PwC Actuarial Services Newsletter

Issue 5

Key points in brief:

- *Article #1: Model Validation*
- *Article #2: Solvency II after Year One: Snapshot of the current status*
- *Article #3: ORSA – "Never hate your enemies, it affects your judgment." – The Godfather*

Editorial

This will mark the third year of our European collaboration on our Actuarial Newsletter. We want to take this opportunity to look back on an interesting year for actuaries and as well as take a glance at what awaits actuaries in the months and years ahead. New regulatory requirements have confronted European insurers in the past year. We take a closer look at how our clients deal with this paradigm shift.

As robust models, which have come under scrutiny in the new regimes, are the foundation for actuarial profession, a strong set-up for model validation is vital. Model Validation is already business as usual for Internal Model Users, who have performed rounds of model changes validation over past years. Article 1 will give some insights into model validation and the approaches we have been using with our clients as well as emerging trends in this field.

The results of the models feed directly into the regulatory reporting, which has already begun. All insurers have to be reviewed in due course of the Solvency II audits from 2017. In reviews and preliminary audits, we have gathered an understanding of where our clients stand in terms of regulatory readiness, with data quality, process efficiency and model improvement being among the most important issues in this respect. Article 2 provides you with an oversight.

In addition, the ORSA report is meant to assess the own risk and solvency position, as well as serve as a management tool for strategic positioning. In Article 3, we ask insurers to go a step beyond compliance and to challenge the way they interpret the ORSA, and we provide a glimpse of what insurers can get out of the ORSA, if used properly.

We hope you enjoy this newsletter and we look forward to the opportunity to discuss these topics with you in the near future.

Article #1: Model Validation

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Background

Stakeholders are increasingly asking how reliable the models used in the insurance industry are. The increasing complexity of risk, finance and strategic models exposes insurance companies to greater "model risk". In particular, model design, data flaws, inappropriate assumptions and incorrect interpretation of model results can lead to sub-optimal decisions. This is something we saw during the financial crisis where model risk was a key aspect, i.e. companies were perfectly hedged to model but not to reality.

Also with the use of models extending to directly providing input into publicly reported figures as well as internal steering key indicators (e.g. KRI, KPIs or KCI etc.), stakeholders such as regulators, boards, executive management, rating agencies and investors places more reliance on economic balance sheets and thus expect insurance companies to have robust model validation practices in place as part of their overall risk management programs.

Market Trends

The level of model validation required varies throughout Europe ranging from yearly requirement for the entire Solvency II calculation including the balance sheet to once at the approval for the regulator. In Switzerland unlike under Solvency II, life valuation models form part of the model validation scope. The amount of model validation done internally vs externally varies throughout the industry from fully internalised to fully outsourced with a positive assurance opinion.

Elements of good model governance and model validation

Key aspects of good model governance should include a descriptive model validation policy approved by the board. Independence is a key ingredient of good model governance. Hence, roles and responsibility need to be clear: staff from 1st line of defence and model owners cannot do validation tasks.

Model Validation is a key component of model risk management

Model Validation is a key component of model risk management and is typically required when a model is initially developed and periodically as set out in the model risk management policy. The performance monitoring, requires ongoing assessments of the suitability of the model towards the company's risk profile. Outcomes of independent model validation form part of the specifications for the next development phase.

Also, the model validator needs to report to an appropriate person / body to ensure supporting segregation of duties and supervision (including corporate governance responsibilities). To be effective, the model validation needs to be competent, i.e. have sufficient technical or model-based expertise to challenge the model designers/ developers, understand the principles of model validation and be adequately resourced and be timely involved. Furthermore, the person needs to be consistent in principles and general application across business units and risk components and have adequate authority to require action. The report of the model validation activities is then submitted to an appropriate body, preferably the board, for further discussions and approval.

When it comes to model validation activities, key ingredients for a sound model validation should encompass expertise in governance and processes as well as in methodology and the chosen models, and the ability to benchmark these models and processes to market peers.

The above raises the question of what can be done internally and what to externalise. Here, a third party can be involved to solve both the issue of independent staffing and competence as well as efficiency.

Steering the level of depth in the model validation

Model validation should start with a sound model risk assessment. The assessment takes its starting point in the model inventory where each module is assessed as to complexity, performance, exposure / materiality and risk / uncertainty. The outcome of this assessment is the use of a low, medium or high risk test plan which in turn affects the model validation activates as to depth and frequency.

The table below gives an overview on the three levers that can be steered to achieve the right level of rigour in model validation.

The decisions made here will have a significant impact on the needs of internal and external support for the model validation process. This is similar to the questions an internal auditor would struggle with, finding the right balance in terms of expertise and independence as well as level of frequency and in depth of the work.

Level	*Description*	*Pros / Cons*
1 *Level of assurance*	The level of assurance can vary from internal expert report to external positive assurance opinion	A lower level of assurance comfort would allow for more flexibility in scoping, nature and extent of testing procedures involved and is less costly. A higher level of assurance can provide comfort to a larger audience (board, public, etc) but costs more
2 *Specific activities*	Focus on selected component(s) of model validation – in the 3 aspects of inputs, model design, outputs including governance and use (e.g. reasonability of data input, and/or production of reported figures as output, rather model design)	Flexibility to decide on which components management wants to focus on. A non-holistic model validation approach can lead to consistency issues that may not be easily identified but with an increased flexibility
3 *Frequency*	Rotate independent model validation (positive or limited assurance)	Given no significant model changes, a full or even partial model validation on model design may not be necessary every year. However, data is a crucial component to model validation. Since data varies each year, it may be beneficial to have some testing coverage on an annual basis.

Article #2: Solvency II after Year One: Snapshot of the current status

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Scope of the Solvency II audit procedures 2016

The past year has been the first under the new Solvency II regulatory regime. For the year-end 2016, published Solvency II figures, incl. Solvency II balance sheet, needs to be audited. Actuaries have been heavily involved due to their role in evaluating the Solvency II technical provisions. Additionally, addressing data quality, validating models and refining actuarial processes have been key activities throughout the past year.

In our work with our clients over the past year, incl. consulting for implementations, reviews of the Day 1-Reporting and (preliminary) audit for year-end reporting, we have gathered an understanding of where our clients stand in terms of Solvency II readiness and where potential for improvements can still be leveraged. Refining the calculations and processes are a key part of the insurers' agendas. Nevertheless, there seem to be further areas where Solvency II compliance can still be improved.

Data and validation among key items on actuaries' agendas

Ensuring a high quality of data causes problems. For a number of undertakings, the development of a data quality guideline and a comprehensive data index is not completed. A lot of data needed in the process of determining technical provisions is provided by non-actuarial departments not directly involved in the closing process. These departments need to be briefed better on how the data is intended to be used. Generally, the essential controls are conducted, however, its documentation is often insufficient. The enhancement of the documentation and the transparency for third parties is being addressed by most companies in non-closing months of the year.

The development of a comprehensive internal validation is still ongoing for most insurers, with a focus set on establishing adequate governance, defining appropriate analyses, ensuring thorough documentation and conducting variation analysis.

Refining calculations and processes are a key part of the agenda

Focusing on the actuarial scope, the disclosure included the Best Estimate Technical Provisions, Risk margin and reinsurance recoverables as well as the application of transitional measures.

As only the Solvency II balance sheet has been subject to external audits for German insurers in 2016, the actuarial scope of the audits included the Best Estimate Technical Provisions, Risk margin and reinsurance recoverables. For these items, we have observed different levels of sophistication in the modelling. A number of insurers have opted to use simplified approaches, others implemented more detailed methods. With the introduction of Solvency II the existing actuarial process environment has to be adjusted accordingly. In this article, we want to look at the overall themes of our findings from the past year.

The concept of materiality remains as a source of uncertainty – a number of insurers is struggling to set reliable and stable thresholds. Setting up a materiality concept and applying it to respective quantitative analyses will be challenges going forward.

A number of insurance companies is trying to leverage efficiency gains through the implementation of workflow tools from external providers. However, in most cases, these implementations are not yet completed, creating the need for work-arounds, in particular the embedding of pure input processes. Further standardization and automation efforts in the valuation of technical provisions, e.g. enhancing established systems with new functionality, are expected in the near future. Some clients have communicated their ambition to both improve the overall process architecture and to harmonize between Solvency II and IFRS reporting.

Models and assumptions in focus for Life/ Health sector

The vast majority of Life and Health insurers in Germany uses standardized tools (BSM and INBV) developed centrally instead of individual company models (e.g. MCEV models) for the calculation of technical provisions. Their input data includes local GAAP values for assets and liabilities, assumptions regarding future management actions and cash flows for the business in force. The adequacy of the model in use needs to be assessed of course. Undertakings use simplifications in their cash flow modelling. Proving that the deliberately chosen simplifications are not leading to material misstatements seems to be an area of potential improvement. Some examples of such simplifications, as models are still in development, are best estimate assumptions based on management decisions and expert judgement due to lack of data, no modelling of future dynamic premium increases or technical restrictions in modelling dynamic unit linked products. Furthermore, the modelled management actions are often simplified.

In regard to the calculation of the risk margin insurers have the possibility to choose between simplification methods outlined in the EIOPA guidelines. Undertakings should document their considerations as to what extent the assumption requirements for using the chosen method are fulfilled.

Furthermore, the adequate validation of assumptions and results is a key requirement of the European supervisors. This includes attesting the appropriateness of assumptions on cost separation, model parameters (e.g. lapse, mortality, etc.) or the time horizon of the projections. Insurers still seem to have some way to go to prove and properly document the adequacy their assumptions and results.

Sophistication of calculation to be revisited in Property/ Casualty sector

For the calculation of the technical provisions, we have observed different levels of sophistication in the modelling. The claims provision need to be derived with actuarial methods based on development triangles, which represents a shift from local GAAP. Based on our review, we have noted that insurers need to ensure that method selections are consistent and that quality and appropriateness of the data used for the actuarial methods is given. Furthermore, the loss adjustment expenses must be calculated in line with the overall claims provision methodology.

The premium provisions (valuation of insurance obligations of future insurance coverage) are often modelled with a simplified Combined Ratio approach ('Annex III'), whereas the more sophisticated approach modelling expected cash in- and out-flows is not widespread. In our reviews, we asked insurers to make sure to include prolonged contracts and contracts issued before the reporting date, and to exclude the already paid acquisition costs for the estimation of the future cash-out-flows.

As technical provisions are valued as liabilities as gross, reinsurance recoverables need to be considered as assets. Whereas some insurers use proportional net conversion factors, others opt for a bottom-up approach modelling individual reinsurance contracts. As further advice, we have noted that clients should consider the default of a counterparty in reinsurance recoverables of both claims and premium provisions.

For the measurement of the risk margin, most actuaries consider the future discounted SCRs with modified duration. However, the adequate documentation, of why a particular simplification method is appropriate for the risk situation of the insurer, needs to be ensured.

Outlook

Year 1 of Solvency II has been an exciting time for the actuarial community. From working with our clients in audit engagements or consulting projects, we have found that our clients have faced the new challenges head-on and are in the midst of working on open issues. Looking at the upcoming audits, insurers have focused on improving their models and the respective documentation. Beyond these efforts, further development of the internal validation, taking further steps towards actuarial modernization and customizing the standard tools are among the mid- and long-term ambitions of the actuaries. 2017 will serve as another yardstick to see how far insurers have come to meet the expectations of European regulators.

Year 1 of Solvency II has been an exciting time for the actuarial community

Article #3: ORSA – “Never hate your enemies, it affects your judgment.” – The Godfather

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Who would have guessed that one of the most famous gangster trilogies would be so applicable to the ORSA?

Increasingly we need to keep track of all of the (potential) risks, threats and trends affecting companies. What better way to do this then by an assessment according to our own perception of risks in the world of today, tailored to our very own situation? I cannot think of a more powerful tool that has been handed to us by Solvency II than the ORSA! One should embrace risks and stop treating them as enemies.

To keep the famous quotes going, “Confidence is silent, insecurities are loud”. For me, one of the most striking omissions in many ORSA reports, is the reverse stress test. Insurers seem to be fearful of showing what it would take to completely annihilate available solvency capital. This is a shame if you ask me. This test would reveal powerful information. It would allow an insurer to show how ridiculous the world would have to get to effectively erase the entirety of the solvency capital.

Has Solvency II changed the world of insurance?

With 2016 officially in the past, there is a whole year to look back at and contemplate if, and how, Solvency II has changed the world of insurance. Has this risk based approach of Solvency II made a real difference in the way insurers run their business, or is it just a matter of compliance? Personal experiences give mixed opinions on how in practice the ORSA has been approached.

In my opinion, the main requirements from a compliance perspective, are more than met by most insurers: the ORSA process is well embedded in most organizations, a top down approach is set out from strategy to scenario calculations, all relevant parties are engaged, etc. Then why does an ORSA report still feel like another report on the already-crammed to-do-list that only a ‘lucky’ few need to read. Does it really take you 200+ pages to explain what risks lie ahead and how these affect the company? How can you avoid the impression that the purpose of writing an ORSA report has more to do with ensuring compliance, following up comments from the regulator and doing what must be done, than exploring the risk position of the company?

An observation that is linked to the idea above is the ‘friendliness’ of the stress scenarios. I believe there is more ground left to explore. If I were a CRO, I would be keen to know what should keep me up at night. What are my “real enemy” scenarios and what measurements do we have available to mitigate such situations? How would our Solvency position be affected in these scenarios? I believe it should not only be about wanting to show the regulator that even in stressed scenarios all is still fine. A more apt mind set would be one that considers the ORSA as a chance to do a ‘pre-mortem’ in order to be prepared for the scenarios that can and will take the company down the road of insolvency.

With Solvency II up and running a shift in focus could, or maybe should, now be made. After all, most insurers with or without an Internal Model have moved past the elaborate initial stage of Pillar 1. Reporting processes have been enhanced, dry runs have been executed, Day One has been submitted under Pillar 3. With business as usual around the corner make way for the heart of Solvency II: Pillar 2 and its ORSA!

This is one of the most important reports produced by insurers as it truly reflects where they stand risk-wise, both in relation to their risk appetite and also in relation to their competitors. The importance of good risk management under Pillar 2 has not gone unnoticed. This year the Dutch regulator announced it will closely monitor the Risk Management Function (RM-function). The proof of the pudding for the RM-function is the added value it brings through its ORSA, the same way the Actuarial Function is commissioned to provide added value through its Actuarial Function Report.

In conclusion, insurers could get more out of the ORSA than they currently do. When used properly, it provides vital information with regard to risk agility, strategic planning, product design and perhaps also with regard to less tangible topics like the alignment of company culture with business strategy.

I would like to end this article as I started it, with a quote that I believe should be typical of the rationale behind an ORSA: “Keep your friends close and your enemies closer…”

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