Chapter 4

Credit risk

4.8 Internal ratings based approach: own estimates of exposure at default (EAD)

Estimation of EAD in place of conversion factors

4.8.1 G The *FCA* considers that a *firm* may provide own estimates of *exposure* at default (EAD) in place of the own estimates of conversion factors (CFs) that it is permitted or required to provide under article 151 of the *UK CRR*.

4.8.2 G For the purpose of this section, references to EAD refer to both direct estimates of EAD and CFs, unless specified otherwise (see article 151 of the *UK CRR*).

General expectations for estimating EAD

4.8.3 G The *FCA* expects that EAD estimates should not be less than current drawings (including interest accrued to date). Consequently, CF estimates should not be less than zero.

4.8.4 G The EAD required for IRB purposes is the *exposure* expected to be outstanding under a borrower's current facilities should it go into default in the next year, assuming that economic downturn conditions occur in the next year and a *firm's* policies and practices for controlling *exposures* remain unchanged other than changes that result for the economic downturn conditions.

4.8.5 G To achieve sufficient coverage of the EAD, the *FCA* expects *firms* to take into account all facility types that may result in an *exposure* when an obligor defaults, including uncommitted facilities.

4.8.6 G To the extent that a *firm* makes available multiple facilities, the *FCA* expects the *firm* to be able to demonstrate:

(1) how they deal with the fact that *exposures* on one facility may become *exposures* under another on which the losses are ultimately incurred; and

(2) the impact of its approach on its *own funds requirements*.

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4.8.7 G The *FCA* expects *firms* using own estimates of EAD to have done the following in respect of EAD estimates:

(1) applied EAD estimates at the level of the individual facility;

(2) where there is a paucity of observations, ensured that all EAD estimates are cautious, conservative and justifiable. In accordance with article 179(1)(a) of the *UK CRR*, estimates must be derived using both historical experience and empirical evidence, and must not be based purely on judgemental consideration. The *FCA* expects the justification as to why the *firm* thinks the estimates are conservative to be documented;

(3) identified and explained at a granular level how each estimate has been derived. This should include an explanation of how internal data, any external data, expert judgement or a combination of these has been used to produce the estimate;

(4) ensured that where expert judgement has been used there is clear communication of the process for arriving at and reviewing the estimates, and identifying the parties involved;

(5) demonstrated an understanding of the impact of the economic cycle on exposure values and be able to use that understanding in deriving downturn EAD estimates;

(6) demonstrated sufficient understanding of any external benchmarks used and identified the extent of their relevance and suitability to the extent that the *firm* can satisfy itself that they are fit for purpose;

(7) evidenced that they are aware of any weaknesses in their estimation process and have set standards that their estimates are designed to meet (eg, related to accuracy);

(8) ensured, in most cases, that estimates incorporate effective discrimination on the basis of at least product features and customer type. In cases where these drivers are not incorporated into EAD estimates, the *FCA* expects the *firm* to be able to demonstrate why they are not relevant;

(9) have an ongoing data collection framework to collect all relevant internal *exposure* data required for estimating EAD and a framework to start using this data as soon as any meaningful information becomes available;

(10) made use of the data they are collecting to identify all relevant drivers of EAD and to understand how these drivers will be affected by a downturn; and

(11) identified dependencies between default rates and conversion factors for various products and markets when estimating downturn EADs. *Firms* are expected to consider how they expect their own policies regarding exposure management to evolve in a downturn.

4.8.8 G The *FCA* uses a framework for assessing the conservatism of *firms*' wholesale EAD models for which there are a low number of defaults. This framework is set out in ■ IFPRU 4 Annex 2G (Wholesale LGD and EAD framework). This

framework is in the process of being used to assess the calibration of *firms*' material EAD models for low-default portfolios.

4.8.9 G In the following cases, the *FCA* expects *firms* to determine the effect of applying the framework in IFPRU 4 Annex 2G (Wholesale LGD and EAD framework) to models which include EAD values that are based on fewer than 20 'relevant' data points (as defined in IFPRU 4 Annex 2G):

(1) the model is identified for review by the *FCA*; or

(2) the *firm* submits a request for approval for a material change to its EAD model.

Time horizon

4.8.10 G The *FCA* expects *firms* to use a time horizon of one year for EAD estimates, unless they can demonstrate that another period would be more conservative.

4.8.11 G EAD estimates can be undertaken on the basis that default occurs at any time during the time horizon (the 'cohort approach') or at the end of the time horizon (the 'fixed-horizon approach'). The *FCA* considers that either approach is acceptable in principle.

4.8.12 G The *FCA* expects the time horizon for additional drawings to be the same as the time horizon for defaults. This means that EAD estimation need cover only additional drawings that might take place in the next year, such that:

(1) no *own funds requirements* need be held against facilities, or proportions of facilities that cannot be drawn down within the next year; and

(2) where facilities can be drawn down within the next year, *firms* may, in principle, reduce their estimates to the extent that they can demonstrate that they are able and willing, based on a combination of empirical evidence, current policies, and documentary protection to prevent further drawings (see article 182 of the *UK CRR*).

Direct estimates of EAD

4.8.13 G There are a range of approaches that focus on the total amount that will be drawn down at the time of default and directly estimate EAD. Typically, but not in all cases, these will estimate EAD as a percentage of total limit. These approaches can be described collectively as 'momentum' approaches.

4.8.14 G A 'momentum' approach can be used either:

(1) by using the drawings/limit percentage to formulaically derive a conversion factor on the undrawn portion of the limit; or

(2) by using the higher of percentage of the limit and the current balance as the EAD.

4.8.15 G The *FCA* considers that the use of momentum approaches in both of the ways outlined above is acceptable in principle as an alternative to direct estimation of conversion factors (see article 4(56) of the *UK CRR*).

Distortions to conversion factor estimates caused by low undrawn limits

4.8.16 G In cases where *firms* estimate conversion factors (CFs) directly using a reference data set that includes a significant number of high CFs as a result of very low undrawn limits at the observation date, the *FCA* expects *firms* to:

(1) investigate the distribution of realised CFs in the reference data set;

(2) base the estimated CF on an appropriate point along that distribution, that results in the choice of a CF appropriate for the *exposures* to which it is being applied and consistent with the requirement in article 179 of the *UK CRR* for estimates to include a margin of conservatism related to errors; and

(3) be cognisant that, while the median of the distribution might be a starting point, they should not assume without analysis that the median represents a reasonable unbiased estimate. The *FCA* expects *firms* to consider whether the pattern of distribution in realised CFs means that some further segmentation is needed (eg, treating facilities that are close to full utilisations differently) (see article 182(1)(a) of the *UK CRR*).

Identification of exposures for which an EAD must be estimated

4.8.17 G The *FCA* expects *firms* to treat a facility as an *exposure* from the earliest date at which a customer is able to make drawings under it.

4.8.18 G Where the facility is of the type that it is customary not to advise the borrower of its availability, the *FCA* expects an EAD/CF to be applied from the time that the existence of the facility is recorded on the *firm's* systems in a way that would allow the borrower to make a drawing.

4.8.19 G If the availability of a facility is subject to a further credit assessment by the *firm*, an EAD/CF may not be required. However, the *FCA* expects this to be the case only if the subsequent credit assessment was of substantially equivalent rigour to that of the initial credit approval and if this includes a re-rating or a confirmation of the rating of the borrower.

4.8.20 G *Firms* are not expected to include in their EAD/CF estimates the probability of increases in limits between observation and default date. If the reference data set includes the impact of such increases, the *FCA* expects *firms* to be able to adjust their estimates accordingly with the aim of assessing what the *exposure* would have been at default if the limit had not been increased.

4.8.21 G The *FCA* expects *firms* to investigate the incidence of *exposures* existing at default that arise from products or relationships that are not intended to result in a credit exposure and, consequently, have no credit limit established

against them and are not reflected in their estimates of EAD. Unless such *exposures* are immaterial, the *FCA* expects *firms* to estimate a Pillar 1 *own funds requirement* on a portfolio basis to such *exposures*.

4.8.22 G The *FCA* expects *firms* to investigate how their EAD estimates are impacted by exposures that are in excess of limits at either the observation date (if in the reference data set) or at the current reporting date (for the existing book to which estimates need to be applied). Unless a momentum approach is being used, exposures in excess of limit should be excluded from the reference data set (as the undrawn limit is negative and nonsensical answers would result from their inclusion). The *FCA* expects *firms* to ensure that their EAD estimation includes the risk of further drawings on accounts that are in excess of their limits (see article 4(56) of the *UK CRR*).

Accrued interest

4.8.23 G *Exposures* include not only principal amounts borrowed under facilities but also interest accrued which will fluctuate between payment dates. To ensure proper coverage of interest, the *FCA* expects *firms* to take the following approach:

(1) accrued interest to date should be included in current *exposure* for performing *exposures*;

(2) *firms* may choose whether estimated increases in accrued interest up to the time of default should be included in LGD or EAD;

(3) in the estimation of EAD, increases in accrued interest may be offset against reductions in other outstandings;

(4) estimation of changes in accrued interest needs to take account of changes in the contractual interest rate over the time horizon up to default and in a way consistent with the scenario envisaged in the calculation of the downturn/default weighted average;

(5) inclusion of estimates of future post-default interest is not necessary in either EAD or LGD; and

(6) *firms*' accounting policies will determine the extent to which interest accrued to date is reflected in current exposure as opposed to LGD for defaulted *exposures* (see article 166(1) of the *UK CRR*).

Netting

4.8.24 G The *FCA* considers that there is scope within the *UK CRR* for a *firm* to recognise on-balance sheet netting (including in respect of cross-currency balances) through EAD as an alternative to LGD in cases where a *firm* meets the general conditions for on-balance sheet netting, as set out in article 205 of the *UK CRR*.

4.8.25 G For the CF on undrawn limits, this may be applied on the basis of the net limit, provided the conditions in the *UK CRR* for the use of net limits are met. However, *firms* are reminded that the purpose of the measure is to estimate the amount that would be outstanding in the event of a default. This implies that their ability, in practice, to constrain the drawdown of

credit balances will be particularly tested. Moreover, the *FCA* expects the appropriate conversion factor to be higher as a percentage of a net limit than of a gross limit.

4.8.26 G The lower the net limit as a percentage of gross limits or *exposures*, the greater will be the need on the part of the *firm* to ensure that it is restricting *exposures* below net limits in practice and that it will be able to continue to do so should borrowers encounter difficulties. The application of a zero net limit is acceptable in principle but there is, consequently, a very high obligation on the *firm* to ensure that breaches of this are not tolerated (see article 166(3) of the *UK CRR*).

Underwriting commitments

4.8.27 G Estimation of CFs on underwritten facilities in the course of primary market syndication may take account of anticipated sell down to other parties.

4.8.28 G *Firms* are reminded that, since the basis of EAD estimation is that default by the borrower is expected to take place in a one-year time horizon and quite possibly in downturn conditions, the *FCA* expects any reduction in their CF in anticipation of syndication to take account of this scenario (see article 4(56) of the *UK CRR*).