Actuarial Involvement in Operational Risk Management
Malcolm Kemp – 29 August 2018

Working Party Members

At present: Daphné de Leval, Eddy Van den Borre, Christoph Krischanitz
For AAE RMC meeting in Utrecht, September 2018: seek additional volunteers?

Aim

[To prepare a paper (particularly targeting EIOPA or other central EU institutions?) promoting actuarial involvement in risk management?]

Target forum for delivery

[Likely to depend on output and target timeline. E.g. for a longer paper we might aim for something for the next European Congress of Actuaries in June 2019 (or some similar later event). For a shorter (e.g. one-page) view paper, timing might depend on some specific trigger, e.g. some angle linked to the current Solvency II review. Are we aware of any such trigger?]

Possible Abstract of Paper

[To be completed when remainder of paper is clearer]

Potential areas to cover in paper

(1) What actuaries already do in the field of operational risk measurement and management
(2) What are organisations likely to want in the near term
(3) How can actuaries best contribute to operational risk measurement management, either when working within the risk management function or within the actuarial function of an insurer (within the scope of Solvency II) or in roles with similar objectives for other types of institution
(4) Topics articulated in Eddy's draft presentation to AAE Task Force on Risk Management
(5) …

[Current working party members biased towards insurance (and/or asset management). However, should we also seek to cover operational risk management for IORPs, since IORP II Directive specifically requires risk management function to cover operational risk, and for the IORP's Own Risk Assessment to include a qualitative assessment of operational risk? EIOPA also apparently wants to develop a common supervisory approach on IORP operational risk management in the near term, which could make our paper more relevant to EU institutions?]

Other possible contents could include:

- More detailed articulation of techniques for measuring and managing operational risk
- Ways in which operational risks are included in Solvency II internal models (Pillar 1 and Pillar 2?) and the appropriateness of the approach used in the standard formula SCR
- Are larger firms more prone to operational risks than smaller ones, as implied by Basel III?
- …

What actuaries already do in the field of (insurance?) operational risk management

[Carry out an informal survey of RMC members and contacts to identify roles currently undertaken?]

Likely focus expected to be:

Risk management function:

(a) Formulating and implementing a coherent risk management process
(b) Championing risk management with senior executives and board
(c) Drafting / updating risk policies including ones touching on operational risk
(d) Developing and implementing ways to measure and manage operational risk
(e) Formulating and implementing controls
(f) Capturing loss and other relevant business information and preparing and presenting relevant management information and proposals
(g) Coordinating or developing potential operational risk scenarios to use in the ORSA [Implicitly this assumes that most firms in their ORSAs will assess operational risk using scenario-based approaches. Is this true?]

Actuarial function:

(a) Contributing to risk management process including ORSA
(b) Formulating of operational risk scenarios particularly relevant to actuarial function (e.g. calculations / modelling)
(c) Commenting on risks firm appears to be exposed to and whether firm is atypical
(d) Commenting on potential operational risk scenarios to use in the ORSA

Other functions/roles:

(a) Developing and marketing operational risk solutions, e.g. insurance products covering cyber risk
(b) …

<u>What are firms likely to want in the near term</u>

Likely to vary considerably by organisations. However, we could try to identify areas that are considered likely to change shortly or are considered in most need of improvement. For example, joint ORX and McKinsey 2017 paper claims that:

(a) Operational risk is important and increasing, but difficult to manage
(b) It has been too focused on calculating regulatory capital and on regulatory compliance, and remains the "unloved child of risk management"
(c) Cyber risk is gaining an increasing profile
(d) Areas most needing improvement typically: (1) Sub-optimal management information, (2) minimal integration of advanced analytics, (3) ineffective and inefficient controls, (4) risk culture not sufficiently embedded, and (5) lack of business and specialist skills

[Other sources of ideas?]

<u>How can actuaries best contribute to operational risk measurement management</u>

Based on the above, suggestions might include

(a) Enhancing risk dashboards [we could try to formulate best practice for what might be included in such dashboards and how such dashboards could be developed/structured, e.g. use of facilitated workshops, risk taxonomies, heat maps, …?]. The following information is likely to be helpful:
    a. Historic losses or near losses for the firm itself
    b. Comparative information for firm's peers
    c. Changes in risk mitigations that may have influenced past or will influence future trends
    d. Other relevant business volume information
    e. Summarised outputs of risk and control self assessment reports and other tools capturing relevant expert judgement
(b) Better integration of advanced analytics. Actuaries should be well placed to assist here. Might wish to note that regulatory enthusiasm for more sophisticated internal models for regulatory capital purposes seems to fluctuate [Do we want to cover some of these angles, e.g. developments in banking?]. However, still likely to be useful for ORSA and for business management purposes. In this context, 'more advanced analytics' are likely to involve at least some of the approaches set out below (borrowing from techniques used in general insurance):
    a. Different operational risk categories are modelled separately
    b. The modelling separates claim frequencies from claim amounts, given that different types of operational risk exhibit different characteristics in terms of this split
    c. Results for individual operational risk categories are then aggregated using suitable approaches (sometimes involving copulas / Monte Carlo simulation and other more advanced analytical techniques)
(c) Seeking to improve controls and control framework. [Are there 'more actuarial' ways of doing this? Should we focus on model risk and/or on highlighting the merits of including a mix of different skills and mindsets?]
(d) Embedding risk culture. [This is likely to be quite governance orientated; are there 'more actuarial' ways of doing this?]
(e) Good business and specialist skills [This section could perhaps refer to the RMC paper promoting the role of actuaries in risk management and/or on how best to select operational risk scenarios used in ORSA etc. Also comments below on "soft skills"]

<u>Topics articulated in Eddy's draft presentation to AAE Task Force on Risk Management</u>

Originally envisaged contributing a paper for ICA 2018 focusing on need for qualitative as well as quantitative approaches and for relevant soft skills.

Some qualitative components:

- Risk and Control Self-assessment (RCSA)
- Risk maps (risk identification attributing a level of concern on probability and severity)
- Business Continuity and Disaster Recovery management
- Risk Appetite / tolerance and Key Risk Indicator (KRIs) definition
- Quality management (such as COSO, ISO, Six Sigma, Sarbanes-Oxley …)
- Scoreboards
- Information security management
- Anti-fraud management
- Management of insurance taken
- Health and safety management

- ….

Some quantitative components:

- Risk capital modelling
- Loss data collection (internal and external)
- Defining loss frequency and severity distributions (with data quality as a challenge) based on techniques such as extreme value theory, simulation, fuzzy logic, neural networks, predictive modelling, …
- Stress testing and scenario analysis
- Risk-adjusted return analysis
- …

Some relevant soft skills:

- Challenging skills
- Leadership
- Fostering dialogue
- Crisis management
- Communication
- Broad knowledge of the company, its processes and systems
- Having easy access to people and information
- Agility
- Project management
- Controlling and auditing
- Vigilance
- Change management
- ….