

Bank of England PRA

Appendix 12: Tables of examples of the use of proposed safeguards and MLAs

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Tables of examples of the use of safeguards and model limitation adjustments

Tables 1-5 provide sets of examples of the use of safeguards and model limitation adjustments (MLAs) under the new framework. The examples and timelines in these tables are purely intended as general illustrations of how the policy might be applied in those circumstances. The PRA's approach in will depend on the specific circumstances in any given case.

Table 1: Examples where the proposed safeguards may be used

Example	Timeline
<p>A. A firm with permission to use an internal model (IM) for credit risk seeks to invest in a new illiquid asset class and needs to build experience of the asset and obtain relevant data with which to improve modelling of the associated risks. The PRA discusses this with the firm and uses a requirement safeguard to allow the firm to invest up to certain limits on the firm's risk exposure for a suitable period of time to mitigate this model limitation.</p>	<p>Three to five years</p>
<p>B. A firm has permission to use an IM and, some time after IM permission was granted, a greater than anticipated dependency becomes apparent between premiums and interest rates for a particular line of business, which is not part of the modelling. The firm informs the PRA, who uses a requirement safeguard to restrict the growth in premiums for such a line of business whose solvency capital requirement (SCR) is more sensitive to market risk, alongside a waiver or modification of Solvency Capital Requirement – Internal Models 10.3 for this line of business for the period during which the safeguard is in place so that the firm would not be in breach of that requirement. The PRA will explain in writing that the premium risk modelling must allow for this dependency on interest rate level for the safeguard to be removed, and the firm puts in place a credible IM development plan. By doing so, the PRA is giving the firm an opportunity to develop its IM to reflect adequately the risk from increased exposure in the particular line of business. The residual model limitation (RML) would not affect the calibration standards at this stage, but could do so in the future if the problem persisted.</p>	<p>One year</p>

Table 1: Examples where the proposed safeguards may be used

Example	Timeline
<p>C. A firm with permission to use an IM puts in place risk mitigation that represents good risk management, but the IM for counterparty risk is relatively under-developed. The sophistication of the counterparty risk IM module was not such a relevant risk until now. However, it now results in an RML. The firm informs the PRA, who is satisfied that the firm can allow for the risk mitigation in its SCR calculation until its under-developed IM is brought up to standard, provided it is supported by safeguards. The safeguards applied are an RML capital add-on (RML CAO) and a requirement safeguard limiting further material exposure to that counterparty. The safeguard continues to apply while the firm further develops its IM to address the RML highlighted. The degree of under-development is considered residual and capable of being addressed by the firm. The IM is otherwise compliant with relevant requirements.</p>	Two to three years
<p>D. The PRA identifies, as part of the internal model ongoing review (IMOR) framework, an RML relating to the modelling of insurance risk of a new class of business (where a firm's data is scarce and its modelling method is simplified). The PRA assesses that the calibration is too uncertain as to conclude that the calibration standards are met. The PRA applies an RML CAO to address the uncertainty around the compliance with the calibration standards and ensure compliance with those standards.</p>	Three to five years

Table 2: Examples where safeguards would not be appropriate

A. The PRA identifies a deficiency with a firm's modelling of credit risk as part of IMOR. The firm has invested materially in a bespoke new asset class with significantly different risks to its existing portfolio but continues to use its existing credit model. This credit model does not cover sufficiently the risks inherent in this new asset class. The deficiency is significant and cannot be classified as 'residual' given its large impact on the overall SCR. A safeguard (RML CAO) would not be appropriate in this case, since there is a significant deviation in the risk profile of the firm from the assumptions underlying the SCR.

B. A firm applies for permission to use an IM and the PRA identifies a number of RMLs relating to many of the key assumptions underpinning the methodology. None of the RMLs individually represent significant IM deficiencies. However, the volume of the RMLs and the fact that they apply to many of the key modelling assumptions, suggests that there is a significant deficiency in compliance with the model requirements. In this case, a safeguard would not be appropriate, and the IM application is rejected.

Table 3: Examples where firms may propose MLAs

Example	Timeline
<p>A. The firm's IM cannot practically run a large enough number of simulations to demonstrate convergence of the SCR. The firm documents the approach used to calibrate an MLA based on the estimated uncertainty interval in a timely way and to a good standard, and identifies the MLA separately in its AoC exercise. The underlying risk profile deviation addressed by the MLA is not significant. The firm reports the MLA as a minor model change. The PRA reviews the MLA as part of the AoC. When technology or IM improvements become available in the future, the firm reviews whether it could increase the number of simulations and remove the MLA.</p>	Five to seven years
<p>B. The PRA identifies an RML in a firm's credit risk IM during pre-application, which understates the SCR to a small extent, resulting in an IM residual deviation. The firm proposes and documents an MLA to increase its SCR so that it complies with the calibration standards (Solvency Capital Requirements – General Provisions 3.3 and 3.4). The MLA facilitates granting of permission to use an IM in line with the firm's</p>	One to three years

Table 3: Examples where firms may propose MLAs

Example	Timeline
<p>own proposed application timelines. It develops the credit IM further at a later date.</p>	
<p>C. As part of the IMOR framework, the PRA identifies model drift driven by weakness in a firm’s reserve risk calibration. The firm agrees with the PRA’s concern, and calibrates and documents an MLA, and puts in place a credible plan to update and validate the reserve risk calibration. When the IM weakness is addressed by a minor model change, the firm discusses with the PRA the removal of the MLA.</p>	One to three years
<p>D. A firm considers that its risk profile (by credit rating) requires it to increase the granularity of its IM such that the matching adjustment Fundamental Spread (FS) in stress uses notched credit ratings. This may be as a consequence of the proposed introduction of a notched FS as part of the Solvency II reforms. This particular firm considers that there may be a resulting increase in its SCR. While an estimate is possible, full implementation is not straightforward and may take some time. In the meantime, an MLA could allow this firm to remain compliant with the calibration standards while undertaking necessary IM development. The firm applies the MLA, and then determines whether the resulting change from the model development is minor or major, in line with its model change policy. If the latter, the firm eventually submits an application to vary its permission for a major model change.</p>	Three to five years
<p>E. There is an announcement that Ogden rates could significantly change within the next three months. A firm likely to be affected proposes and documents an MLA, which it deems to be a minor model change in line with its IM change policy, to address the uncertainty in the SCR that may be driven by this announcement of a proposed change, and includes this in its submission of quarterly model change information to the PRA. The firm was in the process of submitting an IM change application, and also informs its supervisory team at the PRA about the MLA as part of its IM change application, which reviews the MLA as part of the application. Since the uncertainty relating to potential changes in Ogden rates has been addressed by the MLA prior to the submission of the planned major model change application, there is no need to delay the PRA’s</p>	One to three years

Table 3: Examples where firms may propose MLAs

Example	Timeline
<p>consideration of the IM change application. The firm subsequently reviews the MLA after changes are made to the Ogden rates.</p>	
<p>F. The PRA identifies an RML in an application for an IM to calculate the consolidated group SCR. The RML relates to the longevity risk module, which is not adequately calibrated for the risk in an overseas insurance subsidiary, resulting in the consolidated group SCR being understated. The participating undertaking agrees to calibrate and document an MLA for the longevity risk in the overseas insurance subsidiary and puts in place a credible plan to further develop the longevity risk IM.</p>	<p>One to three years</p>

Table 4: Examples where MLAs would not be appropriate

<p>A. A firm has carried out limited validation tests which fail to assess the level of calibration of the SCR as part of its application for permission to use an IM. As a result, the firm is in breach of the validation internal model requirements. It proposes to compensate for this weakness with an MLA on the SCR. This would be an inappropriate use of an MLA because as MLAs are part of the IM, rather than safeguards, they cannot mitigate non-compliance with the internal model requirements.¹</p>
<p>B. A firm seeks to invest in a new illiquid asset class for which it has limited relevant data with which to model the associated risks. Therefore, the PRA is concerned over whether the firm is in breach of the statistical quality standards under the internal model requirements. The firm proposes to apply an MLA to mitigate against the lack of data. This would be an inappropriate application of an MLA because MLAs do not mitigate non-compliance with the internal model requirements.</p>

¹ Under the proposed new framework, without the use of a safeguard, an IM would need to meet all internal model requirements .

Table 5: Scenarios outlining the mitigating effect of proposed safeguards and MLAs

Scenario	Example	Mitigant
A. Establish the basis on which an IM complies with the calibration standards and internal model requirements, to prevent future non-compliance.	The PRA considers that a firm's IM complies with the calibration standards and all internal model requirements, but only if the firm stays below a defined level of exposure to a particular risk.	Requirement safeguard would limit the firm's exposure to the risk.
B. Ensuring an IM's compliance with the calibration standards.	The PRA considers that a firm's IM complies with all internal model requirements, but its calibration and hence SCR for certain risks is too low.	An RML CAO (ie set by the PRA) or an MLA (ie included by the firm as part of a firm's IM design) could be used to uplift the SCR.
C. Mitigate for non-compliance with internal model requirements, where the data is such that statistical quality standards are not met and the calibration is too uncertain to conclude that the calibration standards are met.	Incomplete data could mean a firm cannot demonstrate it meets the statistical quality standards. This results in uncertainty about whether the calibration standards are met.	An RML CAO could be used to uplift the SCR to remedy the uncertainty about whether the calibration standards are met, and to mitigate the non-compliance with internal model requirements. However, in certain circumstances the non-compliance with the internal model requirements could not be mitigated solely with an RML CAO since the statistical quality of the data would not improve. Therefore, a risk exposure limit may be necessary to prevent the risk relating to the IM's non-compliance from becoming material and therefore outside of the PRA's tolerance.