

# CLIENT ADVISER

## SOLVENCY II: THE CAPITAL CHALLENGE OF OPERATIONAL RISK

As Solvency II beds down as part of insurers' daily business, many are looking to extend their internal model to include operational risk.

Given the conservative assumptions built into the Standard Formula, operational risk can account for a sizeable proportion of an insurer's Solvency Capital Requirement (SCR). Insurers may therefore wish to build an Internal Model for operational risk, which more accurately reflects their own view of their organisation's risk profile, and which supports the effective management of that risk.

However, the identification, quantification, and mitigation of operational risk can present a substantial challenge under Internal Model approaches.

The Solvency II legislation is less prescriptive than Basel II, but the lack of insurance-specific benchmarks may result in cumbersome model approval processes. While the insurance industry has produced fewer high-profile losses than the banking industry, the Prudential Supervision of Insurance Undertakings report, published in December 2002<sup>1</sup>, highlights that operational failings have been a prime cause of insurer demise. The regulators investigated 21 insurance company failures or near-failures between 1995 and 2001, and concluded that all were directly or indirectly attributable to operational risk.

Historically, insurers themselves have attributed major losses or company failures to:

- Under-pricing.
- Under-reserving.
- Under-supervised underwriting.
- Excessive expansion into new and unfamiliar markets.
- Irresponsible management.

- Reinsurance abuse.
- Internal control shortcomings.
- Lack of segregation of roles and responsibilities.

This highlights that operational risk is typically a complex and non-linear interaction between business processes.

By unbundling operational risk from underwriting risk, Solvency II seeks to provide insurers with the tools to identify weakness and mitigate future failures.

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<sup>1</sup> Conference of Insurance Supervisory Services of The Member States of The European Union 2002, Prudential Supervision of Insurance Undertakings, available at [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), accessed 17 October 2016.

## STRATEGIC CHOICES AROUND OPERATIONAL RISK

The deliberate segregation between underwriting risk and operational risk gives management the ability to make strategic decisions. Operational risk models allow management to take informed decisions regarding risk management, whether that is ultimately to accept, terminate, treat, or transfer the risk.

<b>ACCEPT:</b>	Acknowledge that the profit generated by a particular line of business outweighs the operational risk arising from that line of business.
<b>TERMINATE:</b>	If operational risk exceeds the profitability of a line of business, exit that business.
<b>TREAT:</b>	Manage the level of operational risk down to a level which is acceptable when set against the business's profitability.
<b>TRANSFER:</b>	Identify and purchase insurance which mitigates the risk.

## CHALLENGES IN QUANTIFYING OPERATIONAL RISK

The quantification of operational risk under modelled approaches is more than just a formula-based quantification exercise. It is an integral part of an efficient enterprise-wide risk framework and presents its own challenges.

When seeking to model operational risk, most insurers will rely upon a mixture of scenario analysis and internal loss data. Models can be very sensitive to input assumptions. Changes in frequency or the severity of assumptions can result in significant swings in capital requirements each time the model is run. Managing this potential volatility is a key priority.

Internal loss data is often difficult to collate, since operational risk losses may show up as underwriting or reserving losses. External events may help to overcome the scarcity of internal data points, especially under the tail of the distribution which drives the risk capital estimation. The challenge here is that the process for selecting and scaling external data must be transparent, consistent, systematic, and replicable. For this reason, some insurers prefer to use external data for scenario construction, bearing in mind that such data may have a size bias.

Scenario construction in turn is determined by three steps:

- Identification of scenarios.
- Scenario definitions.
- Scenario calibration.

Each step should be objective, combining expert judgment and relevant internal and external risk/loss information.

Each aspect of scoping, executing, and validating scenarios has its own challenges. It is important that the process be conducted in a robust, unbiased, and replicable manner, while taking into account all relevant information.

A particular challenge for scenarios is in assessing emerging and interlinked risks. Cyber is a good example of an emerging risk for which large losses are plausible within a one-year time horizon, even if they have not yet occurred. There should be a clear link between scenario assessment and risk management decisions and actions. The purchase of suitable insurance is a good example of a link between risk quantification and a risk management action.

The definition of scenarios should cover all potential high-severity risks, and change only slowly over time. However, scenarios should be refreshed regularly based on changes in the business environment and control factors (BEICFs), and on emerging risks or new information.

A successful operational risk framework and model should enable a company to:

- Better target management attention towards emerging risks.
- Direct greater compliance oversight to business areas which might develop regulatory issues.

- Identify business units with exceptional or lagging performance – beyond what is evident from the profit and loss statements.
- Demonstrate to the regulator that the company takes a holistic view of risk and make suitable ex ante provision.
- Ensure that any insurance it purchases will be value for money compared to their own internal cost of capital.

While the legislation specifically allows for the integration of insurance in the capital model, regulators are more likely to approve the insurance component of an insurer’s Internal Model where the company can demonstrate and document a robust process, supported by appropriate analysis.

To maximise potential benefits from aligning operational risk measurement and insurance, a structured process is required covering insurability analysis, the modelling of insurance impact, and proposals on insurance optimisation based on the outputs of the analytical tools/models. This is illustrated below.

	MODELLED RISK PROFILE (FROM OPERATIONAL RISK INTERNAL MODEL)	INSURABILITY ANALYSIS	MODELLING INSURANCE IMPACT	PROPOSALS ON INSURANCE OPTIMISATION
KEY STEPS		<ul style="list-style-type: none"> <li>• Map insurance policies against risk categories units of measure.</li> <li>• Evaluate insurance response against scenario impacts.</li> <li>• Conduct gap analysis between risk profile and existing insurances.</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate insurance into operational risk model to assess impact of insurance.</li> <li>• Test impact of different insurance coverage and different structures and retention.</li> </ul>	<ul style="list-style-type: none"> <li>• Make proposals on insurance programme based on risk finance optimisation.</li> </ul>
BENEFITS		<ul style="list-style-type: none"> <li>• Provides inputs to allow for modelling of insurance impact.</li> <li>• Identifies opportunities to increase insurance coverage (such as wording enhancements).</li> </ul>	<ul style="list-style-type: none"> <li>• Allows firm to quantify impact of insurance and test structures.</li> <li>• Enable capital benefits from insurance to be realised.</li> </ul>	<ul style="list-style-type: none"> <li>• Enables optimised insurance purchasing decisions to be taken, fully utilising all operational risk information.</li> </ul>

## CONCLUSION

The use of an Internal Model for operational risk gives a firm a range of potential benefits, with a clear link between risk assessment and quantification, and risk mitigation and management. However, regulators have been critical of operational risk models in the past, and are only now beginning to outline their own expectations of model outputs.

Before accepting the validity of either the model or of any mitigation claimed, it seems likely that regulators will expect a robust exploration, not only of overall operational risk quantification, but also of specific emerging operational risk scenarios (for example, cyber risk).

## ABOUT MARSH

Marsh is a global leader in insurance broking and risk management. In more than 130 countries, our experts help clients to anticipate, quantify, and more fully understand the range of risks they face.

Marsh has deep experience in supporting financial institution clients model and manage operational risks. Drawing on our extensive claims database and analytical capabilities, we have supported clients across the range of operational risk modelling and insurance activities, including:

- Developing and running scenario analysis processes.
- Developing and validating operational risk models.
- Conducting operational risk insurability studies.
- Incorporating insurance into operational risk capital models.
- Optimising insurance programmes given operational risk profile.

As part of Marsh & McLennan Companies, Marsh works closely with and is able to draw on experts from our sister companies, including Oliver Wyman and Guy Carpenter, to provide market-leading solutions for our clients.

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