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Consultation Paper

Draft Regulatory Technical Standards on the specification of the nature, severity and duration of an economic downturn in accordance with Articles 181(3)(a) and 182(4)(a) of Regulation (EU) No 575/2013

Contents

1. Executive Summary

Articles 181(1)(b) and 182(1)(b) of Regulation (EU) No 575/2013 (Capital Requirements Regulation – CRR) specify that institutions shall use LGD and conversion factor (CF) estimates that are appropriate for an economic downturn if those are more conservative than the respective long-run average. In this regard, Article 181(3)(a) and Article 182(4)(a) of the CRR mandate the EBA to specify the downturn conditions, namely the nature, severity and duration of an economic downturn, according to which institutions shall estimate respectively the downturn LGDs and conversion factors. According to the CRR mandates these draft RTS specify the three characteristics of the economic downturn, namely its nature, severity and duration (i.e. economic downturn conditions), but they do not cover the methods used by institutions to reflect these downturn conditions into downturn LGD and CF estimates. The methods to be used regarding the LGD parameters are included in a separate section as a proposed amendment to the downturn adjustment section of the Guidelines on PD estimation, LGD estimation and the treatment of defaulted assets (GLs hereafter), which are currently under consultation.

These draft RTS provide a further element in the EBA's review of the IRB approach and, together with the guidance on estimating downturn LGD provided in the GLs, aims at reducing unjustified variability in capital requirements. This will therefore ensure consistency in model outputs with regard to downturn LGD and CF estimation and thus comparability of risk weighted exposure amounts.

The methodological approach proposed for identifying the economic downturn conditions reflects an economic factor approach, where the downturn is driven by macroeconomic and credit factors selected according to an analysis of their dependency with specific features of realised LGDs and CFs defined as model components. The model component approach, combined with the additional guidance on how to perform downturn adjustment to the LGD risk parameter, provides a common notion and methodology to identify LGD and CF estimates that are appropriate for economic downturn conditions. This approach aims at striking a balance between the objective of reducing variability in risk parameter estimates and retaining sensitivity to the portfolio specific risk profile at the same time.

This is however not the only approach currently being considered by the EBA. Given the relatively high degree of prescriptiveness of the proposed approach, which is likely to require some development efforts at both institutions and supervisors during its implementation, EBA is also seeking feedback on two alternative approaches:

a) The reference value approach is similar to the model component approach as the downturn is identified by relevant economic indicators. Instead of the detailed requirements in the draft RTS, institutions would be given flexibility in choosing their own methodologies in identifying the relevant economic indicators, from a minimum list provided, as well as in estimating the final LGD/CF downturn, but the LGD downturn

would instead have to be compared to a reference value, where non-compliance with this reference value would have to be justified and assessed by the competent authority.

b) The supervisory add-on approach, where the LGD downturn would be estimated as the long-run average plus an add-on subject to a supervisory calibration with the aim of reflecting, to the extent possible, portfolio specific differences in terms of realised losses.

The EBA notes that the RTS will need to tackle RWA variability as its ultimate objective striking a balance between, at times conflicting, objectives, which include aspects such as ensuring sufficient risk sensitivity, the degree of prescriptiveness, conservatism in approaches, reliance on supervisory assessments, implementation costs. At this stage, the EBA considers the reference value approach as the pragmatic alternative to the model component approach, although it is also the approach that is likely to have the highest degree of reliance on supervisory and institution judgement. Nevertheless the EBA maintains an open approach and seeks to gather industry feedback on the main approach as well as on all alternatives.

Implementation

As it is expected that these RTS may lead to material changes in numerous rating systems used currently by institutions, sufficient time has to be granted for their implementation. To facilitate the implementation of changes stemming from the regulatory products specified in the EBA's plan for the review of the IRB Approach for competent authorities as well as for institutions, the EBA has issued an opinion specifying the expected general principles and timelines for the implementation process[1]. This opinion describes the envisaged phase-in approach and requires that the implementation is finalised at the latest by end-2020.

Next steps

The draft RTS are published for a 3-months consultation period. The feedback from the consultation of the draft RTS will be analysed and the EBA will subsequently discuss the final draft text to be submitted to the Commission for endorsement.

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[1]   https://www.eba.europa.eu/-/eba-sets-out-roadmap-for-the-implementation-of-the-regulatory-review-of-internal-models

2. Background and rationale

2.1 Introduction

The EBA has been mandated to draft RTS "to specify the nature, severity and duration of an economic downturn" applied for LGD and CF estimation, as set out in Articles 181(3)(a) and 182(4)(a) of the CRR. Provisions regarding the use of LGD and CF values "that are appropriate for an economic downturn if those are more conservative than the long-run average" are included in Articles 181(1)(b) and 182(1)(b) of the CRR.

Harmonisation of the rules regarding downturn conditions is difficult given the complexity of the topic and the large variance of institutions and supervisory practices recognized in both the EBA reports on comparability and procyclicality of capital requirements[2] and industry reports.

The requirement for LGD and CF estimates to reflect economic downturn conditions was introduced in the Basel II framework and stems from the general economic model which is applied to derive the formula used in that framework to calculate capital requirements. In the Basel II framework, in fact, the capital charge for unexpected losses is based on the conditional expected loss given a conservative value of a single systematic risk factor. This factor representing the global business conditions implies that the conditional expected loss corresponds to the level of expected losses in a situation of economic downturn. The conditional expected loss is defined as the conditional PD multiplied by the conditional LGD and the conditional EAD. Whereas the regulatory formula includes a supervisory mapping function to derive conditional PDs from average PDs estimated by the institutions, it does not provide an explicit function that would transform average LGDs and EADs into conditional LGDs and EADs. Instead, it is only specified that "banks are asked to report LGDs that reflect economic downturn conditions in circumstances where loss severities are expected to be higher during cyclical downturns than during typical business conditions".

The general approach taken in this draft RTS is that economic downturn conditions shall be specified taking into account the dependency of economic (i.e. macroeconomic and credit) factors with model components (model component approach hereafter), where these should be understood as relevant features of the realised LGDs and drawings. The rationale for this model component approach is that:

    a. Recovery rates (consequently LGD estimation) and realised drawings at default (consequently CF estimation) cannot be only explained by credit factors (default rates), but also other factors like house prices which influence the recovery rates and not the default

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[2] http://www.eba.europa.eu/-/eba-publishes-reports-on-comparability-of-risk-weighted-assets-rwas-and-pro-cyclicality

rates. It implies that in certain cases downturn LGD/CF will need to be calculated even if no correlation is evidenced between default rates and recovery rates.

b. Studying the dependency between economic factors and model components avoids offsetting effects implicit in directly measuring the correlation between economic factors and average realised LGDs and drawings at default. Realised LGDs and drawings at default are a function of model components and different model components may be dependent on different economic factors. Realised LGDs are, for example, usually multimodal and, in particular, bimodal, (characterized by either low or high losses). Therefore the application of a simple average of realized losses for the purpose of correlation analysis is not correct. The average does not contain much information about the behaviour of the bimodal distribution losses in fact. For these reasons institutions shall use model components to considering the drivers for this bimodal (or more generally multimodal) shape, i.e. differentiating, in the case of realised LGDs, between the materiality of losses and sources of recoveries.

The EBA mandates are limited to the specification of the nature, severity and duration of an economic downturn (i.e. downturn conditions) applied for LGD and CF estimation. Therefore the model component approach is one where economic downturn conditions are defined as the period of time characterised by an unfavourable level of economic factors influencing relevant features of the realised LGDs/drawings, where those relevant features shall be understood as model components. Rather than looking for worst year where realized yearly loss rates are the highest – which would require long data history on realized losses – this approach proposes that worst/bad observation of the economic factor shall impact the downturn LGD and CF calculation.

The following subsections discuss and explain the rationale of each article of the RTS. Moreover, the transposition of the economic downturn conditions into final LGD estimates it is clarified in a separate section of the CP RTS as an amendment to the downturn adjustment section of the GLs. Finally, Section 5 of the consultation paper introduces a discussion on simpler alternative approaches for the identification of the economic downturn and the estimation of downturn impact on the LGD.

Article 1: general

Article 1 recommends a sequential approach to identify the economic downturn conditions where institutions first of all identify the model components according to Article 2 and then establish in sequence the nature (i.e. relevant economic factor for each model component), the duration and the severity (i.e. yearly period characterised by worst level of economic factor) of an economic downturn according to Article 3, 4 and 5 respectively. Moreover Article 1 clarifies that this shall be done separately for own LGD estimates and own CF estimates.

 Article 1 specifies next to the aforementioned principle that economic downturn conditions shall be identified for each type of exposure (i.e. at the level of model estimation) and each jurisdiction unless the latter are characterised by strong co-movements in realised economic factors and

realised model components are not affected by differences in the respective legal framework. The rationale for this decision is that to avoid negative effect of diversification (lower downturn effect) which could stem from the fact that the economic factors to which loss rates respond can differ across these exposure classes (for example unemployment rate can drive credit conditions for some type of retail loans, whereas loss rates on mortgage loans may be driven by housing price levels). This is in line with the BCBS guidance in paragraph 468 which provides clarification that downturn conditions should be examined separately for each exposure type. Furthermore Article 1 adds to this guidance the rationale that the negative effect of diversification (lower downturn effect) could materialize even at the level of model estimation (type of exposures) if the economic factors to which distinguished model components respond can differ (i.e. different downturn periods) across these model components. Therefore one cross cutting principle introduced in the RTS is that institutions shall identify the nature, severity and duration of the economic downturn for each model component. Therefore the RTS suggest applying the economic factor approach at model component level, such that for each model component the institution shall define the economic downturn period.

Article 2: identification of model components

The RTS in Article 2 give a definition of model components for own-LGD and own-CF estimates as quantitative variables describing relevant features which drive the shape of realised losses and drawings, which for instance may be bi-modal in the case of losses for LGD estimation. As the model components approach was motivated by the fact that realised losses are usually distributed bimodal (or even multimodal), institutions shall consider the drivers for this shape as model components. These drivers will however most probably in practise reflect the different paths an obligor or facility can take after default (e.g. cure and workout). It has to be noted that the notion of model component is bound to the defaulted portfolio. Therefore risk drivers that characterise potential losses shall not be considered model components. However model components might or might not be directly reflected in the structure of the methodology used for LGD estimation.

According to point 2(a) of this Article institutions shall first of all identify all the relevant model components based on the specificities of each type of exposure. In other words, institutions shall perform the analysis at model component level even if they do not use model components in their LGD and CF models where this is relevant. Article 2(2)(b) suggest that if institutions already use model components in their LGD and CF models they shall at least use these as a starting point for the analysis of the relevant economic indicators. Under this approach realised LGD and CF may be still be used as the only model components where this is supported by the analysis performed under Article 2(2)(a) and (b). For example, realised LGDs may be used as the only model component where the realised LGD distribution is not characterised by a bimodal multimodal shape.

Article 3: nature of an economic downturn

Article 3 of the RTS is concerned with the nature of an economic downturn and it explains how the dependence of economic factors to model components shall be analysed in detail, including requirements:

i. To Identify the nature of an economic downturn according to "at least one economic factor" (for each model component);

ii. To take into account all relevant economic factors and at least those listed in paragraph 3. This list of minimum relevant economic factors reflects the approach to take into consideration both the dependence of the LGD and CF to macro-economic conditions and the situation of the credit market (and consequently to PD). Realised LGDs and drawings, in fact, cannot be only explained by credit factors (such as default rates) but also other factors (such as, for example, house prices) which might influence the recovery rates and not the default rates. The proposed approach implies that in certain situations downturn LGD or CF will need to be calculated even if no correlation is evidenced between default rates and recovery rates.

iii. To not limit the analysis of dependency to statistical correlation but taking into account expected dependencies, benchmarking and stress scenarios. This qualitative analysis should be performed by a panel of experts complementing the results of the quantitative analysis which might be limited due to limited historical observation periods.

For the statistical analysis of dependencies between economic factors and model components it is among others required to take into account possible time lags between the realisation of downturn in economic factors and the possible according impact on the model components. The rationale for this is that the impact of a downturn is likely to realize in an according model component only several month or years later than reflected in the considered economic factor. Moreover Article 3 requires, for what concern model components related to LGD, to separately analysing the dependency only on closed cases or incomplete recovery processes where the realisation of the model component under consideration has already been observed[3]. This is required as dependencies between recoveries and economic factors might not be significant if open recovery processes are included as these might show high realized LGD or low recoveries by definition.

Article 4: duration of economic downturn

From a practical perspective, the duration of economic downturn is driven by the realisation of economic factor(s) on one side and on the other side by the moment of default and length of the workout period. The downturn LGD and CF estimates have to link these two concepts together

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[3] In fact Article 3 deals with the correlation between economic factors and model components and there could be cases in which even if the exposure is not yet considered as closed the model component under consideration has already realised.

and this makes the specification of duration of an economic downturn rather complex. For the sake of simplicity the approach taken in Article 4 is that to set fixed one-year duration for each relevant economic factor on each model component. This approach has the advantage of simplicity for what concern both its implementation and supervision and, moreover, achieves better comparability across institutions downturn estimates.

Article 5: severity of an economic downturn

For the purpose of specifying the severity of an economic downturn, institutions are requested to select the worst period for each economic factor based on historical values observed in the preceding 20 years (or less than 20 years if structural changes have been observed for the relevant economic indicator). In order to avoid a too mechanistic approach, the RTS are also specifying conditions under which the severity identified according to the preceding 20 years should be considered not sufficiently severe and therefore institutions shall look further back in the historical data on economic factors. This approach aims to avoid a situation where institutions would limit their investigations to a rough analysis of the economic factors data history.

Regarding the length of the cycle looking only at 10 years of data history, approximately one economic cycle, might not be sufficient to capture the severity of an economic downturn. For the sake of simplicity and comparability a uniform backward looking period of 20 years is therefore considered in the RTS. This shall include at least two economic cycles and it can be shortened only in case a structural break in the economic factor is observed, driven by external or internal institutions changes. The RTS specify very strict conditions for this, in particular, institution should convincingly prove that the level of losses realised prior the structural break will not reoccur and anyway a MoC should apply.

In summary, severity corresponds to the worst one year average for the economic factor under consideration during the period selected according to Article 2. It is important to stress that under this approach the worst yearly value of the economic factor would not necessarily correspond to the worst yearly value for the associated model component. The latter, in fact, might be the result of idiosyncratic risk which is not related with distressed economic conditions which we aim to capture.

Article 6: economic downturn

Article 6 provides very high level guidance on how institutions should determine the overall nature, severity and duration of an economic downturn. The assessment of the joint impact of different economic downturn periods associated with different economic factors has been left intentionally open in order to allow this methodology to be better designed around: the specificities of each portfolio under consideration, data availability issue and its final purpose (i.e. LGD downturn adjustment or downturn CF estimation).

The text box, in particular, proposes a methodology for performing this joint impact analysis for the purposes of downturn LGD computation dealing with an example where each model

component is explained by one (or more than one) economic factor which are characterised by non-simultaneous economic downturn periods.

Amendments to Section 6.7 on downturn adjustment section of the Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures

Due to the scope of the mandate the RTS specify only how to identify the overall economic downturn scenario but not how these downturn conditions should be translated into downturn LGD and CF estimates. This additional clarification, for what concern the LGD risk parameter, is provided in a text box included under a separate section to this consultation paper. This will be used as the basis to gather feedbacks from industry participants during the 3-months consultation period with the aim of amending the downturn adjustment section of the final GLs.

Discussion on potential simpler alternatives

Acknowledging the complexity and prescriptiveness of the methodology provided for the identification of the economic downturn (draft RTS, Section 3) and for the evaluation of the impact of downturn conditions on LGD (amendments to the GLs, Section 4), hereafter model component approach, two simpler alternative approaches are presented for consultation purposes:

- The reference value approach: where institutions would still be asked to identify downturn through relevant economic indicators. Instead of the detailed requirements in the draft RTS institutions would however remain free to choose their own methodologies for identifying the relevant economic indicators, from a minimum list provided, as well as in estimating the final LGD/CF downturn, but the LGD downturn would have to be compared to a reference value, where non-compliance with this reference value would have to be explained to and assessed by the competent authority. This approach is motivated by lowering the burden for institutions to follow the prescriptive methodology of the model component approach. This approach however will rely on a substantially higher degree on the supervisors' assessment and thus a likely lower degree of harmonisation.

- The supervisory add-on approach: where the LGD downturn would be estimated as the long-run average plus an add-on which is computed relying more on observed credit losses at institution level. The supervisory add-ons are moreover subject to some level of supervisory calibration with the aim of reflecting portfolio specific differences to the extent possible in such an approach. This approach recognizes the complexity of finding sound links between prudential parameters, such as LGD, and economic factors, and drops the economic factor approach of the draft RTS.

3. Draft regulatory TS on the specification of the nature, severity and duration of an economic downturn in accordance with Articles 181(3)(a) and 182(4)(a) of Regulation (EU) No 575/2013

In between the text of the draft RTS that follows, further explanations on specific aspects of the proposed text are occasionally provided, which either offer examples or provide the rationale behind a provision, or set out specific questions for the consultation process. Where this is the case, this explanatory text appears in a framed text box.

EUROPEAN COMMISSION

COMMISSION DELEGATED REGULATION (EU) No …/..

of XXX

[…]

Supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 with regard to regulatory technical standards on the specification of the nature, severity and duration of an economic downturn in accordance with Articles 181(3)(a) and 182(4)(a) of Regulation (EU) No 575/2013

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 648/2012 [4], and in particular the third subparagraph of Article 181(3) in relation to point (a) and the third subparagraph of Article 182(4) in relation to point (a) thereof,

Whereas:

(1) According to Articles 153 and 154 of Regulation (EU) No 575/2013 own fund requirements are designed to cover losses in the 99,9% of the realizations of the systemic variability factor. In order to reach a 99,9% quantile of the loss distribution for the case where LGD is a random variable sensitive to economic conditions, the LGDs used as inputs in the regulatory risk weight ('RW') formulae

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[4] OJ L 176, 27.06.2013, p. 1.

are required to be the own-LGDs estimated appropriately for an economic downturn if those are more conservative than the long-run average, as stated in Article 181(1)(b) of Regulation (EU) No 575/2013. When own-LGD estimates exhibit volatily through time, a downturn effect on own-LGD estimates may then be observed in periods where probabilities of default ('PDs') are high. However, a period of higher dependency between PD and LGD is not necessarily the only indicator of an economic downturn. Any relevant economic factor linked in some way to the own-LGD estimates may be used to identify an economic downturn impacting own-LGD estimates, and therefore the specification of the economic downturn should be based on economic factors, including both macroeoncomic and credit factors. The same requirements apply, for the same reasons, to own-conversion factor ('own-CF') estimates, as referred to in Article 182(1)(b) of Regulation (EU) No 575/2013.

(2) Even though the level of own-LGD and own-CF estimates during an economic downturn may be substantially above its long-run average, an economic downturn should not be considered as the equivalent of stress-testing conditions, which may be more severe and potentially use extreme scenarios, which are not necessarily based on historical observations. Regulation (EU) No 575/2013 and the delegated acts that complete it, adequately provide for the carrying out of stress testing where this is required, and does not include any indication for stress testing in the provisions relating to own-LGD and own-CF estimates.

(3) Usually, own-LGD and own-CF estimates are derived by use of models comprising several components which are calibrated separately, this also includes the simple model of assigning an average estimate to a group of homogenous facilities. Therefore the economic factors should in fact, at least, impact all the model components which are already given by specific function of the models applied by institutions to estimate the own-LGD and own-CF.

(4) Given the specificities of different portfolios, the economic downturn should be examined separately for each type of exposures covered by own-LGD estimates or own-CF estimates. As a result, only where an institution can demonstrate that different jurisdictions exhibit strong co-movement in realised downturn conditions and the differences in legal framework has no impact on realised LGD or realised CF, the institution should be allowed to group those jurisdictions for the purpose of defining the economic downturn.

(5) In order to define the nature of this economic downturn, in a manner that allows for an accurate but also simple implementation and calculation, an economic downturn should first be understood relatively to at least one economic factor. As a result, it is necessary to establish a list of economic factors which should be considered at all times for own-LGD estimates, which should be complemented by institutions with additional relevant identified economic factors for each given type of exposures. With regard to own-CF estimates institutions should define the relevant economic factor(s) which are given by differences for each type of exposure.

(6) The assessment of the dependence between economic factors and model components and the strength of that dependence is fundamental in the specification of the nature of this economic downturn. In order to ensure a determination of the economic downturn that is meaningful and useful, it is important to examine and determine that dependence in a broad sence, i.e. in terms of both its quantitative and its qualitative aspects, and to take into account basic principles of economic theory. For example, as the composition of time series may affect the final assessment of dependence, it should be considered in the assessment of dependence. Therefore that assessment of dependence should be based on not lower than yearly frequency of data for economic factors, should compare model components and economic factors measured at the same point in time and should consider the effect resulting from time lags.

(7) The duration of an economic downturn is driven by realisation of economic factor(s) and specifically in the case of own-LGD estimates by the length of the workout period. The duration should be identified in an economic sense which is driven by the link between the adverse realisation of the economic factor(s) and the coresponding effect on the model components. For the purpose of simplicity and comparability one year duration for each economic factor should be used.

(8) For the purpose of specifying the severity of the economic downturn, and for the sake of simplicity and comparability, it is appropriate to establish a minimum length of 20 years of observations for each economic factor to be used by institutions, and to consider that, for defined duration the worst outcome out of these data should account for the appropriate level of severity. This should ensure that the length of the backward looking period covers at least two economic cycles; it should also ensure that the backward looking period can be shortened only in case a structural break in the economic factors is observed. Where these data do not account for a sufficiently severe downturn, institutions should look further back into historical data.

(9) Given that institutions define the above factors of an economic downturn separately for each model component, each type of exposure, and economic factor, in order to define the overall nature, duration and severity of an economic downturn, for each type of exposure, they should estimate the joint impact of the identified economic factor(s). In particular, where more than one economic factors are identified, institutions should apply an appropriate method for determining the joint impact.

(10)   The provisions in this Regulation are closely linked, since they all deal with the nature, severity and duration of an economic downturn that affects the two parameters of the IRB approach, own-LGD estimates and own-CF estimates. 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 both of the regulatory technical standards required by Regulation (EU) No 575/2013 in a single Regulation.

(11)   This regulation is based on the draft regulatory technical standards submitted by the European Banking Authority to the Commission.

(12)   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, in accordance with Article 10 of Regulation (EU) No 1093/2010 of the European Parliament and of the Council[5], and requested the opinion of the Banking Stakeholder Group established in accordance with Article 37 of Regulation No 1093/2010,

HAS ADOPTED THIS REGULATION:

Article 1

General

1. In order to determine own loss given default ('own-LGD') estimates that are appropriate for an economic downturn, in accordance with point (b) of Article 181(1) of Regulation (EU) No 575/2013, and in order to determine own conversion factor ('own-CF') estimates that are appropriate for an economic downturn, as referred to in point (b) of Article 182(1) of that Regulation, institutions shall establish the nature, severity and duration of an economic downturn separately for own-LGD estimates and for own-CF estimates, by applying all of the following requirements in sequence:

   (a) they shall identify model components in accordance with Article 2;

   (b) they shall identify the nature of the economic downturn for each model component, in accordance with Article 3;

   (c) they shall apply the duration of the economic downturn for each economic factor, in accordance with Article 4;

   (d) they shall identify the severity of the economic downturn for each model component, in accordance with Article 5;

   (e) they shall determine the overall nature, severity and duration of an economic downturn in accordance with Article 6.

2. For the purposes of paragraph 1, all of the following shall apply:

   (a) institutions shall identify an appropriate economic downturn for each type of exposure;

   (b) institutions may apply the same economic downturn in different jurisdictions, only where those jurisdictions are characterised by strong co-movements in realised

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[5] 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).

economic factors and where the realised model components, in accordance with Article 2, or realised own-LGD or realised own-CF for each of those jurisdictions, are not affected by differences in the respective legal frameworks.

Explanatory text for consultation purposes

This Article, in particular paragraph 2(a), specifies that the scope of application of the RTS should be the "type of exposures". Thus the nature, severity and duration of an economic downturn shall be linked to the LGD and CF model level.

Q1: Do you have any concerns around the workability of the suggested approach (e.g. data availability issues)?

Q2: Do you see any significant differences between LGD and CF estimates which should be reflected in the approach used for the economic downturn identification?

Article 2

Identification of model components

1. For the purposes of Article 1(1)(a), institutions shall identify model components as quantitative variables describing:

   (a) for own-LGD estimates, relevant features which drive the potential multimodal shape of the realised LGDs;

   (b) for own-CF estimates, relevant features which drive the potential multimodal shape of the realised drawings.

2. For the purposes of paragraph 1, institutions shall comply with all of the following:

   (a) they shall identify all the model components based on the specificities of each particular own-LGD or own-CF estimate;

   (b) where institutions have already identified model components in the course of producing own-LGD or own-CF estimates prior to incorporating the economic downturn effect, they shall use, as a minimum, the same components also for the purposes of defining own-LGD and own-CF estimates in accordance with this Regulation;

   (c) realised LGD or realised drawings may be used as the only model components respectively where it is not appropriate to identify other model components according to points (a) to (b).

Explanatory text for consultation purposes

The model component approach proposed for the purpose of identification of economic downturn conditions for LGD and CF estimation in the draft RTS is one of the possible approaches that have been considered by EBA. An alternative approach would be that of identifying directly potential relations between realised LGDs and realised drawings and

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economic factors. Anyway due to the potential multimodal shape of the realised LGDs and drawings such relation might not be detected by statistical analysis on the average realised LGDs and CFs. As an example assume a simplified pool or a portfolio of mortgages where 70% of the observed defaults have returned back to performing status. In this example a drop in house prices could only influence 30% of the observations and only to the extent that the LTV (considering the decreased house price) would have increased close to 100%. Thus the average realised LGD might not show any sensitivity to house prices although the average realized recovery rate might materially be impacted by the decrease in house prices.

In order to identify model components institutions shall analyse the drivers of the potential multimodal distribution of realised LGDs and drawings. Where the historical observations of a considered portfolio do not show such multimodal shape the institution shall consider the realised LGDs or drawings as the only model component as specified in point 2(c) of Article 2. In practise the shape of the distribution of realised losses can often be linked to the recovery process, the time in default, the liquidation of collateral or the final scenarios (e.g. cure, workout, restructuring) which are therefore natural candidates to be considered as model components.

It has to be noted that the notion of model components established in the current draft RTS text refers to features of the realized losses and shall not be confused with components of the LGD estimation model which may or may not be model components according to the draft RTS text. EBA might reconsider the terminology in case that it leads to major difficulties of interpretation of the draft RTS text. However where banks have developed their LGD models along the final close out scenarios (e.g. cure, workout, restructuring) of observed defaults the notion of model components from the draft RTS and the components of the LGD estimation model will most probably coincide.

For example consider the following LGD model architecture:

$$LGD = w_{Cure}LGD_{Cure} + (1 - w_{Cure})LGD_{Liquidation}$$

Where in this and all other textboxes in this document the cure-rate shall be interpreted as the share of defaulted facilities returning back to non-defaulted status. The estimated LGD of a facility is calcualted as the sum of the estimated probability of a cure (w_{Cure}) multiplied with the estimated LGD for a cured facility (LGD_{Cure}) and the estimated probability of a liquidation (1- w_{Cure}) multiplied with the estimated LGD for a liquidated facility ($LGD_{Liquidation}$) (which may depend on certain characteristics of a potential collateral again). In this case the realised LGD on cured facilities and the realised LGD on liquidated facilities as well as the probability of a cure would provide model components as referred to in Article 2 of the RTS.

However there are also models which are not based on any features of realised losses, but where the estimated LGD is expressed as a function depending on risk factors which are observed on the non-defaulted portfolio, like for example obligor (e.g. annual turnover, number of employees) or facility characteristics (product type, level of collateral). In this case

the model architecture would not provide components whose realization would coincide with model components as refered to in Article 2. Nevertheless according to the RTS it would be expected that the institution analyses whether the realised LGDs in that portfolio show a multimodal distribution and consider the drivers of this shape to be model components. These model components shall then be taken into acccount for the analysis to identify the relevant economic indicators.

It has to be noted that the model components are not risk factors as the latter are used for the LGD estimations in order to differentiate and discriminate between exposures and which are observed on the non-defaulted portfolio. The model components as referred to in Article 2 are features of realised loss and can thus only be observed with repect to the historical defaults. Risk factors on the contrary are explanatory variables of the LGD parameter (e.g. products, collaterals) that can be used as input factors for calculating the LGD on performing exposures.

An alternative considered for the sake of clarification of the concept of model components was to predefine certain model components which could be considered to be the major drivers of bimodal shapes and require banks only to analyse other potential components where the shape is multimodal and can not be explained by these prescribed model components. Such a predefined list of model components to be considered could for example consist of the recovery rate relating to collateral value, the recovery rate relating to the outstanding amount, the rate of return-to-performing portfolio (cure rate) and the time-in-default.

The alternative to the model component approach is that of not prescribing to perform the analysis at the model component level but directly at the final realised LGD level. This approach is certainly simpler but this could come at the cost of not being able to capture the dependency between the economic factors and the realised LGD. The realised LGD distribution is, in fact in most cases, multimodal (characterised by either high or low losses) and therefore the application of simple average of realised LGD for the purposes of the dependency analysis would not reflect the shape of such distribution. Therefore, in order to capture the relevant features of this multimodal distribution performing the dependency with the economic factors at model component level is deemed necessary.

This dependency analysis will be used for two purposes: in the RTS, it ensures that the relevant economic factors are selected. In the GLs, which would prescribe how to compute the downturn LGD, it would be used to estimate the value of the model component during a downturn period, where this value is not availlable in the data base of the institution (see explanatory boxes for consultation purposes in Article 6 and in Section 4 "Amendments to Section 6.7 on downturn adjustment section of the Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures " for more details).

Q3: Is the concept of model components sufficiently clear from the RTS? Do you have operational concerns around the proposed model components approach?

Article 3

Nature of an economic downturn

1. For the purposes of Article 1(1)(b), institutions shall identify the nature of an economic downturn for each model component taking into account at least one economic factor influencing each model component.

2. For the purposes of paragraph 1 institutions shall:

   (a) consider economic factors that are quantitative and are either macroeconomic factors or credit factors that are likely to affect the model components;

   (b) for the purpose of own-LGD estimates, in particular, consider all of the economic factors referred to in paragraph 3 and also take into account other relevant economic factors for each type of exposure, tailored to facilities, sectors, portfolios and specific business cycles, where those relevant economic factors influence the model components;

   (c) for the purpose of own-CF estimates, in particular, take into account all relevant economic factors for each type of exposure, tailored to sectors, portfolios and specific business cycles, where those relevant economic factors influence the model components;

   (d) carry out the determination of the additional economic factors in the context of own-LGD estimates as referred to in point (b), and relevant economic factors in the context of own-CF estimates as referred to in point (c) by a panel of experts;

   (e) assess by a panel of expert the dependency between the selected economic factors resulting from the process of points (a) to (d) and the model components, based on an assessment which shall not be limited to the analysis of statistical correlation, but shall also take into account the expected correlation based on economic reasoning, benchmarking and plausible stress scenarios and which should therefore be both quantitative and qualitative.

   (f) carry out the quantitative assessment referred to in point (e) in accordance with all of the following:

      (i) use no less than yearly frequency of data for economic factors;

      (ii) compare each model component and its relevant economic factors both measured at the same point in time unless it is appropriate to consider the effects resulting from time lags.

      (iii) for model components related to own-LGD estimates, take into account all relevant discounted cash flows realised during the workout period and consider all exposures for which the workout cycle has been completed as well as those incomplete recovery processes where the

> realisation of the model component under consideration has already been observed.

3. For the purposes of paragraph 2(b) institutions shall consider for all exposure types the following potential economic factors (analysed separately) where available: GDP growth, unemployment rate, interest rates, inflation rates, default rates and credit losses from external data complemented with internal data (i.e. default rates, losses). For specific type of exposures institutions shall consider additional potential economic factors as follows:

   (a) for Corporate and retail SMEs: sectorial/industry indexes;

   (b) for Residential mortgages: house prices, tax benefits and region-specific indexes;

   (c) for Other retail: consumer price index.

   (d) for Specialised lending of which:

       i. where Real estate: real estate prices (indexes), housing or commercial depending on the situation.

       ii. where Project and object finance: index for different collaterals.

       iii. where Commodity finance: commodity prices (index).

   (e) for Central governments and central banks: business climate indices and, only for public sector entities assimilated to central governments, political climate.

   (f) for Institutions: financial credit indices.

   (g) for Equity exposures: stock indices.

Explanatory text for consultation purposes

The proposed approach gives a role to the panel of experts both in selecting potential relevant factors, additional to the ones listed in paragraph 3, and in performing a qualitative assessment of the dependency between economic factors and model components.

The RTS specifies in paragraph 3 a minimum list of economic factors to be considered by institutions including factors which shall be considered for all types of exposures and factors which instead capture specificities for certain types of exposures (paragraph 3(a) to (g)). The panel of experts are required to investigate potential additional factors which might be relevant for the exposure type under consideration. The latter analysis is deemed necessary in order to capture the specificities of each type of exposure and jurisdiction under consideration (e.g. workout procedures and length). The requirement of having this analysis performed by a panel of experts, moreover, originates from the idea that the additional economic factors considered should make sense under a credit and macroeconomic perspective. In this sense the panel of experts is thought to be independent from the modelling unit but at the same time to have knowledge of economics and risk management such that to be able to pick the economic factors in a meaningful way.

The involvement of experts in carrying out the qualitative dependency analysis referred to into paragraph 2(e) is deemed necessary to avoid a too mechanistic approach based only on quantitative dependence analysis which could be limited due to limited historical observations. The qualitative assessment, in fact, shall assess the dependency in a broader perspective complementing the dependence analysis based on quantitative drivers. For example, adding qualitative considerations such as the expected direction of the causation between economic factors and model components which could be helpful in assessing whether the results coming from a pure quantitative dependence analysis are going in the right direction. An alternative would have been that of prescribing the necessity to perform this qualitative analysis only in those cases where no downturn has been observed in the past or where in general no clear statistical link is found. However this solution will still give too much weight to the quantitative analysis which could lead, for example, to counterintuitive results where an institution has realised high credit losses in a certain period rather due to changed processes or backlog reduction than due to external economic influences. Therefore quantitative analysis shall be complemented with qualitative considerations.

A question arises concerning whether it should be considered acceptable the case where the nature of the downturn would be defined according only to expert judgment. In order to give more possibilities to institutions to assess the dependency also in those cases where data is not available it has been decided to allow this solution. Anyway it is proposed, as further described in the text box on the amendments to the downturn adjustment section of the GLs that the same panel of experts establishing the nature of the economic downturn should also participate in the assessment of the downturn adjustment and the necessary MoC. The latter, in fact, should be calibrated around the assumptions made by the panel of experts.

A crucial aspect to be clarified around the dependence analysis concerns the time dimension for the computation of the realised component. A first step for the quantitative analysis, in fact, is the construction of a time series of the realized model component. In other words, a clarification is needed on what "at the same point in time" means in paragraph 2(f)(ii) concerning the construction of the time series for the model components. There are several possible time dimensions that could be used. The approach proposed here, which is reflected also in the text boxes on the joint impact analysis of Article 6 and the amendment to the downturn adjustment section of the GLs, is that the selection of the time dimension should be based on the characteristics of the specific model component under consideration. In particular, institutions should pin down the relevant time dimension for each model component according to the time of its realisation. This implies that the time series for model components should be constructed in such a way that the average realised model component for each period is computed on a sample of exposures assigned to the period where the majority of the realisations of the model component are observed.

For example if the model component under consideration for the exposure class residential mortgages is the LGD workout then the relevant time dimension used to aggregate realised recoveries would be the date of the sale of the main collateral. Thus the average LGD workout for a specific year will be the average LGD workout on exposures where the according collateral is sold during the selected year. It is important to clarify that the cash flows should

be anyway discounted to the moment of default, independently whether the exposures have defaulted during or previous to the period to which the exposure is assigned. In our example the exposure will be assigned to the year where the main collateral is sold but the yearly LGD workout average will be computed on cash flows from the collateral realisation discounted to the moment of default, no matter if the default happened in the year preceding the collateral realisation.

Another example would be the model component time-in-default, where its annual realisation could for example be measured (in accordance with Article 3(2)(f)(iii)) as the average time in default for all defaulted facilities for which the workout cycle has been completed in the considered year.

The alternative considered is that of computing the average according to exposures which defaulted during the selected period. This option, even if simpler, has been considered as less suitable in taking into account the specificities of model components based on recoveries under consideration, in particular could the time series analysis be biased as the recoveries could stem from a post downturn period.

Q4: Do you have any concerns about the complexity around the dependency approach proposed for the identification of the nature of an economic downturn? Is it sufficiently operational?

Q5: Do you agree with the proposed approach for computing the time series of the realised model component referring to the realisation of the model component rather than to the year of default?

Article 4

Duration of economic downturn

1. For the purposes of Article 1(1)(c), institutions shall apply a one year duration of an economic downturn for each economic factor selected according to Article 3, affecting each model component identified in accordance with Article 2.

Explanatory text for consultation purposes

From a practical perspective the duration of the impact of an economic downturn on LGD and CF estimates is driven by the realisation of economic factor(s) on one side and on the other side by the moment of default and length of the workout period. Linking these two concepts makes the specification of the duration of the economic downturn rather complex. In order to overcome this complexity a single standardized one year horizon is applied for every economic factor, around the observed or expected peak for the relevant economic and credit factors. This methodological choice has the advantage of simplicity for what concerns both its implementation and supervision and, moreover, achieves better comparability between institutions. It also avoids a discussion about specificities of the cycles corresponding to the different economic factors, in particular on their length, which may be more than 1 year. Under this approach the duration is identified in an economic sense rather than being related

to the length of recovery process. Moreover it is linked to the severity of an economic downturn described in Article 5 which would then depends on the worst "yearly" value of the economic factor(s) under consideration for each model component.

The alternative would have been that of treating this one year period as a minimum backstop, and allowing institutions to apply a longer duration where:

- This leads to higher level of conservatism. Increasing the duration of the economic downturn, in fact, in general dilutes the effect of the downturn and therefore should be limited to those cases where this is justified by higher level of conservatism. Anyway the concept of conservatism is already related to the effect of the economic downturn conditions on the LGD and CF estimates. In this sense, for what concerns LGD estimates, it will be rather introduced in the downturn adjustment section of the GLs through the use of margin of conservatism;

- This is supported by the realisation and length of the workout period. The effect of the downturn at the economic factor level on the LGD and CF estimates, in fact, is dependent from the length of the workout period. The effect of the economic downturn on the LGD risk parameter, anyway, should be rather analysed in the downturn adjustment section of the GLs.

Thus the focus here should be determining the duration of the downturn in an economic sense at the level of the single economic factor and therefore the approach proposed is to avoid any reference to the LGD or CF parameters, nor for defining the conservatism neither for reflecting the length of the workout process.

There are cases where the peaks/troughs of different economic factors explaining the same model component are not reached simultaneously but are nonetheless the effect of one single overall downturn. This aspect will be considered, anyway, in the text box discussing the joint impact analysis of Article 6 as well as in the downturn adjustment section of the GLs.

Q6: Do you envisage any situation where a one year duration is not suitable of capturing the economic downturn at the economic factor level?

Article 5

Severity of an economic downturn

1. For the purposes of Article 1(1)(d), institutions shall identify the severity of an economic downturn for each model component taking into account the worst period of the economic factor or factors selected according to Article 3, over the duration referred to in Article 4.

2. For the purposes of paragraph 1, institutions shall apply the following requirements in sequence:

(a) they shall select the worst period for each economic factor based on the historical values of those economic factors for a minimum period that shall be either of the following:

  (i)   the preceding twenty years;

  (ii) a period shorter than the one referred to in point (i), where structural changes have been observed in the relevant economic factors and it can be convincingly argued that the level of losses realised prior to the structural break will not reoccur; if this is the case, a margin of conservatism has to be applied in accordance with Article 179(1)(a) and (f) of Regulation (EU) No 575/2013;

(b) where downturn conditions observed in the minimum period referred to in point (a) are not sufficiently severe, institutions shall look further back into the historical data referring to that period;

3. For the purposes of paragraph 2, the severity of downturn conditions observed in historical data shall be considered to be not sufficiently severe where the historical variability of the economic factors over the time period analysed is not representative of the plausible variability of those factors for the future.

Explanatory text for consultation purposes

For the purpose of specifying the severity of the economic downturn, and for the sake of simplicity and comparability, the EBA is considering that uniform length of 20 years of historical observations for each economic factor shall be used by institutions. The length of the historical period considered should cover at least two economic cycles and it can be shortened only in case a structural break in the economic factors is observed. Anyway a sequential approach is proposed in order to avoid that institutions mechanically limit their analysis to the last 20 years. In this sense conditions are provided in paragraph 3 of this Article which specifies when 20 years data do not account for a sufficiently severe downturn conditions. This is the case when the historical variability of the economic factors over the time period analysed is not representative of the plausible variability of those factors for the future. In these cases the institutions shall perform an analysis going beyond those 20 years, in particular they shall try to look further back into historical data in order to identify the severity of the economic downturn. If it is also not sufficient and no economic downturn is identified according to historical data on economic factors institutions should make an adjustment to their LGD and CF estimates appropriate for an economic downturn in order to account for the potential impact of the downturn. This is also clarified in the text box referring to the amendments to the downturn adjustment section of the GLs.

The sequential approach proposed has several advantages, the most relevant of which is that it prevents institutions from performing a mechanical analysis of the past 20 years without making any judgment of whether this historical period is appropriate. In fact, it provides guidance on how to assess the appropriateness of the historical period on which the severity

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should be assessed and therefore should lead to better comparability and lower RWA variability.

Severity, therefore, corresponds to the worst one year average for the given economic factor during the period selected according to the sequential approach described in paragraph 2. This choice is consistent and links the severity with the approach taken for the one year duration in Article 4. It is important to stress that under this approach the worst yearly value of the economic factors would not necessarily be associated with the worst yearly value for the associated model component. The latter, in fact, might be the result of changes of internal processes which are not related to distressed economic conditions. In fact, the CRR is implicitly considering in Article 181(1)(b) the possibility that the downturn LGD could be below the long-run average. The downturn LGD shall be used only if "more conservative than the long-run average".

Take as example the case where an institution has to identify the severity of an economic downturn for the model component cure rate which is explained by GDP growth. In order to define the worst yearly value of GDP growth, according to Article 4 on duration, we have to measure the average yearly GDP growth even if we have quarterly data for GDP growth. The RTS is not specifying how the yearly time period should be set, in fact, whether this is going from the first quarter of year "t" to the first quarter of year "t+1" or from the third quarter to the next third quarter this will depend on which makes more sense for the analysis under consideration. Once the time series for GDP growth is constructed the severity for the cure rate is identified according to the lowest yearly GDP growth rate. Assuming that this corresponds to the GDP growth of -1% in year "t", then the severity of cure rate could be either determined according to the value of the cure rate during that year where institution has data or should be estimated according to the relations institution has found between cure rate and GDP growth.

Q7: Do you have any concerns about the approach proposed for the identification of the severity of an economic downturn? Is it sufficiently operational?

Q8: Do you think that more details should be included in Article 2(3) for the purposes of the evaluating whether sufficiently severe conditions are observed in the past?

Article 6

Economic downturn

For the purposes of Article 1(1)(e), institutions shall determine the overall nature, severity and duration of an economic downturn by assessing the joint impact of all the economic factors identified according to Article 3, for the corresponding duration identified in accordance with Article 4, and for a severity identified in accordance with Article 5, in relation to all types of exposures. This shall be done separately for own-LGD estimates and for own-CF estimates.

Explanatory text for consultation purposes

Article 6 has been left intentionally open for what concern the methodology on how to perform the joint impact analysis for the purposes of selecting the final downturn scenario. The rationale behind this decision is that the appropriate joint impact methodology is very much dependent on the purposes, i.e. downturn adjustment to the LGD or CFs estimates.

EBA has considered providing more detailed guidance and below an example is presented of how the RTS should be applied in sequence for the purpose of downturn adjustment to the LGD estimates. The application of the RTS is presented in the steps below where, in particular, steps 4 to 6 refers to the analysis of the joint impact analysis referred into Article 6:

Step 1: identifying model components. Following the requirements of Article 2 institutions shall select the relevant model components. The number of model components used for the selection of the economic downturn shall be at least equal to the ones which are already used in modelling LGD. Let's assume here that the institution identifies 3 model components and let's define them as $mc1, mc2, mc3$. For example consider the following LGD model architecture:

$$LGD_A = Cure\ rate \times LGD\_cure + (1 - Cure\ rate) \times LGD\_liquidation$$

Where Cure rate is model component 1 ($mc1$), LGD_cure is model component 2 ($mc2$) and LGD_liquidation is model component 3 ($mc3$).

Step 2: identifying relevant economic factors. Following the requirements of Article 3 institutions shall analyse (quantitatively and qualitatively) the dependence between economic factors and model components identified in step 1 and select the relevant economic factors for each model component accordingly. Let's assume that the following economic factors are identified as significantly correlating with each model component:

- Model component 1 (e.g. cure rate), $mc1$: explained by economic factors $ec1$ and $ec2$ (e.g. GDP growth and unemployment rate respectively);

- Model component 2 (e.g. LGD_cure), $mc2$: explained by economic factor $ec3$ (e.g. interest rates);

- Model component 3 (e.g. LGD_liquidation), $mc3$: explained by economic factors $ec4$ and $ec5$ (e.g. house prices and credit losses).

Step 3: identifying downturn period for each economic factors. Following the requirements of Article 4 and 5 institutions shall select the duration and severity of the economic downturn for each selected economic factor relevant to each model component. Below different economic downturn periods for different economic factors are listed with the corresponding calculated (or estimated) value of the model component under consideration:

- the worst realisation for economic factors 1 is observed in the downturn period $T1$, $ec1_{T1}$, which is associated with a value for model component 1 equal to $mc1_{T1}$ (e.g. 2001 is the year associated with the lowest GDP growth and the estimated value of the cure rate is equal to $Cure\ rate_{2001}$, where this estimation is performed on the basis of the dependency assessment described in Article 3(2)(e) and (f));

- the worst realisation for economic factors 2 is observed in the downturn period $T2$, $ec2_{T2}$, which is associated with a value for model component 1 equal to $mc1_{T2}$, (e.g. 2013 is the year associated with the highest unemployment rate and the value of the cure rate is, according to institution's historical observations, $Cure\ rate_{2013}$);

- the worst realisation for economic factors 3 is observed in the downturn period $T3$, $ec3_{T3}$, which is associated with a value for model component 2 equal to $mc2_{T3}$, (e.g. 2010 is the year associated with the highest interest rates increase and the value of the LGD_cure is, according to institution historical observations, LGD_cure_{2010});

- the worst realisation for economic factors 4 is observed in the downturn period $T4$, $ec4_{T4}$, which is associated with a value for model component 3 equal to $mc3_{T4}$, (e.g. 2008 is the year associated with the highest house prices decline and the value of the LGD_workout is, according to institution historical observations, $LGD\_liquidation_{2008}$);

- the worst realisation for economic factors 5 is observed in the downturn period $T5$, $ec5_{T5}$, which is associated with a value for model component equal to $mc3_{T5}$, (e.g. 2009 is the year associated with the highest credit losses increase and the value of the LGD_liquidation is, according to institution historical observations, $LGD\_liquidation_{2009}$).

Step 4: identification of the downturn scenarios. In order to assess the joint impact, referred to in Article 6, of different downturn periods associated with different economic factors and model components institutions should first of all group those downturn periods according to whether they belong to the same downturn scenario, where the effects of some economic factors may potentially be observed with a delay. Under this approach for the purposes of computing the LGD in each downturn scenario institutions should use the downturn period values for each model component if they are the result of the same downturn scenario but with delays (details are provided in step 5). The assumption would be that non-simultaneous downturn periods for different model components will be considered as belonging to the same downturn scenario, and so to each model component will be applied the downturn value, unless otherwise specified by institutions. The following example could be envisaged:

- Downturn period $T1$ associated to economic factor 1 (relevant for model component 1) belongs to downturn scenario A,

- While downturn periods $T2$ for economic factor 2 (relevant for model component 1), downturn period $T3$ for economic factor 3 (relevant for model component 2), and downturn period $T4$ and $T5$ for economic factors 4 and 5 (relevant for model component 3) are all belonging to the same downturn scenario B;

Step 5: computation of downturn LGD for each downturn scenario. Once the downturn periods relative to different economic factors are grouped in different downturn scenarios institutions should compute the downturn LGD for each selected downturn scenarios, here A and B. Institutions should either:

- use the values of the model component under the downturn periods if the periods belong to the same common downturn scenario, and long-run average (LRA hereafter) values for the other model components.

- If two (or more) downturn periods relative to the same model component happen to belong to the same downturn scenario (in our example above this is the case for LGD_workout in downturn scenario B), use the worst value (in this case the maximum between LGD_workout in 2008 and 2009). The LRA values for the other model components should be used.

This would imply in our example that:

- LGD Downturn in scenario A should be computed using downturn period value for model component 1 and LRA values for all the others: $LGD_A = f(mc1_{T1}, mc2_{LRA}, mc3_{LRA})$, e.g. $LGD_A = Cure\ rate_{2001} \times LGD\_cure_{LRA} + (1 - Cure\ rate_{2001}) \times LGD\_liquidation_{LRA}$.

- LGD Downturn in scenario B should be computed using downturn period values for all the model components and, in particular, the worst between downturn periods T4 and T5 for model component 3: $LGD_B = f(mc1_{T2}, mc2_{T3}, Worst(mc3_{T4}; mc4_{T5}))$, e.g. $LGD_A = Cure\ rate_{2013} \times LGD\_cure_{2010} + (1 - Cure\ rate_{2013}) \times Max(LGD\_liquidation_{2008}; LGD\_liquidation_{2009})$

Step 6: identification of the final downturn scenario. The downturn scenario associated with the highest LGD, should be chosen as the final downturn scenario.

Note that in order to calculate the value of each model component for the selected downturn periods, from step 3 to 6, institutions should follow the same approach described when constructing the time series of model component for the purposes of dependence analysis in the text box of Article 3. In other words, the average realised model component for each period is computed on a sample of exposures assigned to the period where the majority of the realisations of the model component are observed.

Q9: Do you think Article 6 should pin down the steps for the joint impact analysis described in this text box?

Q10: Do you have any concern around the proposed approach about the identification of the final downturn scenario?

Q11: Do you see any issue with the estimation of the model components for downturn periods which are not in the data base of the institution (e.g. in step 3 the case where the estimation of cure rate for 2001 is performed on the basis of the dependency assessment described in Article 3(2)(e) and (f))?

Q12: Do you think the same approach for the identification of the final downturn scenario proposed in this text box for LGD could be adopted also for the purpose of downturn CF estimation?

Article 7

Final provision

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

[For the Commission
On behalf of the President

[Position]

4. Amendments to Section 6.7 on downturn adjustment section of the Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures

Explanatory text for consultation purposes

The specifics on how to perform the downturn adjustment to the LGD risk parameter are described in the following text box which will amend the downturn adjustment section of the consultation paper on the draft Guidelines on PD estimation, LGD estimation and the treatment of defaulted assets (GLs here after).

The text box of Article 6 describes the identification of the economic downturn, and in particular the joint impact analysis, step by step. The GLs should complement this sequential approach providing guidance on how to perform the downturn adjustment according to the selected final economic downturn scenario. In this sense they should reflect the following missing step:

Step 7: estimation of the prudential downturn LGD. The downturn LGD should be computed according to the downturn scenario selected in step 6 at the level of grade or pool, or for continuous model at the level of each individual exposure. This for example could imply that institutions will estimate the downturn adjustment according to the final downturn scenario at the LGD model level, where the LGD is computed according to the formula presented in step 6, but then will apply the downturn adjustment to the long-run average LGD computed at the level of grade or pool, or for continuous model at the level of each individual exposure.

The draft RTS on the nature, severity and duration of an economic downturn developed on the basis of Article 181(3)(a) of Regulation (EU) No 575/2013 (RTS on economic downturn, hereafter) is giving a double role to the panel of experts in the selection of the economic downturn. First of all they should participate in the identification of the nature of the economic downturn, proposing additional economic factors for which dependence with model components should be assessed. Moreover they should perform a qualitative assessment of the dependency which should complement the quantitative dependence analysis. In this respect the GLs should clarify that the panel of experts performing these tasks should also participate in the decision on the MoC to be applied to the final LGD estimates. They should in fact assess in a comprehensive way the MoC, calibrating it around the assumptions made for the identification of the nature of the economic downturn. Moreover, the GLs should clarify that a MoC should be applied anytime:

- The analysis around the nature of the economic downturn shows no dependency between the model components and the economic indicators. The MoC here should, in fact, account for the risk that either the economic indicators or the data available in the RDS where not sufficient to prove a dependence to the economic cycle.

- Institutions are not able to identify the severity of the economic downturn for a specific economic factor according to historical data. The MoC should account in this case for the uncertainty around the impact of the economic downturn, also incorporating the magnitude of the economic upturn in the past 20 years.

- Institutions do not have data concerning the realised model components during the selected economic downturn period which are therefore estimated it for downturn adjustment purposes. The MoC here should, in fact, account for estimation errors which may be related to data availability.

For the purposes of identifying the severity of the economic downturn, according to Article 5 of the RTS on downturn, institutions should use the preceding twenty years of historical values of the selected economic factors. In this respect the GLs should clarify that, for consistency with the approach taken in paragraph 128 of the GLs on the historical observation period for the purposes of long-run average LGD computation, the "preceding twenty years" should be understood at the twenty years preceding the moment of the LGD estimation.

For what concern documentation requirement, Regulation (EU) No 575/2013 sets out, in Articles 175 and 185(b) requirements regarding the documentation and review for institutions with permission to use the IRB approach. Given that this Regulation relates to the economic downturn and how that affects a parameter of the IRB approach, the LGD, rules on the determination by institutions of the nature, severity and duration of an economic downturn should include documentation and review procedures, processes and rules that are more specific to that determination.

The following considerations are reflected in the proposed draft GLs text below, where the paragraphs numbering reflect the one presented in the GLs.

6.7.1 Downturn adjustment

156.   For the purpose of obtaining LGD estimates that are appropriate for an economic downturn in accordance with Article 181(1)(b) of Regulation (EU) No 575/2013 and Article 52 of Commission Delegated Regulation xxx/xxxx [RTS on IRB assessment methodology] institutions should specify an economic downturn in accordance with the RTS on the nature, severity and duration of an economic downturn developed on the basis of Article 181(3)(a) of Regulation (EU) No 575/2013 [RTS on economic downturn].

157.   For the purposes of Article 5 point (a)(ii) of the [RTS on economic downturn] the preceding twenty years should be understood as the twenty years preceding the moment of the LGD estimation.

158.   The downturn LGD should be computed according to the overall nature, severity and duration of an economic downturn determined in accordance with Article 6 of the [RTS on

economic downturn]. This implies using the realised or estimated value for each model component in the respective economic downturn periods provided that those periods belong to the same downturn scenario, otherwise the long-run average value for each model component should be used.

159.   For the purposes paragraph 158, institutions should compute the average realised value for each model component during the selected economic downturn period on a sample of exposures where the majority of the model component realisations are observed during that period but the cash flows should be discounted at the moment of default.

160.   Institutions should reflect an appropriate MoC in their LGD estimates in each of the following situations:

(a) Where the identification of the nature of the economic downturn, according to Article 3 of the [RTS on economic downturn], results in no quantitative dependency between economic factors and model components and is therefore based on the qualitative analysis made by the panel of experts referred to in paragraph 2(e) of this Article.

(b) Where the severity of the economic downturn identified according to Article 5(2)(a) and (b) of the [RTS on economic downturn] is not sufficiently severe in accordance with Article 5(3).

(c) Where institutions do not have data concerning the realised model components during the selected economic downturn period and the model component value is therefore estimated for downturn adjustment purposes.

6.7.2 Documentation

161.   Where the nature and or the severity of the downturn is determined on the basis of the assessment from a panel of experts, the same panel of experts should also assess the downturn adjustment and the necessary MoC calibrated around the assumptions made by the panel of experts.

162.   In accordance with the documentation and regular review requirements relating to an IRB approach, as referred to in Articles 175 and 185(b) of Regulation (EU) No 575/2013, institutions should:

(a) maintain documentation of their procedures, processes and policies for assessing the effects, if any, of economic downturn conditions on own-LGD estimates;

(b) Ensure that the procedures, processes and policies referred to in point (a) provide for a regular verification of the plausibility of the scenarios affecting those final estimates.

Q13: Do you think the draft GLs should describe in more detail the downturn adjustment methodology?

Q14: Do you think simpler alternative approaches for downturn adjustment should be considered in the spirit of proportionality?

5. Alternative approaches

The model component approach presented in Section 3 of this CP provides a methodological approach for identifying the economic downturn conditions, which is for the case of downturn LGDs combined with additional guidance to be inserted in Section 6.7 of the Guidelines on PD estimation, LGD estimation and treatment of defaulted assets. This guidance on how to perform the downturn adjustment is found in Section 4. This is however not the only approach, which has been considered by the EBA and given the relatively high complexity of the approach proposed in the draft RTS and amendments to the GLs section, EBA is also seeking feedback on two alternative approaches.

The EBA is aware that the proposed model component approach in some ways is a rather complex method, where additional guidance may be necessary, just as it may require substantial resources both from institutions and supervisors when it comes to its implementation. Such an approach however appears relevant in order to ensure harmonised approaches across institutions and limit the quite divergent industry practices surrounding the modelling of downturn LGDs and CFs. In this light, on balance, providing a fairly prescriptive and methodological approach appears necessary, but nonetheless other alternatives also have substantial merits for example in terms of reducing the potential implementation burden of the proposed model component approach.

Some of these alternatives however also have merit and are meaningful to consider further. The aim of this section is therefore to explore stakeholders' views on two possible simpler approaches to formulate the supervisory expectations towards LGD-downturn. Although simpler alternatives could also be considered for CF estimation, this section is focused on LGD only as this is the area where different approaches in the application of downturn adjustment particularly contributed to significant variability of estimates. Two alternative approaches are presented for consultation purposes below.

Reference Value Approach

The reference value approach relies on a less prescriptive approach to identify downturn periods and instead requires that institutions' downturn LGD estimates are compared to a reference value. Under this approach the identification of an economic downturn could be substantially simplified – for instance by removing any reference to model components in the draft RTS and, moreover, by not prescribing a methodology for evaluating the relevance of the economic factors. In particular, the nature of a downturn would have to be defined along a predefined minimum list of economic factors (where relevant), as proposed in the draft RTS, but no dependency analysis between the identified indicators and the institutions' model components would be required for the purpose of the assessment of the indicators' relevance to a specific portfolio leaving more flexibility to institutions. Moreover, the cost to institutions to evaluate the impact of economic downturn conditions on their LGD estimates is minimised. The reference value approach, in fact,

allows more modelling flexibility to institutions also in this respect by not prescribing a methodology for assessing the impact of an economic downturn on the LGDs, nor such separate model step.

An institution specific reference value (e.g. considering the average LGD of the two years where the according defaults have led to the highest realised LGDs) would be introduced in order to anchor harmonised LGD downturn estimation. In case the LGD downturn would be lower than the reference value institutions should use the reference value unless they are able to justify that it is not linked with downturn economic conditions.

The rationale for the introduction of a reference value rests on the idea that it is complex and not necessarily appropriate, given the institution-specific features (e.g. in terms of data availability and specific portfolio features), to predefine a standard methodology for both the assessment of the relevance of the economic factors and the assessment of the impact of downturn economic conditions on the LGD. In this respect, the reference value acts as a challenge to institutions' estimates by for instance being directly linked to the highest observed credit losses which may or may not be linked to economic downturn conditions. This comes at the cost of having variability in modelling and a substantially higher reliance on the supervisors' assessment of the appropriateness of the institutions' relevant economic factors used to define downturn conditions and the institutions' justification of the comparison between their downturn LGD estimates and the reference value. In the past excessive reliance on supervisory assessment has had limited success in terms of harmonisation, given the development of different supervisory practices. The challenge of the approach is primarily to determine an appropriate reference value, which is then used both by institutions in their development and supervisors in their assessment of the model. Possible mitigants and complementary solutions could be explored such as:

- Having reference values defined at an EU or possibly jurisdiction level rather than at institution level. In this way the reference value, even if less accurate in some cases, would act as a robust benchmark and the variability of the modelling would be confined to the justification of their downturn LGD estimates to supervisors rather than also concerning the way this reference value is computed. Moreover, this would in most cases solve data availability issues where no downturn is observed in the internal data of each institution.

- Having the reference value defined at institution level but set it as a as a hard floor. This would increase harmonization by reducing the role of supervisory assessment. Anyway such a reference value might not always be an appropriate tool when downturn has not been observed or there is no or limited relation between economic factor and losses. In these cases the reference value could be complemented by a requirement that the margin of conservatism should be calculated according to a dependence analysis between the economic factors with realised LGDs where banks should analyse periods further than their own data history as proposed by the draft RTS.

Supervisory add-on approach

The second alternative approach that has been considered is that of having supervisory add-ons to the long run average LGD, which are calibrated based on observed credit losses at institution level. This alternative, therefore, recognizes the complexity of finding sound links between prudential parameters, such as LGD, and economic factors, and drops the economic factor approach of the draft RTS.

While there is simplicity to this approach, as it would not require any dependence analysis between economic factors and realised LGDs, it could also lead to LGD downturn estimates which, relying exclusively on realised losses, might underestimate or overestimate the downturn impact on the LGD parameters. In this respect, entailing a low degree of risk sensitiveness the add-ons should be calibrated considering a sufficient degree of conservatism. However, this conservatism necessary to address potentially decreased accuracy could penalise portfolios where no (or low) downturn effect is observed nor expected[6].

Two options for the design of supervisory add-ons have been considered and are discussed below.

   a) Distributional approach

This option specifies a standardized methodology for the add-on computation where the add-on is a function of the volatility of the observed recoveries. In particular, with the aim of capturing the tail of the distribution of observed recoveries per generation of default, the downturn add-on would be derived from the observed volatility of recovery vintages. Moreover, under this option the add-on should be assessed at estimates level (e.g. grade or pool).

While offering a simplified and standardised methodology for the downturn LGD estimation this option presents some limitations: variability of observed losses, in fact, may be due to lack or poor data quality rather than true downturn economic conditions. This option however also introduces calibration issues such as the calibration target specification of the minimum quantity of data required to perform the computation. It is important to underline that given the statistical nature of this approach and its interactions with margin of conservatism (where no clear distinction is made between downturn adjustment and MoC components) this could alternatively also be thought as a sound methodology to evaluate the margin of conservatism when no relations with economic factors can be observed in the model component or reference value approach.

   b) Downturn discounting rate with fixed add-on

Under this option the LGD downturn would be calculated as:

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[6] In the distributional approach option, in fact, a low default portfolio could be characterised by high variability of recoveries due to data limitations even if no downturn has been observed or is expected. In the downturn discounting rate with fixed add-on option, similarly, the best portfolio will be penalised by the fixed add-on which will be binding.

$$LGD_{downturn} = Max\big(LGD_{LRA;DR=base\ rate+5\%} + Add_{on}; LGD_{LRA;DR=base\ rate+10\%}\big)$$

The base rate refers to the primary interbank offered rate, i.e. the 1-year EURIBOR or a comparable interest rate in a currency of the exposure. In particular, the base rate plus 5% equals the discounting rate proposed in paragraph 122 of the GLs and the base rate plus 10% corresponds to the downturn discounting rate.

This option offers the highest degree of harmonization and simplicity but considers downturn conditions mostly via the downturn discounting rate. Portfolio specifics such as collateralization as well as jurisdiction, in fact, would at least partly be taken into account implicitly via the time-in default component of realised losses relevant for discounting. In addition, a fixed add-on would be specified that would serve as a floor for the calculation based on downturn discounting rate. The calibration of this add-on would present a main challenge for this option. It may be necessary to specify the add-on with a certain degree of granularity in order to reflect the specificities of various types of exposures and/or collaterals.

Comparing the alternative approaches

Both the reference value approach and supervisory add-on approach are motivated by lowering the complexity of the current proposal (model component approach), which sets out a prescriptive methodology. The two approaches should be compared according to principles such as: the link with economic conditions; the trade-off between simplicity and risk sensitivity; the level of harmonization which they are able to achieve; the data and calibration issues implied and finally the implementation costs for both institutions and supervisors.

In this perspective, the reference value approach has the advantage of simplifying and reducing the implementation costs of the current draft RTS allowing modelling flexibility to institutions which is contained by the reference value. This comes at the cost of possibly allowing a significant degree of variability among institutions. In this respect, it must be underlined that, one key aspect of the reference value approach and also main difference with supervisory add-on approach is the non-binding nature of the reference value. Institutions would, in fact, be put in a position to justify to competent authorities those situations where their downturn LGD estimates are below the reference value due to downturn economic conditions considerations. Thus, the reference value approach has the ability to better capture specificities of each single institution, but at the risk of a lower level of harmonisation, which remains in the hand of the competent authorities' assessment of justifications provided by the institutions.

The alternative of the supervisory add-on approach has the advantage of increased simplicity by dropping the requirement of finding links between internal LGDs and economic factors which can be very complex and demanding for small institutions with less available data. In this approach, the downturn discounting rate with fixed add-on is the option which seems to offer the maximum harmonisation and simplicity. This comes however at the cost of reduced risk sensitivity and so should be accompanied by a conservative calibration of the fixed add-on which acts as a floor. Furthermore, the application of this approach might not necessarily imply the specification of an

economic downturn as required by the current mandate from the CRR. In this respect, the consistency of this approach (and of its two options) with the CRR mandate will be carefully assessed taking into account various possible implementation strategies and possible combination with both the current draft RTS and the reference value approach which are discussed below.

Table 1 compares the alternative approaches considered in this section along key dimensions such as risk sensitivity, data issues, link to economic conditions, implementation costs and their ability to reach harmonisation of downturn LGD estimates.

Both alternative approaches have their disadvantages and merits. In light of the similarities between the reference value approach and the model component approach proposed in the draft RTS, which are both reflecting an economic factor approach, the EBA considers the reference value approach as the pragmatic alternative to the model component approach, although it is also the approach that is likely to have the highest degree of reliance on supervisory and institution judgement. Nevertheless the EBA maintains an open approach and seeks to gather industry feedback on the main approach as well as on all alternatives as well as on potential combination strategies which are discussed in the following section.

Alternative approaches complementarities and implementation strategies

In summary, aside the standard risk sensitive approach proposed in the draft RTS and in the section with proposed amendments to Section 6.7 of the GLs, two alternatives have been explored in order to reduce implementation costs. In this context, the reference value approach challenges the standard risk sensitive approach by providing more flexibility in the application of the specific solutions that are most appropriate in specific circumstances and reducing cost to institutions but maintaining higher variability. In this respect an additional option could be stem from the combination of the above alternatives; the supervisory add-on could be thought as potentially complementary to the proposed model component approach or even to the reference value approach:

- The downturn discounting rate with fixed add-on could be implemented, for example, as a fall-back approach for portfolios where an institution has limited data at its disposal or considers the costs of developing and maintaining a methodology for the identification of the economic downturn conditions (specified in the draft RTS) and the estimation of their impact on the LGD parameter (specified in the amendment to the GLs) as too high. In order to avoid gaming opportunities institution should chose once and for all whether to fall back to the downturn discounting rate with fixed add-on. Alternatively, it could be also used as well as the method to identify the reference value in the reference value approach.

- The distributional approach could also be thought, for example, as a sound methodology for estimating the margin of conservatism in the context of the proposed model component approach, where there is no or limited relation between economic factor and losses, and in the context of the reference value approach, for those cases where no downturn is observed in the data history.

- A combination of the two options for the supervisory add-on, where the downturn discounting rate with fixed add-on approach would work as a fall back option when institutions do not have sufficient data to properly apply the distributional approach, could be also be implemented as a stand-alone alternative to the proposed model component approach or as an alternative way to compute the reference value in the reference value approach.

A final solution may therefore use elements from all three proposals and are therefore not necessarily mutually exclusive. Given that all the approaches have their advantages and disadvantages, a combination of approaches may provide a sensible way forward. It is nonetheless useful for the EBA to collect views on the approaches, if implemented as stand-alone choices or even other alternatives.

At this stage the focus is on discussing the merit of alternative approaches with a view to identifying the optimal policy solution. While identifying the optimal solution, further analysis will also carried out on the extent to which any implementation of the approaches would be compatible with the current legal framework and what would require changes to that framework, together with the appropriate legal tools for implementation.

Table 1: Comparison of Reference Value and Supervisory add-on approach

	Reference Value approach	Supervisory add-on approach	
		a) Distributional approach	b) Downturn discounting rate with fixed add-on
Links to economic conditions	**Medium/High:** Preserve the economic factor approach by defining downturn economic conditions according to a minimum list of economic indicators. Anyway the reference value, linked to the highest observed credit losses, may or may not be linked to economic downturn conditions.	**Unclear:** Variability in the realised losses may be unrelated to economic conditions.	**Medium:** Use of prescribed downturn discounting rate (base rate + 10%) and prescribed add-on but consideration of time in-default component which are dependent from economic conditions.
Data issues	**Medium:** Might provide wrong incentives to institutions to collect short data history on realised losses.	**Medium:** Requires a minimum availability of data on recoveries in order to have robust statistical estimates.	**Low:** No additional data is required; calculation of the Add-on is made using the same reference data set used for long-run average LGD estimation purposes.
Harmonisation	**Low:** Flexibility left to institutions in choosing their own methodologies for identifying the relevant economic indicators, from a minimum list provided, as well as in estimating the final LGD/CF downturn. These are challenged by the introduction of a reference value which effectiveness relies on the judgmental approach by supervisory authorities. Harmonisation would be improved if the reference value is imposed as an hard floor.	**Medium:** Impose a standard calibration target to compute the Add-on.	**High:** Maximum harmonisation, same fixed add-on for all institutions used as a floor.
Risk sensitivity	**High:** Based on institution specific identification of downturn conditions and LGD downturn estimates.	**Medium/High:** Add-on is computed at estimation level and is institution and portfolio specific.	**Medium:** Risk sensitivity reflected only via the time in-default component which could penalise jurisdictions and markets whose recovery processes are longer.
Implementation costs	**Medium:** Cheaper to implement for institutions with respect to the model component approach but still requires some efforts: in terms of identification of downturn conditions; modelling of LGD downturn and providing sound justification to supervisors.	**Low:** No specific implementation costs since it relies on data which institutions use anyway for long-run average estimates.	**Low:** Institutions have to make estimation twice, once using normal discounting rate and once using downturn discounting rate.

Explanatory text for consultation purposes

Q15: What is your view on the alternative approaches? Please provide your rationale.

Q16: Which approach are you currently using for estimating downturn LGDs?

6. Accompanying documents

6.1 Draft cost-benefit analysis / impact assessment

The impact Assessment (IA) analyses the potential related costs and benefits of the policy provided in the draft RTS. This analysis shall provide the reader with an overview of the findings as regards the problem identification, the options identified to remove the problem and their potential impacts.

The following analysis consists basically of three parts. The first part analyses the baseline scenario in terms of institutions current practices, supervisory rules and practices and regulatory environment. The second part contains the options considered with respect to the major policy decisions included in the consultation paper. Finally, the draft cost-benefit analysis is based on the main policy changes in comparison with the current supervisory rules and practices, institutions current practices and regulatory environment.

A. Problem identification

The primary problem that the current RTS aim to address is the lack of common institutions and supervisory practices regarding the definition of downturn economic conditions for the purpose of the estimation of downturn LGD and CF. The downturn LGD calibration has been identified in the EBA reports on comparability and pro-cyclicality of risk weighted assets (RWA) as one of the key drivers of non-risk based variability of capital requirements. All issues that have been considered while developing these RTS refer to the identification and/or limitation of drivers of unjustified RWA variability in the context of downturn LGD and CF estimation.

These RTS, supplemented with an amendment to the GLs on how to compute a downturn LGD in a text box in section 4, is jointly expected to provide a more harmonised framework on the identification of downturn economic conditions, leading to more comparable RWA outcomes across institutions.

B. Policy objectives

The objective of the RTS is to establish convergence of institutions' methodological choices in identifying downturn economic conditions for the purpose of LGD and CF downturn estimates. These methodological choices are considered to be drivers of unjustified RWA variability and the harmonisation of the current practices that vary across Member States and institutions is expected to enhance comparability of own funds requirements.

The RTS aim to define common criteria in the major policy fields including:

- General approach to identify economic downturn conditions

- Scope of application of the RTS (Article 1)

- Identification of model components (Article 2)

- Identification of the nature of an economic downturn (Article 3)

- Duration of an economic downturn (Article 4)

- Identification of the severity of an economic downturn (Article 5)

C. Baseline scenario

The baseline scenario can be defined in terms of supervisory rules and practices, institutions current practices and regulatory environment.

The baseline scenario in terms of the supervisory expectations is specified on the basis of data collected from competent authorities for the purpose of the reports on comparability and pro-cyclicality of capital requirements published by the EBA in December 2013. These data have updated for what concern downturn LGD and CF supervisory rules and practices in December 2016 and are summarised in the table below.

Subject	Findings from Report on the comparability of supervisory rules and practices
Downturn LGD	Around half 45% (9 CAs) of the CAs define a rule concerning the methodology of downturn LGD. Among those CAs in 4 cases the rule is public and binding and, moreover, 7 CAs confirm that banks should base their downturn LGD estimates on historical scenarios with 3 of them specifying further that their methodology build also on hypothetical stressed scenarios, in particular for those cases where downturn period is not reflected in the historical series of the institutions. Moreover, 3 CAs mentioned the use of either margin of conservatism to address data issues or conservative add-on for those cases where the estimation made at institution level is not considered conservative enough.
Downturn CF	Only 30% of the CAs (6 CAs) define a rule concerning the methodology of downturn CF. Among those CAs only in one the rule is public and binding and, moreover, only 2 CAs confirm that banks should base their downturn CF estimates basing on historical scenarios with 1 of them specifying further that their methodology build also on hypothetical stressed scenarios for those cases downturn period is not reflected in the historical series of the institutions.

The baseline scenario concerning institution current practices, and so the scope and severity of potential model changes that will have to take place in the implementation of these RTS, can be preliminary assessed looking at results from the qualitative survey on internal ratings-based (IRB) models that has been launched by EBA in December 2016 with the aim of analysing the impact of

the EBA draft GLs. While the analysis of the responses is still being finalized some preliminary results show that that the majority of the institutions use historical values for both macroeconomic and credit factors in order to define downturn conditions in line with the economic factor approach proposed in these RTS. Among those institutions some also define downturn conditions according to expectations on macro-economic and credit factors, for example, because no sufficiently severe conditions have been observed in the past. The second most common approach is a credit losses approach where downturn economic conditions are defined according to the highest observed LGDs. Regarding the methodology used by the institution to determine LGD estimates that are appropriate for an economic downturn the most common approach reflect a model component approach where downturn LGD is obtained using the downturn period value for each model component or only for the relevant model components. Another common approach is instead that of applying a fixed downturn adjustments followed by the approach of considering downturn adjustment within the conservatism applied in the model development process.

In terms of the regulatory environment the baseline scenario for downturn LGD estimates is set out by the currently applicable Guidelines on the implementation, validation and assessment of Advanced Measurement (AMA) and Internal Ratings Based (IRB) Approaches (so called GL 10) published by CEBS in April 2006. These Guidelines define appropriate downturn conditions as those in which relevant drivers of default rates are consistent with conditions in which credit losses for the supervisory exposure class are expected to be substantially higher than average. This framework put emphasis on the correlation between default rates and recovery rates, in fact, if no material dependencies between default rates and recovery rates are identified the LGD downturn estimates may be based on the long-run average LGD. In this respect the draft RTS represents a material change compared to the Guidance provided in GL 10. As for downturn CF estimates there is no equivalent provision as the one contained in GL 10 for downturn LGD estimates, anyway, the CRR use the same wording for downturn LGD and CF where institutions should use LGD and CF estimates that are appropriate for an economic downturn if those are more conservative than the long run average.

D. Options considered

This section presents the assessment of the technical options considered in the RTS. Under each option, the potential advantages and disadvantages of the options together with potential costs and benefits are discussed

General approach to identify economic downturn conditions

The EBA has been mandated to draft RTS to specify the nature, severity and duration of an economic downturn (i.e. downturn economic conditions) applied for LGD and CF estimation, as set out in Article 181(3)(a) and 182(4)(a) of the CRR. The following options were considered for what concern the general approach for the identification of an economic downturn conditions.

Options	Advantages	Disadvantages
1. Credit losses approach: downturn conditions are defined as the period of time characterised by high level of realised credit losses/drawings.	- Simple and achieving high level of harmonisation.	- Short time series of internal realised losses/drawings. - Limited or lack of data on internal losses/drawings for some portfolios (e.g. low default). - Period of high losses might be due to idiosyncratic shocks and not related to downturn economic conditions.
2. Economic factor approach: downturn conditions are defined as period of time characterised by an unfavourable level of economic factors (i.e. both credit and macroeconomic indicators) influencing realised LGDs/drawings.	- Clear links with downturn economic conditions. - Longer data series for economic factors.	- Finding statistical relations between economic factors and realised LGDs/drawings may prove difficult due to the multimodal nature of realised losses/drawings.
3. Model component approach: economic factor approach applied at model component level.	- Clear links with downturn economic conditions. - Longer data series for economic factors - Easier to find dependency between economic factors and realised model components.	- Analysis at model component level is assessed to be more complex.

Notwithstanding the simplicity and the high level of harmonisation implicit in a direct estimation of downturn LGD and CFs using internal realised credit losses/drawings (option 1) the economic factor approach is deemed necessary under data availability and consistency with CRR considerations.[7] Moreover considering the multimodal nature of realised losses/drawings option 3 has been preferred to option 2.

Scope of application of the RTS (Article 1)

Regarding the scope of application of the RTS, i.e. identification of the nature, severity and duration of an economic downturn, the following options were considered.

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[7] The implication of the economic factor approach is that the economic downturn conditions, identified according to unfavorable level of economic factors, would then require to be translated into downturn LGD and CF estimates, the amendments to the GLs will cover this second step while the RTS will focus on the identification of economic downturn conditions.

Options	Advantages	Disadvantages
1. Institution level.	- Simplest and involving the lowest implementation costs.	- Less conservative due to diversification effect, i.e. lower downturn effect due to the effect of diversification when economic factors to which loss rate/realised drawings respond differ across exposure classes.
2. Type of exposures (i.e. scope of the LGD/CF model).	- In line with BCBS guidance (paragraph 468) where downturn conditions should be analysed separately for each regulatory asset class.	- Diversification effects if economic factors to which loss rate/realised drawings respond differ across grade or pools within the same type of exposure.
3. Grade or pools.	- Conservatively avoids diversification effects when economic factors to which loss rate/realised drawings respond differ across grade or pools within the same type of exposure.	- High implementation costs. - Potential data availability issues.

Option 2 has been evaluated as the most appropriate because it offers the reasonable balance between the simplicity and the conservativeness.

Identification of model components (Article 2)

For what concern the definition of model components for the purpose of the identification of downturn economic conditions the following options have been considered.

Options	Advantages	Disadvantages
1. Predetermined minimum list of model components to be tested.	- Simple and clear rule which avoids complex definition.	- Prescriptive approach which may not be appropriate to specific portfolios/institutions.
2. Principle based definition of model components as feature of realised losses describing the multimodal shape of realised LGDs and drawings.	- Not prescriptive and more adaptable to different to specific. portfolios/institutions. - Capturing the rationale for having the analysis done at model component level.	- Operational concerns if model components used for the identification of downturn conditions are different from the model components used in modelling LGD and CF.
3. Model components relevant for identification of downturn economic conditions correspond to	- Simple identification of model components.	- Does not capture the rationale of the model component approach, in fact, risk drivers used for

the model components used in modelling LGD and CF.	LGD estimations are not necessarily describing feature of the shape of the realised LGDs and drawings.

Option 2 is the preferred option because it captures the rationale of the model component approach allowing a meaningful identification of downturn economic conditions.

Identification of the nature of an economic downturn (Article 3)

Regarding the identification of the nature of an economic downturn the following policy options have been considered.

Options	Advantages	Disadvantages
1. Nature should be defined according to at least one economic factor.	- Simplest and least burdensome.	- Lack of harmonisation of institutions practices.
2. Nature should be defined according to at least one relevant economic factors + minimum list of economic factors to be tested for relevance.	- Simple - Harmonisation achieved in terms of the minimum list of economic factors to be considered.	- Flexibility left to institutions for what concern the assessment of the relevance of the economic factors.
3. Nature should be defined according to at least one relevant economic factors + minimum list of economic factors to be tested for relevance + qualitative and quantitative conditions to evaluate the relevance of the economic factors.	- Maximum harmonisation achieved, both in terms of minimum list of economic factors and evaluation of their relevance.	- Prescriptive and dependency analysis between economic factors and model component is considered to be burdensome.

Option 3 has been chosen as the option which ensures the highest level of harmonisation and comparability across institutions.

Duration of an economic downturn (Article 4)

Concerning the duration of an economic downturn the following options have been considered.

Options	Advantages	Disadvantages
1. One year	- Simple in both its implementation and supervision. - Ensure conservativeness. - Maximum comparability across institutions.	- Relevant length of downturn conditions may be specific for each portfolio.

		- Better linked with the severity defined according to the worst yearly value of the relevant economic factor.		
2. One year as a minimum backstop	- Simple in its implementation. - Able to capture specificities of each type of exposure.		- Not conservative, in fact, longer duration could effectively dilute the effect of downturn on LGD and CF estimates. - Less comparability across institution estimates.	
3. One year as a minimum backstop + qualitative criteria for having longer duration (i.e. institutions are able to show that it leads to more conservative results or if this is justified by the length of the workout period)	- Most risk sensitive. - Able to capture the specificities of each type of exposure.		- Complex approach where the duration of an economic downturn makes directly refers to specificities of the LGD or CF parameters (e.g. length of the workout process).	

For the sake of simplicity it has been decided in favour of option 1. This option, moreover, presents the advantages of maximizing conservativeness and comparability across institutions.

Identification of the severity of an economic downturn (Article 5)

Institutions are requested to identify the severity of the economic downturn according to the worst value of the relevant economic factor(s) observed in the past. Several policy options have been considered which differ according to the length of the historical data period considered for establishing the severity.

Options	Advantages	Disadvantages
1. Preceding 20 years	- Simple and comparable. - 20 years should generally cover 2 economic cycles.	- 20 years might not be enough to reflect sufficiently severe downturn economic conditions in all circumstances.
2. At least the preceding 20 years.	- Simple. - Allow to better capture specificities of each type of economic factor.	- Less comparability across institution estimates. - Does not prevent institutions to perform a mechanical analysis of the past 20 years. - It might not be enough to reflect sufficiently severe downturn economic

		conditions if the historical variability of the economic factors is not representative if the plausible variability of those factors in the future.
3. Sequential approach: Preceding 20 years + conditions for looking further back in the historical data.	- Better in ensuring that sufficiently severe downturn conditions are considered, i.e. guidance is provided on how to assess the appropriateness of the historical period on which the severity is assessed. - Improve comparability across institutions estimates.	- It might not be enough to reflect sufficiently severe downturn economic conditions if the historical variability of the economic factors is not representative if the plausible variability of those factors in the future.
4. Sequential approach: Preceding 20 years + conditions for looking further back in the historical data + conditions for forward looking approach.	- Best in ensuring that sufficiently severe downturn conditions are considered, i.e. severity can be defined also according to expectations on foreseeable developments of economic factors if historical observations are not showing sufficiently severe realisations of the economic factors.	- Complexity and subjective component introduced by the forward looking approach.

Balancing the advantages and the disadvantages of the options, the preferred option is the technical option 3.

E. Cost-Benefit Analysis

The guidance given in these RTS regarding the identification of economic downturn conditions will affect LGD and CFs modelling. Therefore it is expected that these RTS will lead to additional model steps, involving the identification and inclusion of economic downturn conditions, and in general to model changes.

However detailed assessment of the costs for institutions of these model changes and their impact on capital requirements is not possible as the current flexibility of the IRB Approach does not allow a definition of a common baseline scenario regarding current modelling choices from a institutions perspective. It is expected that the impact of these RTS, and the amendments to the GLs, on individual institutions will vary depending on the currently implemented solutions.

However, the main costs of implementation of these draft RTS are considered to have the nature of one-off costs covering:

- the training of the staff on these RTS (and amendments to the GLs),

- the (re)development of the necessary model steps for including downturn conditions in the LGD and CF estimates,

- the IT specification and implementation of the reviewed models,

- the costs for the regulatory approval process.

As the latter type of costs will depend on the severity of the expected model changes due to the modelling of LGD downturn, the EBA has issued a qualitative survey to institutions to assess the amount and severity of model changes expected. However, when analyzing these costs of implementation it has to be kept in mind that the other regulatory products, in particular the RTS on assessment methodology the RTS on materiality threshold and the GLs, within EBAs review of the IRB Approach will also trigger material model changes, which are expected to be handled together with the model changes arising from these draft RTS to the extent possible. While the analysis of the responses is still being finalized the preliminary results from this survey show current institution practices which seem quite aligned with the approach proposed in this RTS. As described in section c on baseline scenario, preliminary results show that the majority of the institutions uses historical values for both macroeconomic and credit factors in order to define economic downturn conditions, in line with the economic factor approach proposed in these RTS. Moreover, the methodology used by the institution to determine LGD estimates that are appropriate for an economic downturn seems to reflect a model component approach for the majority of the institutions. While this seems to suggest that the main policy proposal of these RTS go in the direction of the practices currently in use by the majority of institutions it does not exclude substantial implementation costs for the remaining institutions.

Before having final results on the current practices of the institutions for what concern downturn LGD estimates from the IRB survey the expected impact of these RTS can be assessed on the basis of:

- the differences between the policy proposals included in the draft RTS and the current supervisory practices for what concern downturn LGD and CF estimates.

- the changes proposed to the current regulatory environment, in particular, with regard to the currently applicable GL 10 for what concern the downturn LGD estimates.

Both in fact can serve as a proxy to assess the nature of the expected changes.

The baseline scenario in terms of current supervisory rule and practices provides only very limited information for assessing the impact. Anyway among those national competent authorities claiming to define a rule concerning the methodology of downturn LGD and CF the majority confirms that institutions should base their downturn LGD and CF estimates on historical scenarios in line with the current draft RTS. While it is hard to evaluate the draft RTS impact on institutions on the basis of this baseline scenario it is clear that the draft RTS will represent a material change shaping supervisory expectations.

For what concern the current regulatory environment the impact of these RTS may, for what concern the estimation of downturn LGD, be assessed by analyzing the scope of the changes in comparison to the GL 10. In fact, the changes in the policy reflected in the RTS relatively to GL 10 will provide an initial indication of the direction and scope of the changes that will have to be introduced in the LGD models of the institutions. The main area where an explicit change in policy relatively to GL 10 is proposed concerns the identification of the nature of economic downturn conditions. The RTS proposes an economic factor approach where downturn conditions are defined according to both relevant macroeconomic and credit factors (where relevance is defined according to their dependency with features of realised losses) rather than according to the adverse dependencies between default rates and recovery rates. In this respect the draft RTS represents a material change compared to the Guidance provided in GL 10. In the light of these differences it is expected that the policy proposal included in the draft RTS may have significant impact on the identification of the downturn economic conditions at least for some of the institutions. In general, as the currently proposed RTS (and proposed amendments to the GLs) provide more prescriptive requirements with regard to estimating downturn LGD it is expected to lead to material implementation costs for the institutions.

6.2   Overview of questions for consultation

Q1: Do you have any concerns around the workability of the suggested approach (e.g. data availability issues)?

Q2: Do you see any significant differences between LGD and CF estimates which should be reflected in the approach used for the economic downturn identification?

Q3: Is the concept of model components sufficiently clear from the RTS? Do you have operational concerns around the proposed model components approach?

Q4: Do you have any concerns about the complexity around the dependency approach proposed for the identification of the nature of an economic downturn? Is it sufficiently operational?

Q5: Do you agree with the proposed approach for computing the time series of the realised model component referring to the realisation of the model component rather than to the year of default?

Q6: Do you envisage any situation where a one year duration is not suitable of capturing the economic downturn at the economic factor level?

Q7: Do you have any concerns about the approach proposed for the identification of the severity of an economic downturn? Is it sufficiently operational?

Q8: Do you think that more details should be included in Article 2(3) for the purposes of the evaluating whether sufficiently severe conditions are observed in the past?

Q9: Do you think Article 6 should pin down the steps for the joint impact analysis described in this text box?

Q10: Do you have any concern around the proposed approach about the identification of the final downturn scenario?

Q11: Do you see any issue with the estimation of the model components for downturn periods which are not in the data base of the institution (e.g. in step 3 the case where the estimation of cure rate for 2001 is performed on the basis of the dependency assessment described in Article 3(2)(e) and (f))?

Q12: Do you think the same approach for the identification of the final downturn scenario proposed in this text box for LGD could be adopted also for the purpose of downturn CF estimation?

Q13: Do you think the draft GLs should describe in more detail the downturn adjustment methodology?

Q14: Do you think simpler alternative approaches for downturn adjustment should be considered in the spirit of proportionality?

Q15: What is your view on the alternative approaches? Please provide your rationale.

Q16: Which approach are you currently using for estimating downturn LGDs?