Solvency II

Demystifying Internal Models for Underwriters

Solvency II continues to proceed at an ever increasing pace through the insurance industry in Europe. Regulators are looking to have greater scrutiny across a wider range of the practices and processes of insurance businesses than ever before, and shaping the business response to this is a critical challenge.

The constraints that Solvency II will impose on business management will feed directly through to how underwriters select and price risks, and how their performance is measured. The required systems and processes are just beginning to be developed, so now is the time for underwriters to influence how their businesses respond to these challenges and how they will be able to write insurance business after Solvency II implementation.

Solvency II is bringing an increased risk focus at management level

Businesses will need a demonstrable risk focus. They will be required to develop and use risk metrics in business decisions, in addition to existing financial metrics. Underwriting decisions will need to evidence their consistency with the firm's risk management approach, and its overall risk metrics.

Underlying risks will not change; however, the methods used to evaluate and monitor them will. Without the active involvement of underwriters, firms run the risk of developing systems and processes that are not appropriate for their business and, therefore, taking the wrong financial or risk decisions in the Solvency II world.

Under the Solvency II regulatory framework, a firm's Internal Model is at the heart of risk evaluation and will therefore be a key input to a wide range of business decisions. This is going to be a significant extension of scope for most existing capital models.

What is the 'Internal Model' in practice?

There is no exact regulatory definition of the 'Internal Model' and Solvency II gives insurers a large degree of flexibility in developing an Internal Model that is appropriate for their business. Broadly speaking, however, the Internal Model is the collection of processes, systems and calculations that together quantify and rank the risks faced by the business.

Once the Solvency II framework, including the Internal Model is in place, management will be obliged to demonstrate that they use its results in real business decisions – the 'use test'. It is therefore paramount that underwriters ensure that modelled results are sensible and an accurate reflection of the business before performance measurement and investment decisions are taken using them.

The use test is going to mean that insurers have to adopt new business practices in order to gain model approval and avoid penal capital charges. Around half of the suggested uses in the latest Solvency II communications from European regulators involve capital allocation or a move towards some other equivalent form of risk-adjusted performance measurement. This makes it likely that Internal Model results will have to be used to allocate capital and therefore determine cost of capital loadings to include in pricing.

Model structure and parameters will therefore have a direct impact on key business functions such as reported performance (e.g. as combined ratio is replaced with Return on Allocated Capital) and pricing (as profit targets are varied according to allocated capital). In order that a fair allocation is achieved, and realistic profit targets applied to different lines of business, it is important that underwriters are engaged in these decisions, from defining what 'risk' means to the company, to how this feeds through to ranking the level of risk in different lines of business and setting required profit loadings as a result of this.

Why should Underwriters engage in the Internal Model process?

1. To get it right

The underwriters in an insurance business generally have the deepest understanding of the risk and reward profile of their insurance portfolio. In order that the model results can be relied upon, it is important to capture this knowledge and understanding.

2. To ensure consistency

Risk appetite (i.e. balancing the potential upsides and downsides in an insurance business) is what underwriters do on a day-to-day basis within their lines of business. It is, therefore, necessary for underwriters to significantly contribute to how this is decided at a business level and measured/monitored at operational level.

3. The 'use test'

This is the key reason that drives the need for underwriter involvement with the Internal Model. In order to avoid potentially penal capital charges, management will have to demonstrate that the model is a key tool for making a wide range of business decisions. This means that model results will be used to assess performance and to determine strategy going forward. Underwriters should be leading the drive for developing business uses for the Internal Model to ensure that these are truly valuable to the business, and not just a significant compliance burden on already stretched resources.

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How should Underwriters engage in the Internal Model process?

Figure 1 shows some key questions to ask at various stages of model life. In engaging with the process, underwriters should consider the following two stages:

1. Understand

How are model units developed?

How does my line of business fit into the model structure?

Are there any implications for existing models arising from the Solvency II quality standards?

What data has been used to determine parameterisation? What adjustments and judgments have been applied to this data?

What are the key assumptions made for each line of business, and how were these selected? What were the alternatives?

How are risk types aggregated? What impact does this have on the overall result? How are diversification benefits shared between lines of business?

2. Challenge and validate

Does the range of results feel right? Are losses arising from appropriate sources for my business. For example, how much of the modelled loss arises from catastrophes?

What are the metrics that are important to me? What does the model say about the average, and the potential range, of these metrics for my line of business? Is this sensible for the modelled time horizon?

Does the modelled ranking of risks feel right (e.g. between business lines)?

Are relevant sections of the model consistent with other models (e.g. pricing/aggregate monitoring/cashflow forecasting)? How does the model interact with these?

What external/industry data is there that model results could be compared to? How do the modelled results compare with industry historical data?

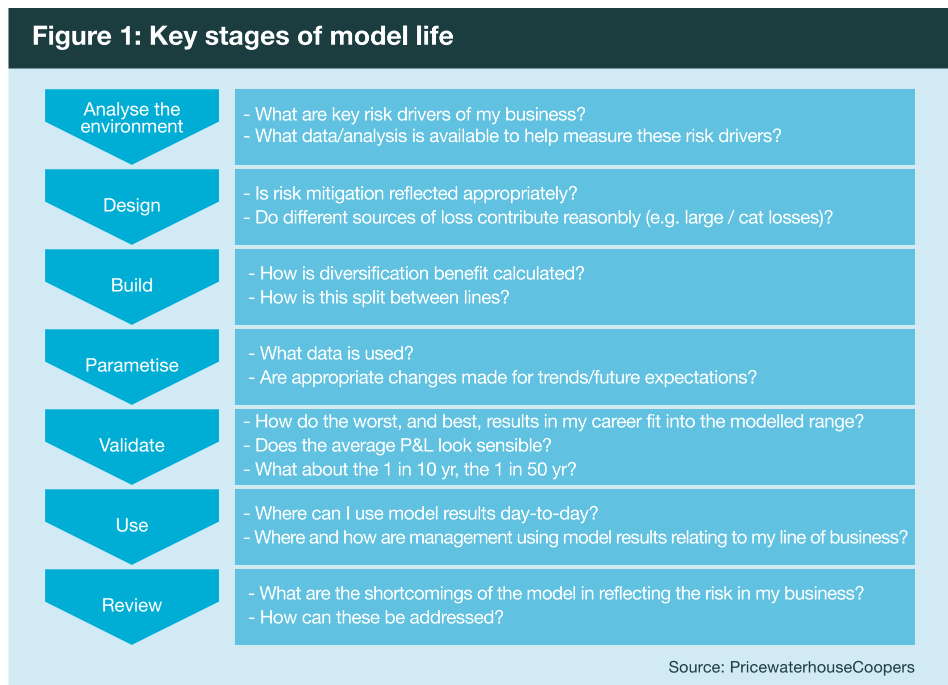
When should underwriters engage with the Internal Model?

The short answer is immediately. Timescales for implementation are tight, with many regulators planning model approval dry runs for the middle of next year. This timetable means that companies are already developing, implementing and starting to use models in order to be able to create the required level of documentation and evidence to support model approval. In many cases, this is a significant extension of the current model capability, so models are now being developed and extended to add these new capabilities. Therefore, decisions are currently being made that will materially affect the results of models, and the consequences of the use test means that these decisions will have a direct impact on the post Solvency II underwriting process.

Underwriters must not lose the opportunity to influence how these models are developed and how they are used within their business. Current models have some significant limitations when it comes to describing real-world insurance risks, and underwriters are best placed to identify some of these limitations, and to ensure that model results are not used blindly where they are inappropriate. This is a substantial risk for European insurers and it can only be mitigated if underwriters are bought in to the model development from an early stage.

The evolving Solvency II regulations are going to bring about many changes to the underwriting activity of companies. One of the largest of these will be the need (or at least strong preference) to use an Internal Model for capital purposes, and therefore in other business processes in order to satisfy the use test. Actuaries and risk professionals are currently working at interpreting guidance and operationalising requirements to use Internal Models within the business. To ensure that their work matches underwriting requirements it is essential that underwriters understand the potential changes and have a voice in making the key decisions.

Figure 1: Key stages of model life



Source: PricewaterhouseCoopers

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