Solvency UK

Internal models: model limitation adjustment

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Distinguishing true model risk

Models are indispensable tools in insurance risk management, enabling firms to quantify exposures, inform strategic decisions and meet regulatory expectations. Yet, models by their nature are simplifications of reality and inevitably contain limitations. Some intentional to maintain practicality, others unintentional and requiring mitigation.

These limitations are often addressed through mechanisms commonly referred to as “overlays”, “manuals” or “out-of-model-adjustments”. However, the broad use of these terms can lead to ambiguity in distinguishing between practical implementation choices and genuine model risk concerns. For example, some adjustments merely reflect the implementation of a valid method in an alternative system, while others represent corrective interventions to address deficiencies in the model.

To facilitate greater transparency and rigour, the PRA has introduced Model Limitation Adjustments (‘MLA’) within the Solvency UK framework for Internal Model firms. MLAs are defined as capital adjustments to address residual limitations within Internal Models to comply with the Solvency Capital Requirement (‘SCR’) standards. This article examines what should be identified as an MLA and how it fits into the wider Internal Model Framework.

What are the regulatory requirements

In addition to some guidance for identifying MLAs, the PRA has also set out two related key requirements:

Model Change Policy Updates

The PRA has specified that Internal Model insurers should set out the framework for how MLAs will be used in the Model Change Policy including the process of monitoring and managing MLAs.

A transition period is currently in place where firms can update their Model Change Policy to allow for this now, prior to PRA approval, subject to approval requests being submitted by 31 December 2026.

SCR Analysis of Change Reporting

The PRA’s new requirement for an Analysis of Change (‘AOC’) of the SCR requires Internal Model firms to include an assessment of how the value of MLAs has evolved over the reporting period. This will require insurers to provide deeper insight into the adjustments applied, supported by a clear narrative explaining the drivers behind period-on-period movements.

It will be important to contextualise this figure within the overall change in the SCR result. On its own, the MLA value may appear volatile and may not correlate with prior period figures, particularly where new MLAs are introduced or existing ones are removed as part of model enhancements.

What is and isn't an MLA

MLAs are not a panacea. They cannot transform a fundamentally flawed model into a sound one. Instead, they should serve as temporary mitigants, enabling the continued use of a model while longer-term solutions are developed. The PRA's guidance under Solvency UK places emphasis on distinguishing between permanent features, which must be embedded within the model and governed accordingly, and temporary adjustments which may be considered as MLAs.

Industry interpretation of MLAs has matured considerably over the past year. A more consistent understanding is emerging, with convergence on the principle that firms should maintain a lean MLA footprint – typically only a small number of MLAs in use at any given time – indicative of sound model governance.

A well embedded and understood MLA process is characterised by the firm's ability to articulate, with clarity and confidence, the rationale behind their classification decisions.

Below is a summary of representative examples illustrating how firms are distinguishing between adjustments that are MLAs and those that are not.

Determining if an adjustment is an MLA or not is not always black and white. It requires informed judgement, and above all, transparency – both within the firm and in communication with the PRA.

In the following section, we then examine case studies that highlight the nuanced nature of these decisions and practical challenges firms could expect in applying the MLA framework.

It remains to be seen whether the industry's approach to MLAs will fully align with the PRA's expectations. Nonetheless, firms should remain prepared to refine their approach in response to feedback as the PRA reviews the information submitted.

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Not MLAs

Aspects of the model that reflects the approved Internal Model methodology:

- Expert judgement.
- Limitations where there are no practical or proportionate alternatives.
- Adjustments of errors implemented in a way that does not introduce additional significant approximations.
- Use of alternative software platforms or implemented outside the core system.
- Limitations below materiality threshold.

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MLAs

Temporary adjustments to allow for:

- Items not yet subject to formal Internal Model governance of part of approved methodology.
- Changes in circumstances (environment, risk profile, acquisitions, disposals) to achieve regulatory compliance.
- MLAs and other adjustments agreed with the PRA.

Case studies

Case study 1 :

Investment in a new asset class

An insurer decides to make a material investment in a new asset class. The existing Internal Model is not appropriate to capture the risks associated with this asset class.

The primary challenge is to determine what relevant data is available for this new asset class and how quickly it can be deemed credible for model calibration.

- If it is likely that data will become available within a reasonable timeframe, an MLA can be considered as an interim measure. Once data is available for a reliable calibration, the model would be updated and the MLA removed.
- If data will not become available within a reasonable timeframe, the risks should be managed through expert judgement and governance.
- Other safeguards such as volume restrictions to the asset class exposure should also be considered in this situation.

Any judgments made must be monitored for ongoing appropriateness, especially as new data emerges.

Case study 2 :

Model error is discovered

Most errors tend to have an obvious and implementable solution. A key consideration is whether an error correction or overlay implemented introduces significant additional limitations.

- If the error is identified with sufficient time to update the model, the overlay would be a direct correction of the error and subject to sufficient governance to be part of the modelled result rather than an MLA.
- However, if the error is discovered late and requires an approximate solution (e.g. it could potentially introduce additional significant noise on scenario ranking) or approved through alternative governance routes, then it may need to be classified as an MLA.

Case studies (cont.)

Case study 3 :

Choice to use a simpler model than is available

Insurers sometimes use simplified modelling techniques for practical reasons as it may not be proportionate to implement a technically superior solution.

In most cases, choosing to use a simpler model than is available will add additional noise to outputs compared with full implementation and it is critical that the size of this impact can be robustly estimated and justified. If this justification is not possible, a MLA would not be suitable and other safeguards or model updates will be required.

If any impacts can be justified there is a direct plan to move to an alternative, then an MLA would be considered as an interim measure until the model is updated. However, if there is no direct plan to move to a more complex model then significant judgement is required to decide whether an MLA is appropriate.

Case study 4 :

Validation findings

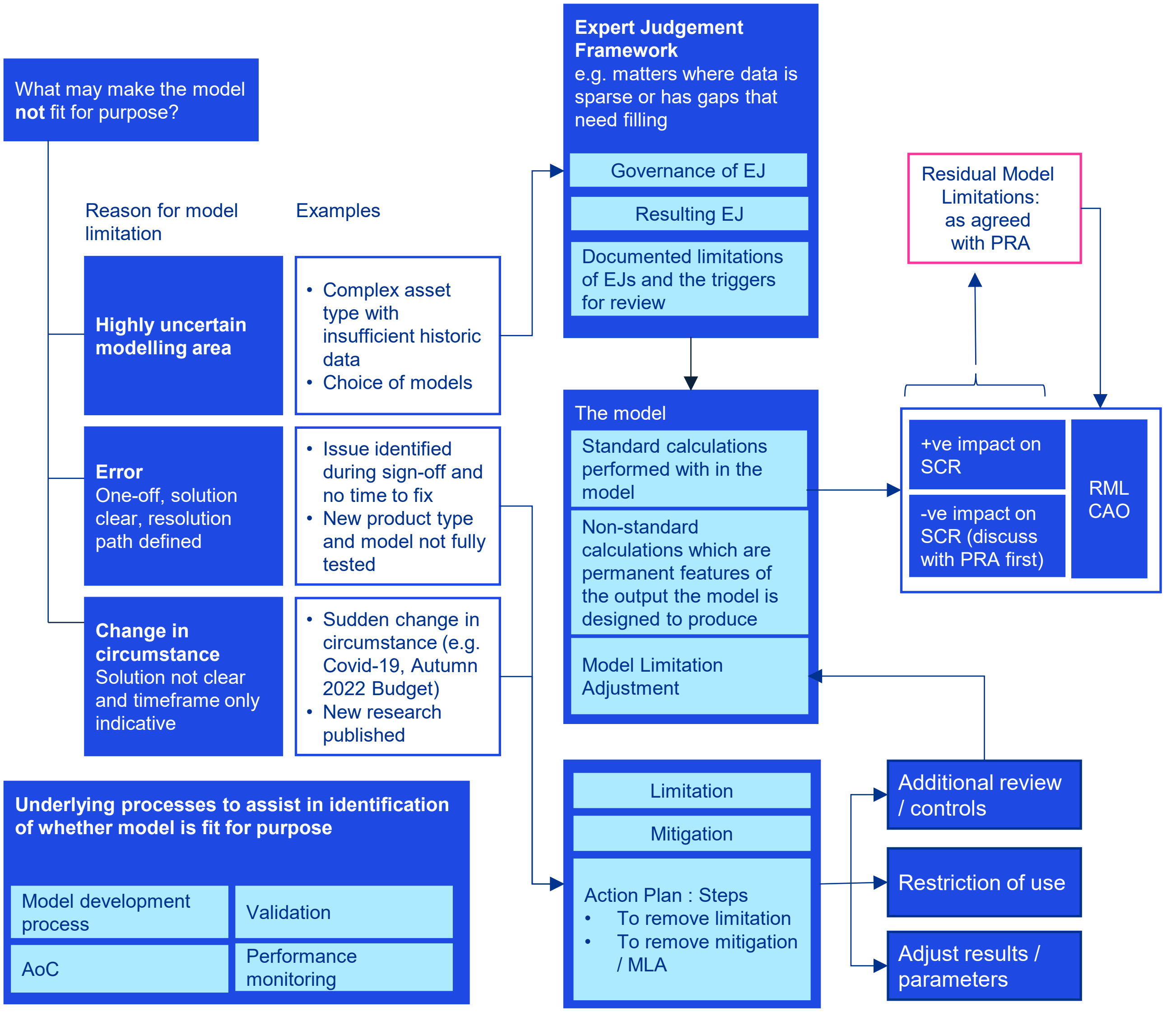
Validation findings can cover many underlying items of modelling, including method, data, assumptions, documentation and governance.

In our experience, all validations findings tend to have potential resolution paths, such as model change or further investigation.

An MLA could be a mitigant prior to resolving the finding. Other mitigants can also be implemented as a temporary measure, such as restriction on use and additional governance.

MLAs and the wider Internal Model Framework

We have set out below a potential framework for identifying MLAs and how this would fit into a firm's wider Internal Model framework. This framework begins by identifying the cause of the limitation and then guides how it should be accounted for across model components and where action is required.



Extending MLA principles beyond Internal Models

MLAs mark a strengthening in model risk governance under Solvency UK. For Internal Model firms, MLAs enhance transparency and provide a structured mechanism for addressing residual model limitations. As industry practices mature and PRA feedback arrives, a consistent approach to MLAs is expected to emerge.

In the meantime, insurers should proactively evaluate their models, refine their MLA frameworks, and ensure alignment with evolving expectations.

While MLAs currently apply only to Internal Models, the underlying principles of rigour, transparency, and governance are equally relevant across broader modelling activities.

Embedding these principles in broader risk management frameworks will strengthen overall model risk management and support more resilient decision-making.

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