

Practical Issues of a Model Review

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Some useful prompts and real world examples

Agenda

- ▶ Introduction
- ▶ What does model validation look like?
- ▶ What do I need to consider
- ▶ Where is the market?
- ▶ Practical issues
- ▶ Example findings

Please note these slides are based on an individual's views and should not be relied upon by anyone for any purpose....

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What does validation look like?

A high level view

- ▶ Q1: Which results are being validated and are in-scope?
 - ▶ Q2: Is the methodology fit for purpose?
 - ▶ Q3: Is the data used in the model fit for purpose?
 - ▶ Q4: Are the parameters selected reasonable?
 - ▶ Q5: Is the governance of the internal model appropriate?
 - ▶ Q6: Is the process for validating the model on an ongoing basis appropriate?
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- ▶ Q7: Finally, are the results produced by the internal model reasonable and fit for purpose?

What does validation look like?

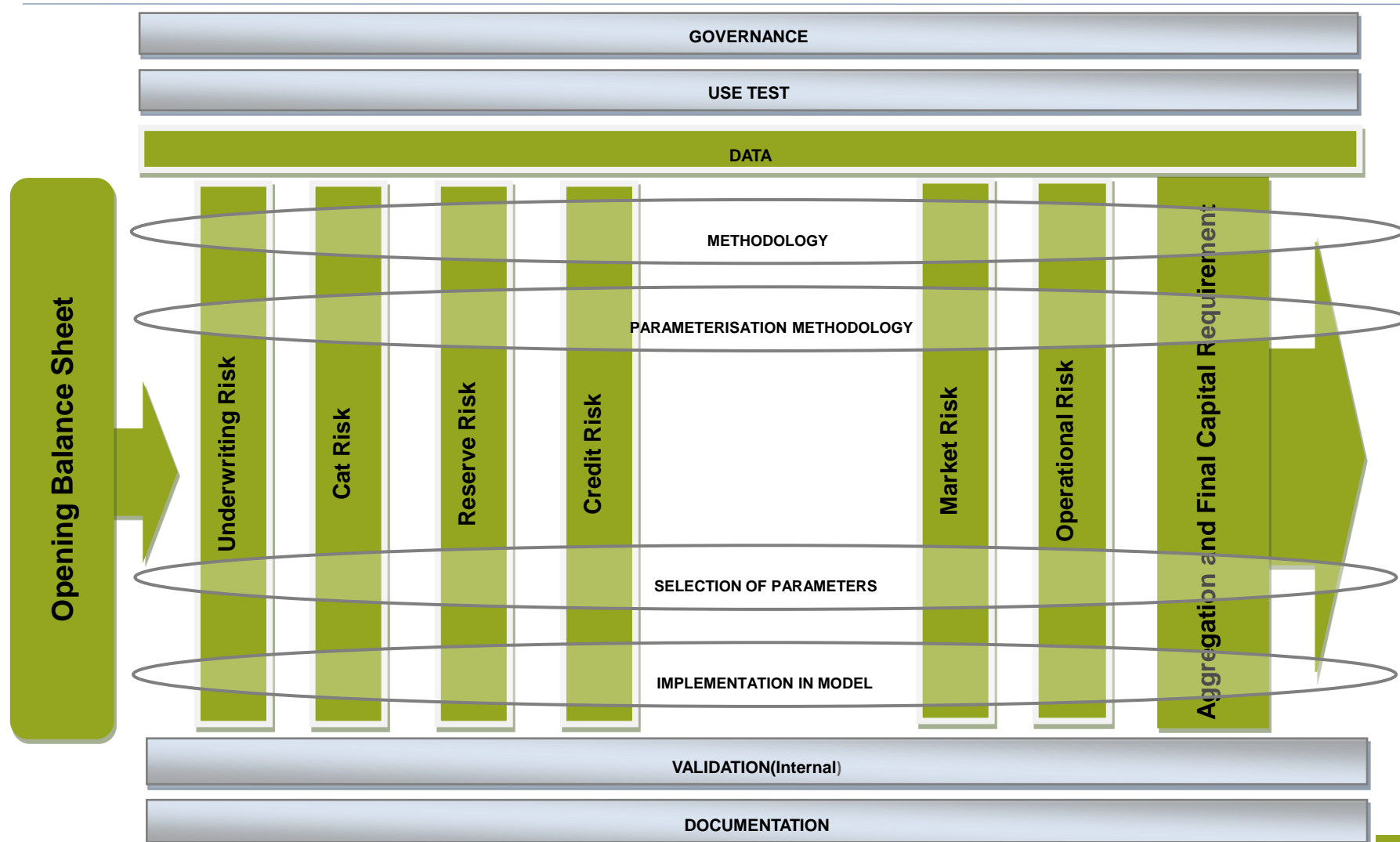
The 6 model tests – Solvency II view

- ▶ Use test – do you believe the model?
- ▶ Statistical quality standards – is it a sensible model?
- ▶ Calibration – does it produce an SCR?
- ▶ Validation – have you checked it?
- ▶ External models – don't forget these ought to be sensible too!
- ▶ Documentation – have you written any of this down?
- ▶ P+L Attribution – is your business plan really a mean?
- ▶ Governance – the 8th horseman of the apocalypse

Implementation?

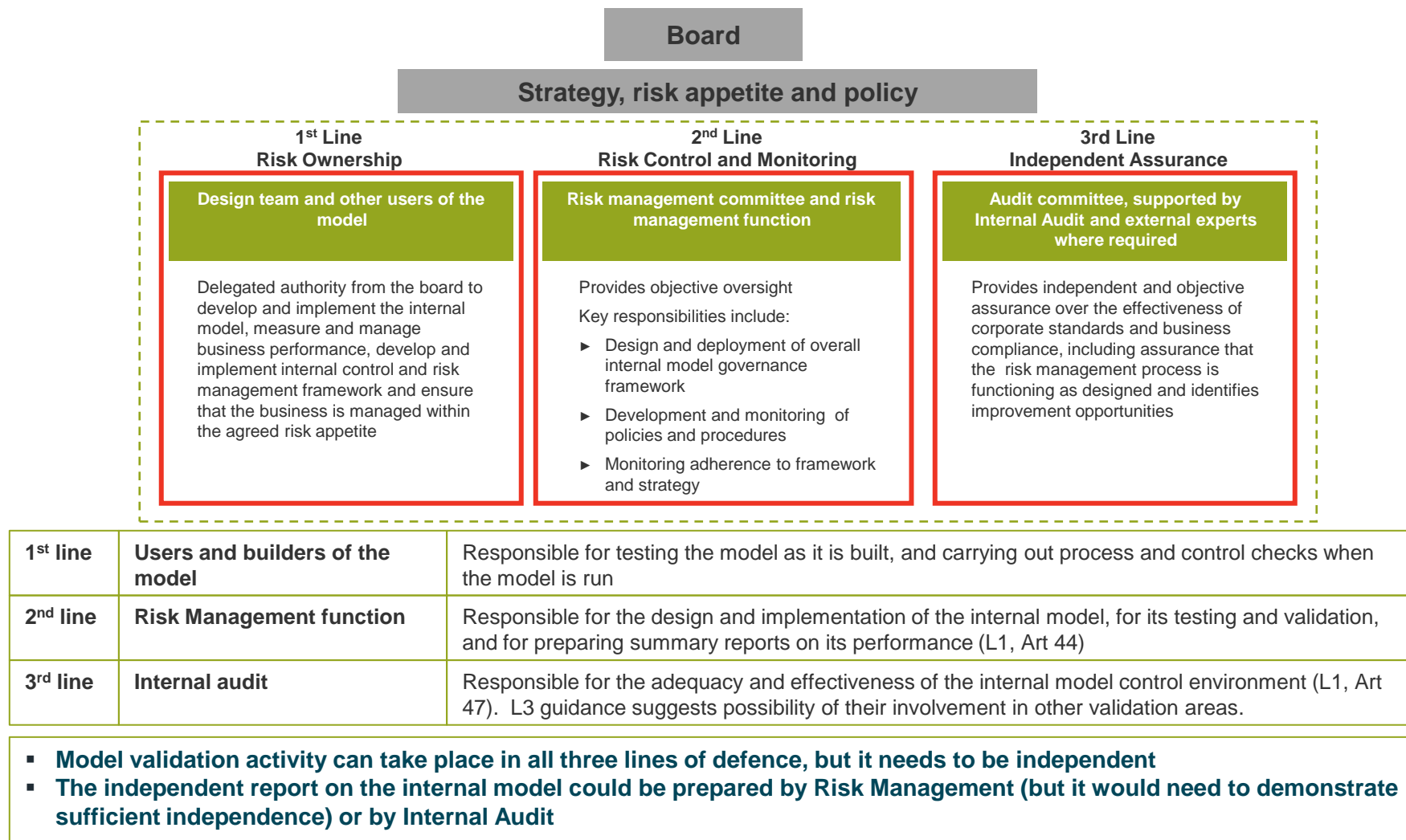
What does validation look like?

A Practical view



What does validation look like?

Who is going to do it?



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What do I need to consider?

Validation is a significant undertaking

Time needed for validation = time needed to build and run model...

Who owns the validation report?

Who is writing the report?

Legal entity versus Group

Where are the validation gaps and how do I plug them?

How do the issues raised feed into the model change process?

Documentation and validation - cultural change

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Where is the market?

Lloyd's syndicates

Draft validation reports submitted so initial questions about validation process have been covered. Sections are often incomplete or blank. In smaller entities, independence and separation of duties can be an issue.

London Market

Similar position to Lloyd's, often have a syndicate within the Group. May be slightly further behind in terms of rolling out validation across the organization. Depends on lead regulator.

Retail (UK)

Larger groups are still grappling with the organizational challenge of validation. Different skill sets and depths within different countries, and also determining the role of Group.

Europe

Mainly large groups going for approval, serious and significant challenge by regulators across Europe. To the extent that some companies have dropped out of model approval. Even where there has been significant validation, regulators have challenged details and demanded more validation.

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Practical issues

Documentation, documentation, documentation!

Common failings of documentation:-

- ▶ Doesn't exist!
- ▶ Too short
- ▶ Too long
- ▶ Doesn't explain why
- ▶ Patchwork – no structure and no links between documents (e.g. Between validation policy and model change)
- ▶ Difference styles/parties
- ▶ Written for regulator rather than use
- ▶ Out of sync with actual model

Practical issues

Top 10 methodology/parameterization

1. Definitions of risks (UW/Reserve/Market/Credit)
2. Linking closing provisions to experience during the year
3. Justifying aggregation – capital modeller versus regulator
4. Conversion to 1 year volatility
5. Modelling an SII balance sheet (and reconciling)
6. Reconciling an SII P+L
7. Ownership and challenge of Cat models
8. Results by SF risk type
9. Ownership and challenge of ESG's
10. Risk margin methodology

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Example findings

- ▶ Mis-match between UW and reserve risk definition
- ▶ Incorrect discounting and allowance for investment income
- ▶ Missing risks e.g. Currency risk, DB pension funds or “unusual” assets
- ▶ Parameter error missing
- ▶ Data processed incorrectly – random ordering of columns
- ▶ Not allowing for future RI program purchase or paying twice
- ▶ Opening balance sheet doesn’t match actual balance sheet

Example finding - continued

- ▶ Correlations go missing
- ▶ Attritional volatilities lower than reserve volatilities
- ▶ Inappropriate complexity
- ▶ Too much time “tweaking” and not enough documenting and validating what’s already there
- ▶ Timelines don’t have enough slack for run issues and review
- ▶ IT issues (hardware and software)

A final thought...

TAS – M!?

Questions?

Thank you