

To: Solvency II WG
From: Prudential Team
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Subject: Summary of EIOPA study on non-life underwriting risk comparative study in internal models

Comments

The secretariat has prepared a high-level summary of EIOPA's report "non-life underwriting risk comparative study in internal models" ([here](#)), which contains the results of EIOPA's study on modelling non-life underwriting risks in internal models. The report is part of an ongoing process of monitoring and comparing internal models (IM) for non-life insurance.

Summary

In 2020, the EIOPA Board of Supervisors decided to conduct a European comparative study on non-life underwriting risk in internal models (NLCS). EIOPA has now conducted this comparative study twice. This study was conducted by a joint project group (EIOPA and National Competent Authorities (NCAs)).

- **Date:** This report covers the 2016 to 2020 period.
- **Undertakings in scope:** The study's scope included 75 solo undertakings and 31 insurance groups. This scope represents most of the insurance internal model users in the EEA, covering 94% of the premiums and 86% of the reserves.

Key findings

- **Capital Intensity:**
 - Undertakings with similar P&L can operate under different levels of capital set aside for risks.
 - The capital intensity (i.e. SCR divided by an exposure measure) on total non-life underwriting risk (sum of premium and reserve risk exposure) presents a low dispersion over time, in other words, there is stability on the capital allocation during the covered period. This dispersion is higher in the premium risk but lower in reserve and catastrophe risks. The study highlights that outliers significantly impact the dispersion of the results.
- **Risk measure for Premium risk:**
 - This section focuses on the different approaches followed on expected profits for future business in calculating the non-life SCR.
 - The undertakings follow two different approaches:
 - Centered Approach:** This method doesn't include expected profits when calculating risk, which is similar to the standard formula.
 - Non-Centered Approach:** This method does consider expected profits. If a company expects to make money in the future, it might decide it needs less money set aside for risks.
 - The users of a non-centred approach (which includes expected profits) show lower SCR figures. In a few extreme cases, the SCR could be negative.

■ **Standard formula comparison**

- This section looks at how internal models companies compare to those using the standard formula for premium and reserve risk.
 - Premium Risk: Companies using internal models usually require less capital for risks than the standard formula due to the lower volatility, the use of the normal distribution (instead of log-normal) and the direct modelling of non-proportional reinsurance treaties (as opposed to the use of adjustment factors).
 - Reserve Risk: Companies using internal models also had lower capital needs for risks for specific types of insurance liabilities like Motor Third Party Liability (MTPL) and General Third Party Liability (GTPL). The reasons are the same as the premium risk (volatility, distribution and reinsurance).

■ **Inflation**

- Most internal models include inflation in their calculations for non-life insurance risks. This method usually works well when past inflation rates can predict future rates. However, in the current scenario, the internal methodology is less accurate and needs to rely on expert judgement.
- In 2022, the study found that many companies expected to include only about half a year of inflation in their calculations. This is because of how they usually handle claims.
- Finally, the study includes a stress test based on the ECB's harmonised index of consumer prices. The study's outcome shows space for increases in risk capital due to the increase in volatility and inflation.

■ **Diversification**

- Undertakings generally obtain more benefit from diversification in both premium risk (the risk in selling insurance policies) and reserve risk (the risk in the money set aside for future claims) than the standard formula suggests. The study indicates a significant variation among undertakings.
- The same results appear when comparing different business lines.
- This benefit from diversification remained consistent from 2018 to 2020, indicating that companies did not significantly change the assumptions in their models.

■ **Drilling down**

- This section identifies important factors that affect the Solvency Capital Requirement outcome. It analyses capital intensity more granularly, considering business lines or the geographical footprint.
- The analysis provides insights on different business lines, such as fire (the variability of the capital intensity increases when the risk is more complex), motor lines (lack of granular information), general third-party liability (lack of peer group behaviour), treatment of bodily injury claims (granularities are driven geographically) or time value of money and risk emergence (internal models undertakings considers more uncertainty of results in the first year in the premium risk more than in the reserve one).
- The main findings were shared with national competent authorities.
- Additional analysis was carried out on the credit and suretyship insurance. Insurance companies use different methods to model premium, reserve, and catastrophe risks. The differences in capital requirements are usually limited and explained by their risk profile.

■ **IM QRT Readiness**

- The section shows that most insurance companies are ready for the new Internal Model Quarterly Reporting Templates (QRT from 2023 onwards).

- The study outcome shows that most of the undertakings are well prepared for the internal model QRT implementation.

Individual Feedback

The project group provided detailed feedback to each undertaking, followed by individual feedback sessions. During individual feedback sessions, the project group compared the results with peer group samples across EEA, leading to constructive discussions. The NLCS comparative study results have allowed the national competent authorities to discuss with undertakings the following topics:

- Data and internal model QRT readiness.
- Negative risk capital results within the internal models (risk measure for premium risk).
- The identification of outliers behaviours.

The national supervisors are now taking follow-up actions, and some of these actions have already resulted in changes to internal model.