

CILA II  
Raymond Bennett

# Independent Internal Model Validation Initial and ongoing challenges

6 October 2011

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# Where are we now?

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# Agenda

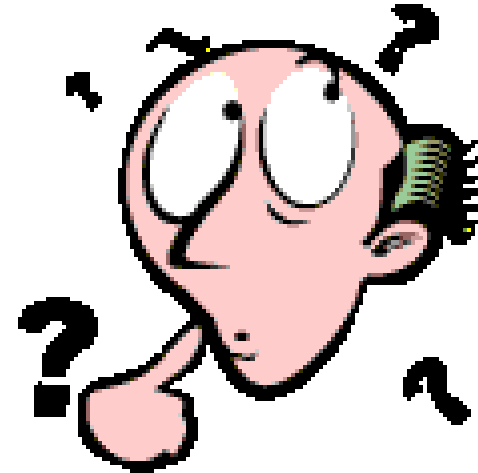
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- Terminology
- Background
- Internal model validation challenges
- Assurance over the internal model
- Q&A

# Terminology...

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- Internal model
- Validation test
- Validation / assurance
- External
- Independent



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# Background

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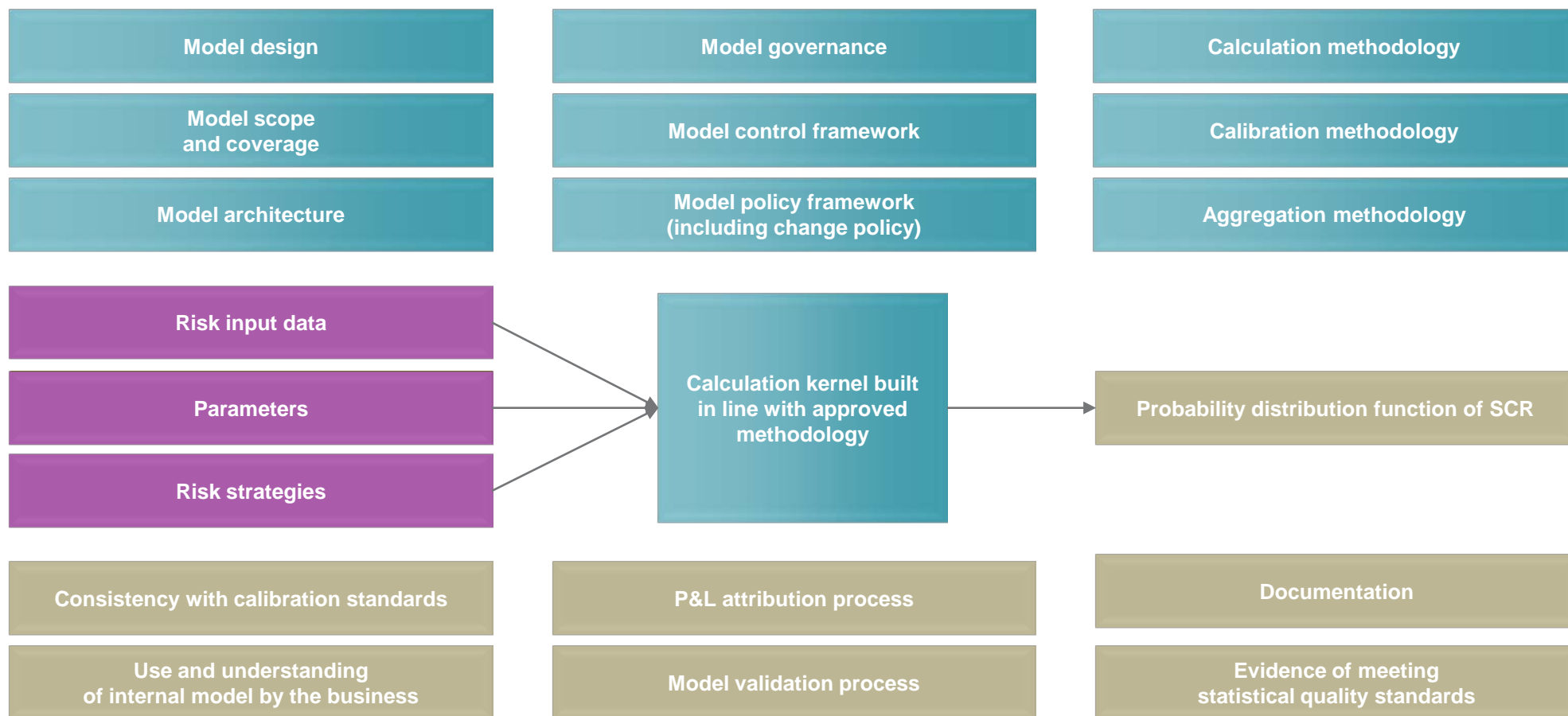
- What is an internal model?
- What is internal model validation?
- Solvency II requirements and internal model validation roles

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# What is an internal model?

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# What is an internal model?



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# What is internal model validation?

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# What is internal model validation?

- One of the six tests:

*Article 124*

*Validation standards*



*“Validation is a set of tools and processes used to gain confidence over the results, design, workings and other processes within the internal model”*

# What is internal model validation?

- But also a broader set of activities – i.e. does the internal model meet all of the tests:

*Article 120*

*Use test*

*Article 121*

*Statistical quality standards*

*Article 122*

*Calibration standards*

*Article 123*

*Profit and loss attribution*

*Article 124*

*Validation standards*

*Article 125*

*Documentation standards*

*“Model validation can be viewed as the control framework,  
including the Model Tests, around the Internal Model  
processes”*

# Solvency II – internal model validation requirements

## *Article 124*

### *Validation standards*

Insurance and reinsurance undertakings shall have a regular cycle of model validation which includes monitoring the performance of the internal model, reviewing the ongoing appropriateness of its specification, and testing its results against experience.

The model validation process shall include an effective statistical process for validating the internal model which enables the insurance and reinsurance undertakings to demonstrate to their supervisory authorities that the resulting capital requirements are appropriate.

The statistical methods applied shall test the appropriateness of the probability distribution forecast compared not only to loss experience but also to all material new data and information relating thereto.

The model validation process shall include an analysis of the stability of the internal model and in particular the testing of the sensitivity of the results of the internal model to changes in key underlying assumptions. It shall also include an assessment of the accuracy, completeness and appropriateness of the data used by the internal model.

# Solvency II – internal model validation roles...

Validation activities

- Risk management function

*Article 44*

*Risk management*

5. For insurance and reinsurance undertakings using a partial or full internal model approved in accordance with Articles 112 and 113 the risk-management function shall cover the following additional tasks:

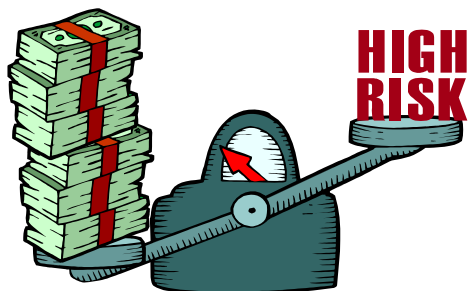
(a) to design and implement the internal model;

(b) to test and validate the internal model;

(c) to document the internal model and any subsequent changes made to it;

(d) to analyse the performance of the internal model and to produce summary reports thereof;

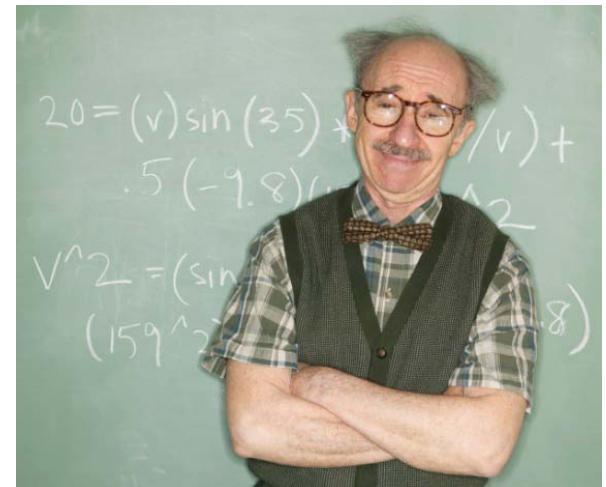
(e) to inform the administrative, management or supervisory body about the performance of the internal model, suggesting areas needing improvement, and up-dating that body on the status of efforts to improve previously identified weaknesses.



# Solvency II – internal model validation roles...

- Actuarial function: responsibility for ‘technical provisions’ – per Article 48(1); includes:
  - Contribute to the effective implementation of the risk management system...
  - ...in particular with respect to the risk modelling underlying the calculation of the capital requirements

**“Use Test” Principles: the Internal Model and the calculation of technical provisions should be consistent**



# Solvency II – internal model validation roles...

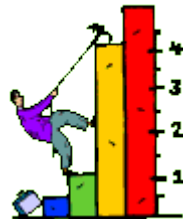


The 'Three lines of defence' model



# Internal model validation (IMV) challenges

- Regulations and IMAP
- Risk management function
- Actuarial vs. risk functions
- Groups
- Partial vs. full internal models: what's the difference?
- Use test
- Project management
- BAU validation



# IMV challenges: regulations and IMAP

- Regulations not finalised
  - Timelines?
- IMAP:
  - Timelines?
  - Requirements
  - Tier 1 / Tier 2
  - Level of documentation





# IMV challenges: risk management function

- Independence required: not involved in design and implementation of the model
- Delegated to internal or external parties to achieve independence...
- ...risk management function retains overall responsibility



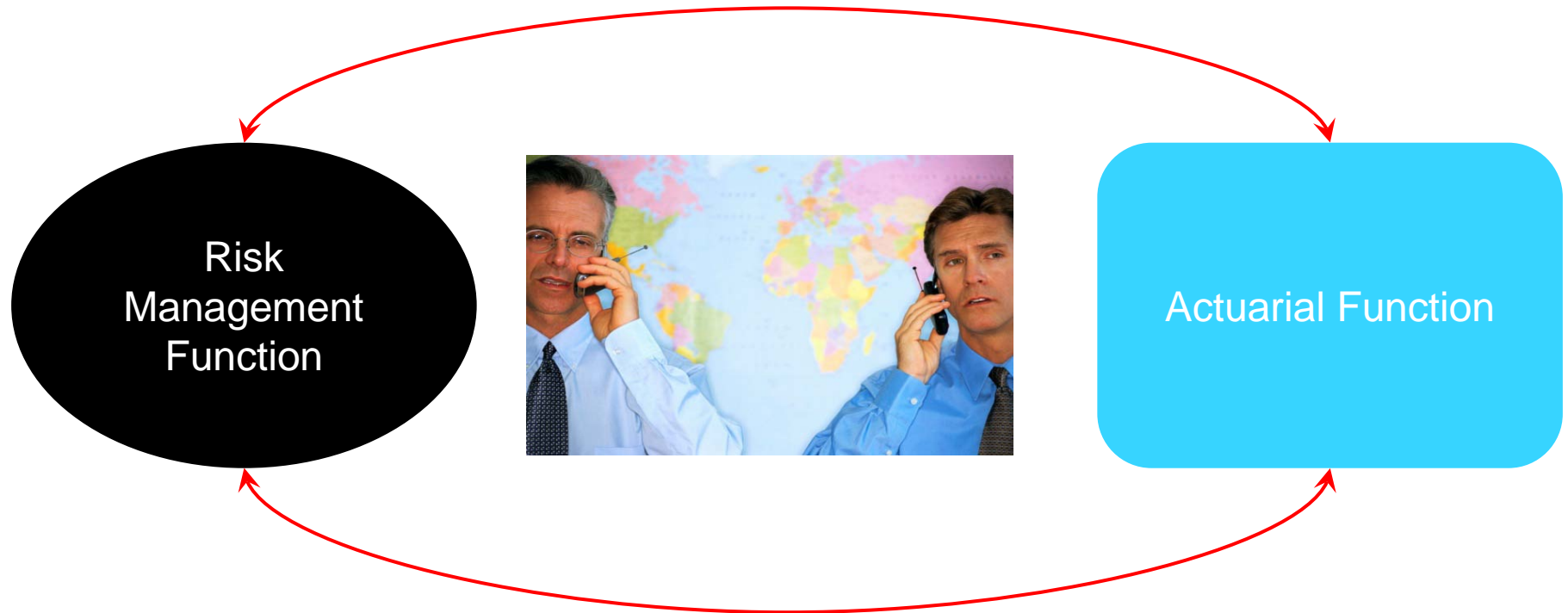
# IMV challenges: risk management function (cont'd)

- Independent third line review can also be used e.g.:
  - Review the effectiveness of validation activity
  - Deep dives on specific areas of weakness or concern
  - Commentary on emerging industry best practice
- Risk function delegates to internal audit: maintain delineation of responsibilities between second and third line
- Validation: model design and implementation  
...also when model up and running



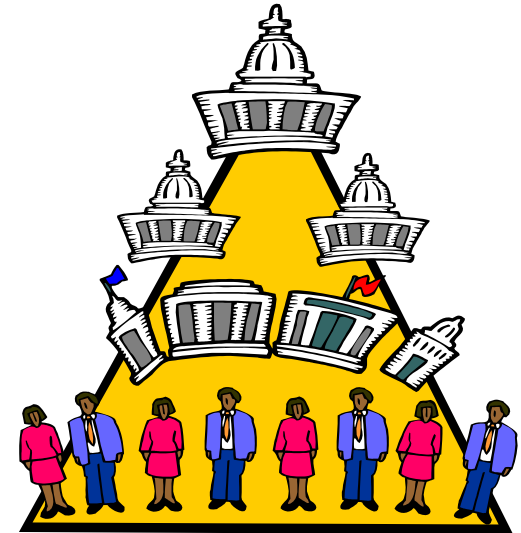
# IMV challenges: actuarial vs. risk

- Communication loop...



# IMV challenges: groups

- Lead regulator and college of supervisors
- Business unit vs. Group => not just consolidation
- Business units outside of Europe
- Interaction with other territories e.g.:
  - Equivalence
  - USA
  - South Africa (SAM)
  - Bermuda etc



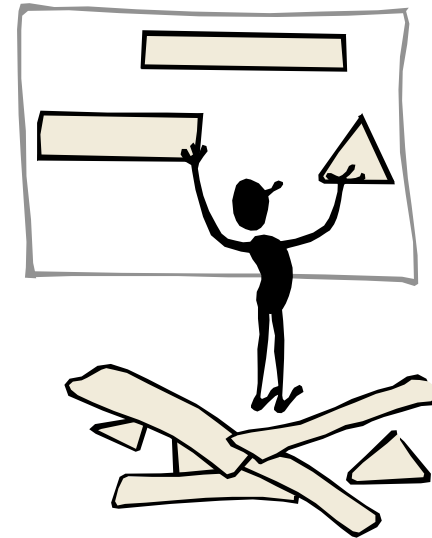
# IMV challenges: partial vs. full internal models: what's the difference?

- Justification for PIM
- Scope
- Correlation / aggregation



# IMV challenges: use test

- External assurance – limited?
- Progress report
- Cultural change?
  - E.g. pricing - competition



# IMV challenges: project issues

- Transition into BAU
- Contractors and resourcing
- Stakeholders



# IMV challenges: BAU validation

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- Understanding development requirements:
  - IMAP hurdle vs. “nice to have”
  - Project management?
- Model change policy
- Audit requirements
- Reliance on third parties
- TAS



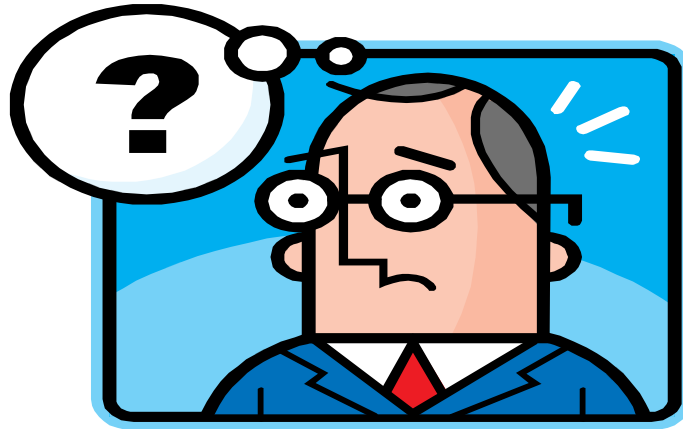


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## Assurance over the internal model

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“But we’ve validated the internal model, why do we need assurance?”



# Assurance over the internal model

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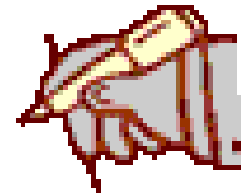
- Validation role
- Board / management
- Investors / general public
- Regulators
- Overseas entities
- Future role of audit
- Benchmarking / peers



# Assurance over the internal model

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- Potential issues
  - All those noted for validation!
  - Internal audit vs. external audit vs. advisory
  - Multidisciplinary approach required
  - Format of opinion
  - Company specific... tailored
  - Scope of internal model – technical provisions etc
  - Stakeholders across group – scope and requirements



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# Questions or comments?

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Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

