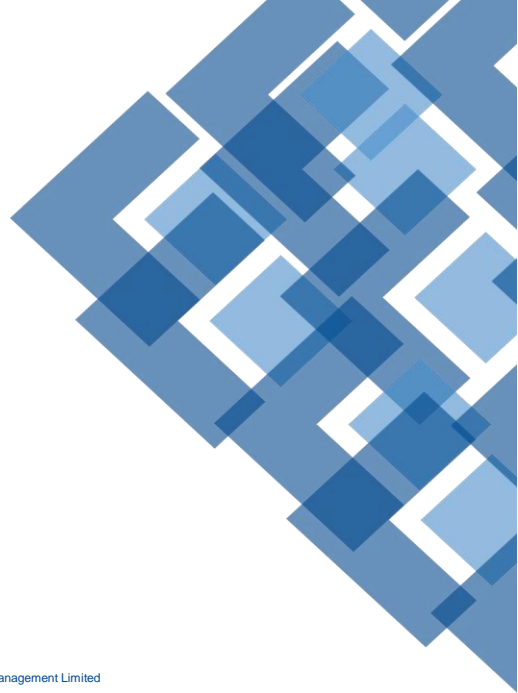




## Management Decision Rules in Multi-Year ORSA Modeling

October 21, 2015



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## Sharma report 2002

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PRUDENTIAL SUPERVISION OF INSURANCE UNDERTAKINGS , December 2002

[http://ec.europa.eu/internal\\_market/insurance/docs/solvency/impactassess/annex-c02\\_en.pdf](http://ec.europa.eu/internal_market/insurance/docs/solvency/impactassess/annex-c02_en.pdf)

Goals included:

“To evaluate how supervisors might respond to [...] risks, by looking at:

- how effectively the current solvency system [...] has detected in advance firms in difficulty over the last six years
- how effectively current supervisory tools prevent, detect in advance and cure problems; and
- typical early warning signals, including both quantitative and qualitative factors, and possible new signals.”

Findings included:

“In each of the detailed case studies we examined we found a chain of multiple causes. The most obvious causes were the inappropriate risk decision, the external ‘trigger event’ or the resulting adverse financial outcomes.”

“However, further analysis showed that these causal chains began in each case with underlying internal causes, being problems with management or shareholders or other external controllers; these problems included incompetence or operating outside their area of expertise, lack of integrity or conflicting objectives, or weakness in the face of inappropriate group decisions.”

## GIRO audience survey

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- ◆ Management actions affect risk
  - Do you agree or disagree?
  
- ◆ Management actions should be considered in forward-looking assessment of own risks and solvency?
  - Do you agree or disagree?
  
- ◆ Management actions in stress scenarios should be given special consideration?
  - Do you agree or disagree?
  
- ◆ In my company's ORSA we consider management actions
  - In normal circumstances
  - In stress conditions

## Worldwide ORSA survey (sponsored by CAS/CIA/SOA)

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ORSA Process Implementation for Internal Stakeholders, September 2015

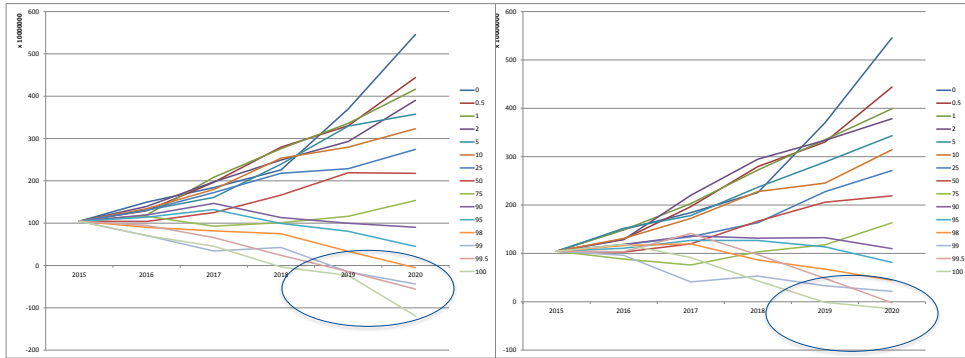
<https://www.soa.org/Files/Research/research-2015-orsa-survey-report.pdf>

“A significant portion of companies surveyed (around 30%) do not model management actions that might be pursued in adverse financial conditions when projecting future balance sheets and capital requirements.”

“We contend, as a result, that it is less likely these companies will properly understand the extent of the impact from such conditions, because the absence of management actions will tend to lead to an overstatement of the adverse impact on the business.”

## Five year projection with static (left) and dynamic (right) pricing

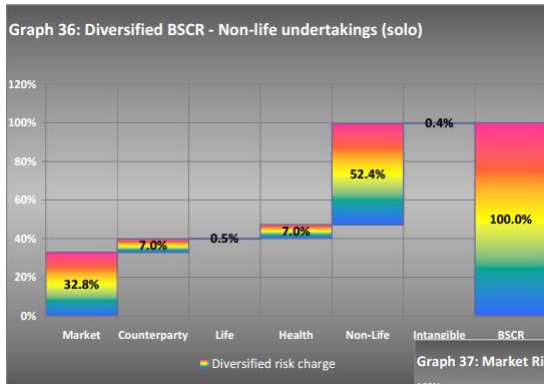
- ◆ Management pricing rule:
  - Increase prices by 5% if last year's combined ratio > 105%
  - Decrease prices by 5% if last year's combined ratio < 95%
- ◆ Big impact on downside tail



## GIRO audience survey (continued)

- ◆ Which management actions should be considered?
  - Decreasing order of priority
- ◆ Which significant management actions are NOT modelled in your company's ORSA?
  - Please identify the two most significant types of action
- ◆ Which significant management actions do you plan to develop/improve?

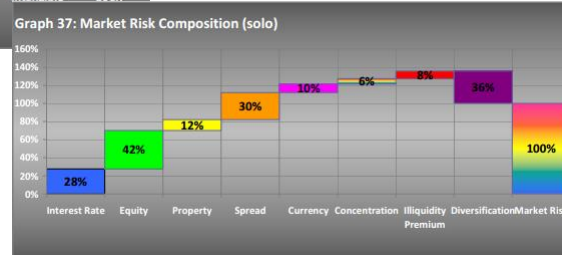
## Breakdown of SCR for European non-life insurers



Market risk contributed around one-third (32.8%) of total Basic SCR for Non-Life insurers

Largest contributor (52.4%) was SCR for Non-Life underwriting risk

Source:  
[https://eiopa.europa.eu/Publications/Reports/QIS5\\_Report\\_Final.pdf](https://eiopa.europa.eu/Publications/Reports/QIS5_Report_Final.pdf)



7

## GIRO audience survey (continued)

- ◆ For which **Market Risk** components are management actions considered in your company's ORSA?
  - Interest rate risk
  - Spread risk
  - Equity risk
  - Property risk
  - Concentration risk
  - Foreign exchange risk
- ◆ In which ways are each of the above risks considered?
  - Limit the exposure to the risk
  - Hedge the risk
  - Diversify the risks
  - Other (please specify)
  - Not considered
- ◆ How are management actions assumed to be different in times of stress?



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## GIRO audience survey (continued)

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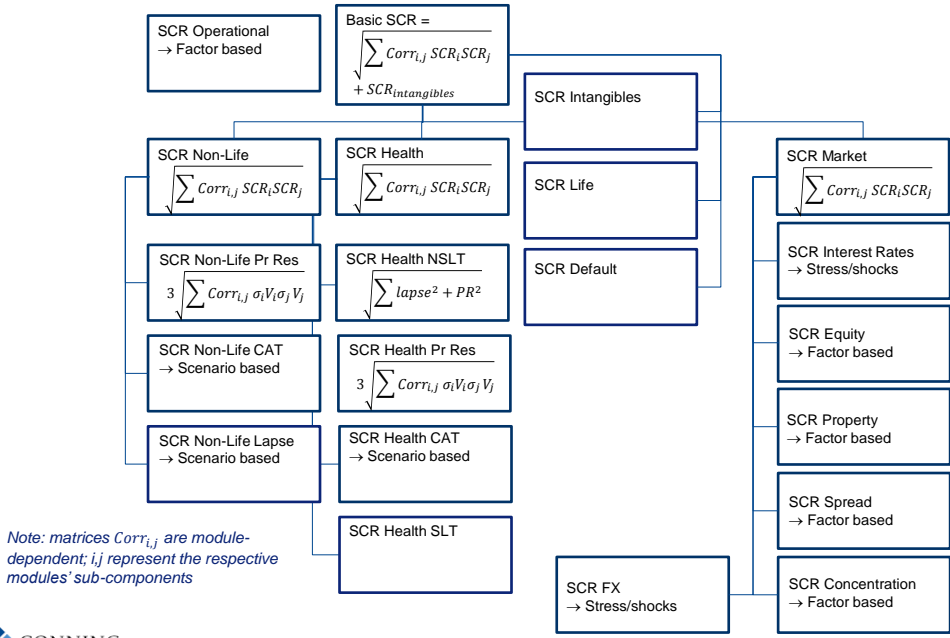
- ◆ For which aspects of **Non-Life Underwriting Risk** are management actions considered in your company's ORSA?
  - Adverse development (reserve) risk
  - Adverse underwriting/pricing environment
  - Adverse claim environment
  - Inflation
  - Expenses
  - Other
- ◆ In which ways are each of the above risks considered?
  - Exposure control
  - Price adjustment
  - Underwriting selection
  - Exit the business segment
  - Other (please specify)
  - Not considered
- ◆ How are management actions assumed to be different in times of stress?

## Challenges in incorporating management actions in a model

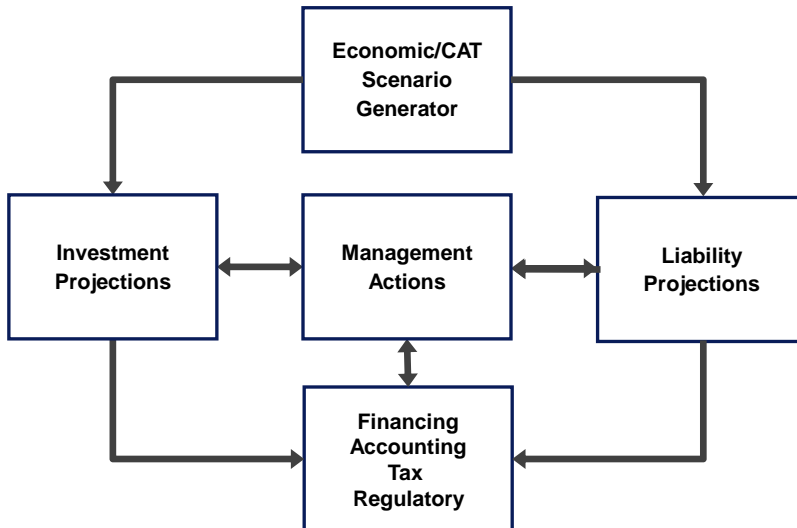
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- ◆ Modular
  - Factor based
  - Stress/scenario based
  - Stochastic simulation based
- ◆ Integrated
  - Stochastic simulation based
  - Explicit multi-period (step-by-step)
  - Feedback loops

Modular approach – e.g. Solvency II Standard Formula (simplified)



Typical architecture for integrated ECM/ERM platform



## GIRO audience survey (continued)

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- ◆ Which type of ORSA platform does your company use?
  - Modular
  - Integrated
  - Mixture
  - Other (please specify)
  
- ◆ Which aspects of management actions has your company found most challenging to model?
  - Market risk
  - Non-Life underwriting risk
  - Counterparty/default risk
  - Strategic risks
  - Other

## GIRO audience survey (continued)

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- ◆ How are management actions developed in your company's ORSA process?
  - Formal process involving discussions with key stakeholders
  - Developed by ORSA team, subject to explicit sign-off (e.g. by CRO/board)
  - Developed by ORSA team, no explicit sign-off
  - Other (please specify)
  - Not considered
  
- ◆ How are management actions documented in your company's ORSA report?
  - Modelled management actions
  - Development process
  - Omissions and limitations

## Discussion

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