



PROGRESS REPORT ON THE IRB ROADMAP

MONITORING IMPLEMENTATION, REPORTING
AND TRANSPARENCY

EBA

EUROPEAN
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1. Introduction

1. In 2006 the Basel Committee on Banking Supervision (BCBS) published the agreed revised standards on capital adequacy (commonly known as the Basel II framework¹), introducing a more risk-sensitive approach towards calculating minimum capital requirements for credit risk, through the so-called Internal Ratings-Based (IRB) approach. Under the IRB approach, institutions set their capital requirements based on their own estimates of certain risk parameters, which serve as inputs to a function providing the applicable risk weight for a given exposure. In this context, the risk parameters are the probability of default (PD), loss given default (LGD) and conversion factors (CFs), which estimate the drawn amount at the time of default in the event of open credit lines or other off-balance sheet items.
2. In the EU, the Basel II standards for credit risk were first implemented through the Capital Requirements Directive (2006/48/EC of 14 June 2006) (CRD) and national implementations based on the CRD, and subsequently in 2013 through the Capital Requirements Regulation (Regulation (EU) No 575/2013) (CRR) and an amended version of the CRD. This ensured that the Basel framework was implemented in the EU and allowed banks to use more risk-sensitive measures that aligned with their internal practices.
3. The possibility of calculating own funds requirements for credit risk in a more risk sensitive way and based on internal models comes, however, at the cost of a complex and flexible regulatory framework that has a broad range of interpretations among institutions as well as supervisors. In fact, EBA's report on comparability and procyclicality of own funds requirements under the IRB approach published in December 2013 showed substantial divergences in the approaches taken by institutions and approved by supervisors. The same report confirmed significant variability of own funds requirements resulting from the application of IRB approaches, which could not be explained by differences in the underlying risk profiles only, although parts of the variability could be explained by simple risk drivers such as portfolio mix and the ratio of defaulted and non-defaulted exposures.
4. As a follow-up of the results obtained from that report, the EBA set out a roadmap in February 2016 to face the concerns about undue variability of own funds requirements for credit risk stemming from the application of internal models. The objective of that roadmap was to enhance robustness and the comparability of the internal risk estimates and own funds requirements of institutions in the EU as well as to improve the transparency of the models and their outcomes in order to restore the trust in the use of IRB models. Therefore, the roadmap envisaged three strains of work:
 - a. reviewing the regulatory setting of the IRB approach;

¹ <https://www.bis.org/pub/bcbs128.pdf>

- b. ensuring supervisory consistency;
 - c. increasing transparency based on standardised and comparable templates.
5. So far, the emphasis of the EBA's work has been on point a above, while substantial work has also been undertaken as regards point b, in particular through the EBA benchmarking exercises. With this report, the EBA is marking the finalisation of the regulatory review of the IRB approach (point a above) as set out originally, and aims to provide clarity on the further steps.
 6. It has always been important for the EBA that the regulatory review of the IRB approach (point a above) should be carried out in dialogue with the industry and in a close cooperation with the competent authorities (CAs) in the EU. First, the EBA consulted on the prioritisation and general outline of the review plan via the discussion paper on the future of the IRB approach, which was published in March 2015. The industry welcomed the opportunity to comment and provided valuable input to specifying the roadmap. Starting from this feedback, the EBA maintained the dialogue with the industry, while developing each of the regulatory products. Although the regulatory review may require institutions to restate historical data and redevelop models, the industry was supportive of the need for improvements and clarifications. Indeed, both the CAs and the industry shared the motivation to improve comparability of risk parameters, while maintaining the risk sensitivity of own funds requirements. The regulatory review was based on the belief that the IRB framework has proven its validity as a risk-sensitive way of measuring own funds requirements and that significant advantages of this approach result from improved internal risk management practices required by IRB institutions.
 7. In November 2018, with the publication of the final draft regulatory technical standards (RTS) on the nature, severity and duration of an economic downturn, the EBA finalised its regulatory review of the IRB approach as set out initially. However, based on deeper analysis and continuous dialogue with the industry, the original plan had to be amended during development by adding further areas requiring clarifications (the revised version is presented in the next section). As such, the regulatory review has so far been recognised by industry and supervisors as providing terminology and concepts that are essential to harmonise the interpretation and application of the IRB framework, while preserving its risk-sensitive character. While it was impossible to provide a comprehensive quantitative impact study of the regulatory review of the IRB approach before its implementation, the EBA intends to continue monitoring the effects of the review, as further explained in the report.
 8. Section 2 of this report aims to summarise the work that has been conducted to deliver the regulatory review and to set out the expected implementation of the regulatory products, including a revision of the timeline for implementation. In Sections 3 and 4, the report provides some insight into how the EBA plans to address the remaining two areas that were pointed out in the EBA's report on the future of the IRB approach, namely ensuring

supervisory consistency and increasing transparency. In Section 3, the report also provides clarification of the interactions between the EBA's regulatory review of the IRB approach and the final Basel III framework, as published by the BCBS in December 2017².

² <https://www.bis.org/bcbs/publ/d424.pdf>

2. Finalisation of the regulatory IRB review – overview and timelines

9. The EBA plan on the regulatory review consisted of four phases, which were built upon mandates given to the EBA directly in the CRR or were based on its own initiative, in accordance with Article 78 of the CRD and the EBA regulation. As a result, the first phase addressed the criteria and methods that should be taken into account by CAs when assessing IRB approaches for credit risk. The second phase addressed the definition of default and aimed to harmonise the notion of a default to be used for estimating the relevant risk parameters, such as PD, LGD and CF. The third phase was dedicated to the terminology and concepts to be used for the estimation of the risk parameters. The fourth and last phase was dedicated to clarifications on the use of credit risk mitigation (CRM).
10. Between the publication of the plan and the development of the different regulatory products, it became obvious that several adjustments to the original plan were necessary. While the general division into four phases as described above was maintained, some adjustments were introduced with regard to the specific regulatory products to be developed under the third and fourth phases. In detail:
 - a. The originally planned three separate guidelines on PD estimation, on LGD estimation and on the treatment of defaulted exposures were merged into one document, because of significant interactions and numerous common elements relevant to all risk parameters.
 - b. The work on the RTS on economic downturn was split into two products in order to disentangle the specification of an economic downturn as a macroeconomic or credit-related condition and the requirements for downturn LGD estimation. As a result the RTS on economic downturn deal with the specification of an economic downturn only where the newly introduced guidelines (GL) on downturn LGD estimation clarify the requirements for the calibration of downturn LGD.
 - c. Regarding CRM, the original plan referred to three RTS to be developed in accordance with the existing mandates in the CRR. However, it became clear that the scope of these mandates was too narrow and that broader considerations were necessary in order to provide meaningful clarifications. Furthermore, when approaching the CRM framework it was considered beneficial to separate the applicable rules and interpretation of the foundation IRB (FIRB) approach, which shares common eligibility requirements with the Standardised Approach (SA), from the relevant interpretation of the advanced IRB (AIRB) approach, where guarantees and collateral can be taken into account in the estimation of risk parameters. As a result, the EBA decided to develop two separate products, namely (i) the report on the CRM framework, focusing on the applicable rules

for the SA and the FIRB approach and providing clarity on the relevant CRM techniques, eligibility criteria and methods for the recognition of the effects of CRM techniques; and (ii) the guidelines on CRM, addressing the eligibility and treatment of CRM techniques under the AIRB approach, including the principles for the recognition of the effects of CRM in own risk parameters estimates.

11. The following table illustrates the original plan for the regulatory review of the IRB approach and the abovementioned amendments to the original plan (marked in red), as well as the planned and actual finalisation dates.

Phase	Regulatory products (original plan) ³	Regulatory products (amendments)	Planned (current status)
Phase 1: IRB assessment methodology	Final draft RTS under Articles 144(2), 173(3) and 180(3b) on the assessment methodology		Planned Q1 2016
			Finalised Q2 2016 Awaiting endorsement by the Commission
Phase 2: definition of default	Final draft RTS under Article 178(6) on the materiality threshold for past due credit obligations		Planned mid-2016 Finalised Q3 2016
	GL under Article 178(7) on the application of the definition of default		Currently in force
Phase 3: risk parameter estimation and treatment of defaulted assets	Final draft RTS under Articles 181(3)(a) and 182(4)(a) on the nature, severity and duration of economic downturn		Planned mid-2017 Finalised Q4 2018 Awaiting endorsement by the Commission
		RTS specifying an economic downturn	
		New: GL on downturn LGD estimation (an addendum to the GL on PD and LGD estimation)	Finalised Q1 2019
	GL on PD estimation – EBA own initiative (report on Article 502)	Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures (GL on PD and LGD estimation)	Planned mid-2017 Finalised Q4 2017 Currently in force
	GL on LGD estimation – EBA own initiative (report on Article 502)		
	GL on LGD in-default, best estimate of expected loss (EL _{BE})		

³ The articles in this column refer to Regulation (EU) No 575/2013.

Phase	Regulatory products (original plan) ³	Regulatory products (amendments)	Planned (current status)
	and IRB shortfall calculation – EBA own initiative (report on Article 502)		
	Final draft RTS under Article 183(6) on the recognition of conditional guarantees		
Phase 4: credit risk mitigation	Final draft RTS under Article 194(10) on liquid assets	Postponed	Planned end of 2017 (no new deadline envisaged)
	Final draft RTS under Article 221(9) on the Internal Models Approach for master netting agreements		
	New: report on CRM under SA and FIRB approach	New	Finalised Q3 2018
	New: GL on CRM under AIRB approach	New	Planned Q1 2020

2.1 Implementation of the regulatory review

12. The original IRB roadmap as presented in the February 2016 report assumed that the regulatory review would be finalised by the end of 2017 and implemented by institutions in their internal rating systems by the end of 2020. A large number of changes in the rating systems that are expected to be necessary to implement the new requirements will be classified as material changes and thus require prior approval of the CA. With a view to reducing the operational burden and avoiding multiple applications for changes, the implementation date for institutions of all regulatory products developed based on the IRB roadmap has been aligned and specified as 31 December 2020 in the original plan, so that all requirements can be fully applied starting from 1 January 2021, in accordance with the application date specified in the RTS and GLs. This date was expected to provide sufficient time for institutions to redevelop their rating systems and for the competent authorities to carry out their assessments. More detailed explanations around the expected implementation processes are provided in the EBA's opinion on the implementation of the IRB review, published in February 2016⁴.
13. Regarding the development of the regulatory products, it has to be acknowledged that there were some delays to the original plan. Whereas phases 1 and 2 as well as the GL on

⁴ <https://eba.europa.eu/documents/10180/1359456/EBA-Op-2016-01+Opinion+on+IRB+implementation.pdf>

the estimation of risk parameters have been delayed by up to a few months, the work on the economic downturn faced more severe delays because the original plan had to be amended as explained above. The work on the RTS on economic downturn was temporarily put on hold because of the negotiations as regards the finalisation of the Basel III framework. Moreover, the split of the work into RTS on economic downturn and GL for downturn LGD estimation required a second consultation. All in all, this resulted in a delay of about one year and a half.

14. Given the delay in the delivery of some of the regulatory products, in many cases the originally specified implementation timelines may prove too ambitious. The EBA acknowledges that institutions as well as CAs face resource challenges with respect to the planned date of implementation. Institutions often have to redevelop multiple rating systems, starting from the changes in the definition of default. At the same time, a significant modelling effort is needed to implement IFRS 9 and expected credit loss modelling, bringing additional constraints to the availability of modelling resources. CAs, on the other hand, equally struggle to find sufficient resources to carry out numerous assessments in a rather short period of time.
15. Furthermore, the implementation of the IRB roadmap has to take into consideration global developments and in particular the final Basel III framework, which was published in December 2017, much later than previously expected. The implementation date for the final Basel III framework has been specified for the end of 2021. In this context it should be noted that, whereas the EBA's RTS and GLs apply to all types of exposures treated under the IRB approach, the final Basel III framework limits the scope of application of the IRB approach. Own estimates of LGD and CF will no longer be available for exposures to institutions, large corporates and financial institutions treated as corporates. After incorporation of the final Basel III framework into the EU legal framework, these models will no longer be used for the calculation of Pillar 1 own funds requirements. In addition, all equity exposure will have to be treated under the SA.
16. Taking into account the issues mentioned above, a delay to the date of implementation of the IRB roadmap has been discussed. The EBA, however, considers that the necessary changes resulting from the regulatory review should be introduced in all existing models without undue delays.
17. Therefore, the EBA confirms that the **deadline for implementation of the GL on default definition and the RTS on materiality threshold in the ongoing default identification processes remains unchanged, i.e. the end of 2020 (application date from 1 January 2021)**. This is therefore the latest time for institutions to start collecting data based on the new definition of default. However, in most cases these processes should be in place earlier, in line with the current plans. This also means, that 31 December 2020 is the latest date for which supervisory reporting can be based on the current definition of default and the current materiality threshold for past due credit obligations. For any reporting date starting from 1 January onwards, the submitted data has to be adjusted to the new

- requirements for the definition of default, including the materiality threshold as specified by competent authorities based on Commission Delegated Regulation (EU) 2018/171.
18. In order, however, to accommodate the concerns as regards resources on both sides, supervisors and industry, the EBA considers that **the final deadline for implementation of the changes to the rating systems should be postponed by one year until the end of 2021 (application date from 1 January 2022)**. It should be noted that, while the final deadline is postponed, both institutions and competent authorities should follow the original implementation plan where feasible, so that the scarce modelling and assessment resources of the institutions and competent authorities are used evenly over the coming years until the end of 2021. However, where necessary, this postponement will allow institutions to adjust their prioritisation, which should in general follow risk and materiality assessments and take into account potential benefits of grouping related model changes.
 19. In addition, the EBA considers that the plans for the implementation of the changes in the rating systems should take into account the upcoming reforms, in line with the revised Basel III framework. In particular, institutions may apply a lower priority to those models that cover portfolios that will no longer be eligible for the AIRB approach under the final Basel III framework. In this specific case, where institutions have stand-alone rating systems for exposures to institutions, financial institutions treated as corporates or large corporates as defined under the final Basel III framework, the deadline for the implementation of the changes in LGD and conversion factors models is postponed until the end of 2023. Within that period, institutions may also choose to apply for permission to return to a less sophisticated IRB approach or for the permanent partial use of the standardised approach for those portfolios, according to Articles 149 and 150 of the CRR.
 20. The possibility of postponing implementation until the end of 2023 does not apply to any PD models, or to those LGD or conversion factors models that have in their scope of application any exposures that may remain under the AIRB approach, in accordance with the final Basel III framework. In particular, any rating systems which include in their scope any corporate exposures other than financial institutions treated as corporates and large corporates as defined under the final Basel III framework will be subject to the deadline of the end of 2021.
 21. It has to be stressed that all deadlines described above include time for the supervisory approval of material changes or extensions to rating systems, where necessary. At the same time, the EBA confirms that there is no intention to change any elements of the previously published guidance, and it will not undertake any reviews in the context of the existing guidance before implementation. The only outstanding policy work is to finalise the GL on CRM under the AIRB approach.
 22. While both institutions and CAs should make every effort to implement necessary changes in a timely manner, it can also be noted that, in the cases where, for specific reasons, the deadlines cannot be met, institutions may make use of Article 146 of the CRR, which

specifies how to deal with situations of temporary non-compliance. Further clarifications on the use of Article 146 of the CRR have been provided, in particular in recital (2), Article 5 and Article 47(2) of the final draft RTS on IRB assessment methodology.

2.2 Finalisation of the regulatory review of the IRB approach – achievements and challenges

23. This section provides more detailed explanations with regard to the scope of regulatory work already done, as well as further planned developments, as presented in the graphic below. In addition, specific clarifications are provided with regard to expected implementation timelines for each regulatory product developed as part of the review of the IRB approach.



Phase 1 – RTS on assessment methodology for the IRB approach⁵

24. The purpose of these RTS is to harmonise the supervisory assessment methodology with respect to the IRB approach across all Member States in the EU, by specifying common assessment methods and criteria to be used by CAs when assessing institutions' rating systems. These final draft RTS, which were published in July 2016, are currently awaiting

⁵ Links to all EBA publications relevant to the regulatory IRB roadmap are provided in the annex to this report.

endorsement by the European Commission and publication in the Official Journal (OJ) of the EU.

25. These RTS are the most comprehensive document addressing most aspects of the IRB approach⁶, including data, models, processes, IT systems and general governance. These RTS reflect the general framework, where additional detailed clarifications to selected specific aspects are provided in the subsequent phases of the regulatory review. The final draft RTS are organised into 14 chapters addressing methods and criteria for supervisory assessments of the IRB approach in the following areas:

- general aspects, including documentation, third party involvement and handling of situations of temporary non-compliance;
- implementation plan and permanent partial use;
- internal governance and validation;
- use test and experience test;
- assignment of exposures to grades and pools;
- definition of default;
- design, operational details and documentation of the rating systems;
- risk quantification;
- assignment of exposures to exposure classes;
- tests used in the assessment of capital adequacy;
- calculation of own funds requirements;
- data maintenance;
- requirement for equity exposures under the internal models approach;
- management of changes to the rating systems.

26. The RTS on assessment methodology are addressed to CAs, as they set out the criteria and methods for the supervisory assessment of the IRB approaches. However, they are also relevant to institutions, as within the specified assessment criteria detailed clarifications are provided for the interpretation and expected application of the requirements of the CRR.

27. The proposed date of application of these RTS is specified as 20 days after their publication in the OJ of the EU. This date will apply to the CAs, and it defines the deadline for adopting these methods and criteria in their supervisory practices. When assessing rating systems of the institutions and specifying the recommendations for improvements, CAs are expected

⁶ It should, for instance, be noted that the EBA has also complemented the IRB framework with the final draft RTS on supervisory slotting criteria approach for specialised lending exposures: <https://eba.europa.eu/regulation-and-policy/credit-risk/regulatory-technical-standards-on-specialised-lending-exposures>. This is, however, outside the scope of the regulatory review of the IRB approach.

to take into account the timelines specified for the implementation of the IRB roadmap, in order to avoid multiple changes in the rating systems. Therefore, the effective implementation deadline for the institutions should be aligned with all other regulatory products developed as part of the EBA regulatory review of the IRB approach, i.e. by the end of 2020, with regard to the application of the definition of default in default identification processes, and until the end of 2021, or, in specific cases as described above, until the end of 2023, with regard to all other necessary changes in the rating systems.

Phase 2 – definition of default

28. The final Guidelines on the application of the definition of default across the EU and the final draft RTS on the materiality threshold for credit obligations past due were published in September 2016⁷. In addition, the EBA published results of a quantitative and qualitative impact study aimed at assessing the impact on the regulatory own funds requirements of selected policy options to harmonise the definition of default used by EU institutions. Both the guidelines and the final draft RTS provide the basis for improving consistency and comparability of capital requirements based on the IRB approach. Priority was given to this work, as the definition of default underlies the estimation of all risk parameters (i.e. PD, LGD and CF). It was also considered that sufficient time should be granted for the implementation of any necessary modifications in the ongoing processes as well as in historical databases.
29. The guidelines clarify all aspects related to the application of the definition of default, including the days past due criterion for default identification, indications of unlikelihood to pay, conditions for the return to a non-defaulted status, treatment of the definition of default in external data, application of the default definition in a banking group, and specific aspects related to retail exposures.
30. The RTS in turn specify the conditions for setting the materiality threshold for credit obligations that are past due and harmonise the structure and application of the threshold, which will include an absolute component and a relative component. The levels of the threshold are set by CAs and will subsequently be implemented by all institutions in a given jurisdiction. The RTS have been published in the OJ of the EU in October 2017 and are in force as Commission Delegated Regulation (EU) 2018/171⁸.
31. While the guidelines are addressed directly to institutions, the RTS are addressed to CAs. Based on the criteria specified in the RTS, CAs are required to set appropriate levels of the materiality thresholds in their relevant jurisdictions. The deadline for the institutions for implementing both the guidelines and the RTS is aligned with all other regulatory products developed as part of the EBA's regulatory review of the IRB approach, i.e. they apply at the latest from 1 January 2021 with regard to the application of the definition of default in

⁷ In this regard, the EBA also published an opinion on the national discretion to use 180 days past due, which proposes that the continued application of the exemption should be disallowed. See <https://eba.europa.eu/-/eba-advises-the-commission-to-disallow-the-application-of-the-180-day-past-due-exemption-for-material-exposures>

⁸ <https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=CELEX:32018R0171>

default identification processes and have to be implemented in all rating systems by the end of 2021 or, in specific cases, the end of 2023.

Phase 3 – risk parameter estimation

32. Originally, there were four products planned in this phase: GL on PD estimation, GL on LGD estimation, GL on the treatment of defaulted assets and RTS on economic downturn. During the development of these products, however, it turned out that there were many common issues relevant to all risk parameters, such as requirements for the identification of deficiencies and margins of conservatism; requirements regarding representativeness of data, data maintenance and data quality; and requirements for the review of estimates. This motivated the merging of the different GL into one set of GL on PD estimation, LGD estimation and treatment of defaulted exposures (GL on PD and LGD). The final guidelines, which were published in November 2017, provide detailed and comprehensive clarifications regarding estimation of PD and LGD for performing exposures, as well as LGD in-default and the best estimate of expected loss (EL_{BE}) for defaulted exposures. In addition, they clarify selected elements related to the application of risk parameters, such as the use of parameters in internal risk management processes and additional conservatism in the application, as well as regular reviews of estimates.
33. Furthermore, the work on the RTS on economic downturn was split into requirements for specifying the nature, severity and duration of an economic downturn set out in the RTS, and requirements for downturn LGD estimation specified in the guidelines (which are an addendum to the GL on PD and LGD). The development of the draft RTS on economic downturn has been particularly challenging and required two rounds of public consultations because, based on the received feedback, significant changes were introduced to the originally proposed draft after the first consultation period. Eventually, the final draft RTS on economic downturn were published in November 2018 and are currently awaiting endorsement by the European Commission and publication in the OJ of the EU. Subsequently, the final GL on downturn LGD estimation have been published in March 2019.
34. The work related to the estimation of risk parameters was informed by the results of a comprehensive qualitative survey carried out across EU institutions using the IRB approach. The survey gathered detailed information on the institutions' modelling practices and helped identify the areas where the variability of practices was not justified by different risk profiles of the portfolios. The report with the results of the survey was published in November 2017.
35. The regulatory products clearly distinguish between the requirements applicable to different modelling stages, i.e. model development (aiming at appropriate risk differentiation) and calibration (aiming at appropriate risk quantification), as well as application of risk parameters to current exposures. The regulatory work in the area of the estimation of risk parameters was based on the following overarching principles:

- a. Appropriate risk differentiation is the basis for risk sensitivity of own funds requirements and should reflect the internal strategies and risk management processes of the institution. Therefore, the requirements for model development are principle based, allowing sufficient flexibility for institutions to design their models in the most appropriate manner, including all relevant information.
 - b. Appropriate risk quantification is the basis for the comparability of risk parameters between institutions and a level playing field in terms of the level of own funds requirements. Therefore, detailed definitions and requirements are provided for the calculation of the measures underlying the quantification of risk and for the calibration of risk parameters.
36. It is the EBA's intention that the deadline for the institutions for implementing both the guidelines and the RTS should be aligned with all other regulatory products developed as part of the EBA's regulatory review of the IRB approach, i.e. by the end of 2020 with regard to the application of the definition of default in default identification processes, and by the end of 2021 or, in specific cases, the end of 2023 with regard to all other necessary changes in the rating systems. However, the proposed date of application of the final draft RTS as submitted to the European Commission is specified as the end of 2020. Although the final decision regarding the application date will be taken by the Commission, it has to be noted that this date relates specifically to the identification of an economic downturn in accordance with the criteria specified in the RTS. Should this proposed application date not be changed in the final regulation, this will mean that the periods of economic downturn (which are set based on indicators that are not internal to the institution) will have to be identified by the end of 2020, but they can be reflected in the estimates of LGD, in accordance with the GL on downturn LGD estimation and with the deadline specified for the changes in the rating systems.

Phase 4 – CRM techniques

37. As explained above, the scope of regulatory work on CRM has been extended since the original plan, and has resulted in the publication of two documents, namely (i) the report on the CRM framework for the SA and the FIRB approach and (ii) the Consultation Paper on the draft guidelines on CRM under the AIRB approach.
38. The report on the CRM framework for the SA and the FIRB approach was published in March 2018, providing clarifications on aspects such as the treatment of various forms of funded credit protection; the mechanics of the substitution approach and the double default treatment for the recognition of unfunded credit protection; the eligibility of credit insurance; and the application of the CRM framework for exposures such as specialised lending, treated under the supervisory slotting criteria approach, and equity exposures, treated under the IRB approach. Even though the report is not, as such, a regulatory product and hence does not have a date of application, the provided clarifications reflect a consensus of the CAs with regard to the understanding of the applicable requirements, and

should therefore be taken into account both by the institutions, when developing or reviewing their rating systems, and by the CAs, when assessing the IRB approaches.

39. As regards the AIRB approach, the EBA started separate work on this topic, namely the development of a new set of guidelines addressing issues related to the use of CRM techniques in the estimation of risk parameters. This separate set of guidelines was motivated by the complexity of the topic and by the need for more in-depth consultation with the relevant stakeholders. The scope of the guidelines is expected to cover the eligibility requirements for different CRM techniques, namely funded and unfunded credit protection, and methods available to institutions that apply the AIRB approach to recognise the effects of different CRM techniques for own funds requirements purposes. The Consultation Paper on the draft GL was published on 25 February 2019, and the consultation period finished on 2 May 2019. The envisaged deadline for finalising the GL on CRM under the AIRB approach was the first quarter of 2020.
40. The regulatory work on CRM is more complex because the CRM framework has been revised under the recent reform of the final Basel III framework. While the guidelines are based on the current requirements specified in the CRR, the EBA aims to avoid potential inconsistencies with the global agreement reflected in the final Basel III framework. In this context, further work may be necessary in the light of the upcoming incorporation of the Basel agreement into EU legislation.
41. With regard to the implementation deadline, the EBA considers that for the sake of consistency the application date of the final GL on CRM under the AIRB approach should be aligned with all other regulatory products developed as part of the EBA's regulatory review of the IRB approach. Therefore, even though the Consultation Paper proposes an implementation date of the end of 2020 in accordance with the original plan, the EBA considers that this deadline should be aligned with the revised implementation deadline for other elements of the IRB roadmap.

3. Monitoring of the implementation of the IRB approach

42. After the regulatory review has been finalised and the final Basel III framework has been revised, regulatory efforts are now expected to focus on evaluation, implementation and monitoring. It will in particular be relevant to explore whether or not reduced variability of risk-weighted exposure amounts (RWA) due to the harmonised interpretation and implementation of the IRB approach can be demonstrated – as is to be expected following the significant efforts made by banks, CAs and regulators.
43. As part of this work, it should, however, also be noted that it will be challenging to disentangle the efforts of individual measures, just as it is clear that, due to the many changes in banks rating systems, the effect on variability may be observed only with a longer time horizon. In particular, it may not be possible to disentangle the contribution of the EBA's regulatory review on the IRB approach from those of other measures that have been taken. Other measures include in particular those taken by CAs, including the European Central Bank (ECB) targeted review of internal models (TRIM) project and the finalisation of the Basel III framework. Despite these challenges, the EBA work on supervisory benchmarking, in addition to fulfilling its supervisory role for assessing the quality of models, will consequently also target the monitoring of the implementation of EBA's regulatory roadmap by exploring the following aspects: (i) analysis of the development of RWA variability and causes of RWA variability and (ii) thematic reviews to assess the impact of converging practices on RWA variability. This is not only to inform a public debate about the reliability of internal models, but also to inform the EBA's and CAs' future work.
44. In a first step, the terminology, definitions and concepts introduced in the regulatory review should be transferred into the reporting regulation. It needs to be explored how to best assess the impact of the IRB roadmap and other measures (such as the ECB TRIM and final Basel III framework). In addition, this touches upon the question of how to integrate the defined terminology and metrics from the products covered by the IRB roadmap into the EBA's reporting framework.
45. To complement the implementation efforts, the EBA will also continue to use its questions and answers (Q&A) tool to provide guidance on implementation issues. Furthermore, the EBA will also be active in the context of model colleges for banks operating in a cross-border context.

3.1 EBA supervisory benchmarking efforts

46. Article 78 of Directive 2013/36/EU (CRD IV) requires CAs to conduct an annual assessment of the quality of internal approaches used for the calculation of own funds requirements. To assist CAs in this assessment, the EBA calculates and distributes benchmark values against which risk parameters estimates by individual institutions can be compared. These benchmark values are based on data submitted by institutions as laid out in EU Regulation 2016/2070, which specifies the benchmarking portfolios, templates and definitions to be used as part of the annual benchmarking exercises. The EBA supervisory benchmarking currently serves three major objectives, the first one being the abovementioned supervisory assessment of the quality of internal approaches. It also provides a powerful tool to explain and monitor RWA variability over time. In this role, it triggered, among other things, the development of the EBA Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures. Finally, the benchmarking results provide institutions with valuable information on their risk assessment compared with other institutions' assessments of similar portfolios.
47. In the context of the first objective, the supervisory benchmarks are now well integrated into the supervisory practices and have become part of the standard supervisory toolkit. This integration took place mostly behind the scenes, which explains the limited visibility of this aspect to the public. However, this process has been highly useful in terms of harmonising national practices.
48. Having achieved integration in the ongoing supervisory practices, the EBA is now planning to perform thematic reviews of selected topics, which will be performed annually, in order to supplement the regular supervisory benchmarking work with in-depth analysis and to fulfil a broader role in the form of providing input into supervisory practices and policy considerations.
49. The 2018 report on supervisory benchmarking⁹ (based on end-2017 data) was the first time that the report contained, in addition to the usual analyses (i.e. the analyses that are replicated each year)¹⁰, such a thematic review. In particular, the report provided an overview of the current practices on how guarantees and derivatives are taken into account for the purpose of RWA calculation and in the reporting of the benchmarking data, with the aim of seeing if supervisory benchmarking parameters are biased as a result of the incorporation of guarantees and/or derivatives into own funds requirements calculation. This analysis was based on an additional data collection from institutions participating in

⁹ EBA report on the results from the 2018 low and high default portfolio exercise:

<https://eba.europa.eu/documents/10180/2087449/EBA+Report+results+from+the+2018+Credit+Risk+Benchmarking+Report.pdf>

¹⁰ Quantitative analyses (common counterparty analysis for low default portfolios, backtesting (outturns) analysis for high default portfolios and temporal analysis) as well as the different qualitative analyses (CA assessments, interviews, results of the qualitative survey).

the benchmarking exercise, where, for three portfolios, additional information has been collected on the treatment of guarantees and derivatives.

50. For the current 2019 exercise, a similar approach will be followed, i.e. to complement the regular benchmarking of obligors, portfolios and models with a thematic analysis. This time, the EBA will perform a comparison of the variability of internal model outcomes and RWAs with the variability that would result from applying the SA. This should provide useful insight on how the SA variability compares with the corresponding IRB variability, initially, and after controlling for common factors, such as default and portfolio mix. In addition, the report will include a thematic review of the sources of RWA variability related to the choice and design of the rating scale (master scale). The EBA will continue this format of complementing the regular assessments of variability with thematic analysis in the following years.
51. Although the EBA tries to keep the reporting burden as limited and stable as possible, it has appeared necessary to update the implementing technical standards (ITS) on supervisory benchmarking several times. These changes have been driven by the need to include clarifications, in order to ensure sufficiently homogeneous portfolios and sufficiently precise definitions and to allow good-quality benchmarks. However, other objectives of these changes have been (i) to limit the reporting burden, (ii) to simplify the reporting requirements, (iii) to achieve a greater alignment with the common reporting framework (COREP) and (iv) to extend the scope of the benchmarking portfolios. The consultation paper¹¹ issued for the ITS on the 2020 benchmarking exercise was already a step in this direction.
52. However, just as the COREP templates have to be revised to make them fit for purpose, adjusted to the nature of the information, specific for the analysis proposed and stable for a foreseeable time horizon to allow pre- and post-reform analysis, the benchmarking templates will need some adjustments to reflect this changing reality.
53. Given this, the revision of COREP and the benchmarking ITS needs to be considered from an overall perspective. However, it should be stressed that these changes will not be part of the 2020 ITS on supervisory benchmarking, as the consultation period has already been closed. The changes to the supervisory benchmarking templates, stemming from the regulatory review of the IRB approach, the COREP revision and the final Basel III framework, are envisaged for the revision of the ITS applicable from 2021.
54. In this revision, the EBA is mindful of the reporting burden for institutions, not only stemming from COREP but also due to benchmarking, which is why the adjustments to COREP and benchmarking should ideally be implemented in parallel, with the objective of

¹¹ Consultation paper on the 2020 ITS on supervisory benchmarking:
<https://eba.europa.eu/documents/10180/2533943/CP+on+ITS+amending+Commission+Implementing+Regulation+EU+2016-2070+on+Benchmarking.pdf>

achieving as much alignment as possible and avoiding double reporting of information. In this context it is important to stress that, for the 2020 benchmarking exercise, the EBA has significantly reduced the number of reported portfolios and will continue to consider the overall reporting burden.

55. In addition, the EBA aims to avoid potential inconsistencies with the global agreement reflected in the final Basel III framework. In this context, further work on the EU implementation of the IRB approach may be necessary, in the light of the upcoming implementation of the agreement into EU legislation. In this regard, it is important to note that internationally there are also intentions to undertake benchmarking studies. The data collected from European institutions may be useful in the context of global exercises.
56. Even though the clarifications provided as part of the EBA regulatory review of the IRB approach will remain valid after the implementation of the final Basel III framework in the EU with regard to those models that will remain available under the IRB approach, the EBA is also mindful of the fact that the implementation date for the final Basel III framework has been set for the end of 2021. The EBA will therefore follow this implementation with care, for the purpose of the revisions to the benchmarking templates.

3.2 Interaction of the IRB roadmap with the final Basel III framework

57. While the EBA's review of the IRB approach coincides with the global reforms reflected in the final Basel III framework, it is considered that these two sources of revisions provide complementary measures and, taken together, will address all identified issues in a comprehensive manner.
58. In the area of the IRB approach, the final Basel III framework is based on the top-down repair measures, which aim to address the modelling difficulties for the low default portfolios by limiting the scope of modelling and by constraining the acceptable outcomes of the risk parameter estimation. In this context, the most relevant measures proposed in the final Basel III framework include:
 - limiting the scope of the application of IRB approaches by requiring that all equity exposures are treated under the SA and by disallowing own estimates of LGDs and CFs for types of exposures typically characterised by a low number of default observations, i.e. for exposures to institutions, large corporates with consolidated annual revenues higher than EUR 500 million, and financial institutions treated as corporates;
 - limiting the scope of the modelling of CFs by requiring that standardised CFs are used for all off-balance-sheet items other than undrawn revolving facilities;
 - creating new floors for individual estimates of risk parameters (so-called input floors), including:

- a. an increase of individual PD floors from 0.03% to 0.05%;
 - b. the introduction of individual LGD floors together with a system of haircuts to the values of collateral recognised in the LGD estimates;
 - c. the modification of the individual floors for CFs for off-balance-sheet items linked to the regulatory values under the SA;
- tightening eligibility criteria for the recognition of CRM techniques and limiting the range of methods for recognising the effects of guarantees and credit derivatives, by removing the possibility of using the double default formula and by requiring the use of the less sophisticated approach in cases where the protection provider is treated under such a less sophisticated approach;
 - changing the philosophy of the approach towards the permanent partial use of the SA (PPU) and of roll-out plans, by deleting the requirement for IRB institutions to apply this approach to all exposures and by allowing the use of internal models only for selected exposure classes;
 - introducing the output floor, i.e. limiting the overall own funds requirements to 72.5% of the own funds requirements that would be calculated based on the non-modelling approaches, including the SA for credit risk.
59. In conjunction with the top-down approach adopted by the final Basel III framework, the EBA's regulatory review of the IRB approach is based on bottom-up considerations. Instead of limiting the use of the IRB approach, the EBA focuses on identifying the sources of undue variability of RWAs across institutions that is not based on the differences in the underlying risk profiles. For this purpose, the EBA carried out a comprehensive analysis of the current practices and provided detailed clarifications of all elements where different interpretations and a variety of approaches were identified.
60. While the final Basel III framework in general refrained from providing too many changes or clarifications to PD and LGD estimation, more clarifications were provided with regard to the estimation of CFs. For this reason, the clarifications provided by the EBA as part of phase 3 of the regulatory review of the IRB approach focus on the estimation of PD and LGD risk parameters, and do not provide comparable details with regard to the estimation of CFs to avoid potential inconsistencies.
61. The clarifications provided as part of the EBA regulatory review of the IRB approach will remain valid after the implementation of the final Basel III framework in the EU with regard to those portfolios and models that will remain under the IRB approach. It is considered appropriate that institutions start the implementation with the bottom-up clarifications provided within the EBA's IRB roadmap, as these revisions can be implemented independently from the upcoming Basel reforms. Subsequently, once the final Basel III framework is incorporated in the EU legal framework, the relevant limitations with regard

to the estimates and RWAs will apply to already revised and comparable risk parameters, ensuring a level playing field for the single market.

62. However, the EBA also acknowledges that, owing to the limitations to the application of the IRB approaches and the change in the philosophy regarding PPU and roll-out plans as described above, some models that are currently used for the purpose of own funds requirements may become less relevant in the future. Therefore, in some cases institutions may even choose to request permission to return to less sophisticated approaches, in line with Article 149 of the CRR. It should be stressed, however, that, regardless of the upcoming changes based on revised global standards, as long as models are used for the calculation of Pillar 1 own funds requirements they must meet the requirements of the CRR and they have to be regularly reviewed in order to ensure that the own funds requirements are not underestimated.

4. Improving supervisory reporting and transparency

63. One of the main objectives of the IRB roadmap as presented in the February 2016 report was to restore trust in internal models among market participants and other stakeholders. At the early stages, following the first incorporation of the IRB approach into the prudential framework, the models were developed by only a few technical experts. As a result of the high complexity and very technical nature of the topic, there was no broad understanding of the models, and shortly after the implementation of the Basel II standards they were often referred to as ‘black boxes’. This was considered suboptimal, as the lack of understanding of the mechanics of the models, including their assumptions and limitations, may lead to inadequate decisions in the risk management practices. In addition, given the very limited transparency of the modelling practices to the public, as each model was assessed individually by the responsible CA, concerns started to arise about whether or not, in some cases, internal models could have been used to optimise the level of own funds requirements.
64. The third strain of work as specified in the IRB roadmap aims to address the concerns described above by improving the transparency of the models and their outcomes as well as allowing more meaningful comparisons between portfolios and institutions. In order to achieve that, the work is focused on two main elements: Pillar 3 disclosures and supervisory reporting.
65. The work on disclosures in the area of the IRB approach is part of the broader work based on the mandate granted to the EBA in the revised Capital Requirements Regulation (CRR2)¹², to define harmonised disclosure templates and instructions for all elements of the prudential framework in the form of a comprehensive ITS, which will replace any currently applicable existing guidelines and partial ITS. This work will be carried out with the main premise that there should be as much consistency as possible with the disclosure templates as specified by the BCBS, in order to ensure comparability of the publicly available information not only in the EU market but also globally. In order to meet the deadline for delivering these ITS defined in Article 434a of the CRR2, the work on the revised templates has already started and it is planned that the consultation paper will be published in the second half of 2019 and the final draft ITS by mid-2020. The EBA will, as part of this work, also make a technical update to the IRB reporting framework, such that the disclosure and reporting frameworks are aligned.
66. In addition to the alignment of Pillar 3 disclosures with the supervisory reporting framework, the EBA is also considering more substantial improvements in transparency to the supervisors, allowing more efficient assessment and analysis. Therefore, the work on

¹² <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2019:150:FULL&from=END>

supervisory reporting will also have the objective of collecting more meaningful and useful information, minimising the need to gather additional information for ad hoc purposes.

67. The EBA work on transparency in the area of the IRB approach, both in the area of Pillar 3 disclosures and in supervisory reporting, is based on the following overarching principles:
- a. All concepts and definitions used in the templates and instructions should be consistent with the results of the regulatory review of the IRB approach.
 - b. Consistency of the information requested as part of Pillar 3 disclosures and the information in the templates for supervisory reporting should be ensured. While the scope of quantitative information of the Pillar 3 disclosure will naturally be narrower and less detailed than in reporting, the concepts and definitions should be used in the same manner. Ideally, the quantitative information requested under Pillar 3 disclosures would be a subset of the information reported to the supervisors. Similarly, Pillar 3 disclosures will include additional qualitative information, which is not part of supervisory reporting. Nevertheless, the instructions for the qualitative parts of the disclosure templates should follow the same concepts and definitions as defined within the regulatory review of the IRB approach and used in supervisory reporting.
 - c. The scope of information provided should be relevant and sufficient for the addressees of the information. This justifies the facts that less detailed information is required as part of Pillar 3 disclosures addressed mostly to investors and market analysts and that a broader, more detailed scope of information is requested under supervisory reporting, which is used by CAs both for the purposes of supervision of individual institutions and for overall sectoral and market analyses.
 - d. The proportionality principle is taken into account in the work on transparency, to ensure that the requirements do not pose an excessive burden of reporting unnecessary information. The operational burden is also expected to be significantly reduced by ensuring the consistency of the quantitative information required for Pillar 3 disclosures and the information already available in the supervisory reporting. This will allow the use of the same source of information.
68. It is expected that the incorporation of the revised templates should significantly increase the transparency of the IRB approaches for all relevant stakeholders and will contribute to a better understanding of internal models and their outcomes. The available information should then allow the appropriate assessment of risk profiles of institutions as well as meaningful comparisons between the institutions.

4.1 EBA initiatives in the area of IRB reporting and transparency

69. As regards reporting, IRB banks are currently obliged to report data for COREP and the supervisory benchmarking exercise, and to disclose information to the public in their Pillar 3 reports. The EBA considers that further integration and alignment of these

requirements is beneficial. This report provides a general outline of how these data collections could be enhanced and used to monitor the impact of the regulatory review of the IRB approach.

70. The EBA has committed to align Pillar 3 disclosures with supervisory reporting, to increase efficiency, reduce the reporting burden and facilitate compliance with both requirements. While the review of the disclosure requirements will leverage on the reporting framework, it needs to ensure consistency with the requirements agreed in this respect at the level of the BCBS. Therefore, when further developing the regulatory reporting into a single data source, the revised disclosure framework will also be taken into account. As a result, revised regulatory reporting would also form the basis for institutions' Pillar 3 disclosures.
71. The following table sets out a plan of how the reporting regulation could be revised in order to meet the objective of monitoring the impact.

Prioritisation	Regulatory products	Current status
Block 1: COREP review/disclosures	ITS on COREP ITS on disclosures	Preparation stage
Block 2: Review of regulatory benchmarking	ITS 2022/data/portfolio definitions/metrics/thematic reviews	Planning stage

72. The two pillars of the IRB reporting framework, i.e. COREP and benchmarking reporting, should be revised in a coordinated manner to allow continuous and ongoing, quantitative assessment of the key perimeters of the IRB approach that are defined in the CRR and further specified in the EBA guidelines and technical standards.

5. Conclusion

73. Overall, the regulatory EBA bottom-up approach has been part of an overall targeted supervisory review, which has a high commitment from CAs and the financial industry. The target of the EBA's work was to provide regulatory guidance, which is in the process of being implemented and is part of the supervisory actions taken by CAs. In order to ensure the optimal outcome, and taking into account the delay to the original timeline set out by the EBA, a longer timeline is now being envisaged.
74. It is, however, important that the implementation efforts continue at the current high pace, such that the various pieces that will remain untouched by the Basel III implementation, such as the definition of default, are implemented along with the implementation of the Basel III framework. There is therefore a supervisory and regulatory expectation that the efforts of implementing the regulatory guidance set out by the EBA is finalised without undue delay.
75. Apart from the finalisation of the CRM guidelines, the EBA does not intend to make further revisions to the guidance already set out, as the focus should move towards implementation. In case of a lack of clarity in the framework, the EBA's Q&A tool will continue to be used to resolve any uncertainties. Nonetheless, the EBA will of course monitor implementation.
76. It is important for the credibility of the IRB framework that notions of misuse of models are dispelled. The continuous use of Article 78 of the CRD in response to any doubt will be key, and it is expected that appropriate supervisory actions will be taken where necessary, adapting to arising risks.

Annex

List of all EBA publications related to the regulatory IRB roadmap

- Discussion paper on the future of the IRB approach
<https://eba.europa.eu/-/eba-puts-forward-preliminary-proposals-to-improve-the-irb-regulatory-framework>
- Report on the future of the IRB approach
<https://eba.europa.eu/-/eba-sets-out-roadmap-for-the-implementation-of-the-regulatory-review-of-internal-models>
- EBA's opinion on the implementation of the review of the IRB approach
<https://eba.europa.eu/-/eba-sets-out-roadmap-for-the-implementation-of-the-regulatory-review-of-internal-models>
- CP on RTS on assessment methodology
<https://eba.europa.eu/regulation-and-policy/credit-risk/regulatory-technical-standards-on-assessment-methodology-for-irb-approach/-/regulatory-activity/consultation-paper>
- Final draft RTS on assessment methodology
<https://eba.europa.eu/regulation-and-policy/credit-risk/regulatory-technical-standards-on-assessment-methodology-for-irb-approach>
- CP on GL on definition of default
<https://eba.europa.eu/regulation-and-policy/credit-risk/guidelines-on-the-application-of-the-definition-of-default/-/regulatory-activity/consultation-paper>
- Final GL on definition of default
<https://eba.europa.eu/regulation-and-policy/credit-risk/guidelines-on-the-application-of-the-definition-of-default>
- CP on RTS on materiality threshold
<https://eba.europa.eu/regulation-and-policy/credit-risk/regulatory-technical-standards-on-materiality-threshold-of-credit-obligation-past-due/-/regulatory-activity/consultation-paper>
- Final draft RTS on materiality threshold
<https://eba.europa.eu/regulation-and-policy/credit-risk/regulatory-technical-standards-on-materiality-threshold-of-credit-obligation-past-due/-/regulatory-activity/press-release>
- Quantitative and qualitative impact study on the GL on definition of default and RTS on materiality threshold
<https://eba.europa.eu/-/eba-harmonises-the-definition-of-default-across-the-eu>

- CP on GL on PD and LGD estimation
<https://eba.europa.eu/regulation-and-policy/model-validation/guidelines-on-pd-lgd-estimation-and-treatment-of-defaulted-assets/-/regulatory-activity/consultation-paper>
- Final GL on PD and LGD estimation
<https://eba.europa.eu/regulation-and-policy/model-validation/guidelines-on-pd-lgd-estimation-and-treatment-of-defaulted-assets/-/regulatory-activity/press-release>
- Report on IRB practices
<https://eba.europa.eu/-/eba-publishes-final-guidelines-on-the-estimation-of-risk-parameters-under-the-irb-approach>
- CP on RTS on economic downturn (2017)
<https://eba.europa.eu/regulation-and-policy/model-validation/regulatory-technical-standards-on-the-specification-of-the-nature-severity-and-duration-of-an-economic-downturn/-/regulatory-activity/consultation-paper>
- CP on RTS on economic downturn (2018)
<https://eba.europa.eu/regulation-and-policy/model-validation/regulatory-technical-standards-on-the-specification-of-the-nature-severity-and-duration-of-an-economic-downturn/-/regulatory-activity/consultation-paper>
- CP on GL on downturn LGD estimation
<https://eba.europa.eu/regulation-and-policy/model-validation/regulatory-technical-standards-on-the-specification-of-the-nature-severity-and-duration-of-an-economic-downturn/-/regulatory-activity/consultation-paper>
- Final draft RTS on economic downturn
<https://eba.europa.eu/regulation-and-policy/model-validation/regulatory-technical-standards-on-the-specification-of-the-nature-severity-and-duration-of-an-economic-downturn/-/regulatory-activity/press-release>
- Final GL on downturn LGD estimation
<https://eba.europa.eu/regulation-and-policy/model-validation/regulatory-technical-standards-on-the-specification-of-the-nature-severity-and-duration-of-an-economic-downturn/-/regulatory-activity/press-release>
- Report on CRM under SA and FIRB approach
<https://eba.europa.eu/-/eba-published-an-assessment-of-the-current-credit-risk-mitigation-framework>
- CP on CRM under AIRB approach
<https://eba.europa.eu/regulation-and-policy/model-validation/guidelines-on-credit-risk-mitigation-for-institutions-applying-the-irb-approach-with-own-estimates-of-lgds/-/regulatory-activity/consultation-paper>



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