



The actuary of the future

introducing the Actuarial Function

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explore the challenges of this new role.

One of the most significant changes proposed under Solvency II is the introduction of the defined 'Actuarial Function'. This will be the first such actuarial statutory requirement for UK non-life insurers since the introduction of the requirement for Lloyd's managing agents to obtain an annual statement of actuarial opinion (SAO) on the reserves of their syndicates.

Even though most UK insurers already have an Actuarial Function, the responsibilities under Solvency II differ, in our view, from the responsibilities currently assumed by non-life actuarial teams. In this article, we try to shed some light on what is likely to be required and what can be done to prepare for this important new role.

The anticipated role for the Actuarial Function as currently proposed in the Solvency II draft directive is defined in Article 47 and is reproduced in Figure 1.



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Figure 1 | Article 47 – Actuarial Function

→ Insurance and reinsurance undertakings shall provide for an effective Actuarial Function to undertake the following:

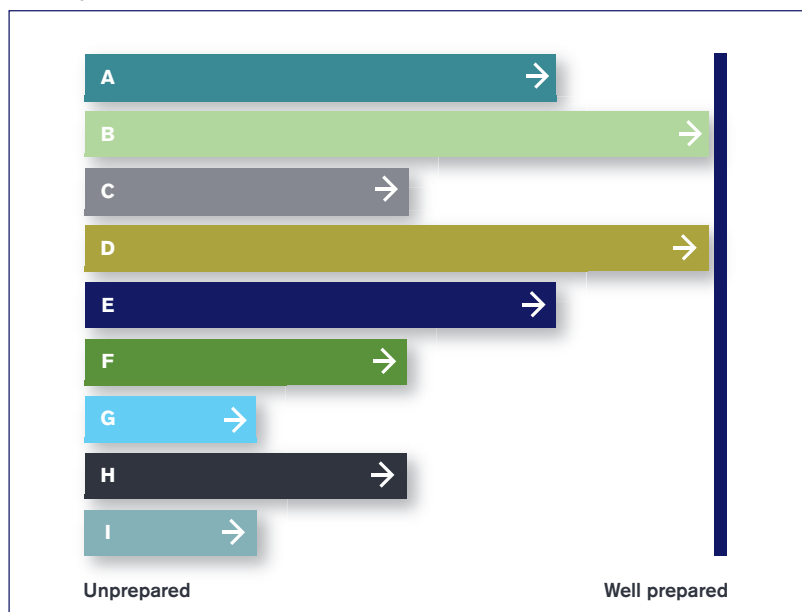
- A** to co-ordinate the calculation of technical provisions
- B** to ensure the appropriateness of the methodologies and underlying models used as well as the assumptions made in the calculation of technical provisions
- C** to assess the sufficiency and quality of the data used in the calculation of technical provisions
- D** to compare best estimates against experience
- E** to inform the administrative or management body of the reliability and adequacy of the calculation of technical provisions
- F** to oversee the calculation of technical provisions in the cases set out in Article 8¹
- G** to express an opinion on the overall underwriting policy
- H** to express an opinion on the adequacy of reinsurance arrangements
- I** to contribute to the effective implementation of the risk management system referred to in Article 43², in particular with respect to the risk modelling underlying the calculation of the capital requirements set out in Chapter VI, Sections 4 and 5³ and the assessment referred to in Article 44⁴.

→ The Actuarial Function shall be carried out by persons with sufficient knowledge of actuarial and financial mathematics and able where appropriate, to demonstrate their relevant experience and expertise with applicable professional and other standards.

¹ Areas not suited to actuarial analysis ² Risk management ³ Solvency Capital Requirement and Minimum Capital Requirement
⁴ Own Risk and Solvency Assessment (ORSA)

Source: http://www.gcactuaries.org/documents/amended_sol2_framework_dir_feb08.pdf

Figure 2 | Actuarial Function – how prepared are UK actuaries?



How does this compare with what actuaries are typically already doing?

From an initial inspection of Article 47, we can see that some of the Actuarial Function requirements are already included within an actuarial team's current responsibilities, although to considerably varying degrees. However, others are currently not part of an actuary's typical duties.

In Figure 2, we give an indication of the potential gaps in a typical UK non-life Actuarial Function. In practice, the extent of current compliance with the proposed Solvency II requirements will vary from firm to firm.

From Figure 2 we can see that in general, UK non-life actuaries are reasonably well prepared for requirements 'A', 'B', 'D' and 'E', many of which are necessary to comply with GN 12 (actuarial guidance relating to formal reports).

However, reserving approaches and systems will need to be changed to enable calculation of technical provisions in line with the Solvency II proposals. In particular, reserves may need to be determined from

probability-weighted average cash flows (current methods often do not allow for the most extreme claim scenarios) and will need to allow for additional risk margins and be discounted for the time value of money.

Another important area for consideration is how best to structure the actuarial team in order to meet these requirements, as it may not be necessary for a single actuary to assume all of the AF responsibilities. Current practice varies; some firms have reserving and pricing actuaries together, other firms pricing and capital actuaries together and others have pricing actuaries working in underwriting units and carrying out all functions for their firm.

Where are the most significant gaps?

Figure 2 identifies five key areas which seem likely to require an expansion of an actuarial team's responsibilities. These are discussed in turn below.

Sufficiency and quality of data (C)

In accordance with GN 12, an actuary is already required to comment on

data accuracy and completeness, and on the implications of any material data limitations. However, in practice this will often only comprise reasonableness checks on the data with the actuary stating that he has used the data provided without independent verification. We agree with the latest report from CEIOPS which suggests that the Actuarial Function will have much greater responsibility for the adequacy of data used to determine technical provisions. This may involve taking account of data from the wider market, or even providing a formal sign-off of data quality.

This requirement may be onerous for actuaries working in commercial lines and, particularly, in the London Market. Liability lines such as D&O and PI spring to mind: with claims experience being linked to economic conditions, it is often difficult to assess how relevant the historic data is for projection purposes. Data quality in Lloyd's and the London Market has improved considerably over the last 15 years but it is still far from perfect.

Oversee calculations in areas not suited to actuarial analysis (F)

This requirement relates to circumstances where the nature of the business does not lend itself to standard actuarial analysis, such as where there is insufficient relevant data for projection purposes. In these cases, use is generally made of work or reports from various sources including loss adjusters, underwriters, brokers and legal advisers.

Rather than simply relying on the figures provided, the Actuarial Function will be required to oversee the calculation of technical provisions. In many cases this is likely to be quite a daunting task, particularly in the London Market, where claims frequency is generally



lower and claims are of a highly individualistic nature. This contrasts with personal lines where claims frequency is much higher and claims are more homogeneous.

Clearly, the Actuarial Function will need to obtain an understanding of the calculations and procedures used to determine technical provisions in these cases. It will also be necessary to assess whether or not these represent a best estimate, and if not then to determine appropriate adjustments.

Express an opinion on underwriting policy (G)

The Actuarial Function will need to state that they are satisfied, or otherwise, with the overall underwriting policy of the insurer, and include an appropriate level of justification. Of all the requirements, this one in particular stands out as being the most significant extension to the role typically currently assumed by an actuarial team. In particular, whilst the “new Lloyd’s” (that is, post-Equitas in 1996) is more efficiently run and leading the world in some respects, many agencies are still underwriter-led organisations and so actuaries could find themselves in a difficult position when expressing an opinion on the underwriting policy.

To be able to sign-off on underwriting policy, the Actuarial Function will need to obtain a deep understanding of the decision-making process. Some of the steps that could be taken to develop this include:

- Becoming familiar with underwriting systems and procedures.
- Understanding the extent to which underwriter judgment is applied for risk acceptance and premium rating.
- Investigating the impact of writing business via different distribution channels or intermediaries.

- Understanding the scope for variation of terms and conditions, and the possible effects on claims development.
- Developing a rate adequacy measure.

Express an opinion on reinsurance adequacy (H)

Generally, the Actuarial Function may be more comfortable expressing an opinion on reinsurance adequacy than on underwriting policy. This type of opinion lends itself more readily to quantitative analysis, with capital models providing a means of exploring the risks involved. If not already the case, this requirement provides further incentive for actuaries to provide input into reinsurance purchasing strategy.

One area where additional work might be needed is in assessing reinsurance adequacy on reserves, particularly where commutations have taken place. More sophisticated modelling of reserve run-off might prove useful here – for example, explicit modelling of significant claims or events and their interaction with the remaining reinsurance cover.

Contribute to the effective implementation of risk management systems (I)

Although the ICA regime has led to an increased focus on risk management, in our experience many UK non-life actuaries have limited involvement with the actual implementation of risk management systems. As such, this requirement will involve a step-up in responsibility in most cases, although the extent will vary between insurers.

Involvement of the Actuarial Function in this area will ensure there are appropriate ongoing links between risk management and capital modelling, thereby helping to

demonstrate that the capital model is embedded in the wider business (the ‘use test’).

Summary

What might be done now to prepare?

It can be seen that the Actuarial Function is likely to look and feel very different to the current position. In addition to undertaking a gap analysis and developing an implementation plan, we believe there are two fundamental questions that firms will need to address now:

- How should the Actuarial Function be structured under Solvency II? In particular, should all actuaries be grouped together or, at the other extreme, be employed in the various business units?
- Should some of the Actuarial Function responsibilities be outsourced? Might there be perceived or actual conflicts of interest between some of the requirements of the role and the existing role of the in-house actuarial team as part of the internal management?

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