



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

Internal Models - A view from the Central Bank of Ireland

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Agenda

- Internal Model Approval Process
 - Inter-regulatory approval
 - On-Going Supervision of Internal Models
 - Observations to date on models
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Internal Model Approval Process

- Pre-application phase roughly 12 months.
 - 6 month formal application.
 - During the first month, the focus is a completeness assessment.
 - Firms have the right to “stop the clock” to amend application.
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Internal Model Approval Process

- Each risk module is assessed by subject matter experts on both qualitative and quantitative grounds.
 - Supervision team undertake Use & Governance assessment.
 - Decision Committee is the arbiter within the Central Bank for model approval.
 - Depth of review varies depending on proportionality and allocation of work between regulators.
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Inter-Regulatory Approval

- Detailed allocation of work between college of supervisors:
 - Methods used and approximations.
 - Data used in the model including external data.
 - Assumptions, expert judgements and their justification.
 - Inputs to the model such as business plan and pricing.
 - Outputs and challenges to the company on variability.
 - Validation reports and challenging results and processes around this.
 - Statistical testing using alternative methods.
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Inter-Regulatory Approval

- Conceptual overview by host regulator:
 - Detailed review on certain aspects appropriate to the local entity.
 - Detailed local specificities review e.g. local parameterisation, local validation.
 - Use test – interviews and documentation reviews.
 - Governance review - how well is the group model understood.
 - Input into work plan of the college of supervisors.
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Post Approval Phase

- Build infrastructure to monitor model output.
 - Focus on thematic reviews and cross-sectoral comparisons.
 - Major Model Changes
 - Pre-application and engagement with regulator.
 - For major model changes, the 6 month review period applies.
 - Currently anticipate 1 major model change application per year with potentially a bundle of changes in a single application.
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On-Going Supervision of Internal Models

- Driven by quantitative analysis:
 - Internal model firms provide returns beyond the EIOPA QRTs: Structured and unstructured returns bespoke to each firm are submitted.
 - Annual calculation of standard formula for internal model firms.
 - Internal model indicators reviewed and may trigger deep dive reviews on specific areas of concern.
 - Monthly to provide oversight of monitoring and consistency assessment.
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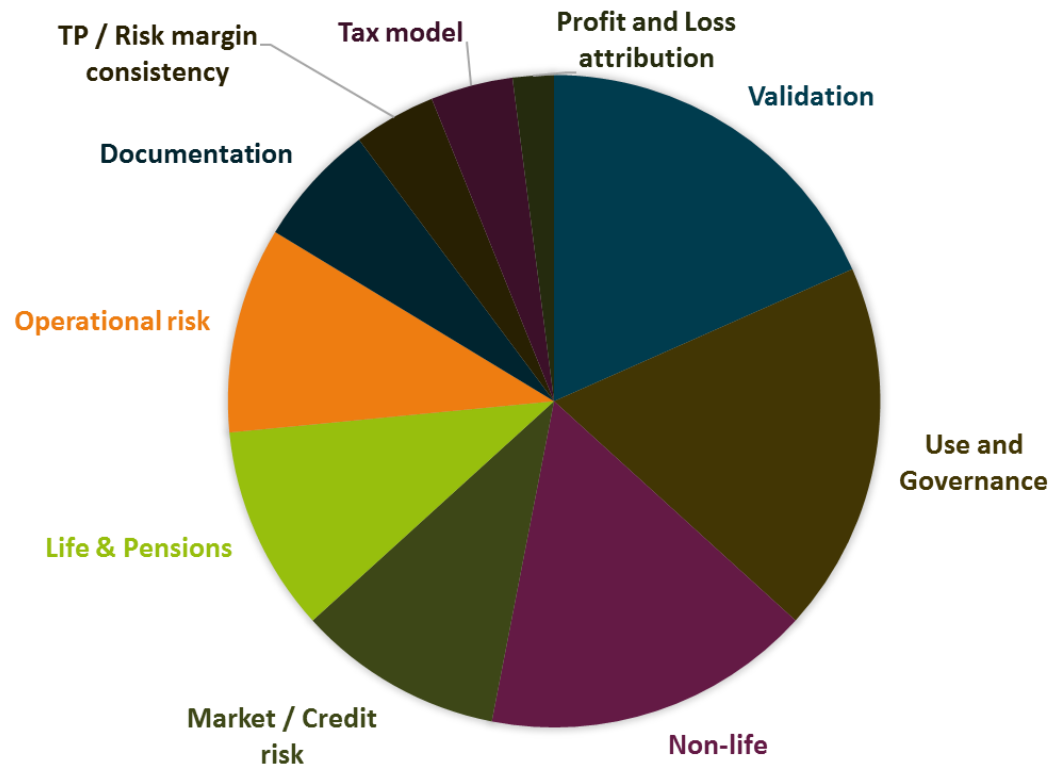
Feedback and Observations to date on Internal Models

- Terms and Conditions
 - Roughly 75% of T&C's issued after initial wave of approvals are now complete.
 - Governance regarding closure of T&Cs as strong as that for the approval process.



Feedback and Observations to date on Internal Models

Terms and Conditions applied to:





Feedback and Observations to date on Internal Models

- Validation

- Improvements required on communications to the Board.
 - Validation report should be a key tool in understanding the model's strengths and weaknesses, the sensitivity of assumptions to output.
 - Focus of the validation must also shift for approved models, as our own processes shifted. Validation required for stability analysis and focus on-going appropriateness.
 - Key threats to the model are misuse and misunderstanding.
 - Natural evolution of scenario analysis and stress testing, to ensure the these activities continue to challenge the model.
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Feedback and Observations to date on Internal Models

- P&L Attribution
 - Critical to the on-going appropriateness of the model.
 - P&L Attribution is not back-testing. Back-testing assesses the predictive power of the model, P&L attribution also assesses if the model is specified correctly.



Looking ahead - Supervisory Monitoring

- Risk management framework & use test.
 - Focus on thematic reviews and cross-sectoral comparisons.
 - Further bespoke monitoring of each internal model.
 - Setting out an early warning system.
 - Deepening of supervisory consistency as we gather more information.
 - EIOPA focus on market, credit risk, treatment of sovereign risk & general insurance comparative study.
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