



Institute
and Faculty
of Actuaries

IFoA GIRO Conference 2024

18–20 November, ICC, Birmingham



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Topical issues for capital modelling and validation

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IFoA GIRO Conference 2024

Introduction



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Agenda

1. Effective deep dives

- Climate change
- Casualty modelling

2. Effective collaboration

- Engaging with the wider business
- Supporting a high performing team

3. Analysis of change

- Insightful and efficient analysis of change

1. Effective deep dives



Classification: Confidential

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What type of deep dive are you aiming for?

1. Thematic / top-down review

2. Governance review

3. Deeper analysis: “more of the same”

4. Alternative methods

Case study 1 – climate change deep dive

Setting the context – key considerations and challenges

Shorter vs longer term
climate change risks

Residual risks for capital

Evolving area with
different modelling
approaches

Key analysis tool: climate scenario analysis

Key model use: inform strategic decisions
applying longer term view

Case study 1 – climate change deep dive

Three key risks:

Physical risks are those resulting from the impacts of changing climate on the frequency and/or severity of weather events.



Acute impacts: Driven by an event such as a flood or a storm



Chronic impacts: Arising from longer term shifts in climate patterns



Climate related perils include windstorm, severe convective storm, wildfire, flood and drought

Transition risks are those resulting from societal adjustment to low-carbon economy



Rapid technological change



Changes in societal (and customer/investor) sentiment



Evolving regulations and legal interpretations

Litigation Risks are those resulting from direct legal claims or insurance claims resulting from litigation.



Direct Claims against (Re)insurer and/or its Directors



Insurance Liabilities – current/future policies



Insurance Liabilities – historic policies (“latent claims”)

Case study 1 – climate change deep dive

Catalysts for change

- Politics / Policies
- Geopolitical Tensions
- Societal Tensions
- Other



Legislative changes



US / Russia friction



Regulatory changes



US / China friction



Extreme consecutive climate-related cat events



Civil Rioting



Change in government



Technological advancements / breakthrough



Ukraine / Russia war



EU Elections



US / Middle East friction



Social media / misinformation



Litigation over greenwashing



US Elections



Case study 1 – climate change deep dive

Risk	Capital and validation considerations
Premium Risk (excl. Cat Risk)	<ul style="list-style-type: none"> - How is climate change allowed for in the model? Is this appropriate? - Which classes are most exposed? How do dependencies between classes allow for climate change impacts?
Catastrophe Risk	<ul style="list-style-type: none"> - Are physical risks adequately captured? Consider use of climate adjusted vendor models, explicit uplifts, climate scenarios, dependencies between perils. - How can the model be used to better understand the potential impacts of climate change? - Are external models and any adjustments appropriate for the risk profile and internal view of risk? - Has the Exposure Management / Catastrophe Modelling team's view been considered and justified?
Reserve Risk	<ul style="list-style-type: none"> - How have the potential impacts of climate change been considered? - Has the Reserving team's view been considered and justified?
Market Risk	<ul style="list-style-type: none"> - How do future volatility assumptions allow for climate change? Is this appropriate? - Are the potential impacts of physical, transition and litigation risks on assets adequately captured? - Has the Investment team's view and the mismatch between assets and liabilities been considered?
Credit Risk	<ul style="list-style-type: none"> - Is potential reinsurance strain from increased claims adequately captured? Has the Reinsurance team's view been considered and justified?
Operational Risk	<ul style="list-style-type: none"> - How has the risk of physical damage to re(insurer)'s office been considered? - How has litigation risks against the re(insurer) been considered?
Dependencies between Risks	<ul style="list-style-type: none"> - How do each of physical, transition and litigation risk impact pairs of risks? - How have clash events been considered to assess dependencies in extreme scenarios?

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Case study 2 – casualty deep dive

Setting the context – key considerations and challenges

Idiosyncratic and long tailed risks

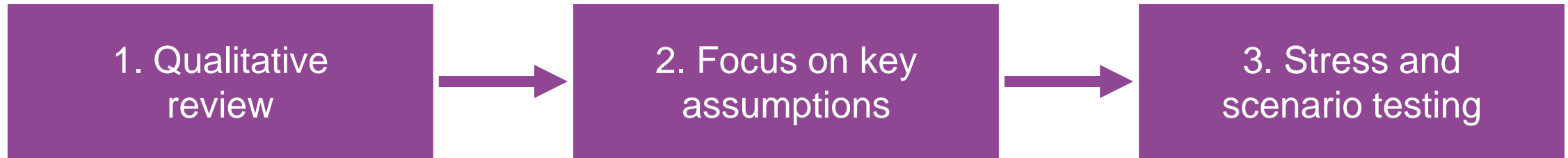
Continuously evolving risk profile

Difficult to define extent of exposure

Key analysis tools: qualitative reviews and scenario analysis

Key model use: optimising underwriting strategy

Case study 2 – casualty deep dive



- Key risks affected (eg, insurance, op risk, investments, dependencies)
- Key questions to challenge the approach, including
 - SME input
 - Horizon scanning
 - Accumulations

- Explicit and implicit assumptions
- Additional loadings
- Consideration of aggregations and systemic risks
- Assumptions captured elsewhere in the firm

- Holistic financial “what if” or “what would it take” scenarios
- Recognising significant uncertainty
- Links to the ORSA, and wider firms

Case study 2 – casualty deep dive

Risk	Capital and validation considerations
Premium Risk (excl. Cat Risk)	<ul style="list-style-type: none"> - How is historical data used in the modelling? What adjustments are made to past (unrepeatable) events? - How are emerging risks considered? How are dependencies allowed for within emerging risks? - How are subjective exposures defined, eg around silent cyber?
Catastrophe Risk	<ul style="list-style-type: none"> - What external models (if any) are used? - What adjustments have been made to allow for future changes, eg in legislation and societal views? - Have the views of a range of experts been considered and justified?
Reserve Risk	<ul style="list-style-type: none"> - How have long tailed liability lines been considered, including the potential for retrospective changes to legislation? - How are clusters and accumulations of risks considered? - Have views from the Reserving and Claim teams been considered and justified?
Market Risk	<ul style="list-style-type: none"> - How have potential interactions with the economic cycle considered? - Has the Investment team's view and the mismatch between assets and liabilities been considered?
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Operational Risk	<ul style="list-style-type: none"> - Has an appropriately wide range of scenarios been considered? Do they capture both operational and insurance risk? - Does modelling provide coverage across appropriate range of potential operational risk events?
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2. Effective collaboration



Engaging with the wider business



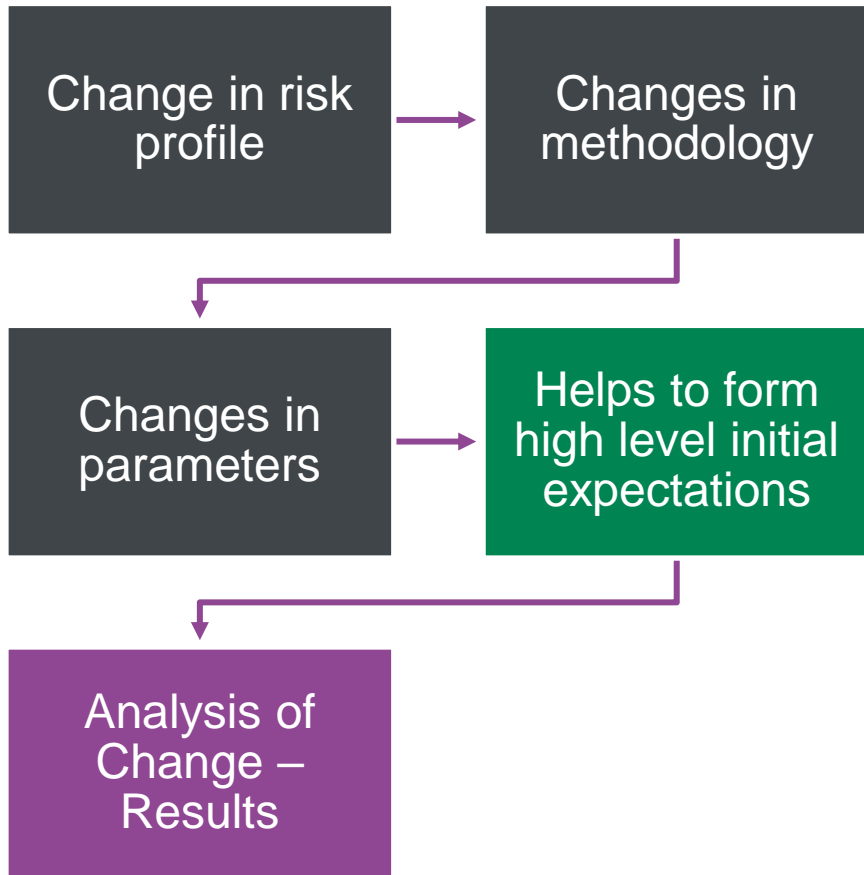
What are the top 3 things to support a high performing actuarial team?

Clear purpose and strategy	Regular 360 degree feedback	Efficient systems and processes
Empowering individuals	Regular face to face working	Flexible, hybrid working
Recognition and remuneration	Embracing inclusion and diversity	Measurable targets
Succession planning and avoiding key person risk	Excellent training and development	Other

3. Analysis of change



Insightful and efficient analysis of change



1. **Risk profile** – consider **ORSA**, consult **experts**, consider changes in **exposures**
2. **Methodology and assumptions** – have all changes in approach (or unchanged approach) been **justified**
3. **Results** – consider changes vs **expectations**

Insightful and efficient analysis of change

Breakdown impacts by changes in exposure, methodology, parameters, etc. at appropriate granularity

Rationale for results including direction and impact, one-year vs ultimate movements

Model drift: changes in risk vs exposure

Volatility: 1 in 200 risk vs mean

Granularity: risk category and at SCR level

Materiality: agree appropriate thresholds at outset

Frontload: test on appropriate draft version of model with additional targeted testing to final

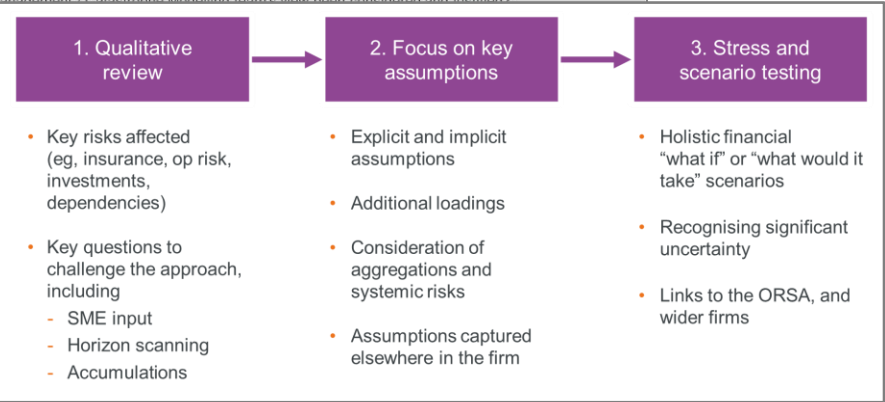
Clear roles: Capital team to justify vs Validation team to review and challenge

Key actions

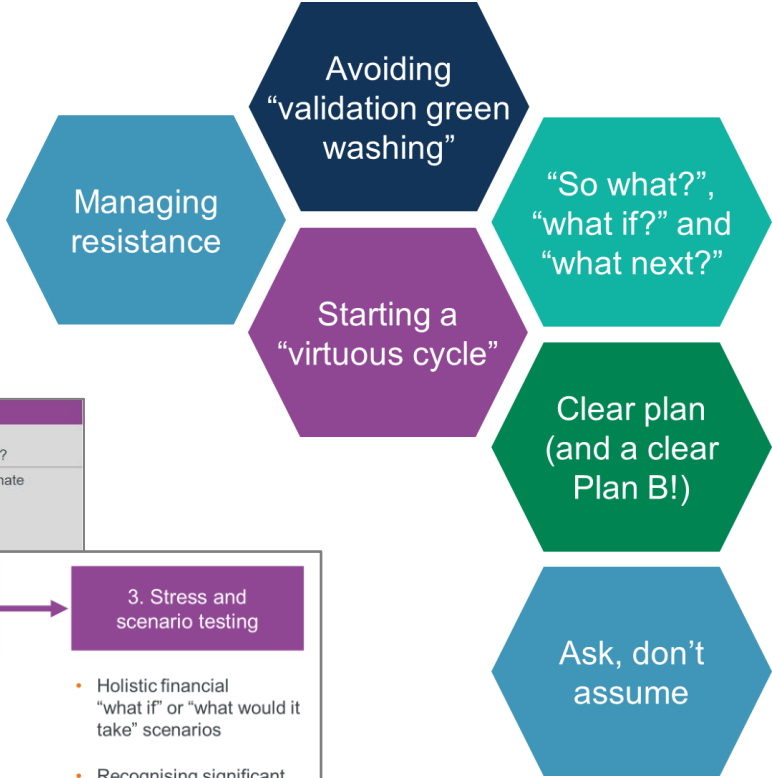
1. Define your deep dives

- 1. Thematic / top-down review
- 2. Governance review
- 3. Deeper analysis: "more of the same"
- 4. Alternative methods

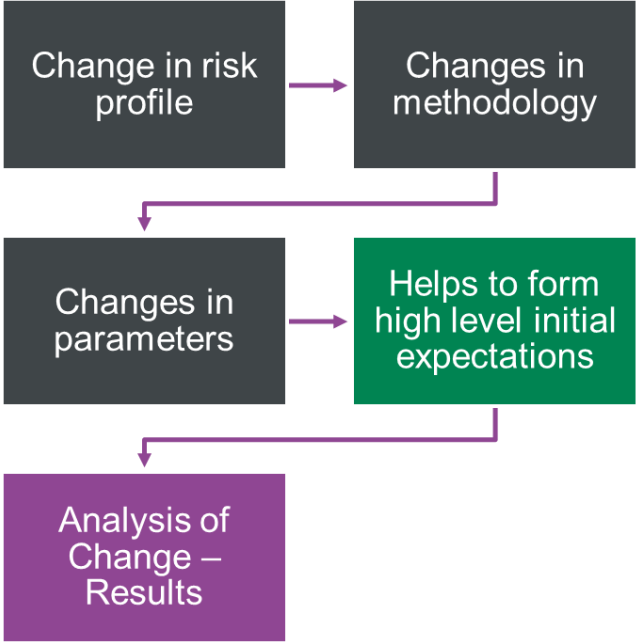
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Credit Risk	- Is potential reinsurer risk captured? - How have the potential impacts been captured? - Has the Reinsurance team's view been considered and justified?
Operational Risk	- How has the risk of operational failure been captured? - How has litigation risk been captured?
Dependencies between Risks	- How do each of physical, market, credit, and operational risks interact? - How have clash events been captured?



2. Deliberate collaboration



3. Insightful AoC



Questions

Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

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