

A brief overview of current approaches to operational risk under Solvency II



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INTRODUCTION

As companies progress through their Solvency II implementation programmes, some aspects that had hitherto taken a backseat are now starting to receive more attention as it is realised that they may have more impact than previously thought.

Operational risk is one such area. Often seen as simply a catch-all for 'other' risks, and especially those that are not conveniently tractable, the fundamental importance of operational risk is increasingly being realised, as recognition spreads that this is where many of the industry's killer risks can tend to lurk.

Management of operational risks, and crafting companies that are ever more robust to these risks, are now seen as key aspects of sound insurance management.

Operational risk is also moving up companies' agendas, as the capital charge under the Solvency II Pillar I standard-formula calculation is a rather crude measure, essentially based on business volumes. Whilst this has the benefit of simplicity, in some situations it is leading to what are seen as excessive capital requirements.

This short paper provides a brief round-up of how companies are currently approaching operational risk under Solvency II, and gives some direction on how these approaches can be improved upon using innovative techniques.

STANDARD-FORMULA APPROACH TO OPERATIONAL RISK

At present many firms are using the standard formula for calculating the capital charge in respect of operational risk (SCRop) for their Pillar I calculations. Indeed, many firms are using the standard formula for all risks.

Those companies using internal models tend to be large groups and those in certain countries (e.g., the UK, Germany). But even where companies are using internal models, many still currently use the standard-formula approach for the operational risk component.

In general, there tend to be two main reasons why the standard-formula approach to operational risk is used at the moment:

- Lack of credible data.
- Many companies' Pillar II infrastructure is still a work-in-progress (i.e., their Solvency II risk and control assessment/management is not yet fully in place).

However, we are starting to see some moves away from the standard-formula approach, including the carving out of the operational risk component to create a partial internal model.

This appears to be being driven principally by the following:

- Even if the standard formula is used, the Pillar II Own Risk and Solvency Assessment (ORSA) means companies will have to use alternative methods to achieve an independent assessment and understanding of their operational risk anyway (and justify all this to the regulator).
- Some companies' Pillar II infrastructure for risk governance is now starting to be put into operation, allowing them to perform more sophisticated loss data collection and analysis.
- There is increasing recognition that the standard-formula SCRop is such that the company is effectively saying that its risk profile moves in line with premiums, which can lead to excessive capital charges in some cases and may be hard to justify to a regulator. For example, it seems some small, rapidly-growing firms are struggling to accept the results from the standard formula and hence may consider moving to a partial internal-model approach for the operational risk component.

Operational risk is an important class because it is pervasive, and therefore both the risk management and internal control systems have to manage it effectively across a wide range of different functions.

Overall, it is therefore perhaps expected by some regulators that larger firms will give consideration to an internal model. In turn, regulators may be quite robust in challenging the level of rigour of models and whether suitable loss data is being maintained.

INTERNAL-MODEL APPROACHES TO OPERATIONAL RISK

Where companies are using an internal-model approach to calculating SCROp, many are using methodologies similar to those employed by banks under Basel II, i.e., scenarios and stresses combined with a loss-distribution approach.

Typically this will be along the following broad lines:

- Pillar II risk/control infrastructure is already in place.
- A set of operational risk scenarios is identified.
- These scenarios are explored with 'experts' to:
 - Build a risk 'library' or 'matrix'.
 - Assess frequency of losses (due to each scenario).
 - Judge the most-likely and worst-case losses (severity of losses).
- From this, and using expert judgment, a loss distribution is derived for each scenario.
- Correlations between the scenarios are then assessed.
- Scenarios are aggregated (e.g. via copulas) to produce a capital charge.

However, there are then varying degrees of sophistication about how integrated the modelling is with operational risk "management," and whether internal loss data is sufficiently credible to be used for this purpose.

Some companies may use industry loss data collection, such as the Operational Risk Consortium (ORIC) database in the United Kingdom, to supplement their internal loss data. However, the ORIC database has proved difficult to standardize, and is sometimes seen as subject to mislabelling and uncertainty over the homogeneity of the data. There is also uncertainty over what credibility factor to give industry data when blending with own company data.

In practice, the use of the above Basel-II-style approach can be problematic due to the lack of sufficiently credible loss data and because there is no explicit formal link between business drivers and the loss outcomes. Also, dependencies between risks may not be appropriately reflected.

In general, operational risks are characterised by underlying drivers, which tend to adapt and change over time. This makes it problematic to use a classical statistical approach, as data can rapidly cease to relate to the risk.

Milliman has addressed these problems by building models for clients which instead use Bayesian network approaches to formally link states of the business (derived explicitly from underlying control and process behaviours) to the loss outcomes.

This has permitted firms to conduct a wide range of analyses, as well as achieving company-wide embedding of the models into their businesses (as the models remain in a language and form that both business and modelling experts can recognize).

CONCLUSION

The modelling and management of operational risk is rapidly moving up companies' priority lists as recognition is growing of the potentially lethal nature of these risks, their often inherent unknowability and, if nothing else, the significant capital charges that can emerge from the standard-formula approach.

More sophisticated approaches are becoming available that not only integrate the modelling and management of operational risk but also generate insights into the complex risk streams running unseen through the bedrock of a company, allowing appropriate risk mitigation and robustification measures to be developed and embedded into business processes.

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