



Institute
and Faculty
of Actuaries

Flying Blind: Exposure Management in the re/insurance market

Jenny Xu and Giorgis Hadzilacos



What we want to cover today

- What do we mean by Exposure Management (EM)?
- Why does EM matter?
 - Some examples to illustrate how EM is used by firms
 - How EM links with the PRA objectives
- The PRA approach to assessing EM
- Common findings from recent EM thematic review



What do we mean by Exposure Management?

- There are various definitions in the market, e.g.:
 - “EM can be defined as *the systems and processes to record, monitor and assess its underwriting exposures*” (Lloyds, 2015).
 - “Part of risk management strategy... tool to diversify risk and limit the net loss exposure including catastrophes to a level consistent with our risk appetite” (Chubb)
 - “The goal of risk and exposure management is to guarantee, as much as possible, that losses are accidental” (Brown & Brown insurance US intermediary)
 - Often used synonymously with catastrophe risk aggregation management
- Definition for this presentation:
 - the firm is able to record, monitor, control and report (internally and externally) its exposures and potential risk accumulations in a timely manner across its activities.



Why does Exposure Management matter?

- Portfolio management requires knowledge of risks distribution and accumulations at granular to manage both opportunity and risk across
 - Geography, Industry/ LoB, legislative region; and
 - Across all the above (clash risk)
- How does portfolio stack up against risk appetite?
 - Usually expressed in terms of willingness to lose a certain amount with a certain likelihood
 - Is the reinsurance structure able to respond as intended?
- The legislative requirement: SII (LI Art 121) requires appropriate data and quantify all material risks and accumulations; one of the scopes of the PRA underwriting/pricing reviews.

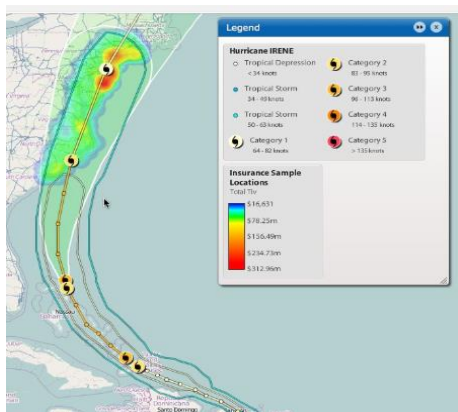
Exposure management is important for insurance companies

 SITA

Why does Exposure Management matter –Some Examples

Inform forward-looking growth strategy

- Identifying regions and perils where growth will not breach risk appetite or impact capital position (underwriting headroom)
- Optimise portfolio performance under different strategies



Help to quantify potential losses

- For PML estimation, apply a scenario to the firm portfolio – however measured
- During event response, superimpose footprint of actual event on a geographical representation of policies to identify exposure at risk

Exposure management can help profitability, improve cash flow & manage risk

What happens when Exposure Management fails?

Incomplete view of risk

- Firms underwrote hospitality lines in New Orleans classifying them as large hotels on solid ground
- Following Katrina, they realised that they were underwriting floating casinos that experienced total loss.



Uncaptured growth

- Following Tianjen explosion in 2015 firms only realised then they had major cargo accumulations or in HIM in 2017 firms were left with out reinstatements
- Firms only realising having exposure in a particular line of business after a loss materialised (e.g. insuring BI for vineyards following 2017-8 California events)

Gaps in exposure management pose prudential risk

PRA criteria to assess Exposure Management



Data

Is EM based on good quality data?

Is the data clearly presented with consistent metrics?



Tools

Does EM use a range of tools?

Does EM function train / educate users of tools and their outputs?



Processes

Are there established processes for producing timely information when needed (e.g. post event analysis)?



Governance

Does EM have clear governance and ownership?



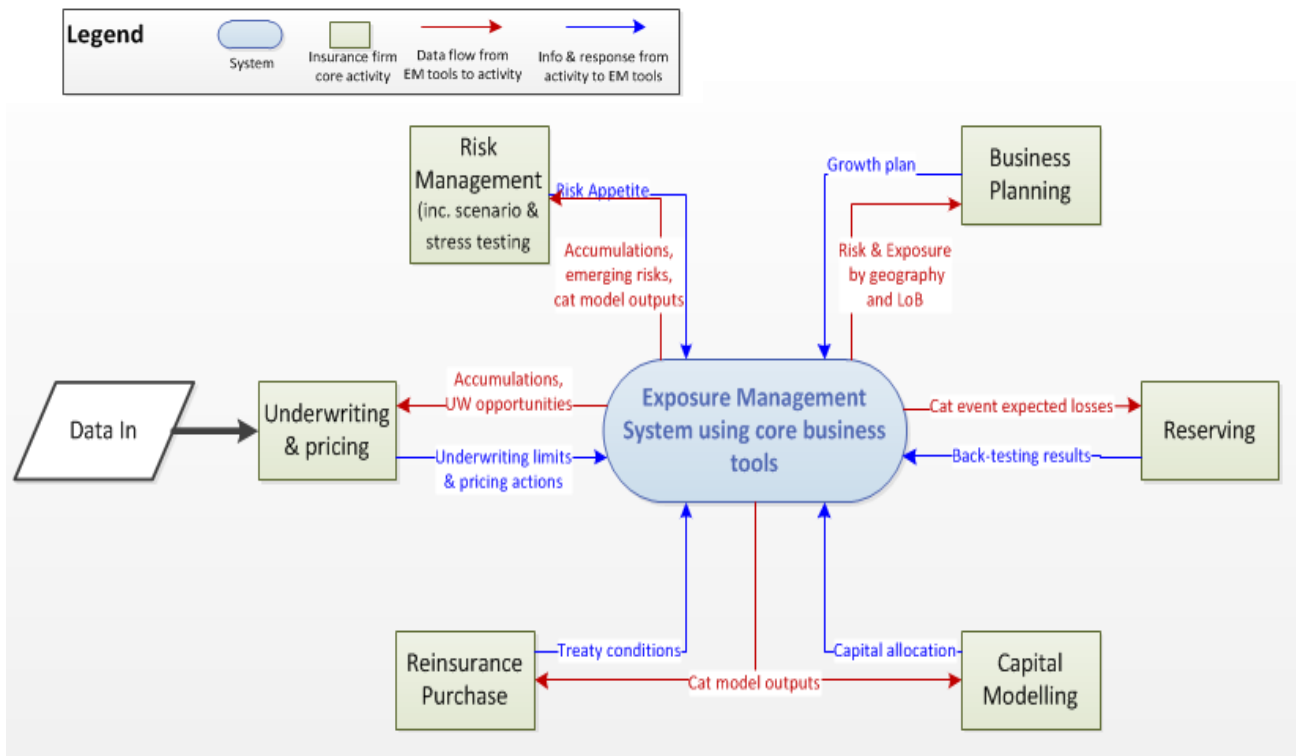
Interconnectivity

Is EM connected and integrated with other functions and processes?



Institute
and Faculty
of Actuaries

How the five criteria are encountered in practice?



A hypothetical firm

- Uses complete and appropriate data and metrics fit for purpose
- Connected: EM is integrated with the other key insurance activities. (e.g. Identifying the opportunities and risk in the portfolio is an effective way to monitor the impact of the risk appetite and underwriting/pricing practices)
- Drives decisions: timely feedback loops drive reserving, UW, RI, and Risk function decisions (e.g. setting the risk appetite).



Institute
and Faculty
of Actuaries

Live Polling

- Choose the top 2 activities that Exposure Management is used in your firm (or firms you consult)?
 1. Underwriting
 2. Reinsurance structuring and purchasing
 3. Business Planning
 4. Capital Modelling
 5. Reserving
 6. Something else
 7. None

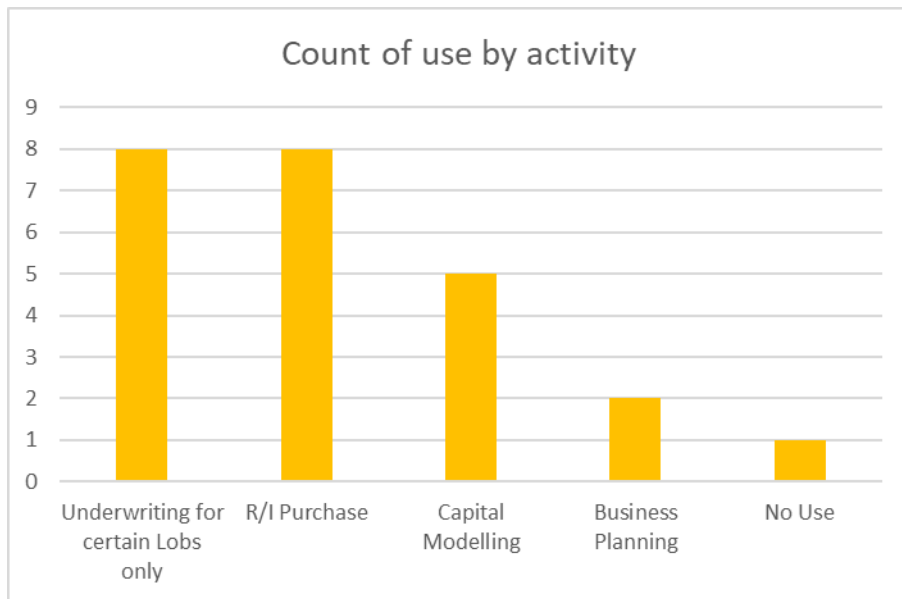


Exposure Management exploratory thematic review

- May 2018 'Dear CEO' letter findings on Exposure Management:
 - Firms unable to timely estimate aggregate exposures affected by 2017 HIM
 - Poor connectivity of underwriting limits and risk appetite
 - Lack of severe scenarios stress testing risk management framework
 - Inadequate aggregate exposure data and processes especially for liability lines
- Exploratory EM thematic review as a follow-up to the 'Dear CEO' findings
 - **Reviews** of 21 firms (8 Commercial, 13 London Market) during Q3 2018 – Q3 2019
 - **Aim:** rate firms' EM sophistication against set criteria and identify potential weak spots
 - **Qualitative Method:** review existing documentation, undertake interviews, carry out file reviews.
 - **Effort** per firm varied from 3 days to 3 months depending on firm category
 - **Focus:** both property and casualty (less on motor lines)



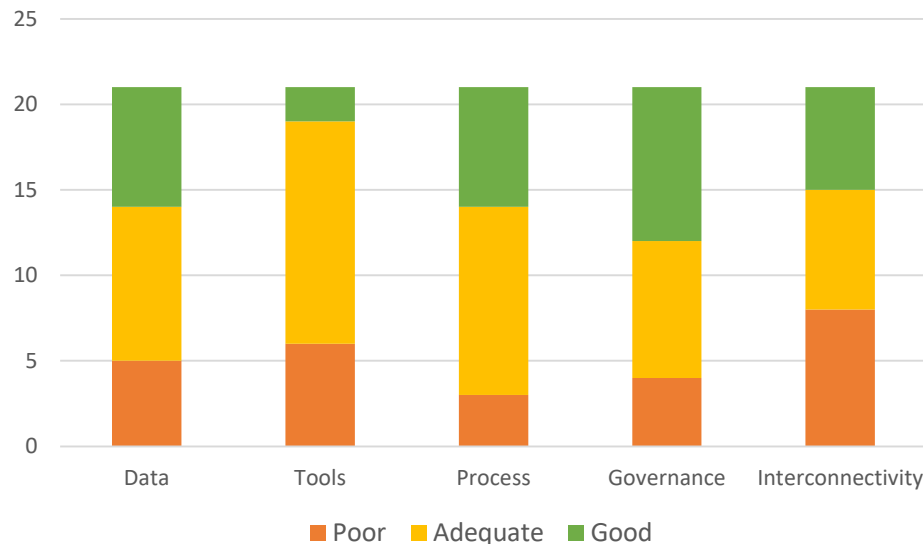
Findings 1/5: Where is EM used mostly by firms?



- Underwriting for property lines and R/I purchase the typical use of EM MI
- Teams with dedicated EM teams typically use EM MI for capital modelling
- Little use for Business planning and strategy setting
- Poor use by claims and reserving teams

Exposure management is underused in reserving, strategy and planning

Findings 2/5: How do firms score against EM criteria?



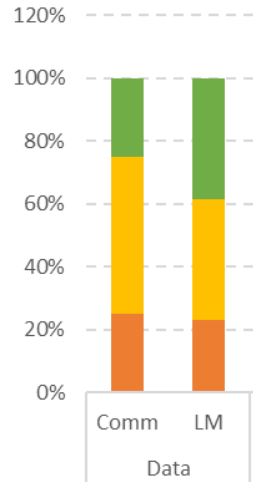
First indicative findings

- **Data:** Two cohorts – those that follow a strict UW data quality policy and those that either have none or do not follow it
- **Tools:** more mature tools for property cat however, large range of tool sophistication present
- **Process:** Typically EM a 'child' of UW or Risk. In few cases capital modelling.
- **Governance:** the score spread dependent largely on the firm's underwriting culture
- **Interconnectivity:** better scores not dependent to size of firm but culture and data policy

Sample of 21 firms is small to express overall market picture

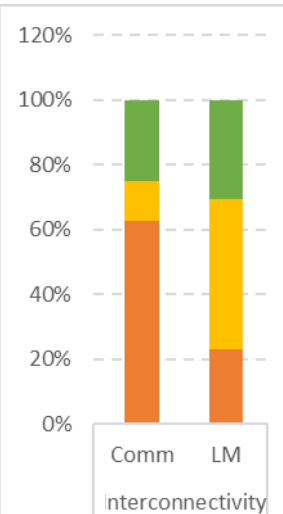
Findings 3/5: Some first interpretations

Data differences



- London Market firms typically deal with territories that have better data quality on average (e.g. US, Japan) and hence it is easier to capture data
- Having said that, we did encounter cases where data quality availability was not an issue but rather the lack of data policy and culture of using such data

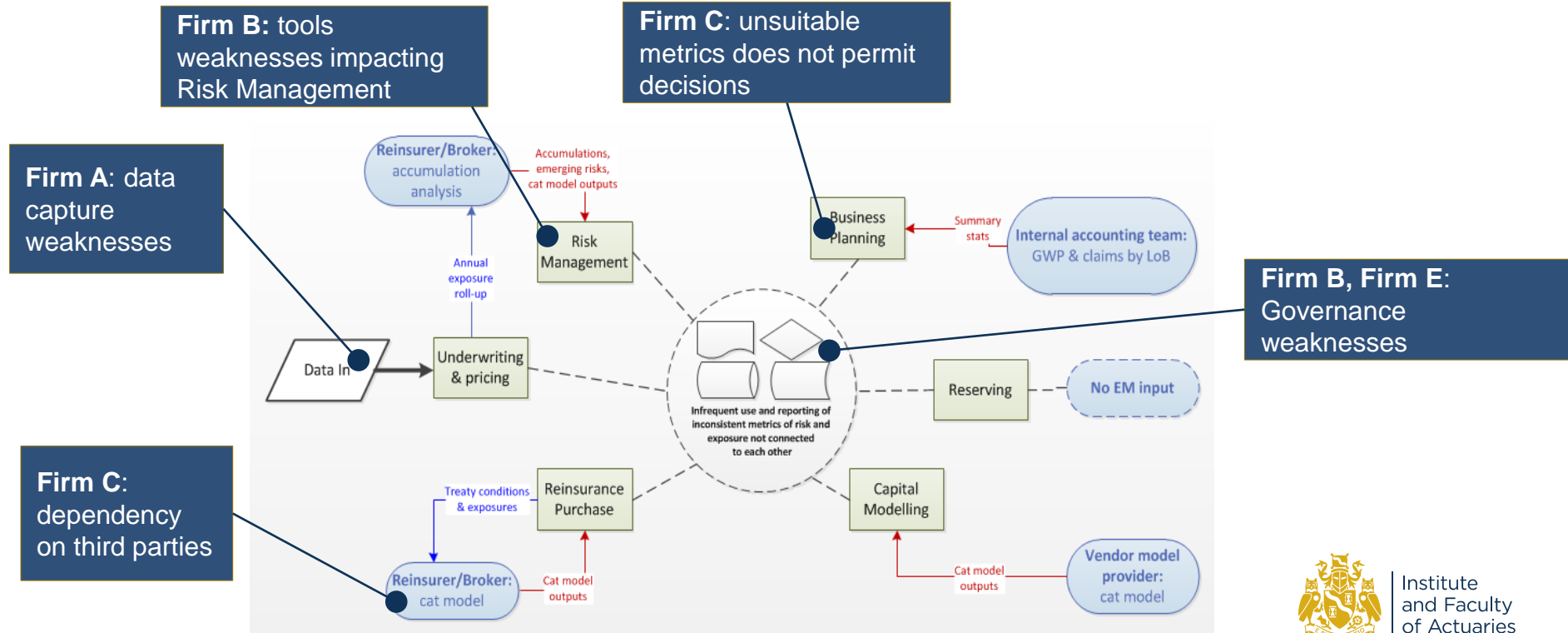
Interconnectivity differences



- London Market firms tend to have a more dynamic connection of EM with UW and Risk Management as part of their modus operandi
- EM silos more often encountered in commercial firms
- Having said that, some of the best rated firms were commercial firms who had a strong top-down culture of EM integration, overcoming legacy problems

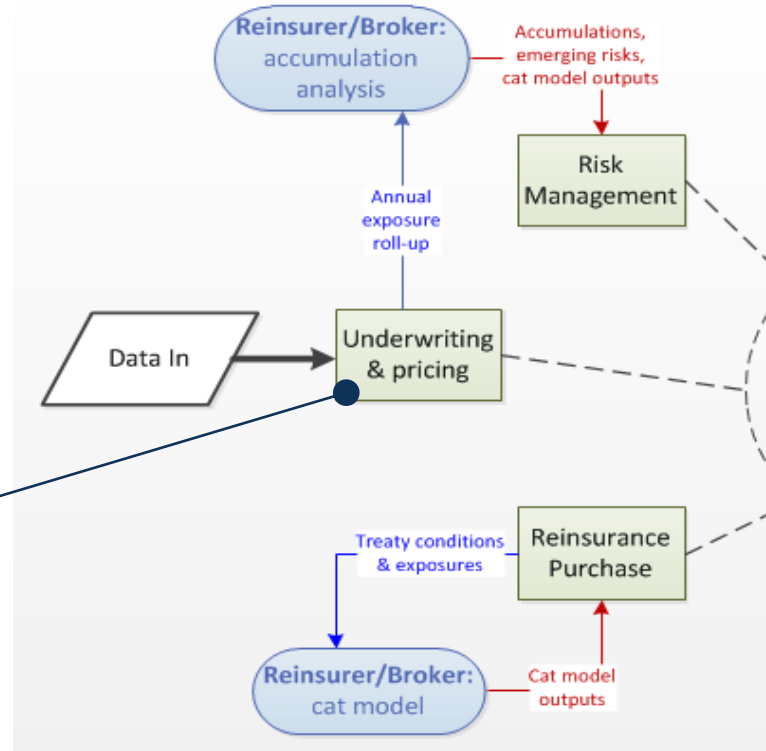
Scoring is only indicative and relativities require careful interpretation

Findings 4/5: Case examples from the thematic review



Findings 4/5: Case examples from the thematic review

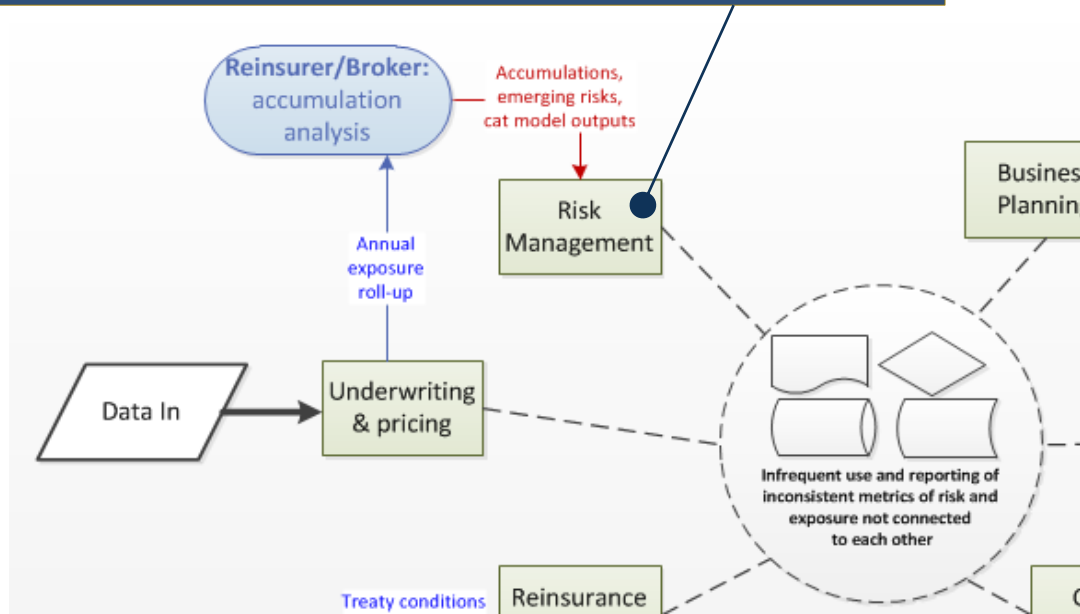
Firm A: standardised format for capturing policy information for only one line of business. No consistent data quality standard to capture exposure.



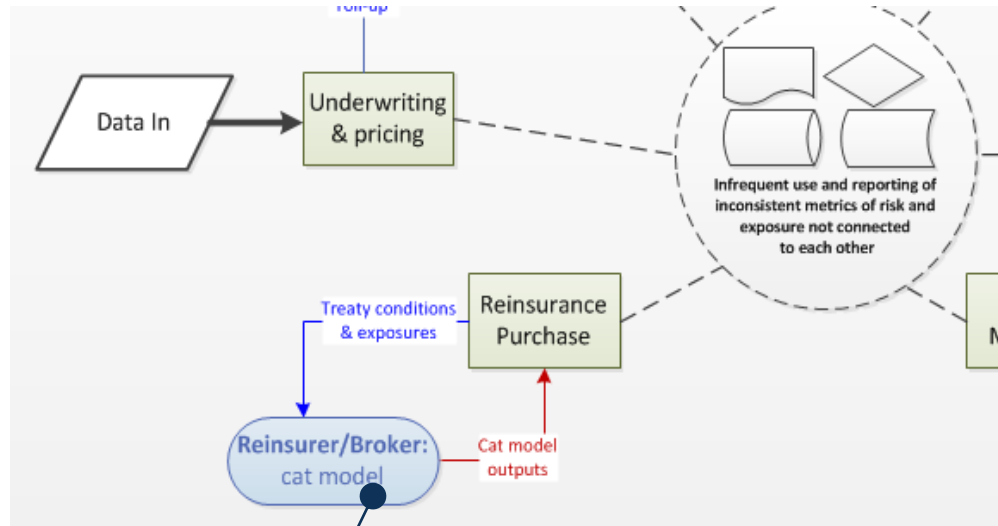
Institute
and Faculty
of Actuaries

Findings 4/5: Case examples from the thematic review

Firm B: No automated way of rolling up exposure totals or aggregates. The manual process is done only annually on 6-month old data



Findings 4/5: Case examples from the thematic review



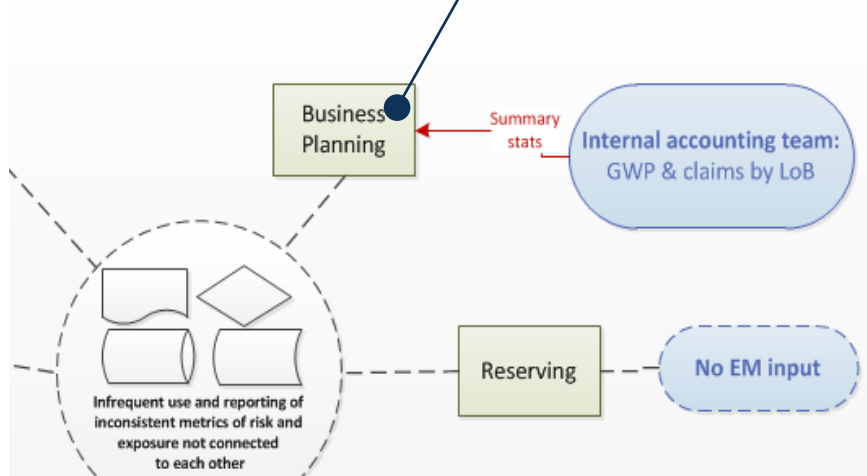
Firm C: Aggregation of exposures happens by third party (broker) done only annually. Dependency on third party for monitoring risk appetite



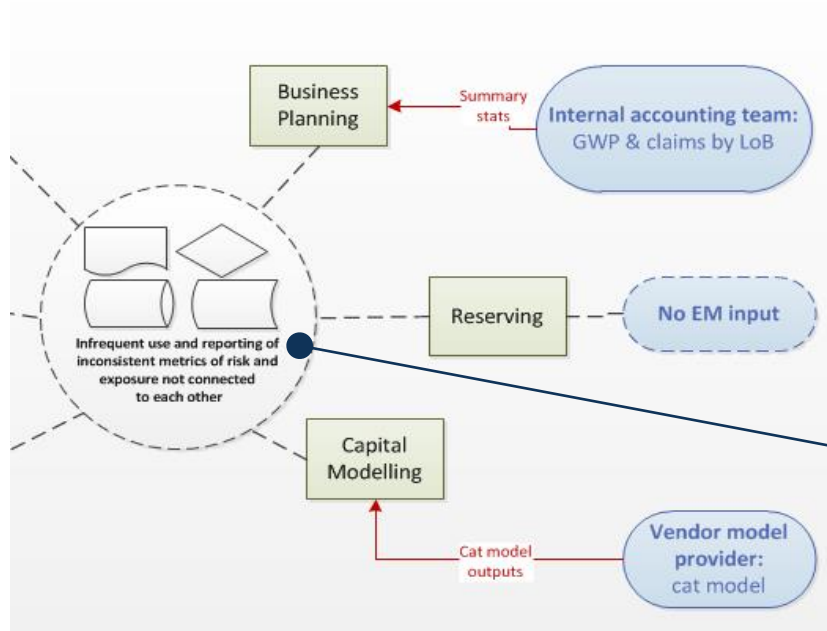
Institute
and Faculty
of Actuaries

Findings 4/5: Case examples from the thematic review

Firm C: metrics used are only GWP and Loss Ratios. These metrics are difficult to use for driving year-on-year risk movement analysis and drive strategy and planning decision. Poor metrics for UW function to communicate with Risk function



Findings 4/5: Case examples from the thematic review



Governance Anecdotes

- **Firm A:** CUO on 'Who is responsible for Exposure Management in the firm?': *"I am not sure; you should probably ask the Reinsurance Department"*
- **Firm E:** Group Head of Exposure Management when asked 'Which is the area that you would spend more time if you had the resources?': *"None. I have nothing that keeps me awake at night"*. This was the same firm that had no clash scenarios, no casualty cat aggregate analysis and no dynamic way of analysing PML for property cat.



Findings 5/5: Common themes from recent reviews

- EM data, tools, processes more mature for property than liability
- Often liability accumulation risk (inc. cyber) and clash risk poorly understood by firms
- EM operates often in silos across the portfolio/activities/governance
- Often there is a lack of ownership of EM across firms
- We found some evidence to suggest good underwriting long-term performance and book stability with forward-looking EM practices
- Legacy systems, delegated authorities and lack of liability data standards often identified as obstacles



Conclusions

Worrying continuing trends

- The reported loss creep (e.g. from Typhoon Jebi) is concerning given it comes from a well-modelled peril, mature territory and property line of business.
- Reported reserve deterioration: reserve failure of underlying inability to capture exposure?
- Risk management frameworks continue to lack inclusion of 'near-miss' scenarios: what if Hurricane Dorian had hit Florida's exposure? What is the liability accumulation peak aggregate in a given portfolio?

Next PRA steps

- Continue thematic review in a systematic way
- Inform our understanding using the cyber and liability returns from 2019 Insurance Stress Tests
- Continue to engage with industry on Exposure Management and reduce the risk of flying blind.



Institute
and Faculty
of Actuaries

Questions

Comments

The views expressed in this [publication/presentation] are those of invited contributors and not necessarily those of the IFoA. The IFoA do not endorse any of the views stated, nor any claims or representations made in this [publication/presentation] and accept no responsibility or liability to any person for loss or damage suffered as a consequence of their placing reliance upon any view, claim or representation made in this [publication/presentation].

The information and expressions of opinion contained in this publication are not intended to be a comprehensive study, nor to provide actuarial advice or advice of any nature and should not be treated as a substitute for specific advice concerning individual situations. On no account may any part of this [publication/presentation] be reproduced without the written permission of the IFoA [*or authors, in the case of non-IFoA research*].



Institute
and Faculty
of Actuaries