently with the proportionality principle.</p>	<p>model development is essential to avoid conflicts of interest and to ensure that validation is effective. However, proportionality is important and, as noted in the previous paragraph, the RTS specifically allow for a proportionate approach that is significantly less strict for institutions that do not pose systemic risk.</p>	
	<p>Several respondents objected to the proportionality principle embedded in Article 10, arguing that this principle is not necessary to ensure that rating systems are validated objectively.</p>	<p>European law requires that European regulations are implemented in a proportional manner. It would not be proportionate to require institutions that pose low systemic risk to implement the organisational structures necessary to ensure the robustness of more systemically important institutions.</p>	
	<p>One respondent suggested that a grandfathering</p>	<p>Such an approach would permit structures that are</p>	



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	<p>approach be used for the implementation of the independence requirements of Article 10. Under such an approach, the independence requirements of Article 10 would not be applicable until such time as the internal framework of an institution ‘receives a complete reworking’.</p>	<p>not robust to remain indefinitely and therefore the proposal remains unchanged.</p> <p>The RTS specify requirements for competent authorities. Where a competent authority identifies that an institution does not meet the requirements, it is anticipated that a plan for a timely return to compliance will be implemented.</p> <p>It is therefore anticipated that institutions and competent authorities should create a plan under which the institution performs the necessary restructuring.</p>	
	<p>Several respondents stated that creating a completely independent validation function may cause difficulties such as high turnover of qualified staff and problems in attracting suitably qualified staff and sharing expertise.</p> <p>Another respondent even stated that the level of independence demanded of large banks is in principle not workable.</p>	<p>The EBA notes that many institutions already have completely independent validation functions and run these functions successfully.</p>	
	<p>Several respondents stated that the risk of a conflict of interest between the credit risk control unit and the independent validation function is overstated and that these functions have the same interests.</p>	<p>The EBA accepts that both the credit risk control unit and the independent validation function have a common interest in creating robust models. However, the EBA also notes that an inherent conflict of interest arises in the model development process as model developers are usually responsible for creating models to a specific timeline. Therefore,</p>	



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		there is a strong incentive to ignore or hide errors that would lead to delays or reworking the model.	
Articles 10, 11, 12 and 17	<p>One respondent requested further clarification of the role of internal audit compared with model validation.</p> <p>Another respondent called for specification of 'clear expectations for independent model validation and for banks' internal audit functions commensurate with roles appropriate to these functions'.</p>	<p>The RTS aim to clarify the roles of the validation function and internal audit. The EBA believes that the current draft RTS provide a good balance between clarity and over-prescriptiveness.</p> <p>Articles 10, 11, 12 and 17 set out assessment criteria and methods for competent authorities with regard to the validation and internal audit functions.</p>	
Article 11	<p>One respondent argued that the additional annual validation requirements imposed by Article 11(2)(b) are unnecessary as the current validation process already includes annual backtesting in conjunction with monitoring of the performance of the rating systems.</p> <p>The same respondent asked for clarification with respect to the definition of 'material portfolios' in the context of Article 11(3)(b).</p>	<p>Many institutions consider annual validation necessary to ensure the robust performance of rating systems over time. The EBA does not consider the requirements specified in Article 11(3)(b) to be excessive or unnecessary.</p> <p>Materiality refers to the criteria listed in Article 2(1)(a) and (b).</p>	
Article 11(2)(b)	<p>One respondent argued that it is not necessary that the validation function 'verifies the adequacy of internal ratings and risk parameters implementation in IT systems and that grade and pool definitions are consistently applied across departments and geographic areas of the institution'.</p>	<p>The validation of the implementation of the assignment of internal ratings and, if applicable, LGD and CCF to obligors or exposures in the case of retail portfolios should be part of the validation activities.</p>	



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Article 11	One respondent stated that a complete annual review of each rating system would be overly burdensome.	The EBA notes that many institutions currently perform annual reviews of their rating systems. However, the RTS do not require that competent authorities verify that extensive comprehensive independent reviews are performed annually (noting that the independent reviews performed by many institutions are very thorough). Instead, the RTS specify that competent authorities should verify that the requirements set out in Article 185(b) of the CRR are satisfied and that, in addition, for rating systems covering material types of exposures, more extensive performance testing is conducted.	
Article 12	One respondent suggested that the requirements of Article 12(e) be diluted and the requirement restricted by adding 'in so far as meaningfully possible'.	Such a change in wording is not possible as it would contradict the Level 1 text.	
Article 14	One respondent asked for more clarity regarding the definition of senior management and, in particular, whether the CRO is considered senior management, and whether consideration needs to be given to each jurisdiction in which the institution operates.	The definitions of management body and senior management are given in point (7) and (9) of Article 3(1) of the CRD, according to which it depends on the specific organisational structure of an institution whether the CRO is considered to be a senior manager or not.	
Article 17	Two respondents suggested that in Article 17(1)(a) the requirement that internal audit review all rating systems at least annually should be replaced by a requirement for the review of the self-assessment of rating systems, as described in	Article 191 of the CRR requires the internal audit or another comparable internal auditing unit to review the rating systems, their operation and the estimation of risk parameters. Therefore, limitation of the internal audit activities to reviewing annual	



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	<p>Article 32(9)(a).</p> <p>Another respondent requested that Article 17(1)(a) be amended to include only a sample of rating systems.</p> <p>Another respondent requested confirmation of their understanding that Article 17(1)(a) is a planning process and does not comprise a full review of all rating systems.</p>	<p>self-assessments is not compliant with the Level 1 text.</p> <p>Moreover, it has to be noted that the annual review described in Article 17(1)(a) is a planning exercise with the purpose of determining which rating systems need a detailed review by internal audit in the year in question, as referred to in Article 17(1)(b).</p>	
CHAPTER 4 – Assessment methodology of use test and experience test			
Article 18	One respondent requested further guidance on reasonable discrepancies between internal estimates and those used for own funds calculations within Article 18(1)(b).	It is specified in Article 144(1)(b) of the CRR that internal ratings and default and loss estimates used in the calculation of own funds requirements play an essential role in the risk management and decision-making process, and in the credit approval, internal capital allocation and corporate governance functions of the institution.	
CHAPTER 5 – Assessment methodology for assignment of exposures to grades or pools			
Article 24	Two respondents argued that the 24-month period specified in Article 24(1)(g) for out-of-date financial statements is arbitrary and should not be included in the RTS.	The EBA considers that financial statements that are 2 years old are outdated and does not consider the 24-month period arbitrary. The 24-month period takes into account that, although financial statements are typically produced every 12 months, on some occasions a company will change its financial year-end, so the period between	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
		consecutive statements may be longer, and this should be allowed for in any requirement. In addition, consideration is given to the time it will take the company to release the statements and institutions to analyse the statement data.	
	Two respondents requested that the requirement specified within Article 24(2)(e) be changed to state that competent authorities should assess the presence and effectiveness of the institution's internal control framework.	The EBA considers that it is important that competent authorities assess whether model overrides indicate weaknesses within the model and that in such cases they should ensure that appropriate action is taken to address the weaknesses.	
	One institution requested further clarification on materiality thresholds to avoid undue implementation costs for rating systems that have only immaterial exposures with outdated ratings in place.	The EBA does not consider it appropriate to incorporate specific materiality thresholds in the RTS in this regard.	
	One respondent noted that, for non-retail exposures, the RTS require that institutions and groups of connected institutions assign a single rating to all exposures to the same obligor unless one of the exceptions specified in Article 172(1)(e)(i)-(iii) of Regulation (EU) No 575/2013 applies. The respondent questioned the interpretation of the article, stating that it believed the article should apply at the level of the individual institution.	The RTS apply according to the scope of the permission for an institute or a group of institutes to apply the IRB Approach and with respect to the scope of the assessment in question.	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	One respondent noted that there should be a distinction in Article 24(1)(g) between ‘actual lack of information’ and ‘meaningful missing values’, arguing that in the latter case the risk should be quantified.	It is not clear exactly what is meant by ‘meaningful missing values’. However, if it is possible to model the impact of ‘meaningful missing values’, the RTS do not prevent this approach, as they allow the institution to define rules that account for missing information that is required for the rating process in an adequate and conservative way.	
	One respondent suggested a clarification of the conservative adjustments that should be added to outdated ratings.	As the RTS is addressed to competent authorities, such adjustments should take into account the potential risk of underestimation of capital requirements and may vary from portfolio to portfolio.	
	One respondent requested further information on the text ‘the analysis of overrides per person applying the overrides’ in Article 24(2)(c) .	The wording of the RTS should be enhanced to provide greater clarity of the intended meaning.	Article 24(2)(c) has been adjusted.
Article 25	One respondent recommended that the requirement in Article 25(2)(b) that ratings be updated every twelve months be amended to allow at least an additional three months. This is because annual statements may not be published exactly twelve months apart.	There is no need for such a provision, as Articles 25(2)(e) and 24(1)(g) provide guidance on how banks might handle such situations.	
CHAPTER 6 – Assessment methodology for definition of default			
General comment on Chapter 6	One respondent suggested adding a clarification stating that regulatory default definitions could be aligned with local accounting default definitions.	The operationalisation of the definition of default must be compliant with the definition in Article 178 of the CRR. Further clarification will be provided in	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
		the Guidelines on the definition of default ¹¹ .	
Article 27	One respondent indicates that ‘triggers’ of default is a strengthening of the wording in comparison with Article 178(3) of the CRR and asked for the wording regarding the indicators to be changed so that it is in line with the CRR.	As Article 27(2) already uses the term ‘indications of unlikelihood to pay’ there is no immediate need to change the wording in this article.	
Article 28(1)(d)	Several respondents highlighted that, if the definition of default were applied at obligor level, there would be several reasons that would justify different treatments of default events across the entire group due to possible national disparities (e.g. in the accounting and legal frameworks). The requirement would force banks to use the less sophisticated default definition at individual loan level.	The operationalisation of the definition of default must be in line with the definition in Article 178 of the CRR across the entire group. Therefore, the institution has to ensure, where it applies the definition of default at the obligor level, that all the exposures of a defaulted obligor are set to the default status across the entire group. Further clarification will be provided in the Guidelines on the definition of default.	
Article 28(3)(b)	Several respondents asked for more flexibility with regard to retail exposures so that firms can apply the definition of default either on an obligor or on a transactions basis, as long as the alternative approach is applied to well-defined segments consistently over time. The choice can depend on the business model of the bank, new portfolios or entities or on creating a difference between private individuals and SMEs, as required by	The level of application of the default definition for retail exposures should be based on the internal risk management practices of the institution. However, if an institution decides to use different levels of application of the definition of default for different types of retail exposures, the requirements of the CRR regarding default of an obligor may not be fully met. Further guidance will be provided in the Guidelines on the definition of default.	

¹¹ <https://www.eba.europa.eu/-/eba-consults-on-harmonised-definition-of-default>



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	Article 65.		
Article 28(3)(c)(i)	One respondent asked if regulatory capital reporting systems are included in 'all relevant systems within the institution'. From its point of view, they should be excluded, as regulatory reporting rules are currently defined under national rules.	Defaults need to be treated consistently in regulatory capital reporting systems also. Where there is a time delay with regard to the assignment of the defaulted status of a facility across all relevant systems that time delay should not lead to errors or inconsistencies in regulatory capital reporting.	
CHAPTER 7 – Assessment methodology for rating systems design, operational details and documentation			
Article 32(9)(b) – Completeness of documentation	One responded was opposed to the requirement for compliance self-assessments of rating systems to be reviewed by internal audit or an equivalent auditing unit prior to their inclusion in rating system documentation. It argued that this is not a 'third line' activity and that it would therefore not be appropriate for internal audit to review the self-assessment for every rating system change document submitted for approval to a competent authority.	Compliance self-assessment has to be reviewed by audit and this process can be considered a 'third line defence' activity. However, it is not required that every rating system change trigger such a review by internal audit.	
Article 33 – Map of rating systems	Clarification on the requirement to build a register including changes over time would be appreciated in relation to Article 33. A phase-in period would also be welcome to avoid retroactive collection of changes.	The EBA is of the view that a register as required in Article 33 is necessary to enable the competent authorities to thoroughly review rating systems.	
Article 35(2)(a)(i) – Risk drivers and rating criteria	One respondent stated that the RTS require the evaluation of country risk among the risk drivers for non-retail exposures, but that for local (i.e.	The argument is valid, but the corresponding formulation in the RTS includes the condition 'where	



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	<p>country-specific) rating systems such as Mid-Corporate the country risk is already embedded in the data used for development purposes. Moreover, some risk drivers suggested for retail exposures could be hard to update in the ongoing monitoring phase (e.g. personal income information is usually available only in the underwriting phase).</p>	<p>applicable’.</p>	
<p>Article 37 – Risk differentiation</p>	<p>The concern was raised that the individual character of thresholds and non-compliance with internal tolerances may not be interpreted in their intended context. The article may be interpreted too narrowly by some supervisors. A change in wording was proposed.</p> <p>It was stated that metrics for risk differentiation depend on, among other things, portfolio size and are therefore not directly comparable. A common benchmark, in this case, would not have added value from a supervisory perspective.</p>	<p>It is true that common metrics for discriminatory power are not comparable over different portfolios. However, the RTS do not require a common benchmark for different portfolios.</p>	
<p>Article 38(2) – Homogeneity</p>	<p>One respondent stated that Article 38(2) proposes that the probability of default (PD) needs to be reviewed within the same pool. The CRR assigns obligors and transactions to a specific grade or pool with the same PD or loss given default (LGD), or credit conversion factor (CCF). This grade or pool will then receive an overall PD (or LGD or CCF). The proposal in Article 38(2) does not seem practical as the PD would only be assigned to the</p>	<p>As a result of this argument, it is suggested that the wording in brackets in Article 38(2) be replaced with ‘risk drivers’.</p>	<p>Article 38(2) has been revised</p>



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>pool. Generally, default rate, LGD and CCF display bimodal or U-shaped distributions. Evaluation of the distribution of those metrics would consequently not provide useful information, since it would not allow judgement on homogeneity. The respondent assumes that the intention of the EBA was to ensure that appropriate risk drivers or segmentation criteria are used to assure homogeneity. In our view this is done via an analysis of available segmentation criteria or risk drivers, and not on 'loss characteristics ("estimates of PD, LGD, and conversion factor and total losses")' as stated in Article 38(2). Clarity on this assumption would be useful.</p>		
<p>Article 40(2)(c)(iii) – Data requirements</p>	<p>The RTS require national competent authorities to verify that model structure and performance are not negatively affected by a default definition that differs for development and regulatory purposes.</p> <p>One respondent suggested that in the case of differences due to refinements to a default definition (e.g. because of multiple defaults, under Article 52, or technical defaults), performance assessment should be done according to the same definition adopted for modelling purposes.</p>	<p>Article 40(2)(c)(iii) is necessary to ensure that where, for the purpose of model development, a different definition of default is used this does not have a negative impact on the structure and performance of the rating model. This is to ensure that capital requirements are adequate with respect to the definition of default laid down in Article 178 of the CRR.</p>	
<p>Articles 45 - 54</p>	<p>Several respondents requested more clarity regarding:</p> <ul style="list-style-type: none"> • The adequacy of the number of exposures 		



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>in the sample required in Article 45 (1)(d)</p> <ul style="list-style-type: none"> • The requirements to update data used for risk estimation laid down in Article 46 • The application of margin of conservatism • The length of the historical observation period as referred to in Article 50 (c) • LGD, Elbe and UL estimation for exposures already in-default • The requirements stated in Article 51 (c) that all observed defaults have to be taken into account for the purpose of LGD Estimation • The treatment of unpaid late fees as referred to in Article 51 (1) (g) • The requirements for estimation of downturn LGD • The requirements on collateral management, legal certainty and risk management if collateral is considered in LGD estimation according to Article 181 (1) (f) 	<p>These issues are considered in EBAs current work on guidelines for PD and LGD estimation as well as for treatment of defaulted assets as outlined in EBA's Regulatory Review of the IRB Approach¹².</p>	

¹² <https://www.eba.europa.eu/documents/10180/1360107/EBA+Report+on+the+regulatory+review+of+the+IRB+Approach.pdf/4f4891fa-79a3-4f0e-97c7-fa974a410688>



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
CHAPTER 8 – Assessment methodology for risk quantification			
<p>Q3: Are the provisions introduced in Article 49(3) on the calculation of the long-run average of one-year default rates sufficiently clear? Are there aspects which need to be elaborated further?</p>	<p>In total, 14 parties commented on this question and provided a rather homogeneous opinion on the topic.</p> <p>The criticism was made that the economic cycle lacks a definition. In contrast, the CRR is very simple and clear in demanding a time history of a minimum of 5 years.</p> <p>One respondent argued that economic factors might not be the only relevant indicator; the correlation between economic factors and business models differs according to the segment of the industry.</p> <p>It was pointed out that, in contrast to the methodological requirement of PD estimates in the formula of IRBA risk weights, the floor on reconstructed default rates by ODFs amplifies procyclical effects, contradicting the rationale of the RTS, where it is stated that ‘extensive cyclicity of own funds requirements is avoided’.</p> <p>The reconstruction methods mentioned were considered somewhat arbitrary and lacking clear guidance; they were thus thought hardly likely to</p>	<p>The EBA recognises that supervisory and industry practices are very different with regard to the interpretation and implementation of the long-run average of one-year default rates. The third interim report on the consistency of risk weighted assets (page 75) illustrated the very high degree of variance in the length of time series used for the purpose of PD model calibration.</p> <p>Articles 180(1)(h) and 180(1)(e) of the CRR require that ‘the length of the underlying historical observation period used shall be at least five years for at least one source’. Moreover ‘if the available observation spans a longer period for any source, and these data are relevant, this longer period shall be used’. This gives an incentive to develop models and calculate capital requirements which are stable.</p> <p>In addition to this, for retail exposures, the CRR grants in Article 180(2)(e) that ‘An institution need not give equal importance to historic data if more recent data is a better predictor of loss rates.’</p>	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>be established consistently. It was emphasised that the reconstruction method provided for in the 'Text for consultation purposes' should be avoided. Instead, it was suggested that a common framework on calibration be established.</p>		
	<p>Respondents mentioned that importance should be attached not only to historic observations, but also to processes of credit origination and underwriting standards. In particular, those forward looking PDs should not be more conservative than the observed ones, as this depends on the point of the cycle.</p> <p>In some jurisdictions, PIT models have been installed. These are in contrast to the long-run average method, which is TTC, but in line with Article 180(2)(e) of the CRR, which states 'An institution need not give equal importance to historic data if more recent data is a better predictor of loss rates.'</p> <p>One respondent commented that Article 49(5) should be rephrased by substituting 'period of stressed volatility' for 'complete economic cycle'.</p>	<p>Experience shows that the determination of economic cycles is difficult among economists; if the rating system covers exposures in different microeconomic segments, there will even be more than one economic cycle to be considered, and the PD estimation will have to somehow reflect the interference of the different cycles. In practice it is difficult to apply the definition of 'economic cycle' in a consistent manner, as it is strongly dependent on the industry, segment and rating model in question. The EBA recognises that reconstruction methods as proposed in the consultation paper introduce additional complexity and new parameters into models. As the notion of an economic cycle cannot even be defined without any doubt, the reconstruction of the latter would be even less reliable. The corresponding provisions have therefore also been dropped in the final RTS.</p> <p>Instead, it is now required that the period used by the institution for the estimation of the long-run average of one-year default rates for one type of exposure is representative of the likely range of variability of one-year default rates in that type of</p>	<p>The reference to the economic cycle has been dropped in Article 49(3)</p>



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
		<p>exposure.</p> <p>However, where the observed data are not likely to be representative of the range of variability of the one-year default rates an appropriate method for estimating this variability is required, which should be applied together with an appropriate margin of conservatism to account for the limitations of the estimation method.</p>	
<p>Q4: Do you agree with the required number of default weighted average LGD calculation method introduced in Article 51(1)(b) and supporting arguments? How will this requirement influence your current LGD calculation method? More generally, what are your views as to the balance of arguments with regard to identifying the most appropriate method?</p>	<p>In total, 13 comments were submitted.</p> <p>Seven respondents shared the EBA's opinion on having a number of default weighted approach in place, especially for high-default portfolios where EAD concentration is absent.</p> <p>Seven respondents argued that (especially) for low-default portfolios, the risk driver EAD is better reflected via exposure weighting than by segmentation, as segmentation naturally leads to fewer observations and thus to statistically poorer models. According to them, both approaches should be allowed.</p> <p>One bank even argued that number of default weighting is less conservative in its portfolio.</p> <p>Two respondents proposed allowing for both methods, but to floor the LDG estimation by the number of default-weighted estimate.</p> <p>It was recommended that the average LGD be assessed after withdrawal of non-material</p>	<p>The argument of inconsistent supervisory approaches given the exposure weighted LGD for collective provisioning in the AQR can be countered with the fact that the AQR methodology was based on accounting standards and not on capital requirement approaches. As a matter of fact, in the AQR it was prohibited to make use of own estimates coming from internal models for capital requirement.</p> <p>In principle, the number of default weighted LGD must be in place, as this is required by the CRR. If, however, the exposure value is a material risk driver, it should be considered among other potential risk drivers for the segregation or risk differentiation of LGD in order to ensure that the parameter is calculated for homogenous pools of facility grades.</p> <p>The only reasonable argument against this approach is the absence of observations given segmentation by exposure value, which is considered a main driver for LGD differences by all parties involved. However,</p>	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>exposure defaults.</p> <p>Two banks would like the exposure weighted LGD to be allowed to be used for retail.</p> <p>Two respondents mentioned the fact that in the AQR methodology imposed by European supervisors for collective provisioning ('challenger model'), exposure weighting was imposed for LGD calculation.</p> <p>The effort required of institutions was considered to be quite high by four respondents.</p>	<p>the process of model development, in particular selection of drivers/segments, determined by statistical or expert considerations, identifies the major drivers/segment. Therefore, if exposure value is not identified as major driver/segment (because other drivers/segments are more relevant), then it will not be used in the LGD estimation.</p>	
<p>Q5: Are the provisions introduced in Article 52 on the treatment of multiple defaults sufficiently clear? Are there aspects which need to be elaborated further?</p>	<p>A total of 14 comments were submitted; thereof, three completely supported the content and degree of clarification of the RTS.</p> <p>A majority of the institutions asked for more clarification on the 'limited timeframe' and the length of the cure period.</p> <p>The suggestion was raised that, due to the tremendous importance of the definition of default for risk quantification, supervisory bodies should attach importance to having a well-coordinated and consistent/unique definition in place. As a matter of fact, the definition has until now been spread over various documents, which does not support harmonisation.</p> <p>The suggestion was made that the treatment of multiple defaults be removed from these RTS, as it should be treated within the guidelines to be</p>	<p>It is in the spirit of the RTS that institutions have a definition of the length of cure period according to their internal policies and default experiences. Therefore, the term 'limited timeline' has not been further specified.</p> <p>However, more guidance on the definition of the cure period as well as on the treatment of multiple defaults will be considered in the Guidelines on the definition of default.</p>	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>issued according to Article 178(7) CRR.</p> <p>It was argued that consistency of the treatment of default definition was required and that consistency with accounting standards was also needed.</p> <p>One respondent stated that the provisions are sufficiently clear and that it considers it correct not to provide rigid indications on (or set boundaries for) the length of the cure period.</p>		
<p>Q6: Are the provisions introduced in Article 60 on the treatment of eligible guarantors for the purpose of own-LGD estimates sufficiently clear? Are there aspects which need to be elaborated further?</p>	<p>A total of 12 comments were submitted, five of which stated that the provisions in Article 60 are sufficiently clear.</p> <p>Concerning the text box for consultation purposes, three respondents argued that the notion of ‘funded guarantee’ is unclear, as, by definition, guarantees are unfunded credit protection.</p> <p>One respondent stated that the treatment remains uncertain with respect to Article 164(2) of the CRR: ‘Unfunded credit protection may be recognised as eligible by adjusting PD or LGD estimates’. In this Article, free choice of parameter is granted, which is in contrast to the EBA proposal.</p> <p>One respondent argued that banks applying AIRB have already implemented own estimates for the collaterals they use, including guarantees. The same types of collateral providers (Article 201 of</p>	<p>The provisions of Article 60 are sufficiently clear.</p> <p>The EBA cannot see any contradiction in the requirements set out in the RTS and those outlined in Article 164(2) of the CRR.</p> <p>However, more guidance on the treatment of collaterals, including guarantees, in the parameter estimation will be provided in future regulatory products.</p>	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>the CRR) should be eligible under all approaches.</p> <p>Further clarification on the potentially new requirement was asked for by one respondent.</p> <p>It was also mentioned that there some people thought of using guarantees as risk factors in rating models.</p> <p>One respondent saw some benefit in clarification on how to include the impact from credit mitigation through guarantees in capital requirement calculations. There should not be any doubts about how institutions should treat the impact of guarantees in the models.</p>		
CHAPTER 9 – Assessment methodology for assignment of exposures to exposure classes			
Article 64	<p>One respondent suggested that the exposure class ‘securitisation’ must be named first if the list in point (a) is intended to express a clear order of these three exposures. If an exposure fulfils the criteria for a securitisation in accordance with Article 4(1)(61) of the CRR, it must be assigned to the corresponding exposure class regardless of whether this would fulfil the criteria under Article 147(6) of the CRR for the exposure class ‘equity’.</p>	<p>There is a need for competent authorities to verify that institutions apply the correct sequencing.</p> <p>However, the order of exposure classes in point (a) follows the order in Article 147 CRR and does not imply requirements on the identification of items representing securitisation positions.</p>	
CHAPTER 10 – Assessment methodology for stress test used in assessment of capital adequacy			



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
General comment on Chapter 10	Two respondents remarked that in order to avoid duplication of efforts, the stress testing requirements of these RTS should be better aligned with the regular stress test submissions that firms are required to make to the EBA or national competent authorities.	The requirements in the RTS refer to stress tests used for the assessment of capital adequacy as required by Article 177 of the CRR. These have to be distinguished from other stress tests, e.g. the EU-wide stress test exercise which is conducted by the EBA in order to assess the resilience of financial institutions in the EU to a hypothetical predefined adverse market scenario.	
General comment on Chapter 10	One respondent asked for further clarification on how the stress test requirements are relevant to Pillar 1 and Pillar 2.	The stress tests, according to Article 177 of the CRR, should be performed in addition to Pillar 2 stress tests and the methods should be consistent unless justified by the circumstances. These stress tests should focus on own funds requirements under stress conditions, and so they are basically relevant to Pillar 1.	Deletion of Article 69(1)(c).
Article 67(1)(a)	One respondent claimed that the definition of a 'meaningful' stress test is not clear. It highlighted that in some countries supervisory add-ons are already added to parameters to meet future systemic risk in the real estate market. It asked if stress tests should be performed on this data (this would mean that stress testing data already includes stressed data) or if it should be performed only on internal estimates.	Article 177(2) of the CRR requires institutions to assess migrations in their ratings under stress test scenarios. If the PD estimate already covers certain stress scenarios, the resulting migrations will be limited.	
Article 67	Two respondents requested more clarity on this change to the current modelling of default rates and especially on how it should be embedded in	Article 67(3)(c) requires competent authorities to assess the adequacy of the methodology for projecting the impact of stress scenarios onto the	



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	daily practices. They asked for confirmation on the point that a consolidated approach is considered sufficient (i.e. a top-down assessment). Moreover, requiring this exercise to be performed at the model level would not be appropriate as the segmentation and granularity of stress testing models do not necessarily match the structure of PD models.	relevant risk parameters. Thus, depending on the scenarios, it might be necessary to consider the input at the level of the scope of the risk parameter estimate.	
Article 69(c)	One respondent required more details on expectations regarding this Article. It asked if a stress test exercise on default rates or rating migrations needs to be conducted in order to set the target PD during model development stage. If yes, how should the results be taken into account in the identification of long-run average one-year default rates? Is the stress test to be considered an additional validation tool?		Article 69(c) has been deleted
CHAPTER 11 – Assessment methodology of own funds requirements calculation			
Article 73(b)	One respondent suggested clarifying that the total sales (S) parameter should be applied at the level at which the PD is assigned. In some cases it could be appropriate to use the sales parameter of the rated obligor.	The S parameter is applied at the level of the consolidated financial statement for the obligor in question.	
Article 73(d)	One respondent disagreed with the proposed calculation of the maturity (M) parameter and suggested that it needs to be consistent with Article 162(2)(a) and especially (f) of the CRR. The	The requirement of Article 73(d) should be in line with Article 162 of the CRR. In the case of revolving exposures, an institution is at risk for a period extending beyond the repayment date of the current	



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	approved methodologies for determining effective maturity should be recognised.	drawing, given that the borrower may redraw additional amounts. Therefore, competent authorities should verify that the calculation of effective maturity of revolving exposures is based on the expiry date of the facility.	
Article 73(h)	Three respondents agreed with the proposal, under Article 73(h), to perform the IRB shortfall calculation on separate portfolios (i.e. at the aggregated portfolio level for defaulted exposures and non-defaulted exposures). Furthermore, they highlighted that there is no CRR requirement to calculate the IRB shortfall on an individual level.	As recital 30 of the consultation paper already mentions, these RTS clarify that the IRB shortfall should be calculated at an aggregate level separately for the portfolio of defaulted exposures and the portfolio of exposures that are not in default.	



Impact Assessment			
Q7: Do you support the view that costs for institutions arising from the implementation of these draft RTS are expected to be negligible or small? If not, could you please indicate the main sources of costs?			
Q7: General	<p>None of the respondents supported the view that costs for institutions arising from the implementation of these draft RTS would be negligible or small. In addition, credit institutions preparing to transfer to the IRB Approach need to consider the additional costs. One respondent even mentions that the regulatory benefits and the quality improvements will be much lower than the associated costs for institutions.</p>	<p>The responses show a different picture from the results of the EBA analysis asking the CAs about potential costs that could occur in their jurisdictions. The outcome of the EBA survey was that the average costs would be negligible or low for institutions.</p> <p>It has been recognised that the impact of these RTS may interact with the impact of other standards related to IRB Approach; the major example is the definition of default, where the EBA has other mandates.</p> <p>However, more guidance on the overall implementation of the envisaged changes to the IRB Approach can be found in the EBA's Opinion on the implementation of the regulatory review of the IRB Approach.</p>	
Q7: Main sources of costs	<p>The main sources of costs mentioned by the respondents are the following:</p> <ul style="list-style-type: none"> • changes to the definition of default; • treatment of multiple default and transformation of delinquency data sets; 	<p>Most complaints regarding the costs arising relate to the default definition and the treatment of multiple defaults. The default-weighted LGD approach is also named as a main source of costs.</p>	



	<ul style="list-style-type: none"> • default-weighted LGD approach; • degree of reconciliation required between prudential data and accounting data; • prohibition of cooperation between model developers and model validators under outsourcing arrangements; • sequential implementation of the IRB Approach within a time period of a maximum of 5 years; • regular review of the IRB Approach at least every 3 years and requests through written statements or interviews as frequently referred to throughout the draft RTS; • unclear rules regarding PD adjustment to reflect a complete economic cycle; • requirements regarding reconstruction of periods for models in which the observed data is not representative; • LGD for defaulted exposure; • adjustments to the institution’s experience test as well as to the use test; • high conservatism adjustments; • requirements for Pillar 1 stress tests (harmonisation with Pillar 2 stress tests and examination of the long-term PD averages on the basis of stressed PDs); • requirements of Article 57 (conversion factor estimation); • data maintenance requirements (Chapter 12); • implementation of new processes (e.g. constructing a map of rating systems) 		
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Q7: Further clarification	Two respondents requested further clarification on definitions in the RTS (e.g. 'material portfolios') to be able to forecast a clearer impact assessment.	Materiality refers to the criteria listed in Article 2(1)(a) and (b). Please also note the clarifications made with respect to the proportionality principle.	
Q8: What are the main benefits for institutions that you expect from the adoption of these draft RTS?			
	Most of the respondents emphasised that the RTS support better comparability and consistency of internal model approaches and model outputs as well as providing clarity about the underlying rules, which ensures transparency. Some of them also highlighted that the RTS will be helpful for implementing greater convergence and standardisation of supervisory practices across all EU Member States and therefore minimising arbitrage.	These draft RTS are considered an integral part of the efforts of the EBA to ensure consistency in model outputs and comparability of risk weighted exposure amounts. The draft RTS should enable harmonisation of the supervisory assessment methodology across all EU Member States and provide enhanced clarity on various aspects of the application of the IRB Approach.	
	A few respondents highlighted that the EBA's work should be aligned with the Basel Committee's current review of the IRB models.	Alignment with the Basel Committee's current review of the IRB models of should be ensured.	
	Two respondents mentioned that the RTS will also facilitate IRB institutions in reviewing and enhancing their model development, validation, independent review and internal audit functions, as well as setting out guidance to improve the use test. The adoption of these RTS will also lead to improved documentation of data quality, reporting and rating systems.	These draft RTS are expected to have medium or even large beneficial impact on supervisory practices. This will also result in positive externalities regarding the daily work of the institutions.	



<p>Q9: Do you expect that these draft RTS will trigger material changes to the rating systems (the subject of the RTS on materiality of model changes)? If yes, could you please indicate the main sources of the changes (please list the relevant Articles of these draft RTS)?</p>			
<p>Q9: General</p>	<p>Almost all of the respondents are convinced that these draft RTS will trigger material changes to the rating systems (the subject of the RTS on materiality of model changes). One of them asked for more flexibility for institutions, because becoming fully compliant with these new requirements will take time. Only one respondent did not expect material changes to the rating systems.</p>	<p>The EBA has considered the feedback provided by the respondents and made a number of amendments to the RTS. However, more guidance on the overall implementation of the envisaged changes to the IRB Approach can be found in the EBA's Opinion on the implementation of the regulatory review of the IRB Approach¹³.</p>	<p>Amendments to e.g. Article 2 regarding additional methods and the use of results from recent assessments.</p>
<p>Q9: Main sources of changes</p>	<p>The main sources of changes mentioned by the respondents are the following:</p> <ul style="list-style-type: none"> • Article 4: definition and scope of outsourcing, prohibition of cooperation between model developers and model validators under outsourcing arrangements. • Articles 10 and 11: validation process. 	<p>Most responses regarding material changes relate to the definition and scope of outsourcing and the prohibition of cooperation between model developers and model validators under outsourcing arrangements (Article 4), as well as the treatment of multiple defaults (Article 52). Another issue often mentioned is the method of PD estimation (Article 49).</p>	<p>Article 4 has been redrafted.</p>

¹³ <https://www.eba.europa.eu/documents/10180/1359456/EBA-Op-2016-01+Opinion+on+IRB+implementation.pdf>



	<ul style="list-style-type: none"> • Articles 26-29: changes to the definition of default Article 28(1)(d). • Article 28(3)(b): definition of default for retail exposures. • Article 42: over-restrictive limit on human judgement. • Article 49(3): method of PD estimation and rating philosophy. • Article 51: method of LGD estimation. • Article 52: treatment of multiple defaults. • Article 54: LGD estimation for exposures already in default. • Article 57: estimation of conversion factor. • Article 60: eligibility of guarantors and guarantees. 		
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