Society of Actuaries in Ireland

Information and Assistance Note LA-1:

Actuaries involved in the Own Risk & Solvency Assessment (ORSA) under Solvency II – Life Assurance and Life Reinsurance Business

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Disclaimer

This Information and Assistance Note ("Note") is intended to assist members of the Society of Actuaries in Ireland who are involved in the Solvency II ORSA process in respect of life assurance or life reinsurance process. Other persons involved in the ORSA process may also find it helpful.

Members of the Society are not obliged to perform ORSA work strictly in accordance with this Note. Members are encouraged to consider the practices described but will need to exercise judgement as to their suitability, relevance and sufficiency in the context of the particular firm(s) for which they act and the particular work that they are asked to perform.

The Society does not accept responsibility or liability for any loss to any person or body as a result of any decision or action taken on foot of information, opinions or suggestions set out in this Note.

Definitions

In this Information and Assistance Note, certain terms should be interpreted as follows:

"Actuary" means a Fellow or Associate of the Society of Actuaries in Ireland (Student members are also encouraged to have regard to this Information and Assistance Note, if they are involved in ORSA work)

"Board" means the Board of the Company

"Company" means the life assurance or life reinsurance company in respect of which an ORSA is being prepared

"ORSA" – Own Risk and Solvency Assessment - means a company's regular practice of assessing overall solvency needs, taking into account its specific risk profile, approved risk tolerance limits and business strategy, as required under Solvency II

"Solvency II" means the regulatory framework established pursuant to "Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II)"

"Society" means the Society of Actuaries in Ireland

"*User*" means the person(s) within the Company who, at the time that the Actuary performs ORSA-related work, is(/are) the intended user of the output of that work.

1. Purpose

1.1 The purpose of this Information and Assistance Note ("Note") is to act as a source of information, for Actuaries[1] involved in an ORSA relating to life assurance or life reinsurance business, on good practices that may be appropriate to that work. Actuaries are encouraged to use the Note to stimulate their thinking and foster discussion on how an ORSA should be performed.

1.1.1 This Note is intended to assist Actuaries who are involved in and contribute to the ORSA process, whether they are part of the Risk Function, Actuarial Function or have another role within the Company (or as part of an outsourced arrangement).

1.1.2 The Note is intended to provide support, rather than to set out compulsory requirements. Actuaries will need to exercise professional judgement on the extent to which the practices described are relevant and appropriate to the work that they are asked to perform, having regard to the circumstances of the particular company and all relevant factors. The Note is not intended to provide an exhaustive description of how all elements of an ORSA might be performed, and it is not necessarily sufficient to have regard solely to the Note when deciding how to perform ORSA work.

1.1.3 When an Actuary performs ORSA work as part of an actuarial or multi-disciplinary team, the extent to which various parts of this Note are relevant to his or her work will depend on the scope of that work and the Actuary's role and level of responsibility within the team. Generally it is reasonable for Actuaries to interpret the Note accordingly. However, as a matter of good professional practice, any Actuary who holds a responsible position within a Company and who is involved in ORSA work is encouraged to be cognisant of the practices followed by the team as a whole in respect of the overall ORSA, and to proactively foster good practices, even if the Actuary does not carry direct responsibility in this regard.

1.1.4 This Note is not intended to replace any requirements, regulations or guidance issued by a regulatory/supervisory body.

1.2 It is likely that Actuaries will contribute to the ORSA process in the following ways (this list is not exhaustive):

- Determine, calculate or review the scenarios to use for the ORSA;
- Identify and (where possible) quantify all risks impacting the Company, including those not covered by the Solvency II Standard Formula (or review this work where it is carried out elsewhere);
- Consider the time horizon/confidence level to be used for the ORSA;
- Consider the appropriate capital measure for the ORSA;

[1] This Note is also intended to be helpful to trainee actuaries who are involved in ORSA work and should be read accordingly.

- Determine the method to be used to quantify the risks;
- Determine areas where the Solvency II Standard Formula measures are inappropriate for the Company (or review this where the work has been carried out elsewhere) and (where possible) quantify the impact of this;
- Determine (or contribute to the determination of) whether the deviations from the risk profile implicit in the Solvency II Standard Formula are material and, if so, the method to be used to quantify the impact of these deviations;
- Challenge the ORSA assumptions and results, including any deviations from best estimate identified in the Pillar 1 projection;
- Challenge management actions and risk mitigations;
- Identify or review weaknesses in the risk management process and suggest improvements;
- Set out or review areas where the internal model does not adequately cover the risks to which the Company is exposed and suggest improvements;
- Draft parts of the ORSA report;
- Prepare or review the financial projections included within the ORSA report; and
- Assess the implications of the ORSA for the business and risk strategies of the Company.

1.3 After the first ORSA, Actuaries may be involved in additional areas such as reviewing the changes in risk profile, rationale for changes in stress tests and changes in results.

1.4 This Information and Assistance Note sets out the Society's view of good practice in these areas. It is not intended to cover other parts of the ORSA process nor set out a complete "end to end" guide to the ORSA process and report.

2. Defining the scope of work

2.1 Before commencing any work, the Actuary should agree the scope and nature of the work with his or her employer or client (as applicable)[2]. It is good practice to address *inter alia*:

- Any exclusions from scope;
- The information to be used or relied upon;
- The deliverable; and
- How this work is to be presented to other stakeholders.

3. Sensitivity and scenario testing

3.1 Testing groups of assumptions which are assumed to change in a related way is sometimes described as "scenario testing", whereas varying individual assumptions independently is typically referred to as "sensitivity testing". Stochastic modelling will normally incorporate the scenario concept by assuming specific statistical relationships between variables, such as inflation and investment returns.

3.2 Typically, ORSA projections, or point-in-time stresses, will include a base scenario and several plausible adverse scenarios, with each scenario taking into account not only in-force policies but also the policies assumed to be sold during the projection period (where applicable).

[2] As per the Society's Code of Professional Conduct.

3.3 The base scenario will usually be a realistic set of assumptions used to forecast the company's financial position over the projection period – though past relationships between assumptions may be different from those applicable in the future, so judgement is needed. Normally, the base scenario will be consistent with the Company's business plan, unless those assumptions are so inconsistent or unrealistic that the resulting ORSA report would be misleading. The ORSA may reflect experience since the business plan was prepared. Where the ORSA is not consistent with the business plan, it is good practice to disclose this and outline potential implications.

3.4 A plausible adverse scenario is a set of adverse, but plausible, assumptions about matters to which the Company's financial condition is sensitive. Plausible adverse scenarios will vary between companies and may vary over time for a particular company.

3.5 Plausible adverse scenarios will typically include plausible combinations of adverse developments in different factors as well as adverse developments in individual factors. In constructing or reviewing plausible adverse scenarios, it is usually instructive to consider the potential impact of shareholder, policyholder, cedant and broker behaviour (if applicable) in adverse conditions.

3.6 Certain assumptions, in particular those which are a consequence of the economic environment, may be best treated as a group. For example, it would be normal to use a coherent set of assumptions to investigate the Company's ability to withstand a period of inflation or recession, rising or falling stock markets, increasing market sizes or increasing competitiveness.

3.7 In determining the stresses and scenarios to be considered, it is good practice to consider the exposures of the particular business to risk concentrations (e.g. assets, lines of business, distribution channels, geographical). Where there is a significant risk concentration, the Actuary may wish to carry out additional research into this area in determining the appropriate stresses and scenarios.

3.8 Where there is a significant risk exposure, it is good practice to also consider stresses and scenarios that may be considered more extreme in the current environment or that have not occurred in the recent past. Examples could include (this list is not exhaustive):

- Negative nominal/real interest rates;
- Defaults of strongly rated assets including sovereigns;
- Political crises;
- Financial repression;
- Regulatory changes;
- Stronger correlations between risks;
- Changes in taxation; and
- Potential litigation.

3.9 Where there is potential non-linearity in outcomes, it may be important to consider what stresses and scenarios could trigger severe losses (cliff edge effects). For instance, this may apply to options that are "out of the money" or successive events which could lead to significant losses (e.g. change in mortality basis followed by changes in interest rates for annuities).

3.10 For the appraisal of many risks, the projections can be on a deterministic basis. However, depending on the circumstances and nature of the company, it may also be advisable to consider whether stochastic techniques can be used to identify additional risks. Stochastic techniques may also be valuable in comparing the relative level of probability of adverse circumstances occurring.

3.11 The Actuary may wish to determine the sensitivity of the balance sheet to changes in the underlying best estimate calculations and the Solvency Capital Requirement, such as:

- Changes in the ultimate forward rate;
- Removal of matching adjustment, volatility adjustment and transitional measures;
- Different assumptions for contract boundaries;
- Removal of the volatility balancer;
- Changes in correlations (or moving correlations to maximum, minimum levels); and
- Limitations in exchange rate stresses due to currency pegs.

3.12 Care is needed to avoid potential biases in choosing and reviewing stresses and scenarios. Stresses and scenarios should not necessarily be restricted to those that:

- Do not exhaust available capital;
- Are "linear" (ignoring events such as changes to the shape of the yield curve or the mortality curve);
- Repeat recent events (i.e. within the last generation); and
- Relate to current investment and economic issues.

However, the scenarios should remain plausible.

3.13 It may be instructive to perform reverse stress testing to identify various combinations of risks that may lead to the failure of the business, whether that failure is defined as insolvency, loss of a certain credit rating, parental difficulties or other outcome.

3.14 Variations in the following assumptions would normally be tested, unless there are specific reasons for not doing so:

- Future investment conditions;
- Levels and mix of new business, where this is being written;
- Mortality and morbidity;
- Longevity;
- Expenses;
- Exercising of options by policyholders; and
- Persistency.

3.15 It is often insightful, and may indeed be important (depending on the Company's particular circumstances), to test variations in other business, financial or demographic assumptions or features, including the following:

- Allocation of profits and/or special distributions of carried forward surplus to policyholders and/or shareholders;
- Taxation;
- Potential litigation;
- Projected liquidity;
- Closure to new business;
- Recoverability of deferred tax assets;

- Concentrations of assets in particular risk areas;
- Use of derivatives;
- Assets containing unusual provisions which may be susceptible to particular risks;
- Sources of new business which have unusual characteristics;
- The effect in different scenarios of options and guarantees in the insurance liabilities;
- Exercising of options by the Company;
- Effects of asset risks;
- Risk of reinsurer default or reinsurance cover being unavailable on renewal
- Currency exchange rates; and
- Agreements with third party providers of services (including any reliance on services provided by the Company's group).

Checking the potential list of scenarios against the Company's risk register provides a way of ensuring that all material identified risks are considered.

3.16 In testing variations in the outcomes above, allowance can be made for plausible management actions. A guide to the plausible management actions can be taken from the criteria covered in the Solvency II Delegated Acts. This list is not exhaustive. Depending on the Company's particular circumstances, it may be important to consider other risks which are likely to materially impact on the Company's financial stability or have done so in the past. It may also be wise to pay heed to stress and scenario tests issued by insurance and/or banking supervisors and other bodies.

3.17 In addition, it is advisable to pay particular attention to new risks accepted by the Company (i.e. new products, investing in new asset classes, new territories etc.).

4. Identifying risks and quantifying risks not covered by the Solvency II Standard Formula

4.1 In identifying and quantifying (where possible) the risks not covered by the Standard Formula, it is important to consider the asset and liability profile of the business and compare this to the risks covered by the Standard Formula Solvency Capital Requirement. Reviewing the Company's risk register and risk appetite is an aid to determining the full risk profile of the business, as well as historic sources of financial variance.

4.2 The following are examples (not exhaustive) of areas not covered by the Standard Formula where there may be an exposure to risk:

- Government bonds credit risk;
- Volatility;
- Small portfolio (volatility in experience);
- Non-linear risks;
- Cross terms (generating correlations);
- Expenses for smaller entities, start-ups or companies in run-off ;
- Liquidity;
- Concentrations (other than on assets by issuer) (e.g. on a small number of large distributors or concentration of assets by sector);
- Basis risk;
- Inflation risk (for exposures other than expenses);
- Operational risks such as:
    - Legal risk;
    - Strategic risk
    - Regulatory risk;

- Political risk;
- Reputational risks; and
- Fraud.

5. Identifying and quantifying risks where the Solvency II Standard Formula may be inappropriate

5.1 The Standard Formula is based on the risks of the "average" insurance entity. Different insurance entities have their own idiosyncratic risks which may be inappropriately covered by the Standard Formula. In addition, for some risks, the Standard Formula calibration may be dependent on relatively limited data sets or calibrated over a limited period of time. In some areas, the Standard Formula may be calibrated according to particular philosophies which may not be realised (e.g. mean reversion). Actuaries are encouraged to endeavour to be cognisant of any published documentation that assesses the Standard Formula, provides background on its calibration and identifies any weaknesses.

5.2 In determining this issue, an important consideration is the extent to which the Company has exposure concentrations (e.g. appropriateness of counterparty default assumption to one reinsurer or appropriateness of property stress where concentrated in one country).

5.3 Another important consideration is whether the areas of the Standard Formula which been calibrated according to sparse data or which involve significant judgement are applicable to large exposures of the Company. If so, it would be usual to stress test the balance sheet based on the changes in these assumptions. This would normally include comparing the profile of the data upon which the Standard Formula calibrations have been based against the Company's own risk profile, for example in areas such as longevity (changes in life expectancies) or market risks (property risk).

5.4 Typical areas which the Actuary may wish to consider are:

- Operational risks;
- Correlations;
- Emerging markets (bonds, currencies, equities); and
- New lines of business.

5.5 The Actuary's work in this area would usually take account of the risk culture within the Company. This can manifest itself in several ways, such as greater (or lesser) exposure to particular risks, strengths or weaknesses in risk management processes (such as delays in risk identification or reporting), or misaligned behavioural incentives.

5.6 With regard to operational risks, an assessment may require discussions with other departments within the Company and, if appropriate, the parent company and/or other companies within a Group of companies, to identify and analyse various risk exposures.

5.7 Based on the conclusions, the Actuary should be in a position to derive an adjustment to the Solvency Capital Requirement where these risks are quantifiable.

6. Challenging the ORSA results

6.1 The Actuary may be involved in challenging the overall results of the ORSA process and making recommendations for capital requirements, setting the risk appetite and defining key risk indicators. This can apply whether the ORSA is being performed for a solo entity or as part of a Group ORSA.

6.2 While the scope of the process may vary and the Actuary would be expected to challenge material items, it would be good practice to at least challenge the following:

- The appropriateness of the risk measures used;
- The stress and scenarios used and the appropriateness of the results;
- Management actions assumed as mitigating factors, their associated time delay and the track record of their effectiveness;
- The appropriateness of the Standard Formula to the risks of the Company;
- The risks not covered by the Standard Formula;
- The reasonableness and robustness of the business assumptions underlying the base scenario used for the projections; and
- Whether there are any concerns over the appropriateness, completeness and accuracy of the data used.

6.3 It would also be good practice to assess the expected overall return on capital for reasonableness. Actuaries are encouraged to provide particular challenge and pay particular attention where significant profitability and growth is anticipated, especially where this is reliant on assumptions about market opportunities or investment market conditions, which may not persist.

7. Reviewing risk management processes and the internal model

7.1 Reviewing the risk management processes and/or internal model can take many forms and the level of involvement by the Actuary may vary.

7.2 As for any work performed, the Actuary should ensure that he or she is sufficiently competent to carry out these reviews and if not should seek additional assistance within or without the Company[3]. The Actuary should agree the scope of work with the User and prepare the necessary documentation as outlined in Section 8.

7.3 It is good practice to review the interaction between the Company's risk management processes and the design of its internal model, including:

- Processes for identifying risks faced by the Company;
- Procedures for reporting key risk information to senior management and the Board;
- Effectiveness of assumed risk mitigation measures and risk management actions;
- The purposes for which the internal model is used;
- The weaknesses and limitations of the internal model identified by the Company and by the validation process; and
- Historic performance of the internal model and the feedback loop between the internal model and risk outcomes.

[3] As per the Society's Code of Professional Conduct.

8. Documentation

8.1 It is good practice to document work performed and pass the documentation to the User.

8.2 The following is suggested as minimum content of the documentation:

- The scope of the work and the intended User of the work outputs;
- Exclusions from scope;
- Description of the work carried out (i.e. methodology, assumptions, data used);
- Whether there were any limitations to or constraints on the work;
- Reliances on information / results from other parts of the Company;
- Reliances on experience and expertise of others;
- Any numerical results provided to other parts of the Company;
- Outcome from the work, including (where relevant) indications of the potential variability of results;
- Any issues and/or areas of concern raised with the User, and the responses to same;
- Where the results include the results of calculations using assumptions, methodology or data determined or provided by another party which the Actuary does not consider to be reasonable, disclosure of this; and
- Recommendations.

8.3 Where the Actuary is part of the Actuarial Function, the Actuary's activities and any concerns about the ORSA or ORSA process should be recorded as part of the Actuarial Function Report to the Board.

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