

# Solvency II

Global Insurance Center

## Measuring operational risk

Operational risk, defined as “the risk of loss, resulting from inadequate or failed internal processes, people and systems, or from external events” (definition per Basel II and Solvency II), refers to the risk in operating a company as well as the strategies employed by management in implementing corporate policies. Typically, operational risk is a neglected area in the insurance industry because companies tend to focus on the more traditional insurance and financial risks rather than how to run their businesses more efficiently. Equally, insurers historically have had little data on which to base their assessment of operational risk, and capital modeling has centered on those risks where more data exists, such as insurance risk and market risk. Solvency II is set to change that and will require firms to examine data from a wide range of sources to quantify the risk, as well as to look at many of the more qualitative aspects of operational risk.

In a previous article, “Seven Steps to Solvency II Success,” we considered lessons to be learned from other large-scale change projects. We underscored the challenges of developing and using models and data to quantify risks and discussed how Pillar II risk management capability would help to shape a successful Solvency II project. This article addresses many of the same issues as they apply to operational risk quantification for Solvency II. We explore why the topic is so important for insurers and what impact Solvency II might have on the management of operational risk.



## The forgotten risk

To date, most of the controversy over Solvency II has focused on the draft directive, the calculation of technical provisions and the formulas used to calculate the Minimum Capital Requirement (MCR) and the Solvency Capital Requirement (SCR). These initiatives have focused on measurement of insurance and asset risks. Many have the view that there are still numerous issues concerning the measurement of operational risks that must be resolved under Solvency II.

### Approaches to quantifying operational risk

Under Solvency II, there are two proposed approaches to quantifying exposures to operational risk: a standard or factor-based

approach building on elements of the basic SCR or the use of an internal model. The first option, theoretically, could lead to a capital charge of 20% of the total SCR, although the experience of Quantitative Impact Studies (QIS) 3 and 4 suggests that most firms would come to an outcome below this level.

While the Solvency II standard formula, as currently proposed, applies a factor-based approach to calculating the operational risk element of the total SCR, it remains unclear if this approach really captures the risks facing the insurance industry, the specific sources of risk and, more importantly, the varying risk profiles of different insurance firms.

Nonetheless, the importance of properly identifying the sources of possible risk

and quantifying the related exposures is incontrovertible. For example, in 2002 supervisors from 15 European countries analyzed reasons for insurance company failure and major shortcomings (losses and near failures) in the previous five years (Sharma 2002). This report highlighted that although insurance risk is the greatest cause of failure in insurance firms, operational risk, (i.e., emanating from people, processes, systems and related controls), is a significant factor – and even more apparent when external events and management or governance failures are included.

This view is reinforced by operational issues that impacted the losses from Hurricane Katrina and the World Trade Center. In both cases, clear contract terms, (e.g., definitions of loss that would have addressed the issues of whether the loss was one incident or two and greater specificity about wind and flooding losses), would have greatly impacted regulatory fines and claim settlements.

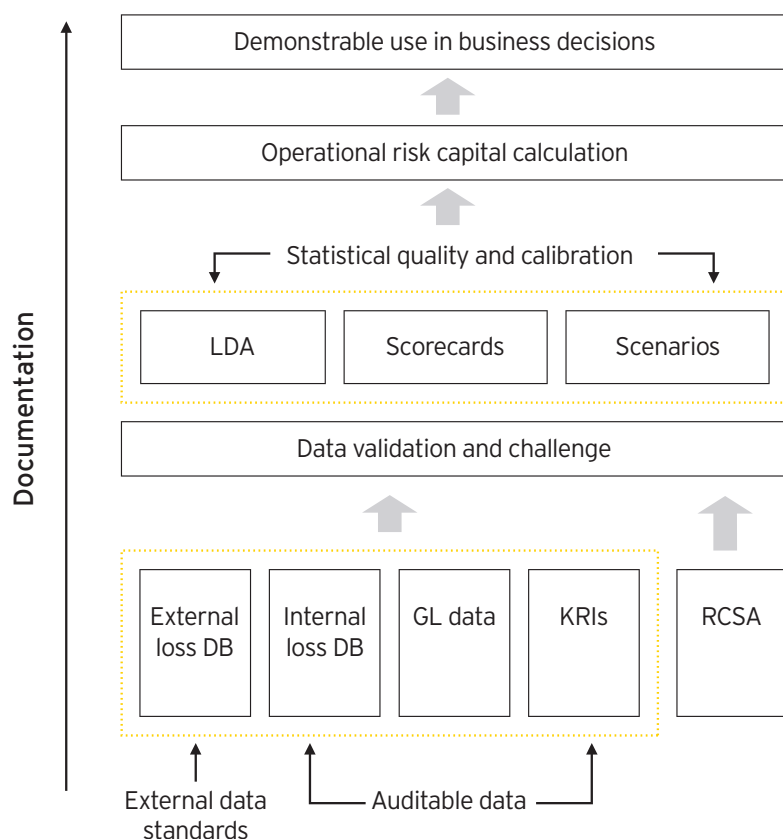
Equally, on the life insurance side, there are many instances of selling the wrong products or services that demonstrate that operational risk is a reality for the industry. Any regulatory regime involved in Solvency II or any other risk-based principle approach must emphasize the importance of managing the risk of inappropriate sales/marketing activity and related suitability issues.

### Selecting the best measurement approach

The choice between an internal model and a standard formula is not a simple one. The banking industry's experience shows that many companies are avoiding the Advanced Measurement Approach (AMA), given the high costs of implementation and the perceived small return on their investment. While the tangible and non-tangible benefits that can be gained from good operational risk management are apparent, the most effective approach to measuring such risks remains unclear.

On the one hand, the simplicity of the standard-formula approach to operational risk may not suit many insurers, insofar as it does not truly reflect their risk profile. On the other hand,

Figure 1: Example of an internal model option under Solvency II



## The challenge for the industry is that internal model approaches will require a substantial investment beyond what has already been allocated.

the challenges of developing an internal model should not be underestimated. The choice in approach is not obvious.

Initially, the company needs to assess the level of operational risk that is present within the business. There are many methods for gaining an initial view of the level of operational risk, but the most common starting point is the development of a Risk and Control Self-Assessment methodology. Typically this will define the inherent and residual (after control) operational risks within the business, and it will provide a good starting point for an understanding of the nature of operational risks in the business. What it will not do is provide details of the tail events required under the Pillar 1 SCR calculation or the Pillar 2 Own Risk and Solvency Assessment (ORSA). This is a time-consuming and challenging process, but it will provide the business with an indicator of the level of sophistication that might be required for the SCR quantification (i.e., internal model vs. standard formula).

More important, though, is the fact that the regulator will have the power to prescribe the use of an internal model if the standard formula is deemed not to reflect the business risks. Consequently, the regulator will undertake an assessment of the likely level of operational risk within the business. As a result, at the very least, we should expect those firms that are perceived to be lacking in their control environments or have a history of operational failure to be encouraged to use a more sophisticated approach.

While we agree that operational risk is important, locating the data to underpin a more rigorous internal model approach will be a significant endeavor, particularly given the lack of internal data upon which existing assessments are based. In the UK, many firms found that their own risk assessment within the internal model the Individual Capital Assessment (the ICA) was lower than using the SCR formula. This is noteworthy since, in many respects, the UK might be considered ahead in its quantification of operational risk. However, there is a question as to whether the current ICA approaches

would meet all the internal model validation requirements under Solvency II.

Additionally, a key challenge for the regulator is to set the operational risk capital charge at such a level that it encourages firms to assess operational risk more rigorously, without penalizing those smaller firms that might not have the resources to undertake a more sophisticated assessment. In this regard, the standard formula as it currently stands does not appear to work for all sectors of the market.

If the regulators do wish to force firms to adopt internal models, it remains the case that there are no guidelines pertaining to the modeling of operational risk within the insurance industry, not even in Solvency II. As a result, many firms have looked to the banking sector for guidance.

### Learning from other industry experience

Although insurance and banking business processes and products are dissimilar, many of the challenges in quantifying operational risk are consistent. For example, banks have boundary issues between operational risk and credit risk in the same way that insurers have boundary issues between operational risk and insurance risk. Despite these inevitable definitional issues, Basel II encourages banks to demonstrate an understanding of the operational risks within their businesses and to hold capital for them. Solvency II will do the same for insurers.

Basel II offers banks three different ways to calculate the operational risk capital charge: the Basic Indicator Approach (BIA), The Standardized Approach (TSA) and the AMA. Consistent with Solvency II, the expectation is that the capital requirement will be more reflective of specific risks, but not necessarily lower, as the methodology advances. The BIA and TSA are categorized as factor-based approaches, whereas the AMA is categorized as an internal model approach.

Interestingly, although there is the potential for capital saving by following the AMA route, many banks have not chosen to do so, seeing the implementation costs as not justifying the potential savings. Despite the fact that many

banks have not chosen to gain approval for AMA or an internal model approach, two themes emerge:

- ▶ Most banks still choose to enhance their tools and management processes around operational risk even if they are not choosing the AMA route.
- ▶ Regulators expect a higher level of understanding of operational risks than the insurance industry currently provides, no matter what quantification approach is used.

Insurance industry regulators want firms to demonstrate that they understand the potential for operational failures, that such risks are within tolerance levels and that appropriate mitigation programs are in place. It is also reasonable to expect a regulator to ask firms to demonstrate their risk appetite in all operational risk categories. Generally, this will take the form of an explicit tolerance for operational losses that the business can sustain. Of course, operational risk identification and measurement are essential to accomplishing this.

### Other operational risk considerations

As noted, the current Solvency II draft directive offers minimal guidance on how to quantify operational risk issues.

While Solvency II provides a definition of operational risk that is not inconsistent with that of Basel II, firms will be required to demonstrate what that means for their businesses. In particular, they need to show how they deal with boundary issues between operational risk and insurance risk.

One of the ways firms can do this is to present a clear linkage between the risks articulated and defined in the risk register (or risk log) and the scope of risk measurement included in the internal model and/or ORSA. This will require greater analysis than many insurers currently have in place. For example, many firms argue that significant aspects of operational risk are already embedded in the insurance model since the operational risk costs form part of the claims costs (e.g., where claims costs

have been greater than they should have been because limits were exceeded or contract terms were unclear). While this may not be wrong, the business does not learn from its mistakes or have incentives to change its control environment if it does not have a full understanding of the true costs of operational risk. As such, we are seeing a trend for firms to disaggregate such operational risk losses from the total costs. This practice can then provide more data for an internal model approach.

### Whether to select the internal model route

In light of the objectives for operational risk measurement, it is clear that much more preparation is required from the industry if internal model approaches are to be used for operational risk. Our view is driven by the validation requirements in the draft directive and the following criteria that internal models should meet:

- ▶ Statistical quality standards - the appropriateness of the modeling approach from a mathematical standpoint
- ▶ Calibration standards - the ability to demonstrate that the calibration is appropriate
- ▶ Use test - the ability to demonstrate that the model is embedded into the business and is used for real business decisions
- ▶ Documentation standards - the level of documentation around the process of producing the number
- ▶ External models and data - how the business validates externally sourced models and data as applicable for its own business

Current model approaches that are used to quantify operational risk in the industry often do not meet many of these criteria. For example, few firms are approaching operational risk in a way that is likely to meet the internal model statistical requirements and data standards. Fewer still are able to demonstrate the use of their operational risk quantification approach in driving risk-management decisions.

As a result, a key strategic decision for firms is whether or not to select the internal model approach for the quantification of operational risk. Firms that currently have more advanced techniques or maintain internal loss data will

find it difficult to argue to the regulator that the standard SCR operation risk factor approach is the appropriate method for them under Solvency II. Certainly, firms that have already developed their own, perhaps limited, internal model approach to operational risk (e.g., scenarios are very popular) might look like they are selecting against the regulator if they choose not to do an internal model – something that will not be allowed.

Therefore, many firms will have to go down the internal model route. However, achieving regulatory approval for internal models for operational risk is likely to present a significant challenge. The diagram (Figure 1) shows how an integrated approach to operational risk using an internal model for Solvency II might look. Some of the areas of potential difficulty are readily apparent. For example, it is clear at the bottom of the diagram how the data standards apply to a range of inputs for an operational risk model. Equally, although firms may use a range of quantification techniques, all must meet the statistical quality and calibration tests and critical to approval is the need to demonstrate “use” of the model outputs and to document the entire process.

## Conclusion

It is clear that meeting internal modeling standards will be difficult. However, given the importance of operational risk, it is likely that the regulator will encourage many firms to develop their own models on the basis that the standard formula approach is not suitable for their firm (e.g., size, risk profile and other factors).

The challenge for the industry is that internal model approaches will require a substantial investment beyond what has already been allocated. Even firms that choose not to use an internal model must demonstrate robust management of operational risk, if only to help justify why the standard formula might be appropriate for the risk quantification.

The 2012 deadline is rapidly approaching. As Solvency II becomes a standard, the operational risk story will be worth watching as regulators set higher goals and the industry assesses the impact of the new developments.

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EYG No. EG0025