EIOPA Report on Calibration of the Premium and Reserve Risk Factors in the Standard Formula

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EIOPA report on non-life and health NSLT calibration suggests further amendments to the premium and reserve risk factors in the Standard Formula.

INTRODUCTION

On 12 December 2011, the European Insurance and Occupational Pensions Authority (EIOPA) released a public consultation paper containing the report on the Joint Working Group (JWG) on non-life and health not similar to life techniques (NSLT) solvency capital requirement (SCR) calibrations. This document follows from the commitment of EIOPA in its advice for Level 2 measures to revise the Quantitative Impact Study (QIS) 5 calibrations of the premium and reserve risk factors in the underwriting risk module of the SCR standard formula.

The consultation paper summarises the data collected, methodology and the recommendations of the JWG for setting the premium and reserve risk factors underlying the non-life and health NSLT underwriting risk module for the SCR standard formula.

To assist you in digesting this report, Milliman has provided this short summary of the content of this paper from a health NSLT perspective. A separate summary is available covering the non-life aspects of the report.

JWG COMPOSITION AND SCOPE OF WORK

The JWG consisted of members from EIOPA, AMICE, the CRO Forum, Groupe Consultatif and the CEA and observers from the European Commission.

The JWG was asked to develop recommendations for premium and reserve risk factors within the current design of the non-life/health NSLT underwriting risk module of the SCR standard formula. This implied a single market-wide factor per line of business for premium risk and reserve risk, respectively, using data collected from across the market.

The reserve risk factor is assumed to be net of reinsurance and therefore will already incorporate the effect of the insurer's reinsurance program. However, for premium risk, the design assumes a gross of reinsurance factor, with the effect of non-proportional reinsurance captured in a separate factor; recommendations on this corresponding reinsurance factor for reserve risk were not part of the JWG's scope.

RECOMMENDED CALIBRATIONS

The final recommendations for the premium and reserve risk factors for health NSLT lines of business are as follows:

Segment	Premium risk - Gross	
	QIS5	JWG Recommendation
Medical Expenses	4.0%	5.0%
Income Protection	8.5%	8.5%
Worker's Compensation	5.5%	8.0%

Segment	Reserve risk - Net	
	QIS5	JWG Recommendation
Medical Expenses	10.0%	5.3%
Income Protection	14.0%	13.9%
Worker's Compensation	11.0%	11.4%

We note that the premium risk factor for medical expenses has increased from 4% to 5% compared with QIS5, while the reserve risk factor has decreased from 10% to 5.3%. For the majority of UK insurers writing this line of business, we believe the increase in capital required for premium risk will far outweigh the reduction in the reserve risk factor. Therefore, the new calibrations are likely to represent a material increase in the capital required to write medical expense business.

The recommended factors for income protection remain almost unchanged from QIS5, but the premium risk factor increase for workers' compensation is significant.

DATA AND METHODOLOGY FOR CALIBRATION

In October 2010, EIOPA carried out a Europe-wide data request, asking insurers to submit data to national regulators, based on a data template designed by EIOPA. The national supervisors then submitted anonymised data to EIOPA in January 2011.

Using this data, the JWG compared a variety of different estimation methods for the premium and reserve risk factor and applied these to the data sets. The methodology was similar to that used to develop the QIS5 factors, but was developed further by the JWG, including developing a set of comprehensive validation tools to test the calibration. The paper contains a detailed mathematical description of the estimate methods in annex 3. Annex 4 to the paper contains a description of the data templates and structure.

The paper comments that there is a much higher participation rate in this exercise compared with the QIS5 calibration exercise. For medical expenses, 269 insurers submitted data, including 11 in the UK, 56 in Germany, 51 in France, 34 in Italy and 21 in the Netherlands. However, not all of these submitted valid data—once data validity tests had be applied, 192 insurers had data that could be used to calibrate the premium risk factor, while only 129 had data useful for the reserve risk factor calibration for medical expense.

The paper makes reference to the heterogeneity of data across different markets, specifically commenting that loss experience from the same lines of business can vary significantly because of

the influence of the legal and regulatory system due to:

- Strength of the public health system
- Access to health services
- Funding of health costs
- Strength of welfare systems
- Access to courts
- Basic of court awards
- Funding of the health system and mandates on exactly what health costs must be covered by insurers

Due to this heterogeneity of the data, the JWG also used an "averaging approach" across different member states to derive a pan-European estimate. This means that unlike the original modelling, which focussed on deriving a good estimate of a pan-European single parameter by line of business, the JWG's methodology also estimates parameters at the level of an individual European member-state and then combines this intermediate output using a weighted average approach to develop a pan-European factor.

Given the limited size of the UK medical expense market, 11 insurers looks like a reasonable representation. However, it would have been useful for the paper to have commented on the premium volumes or numbers of lives covered by the data for each country to get some idea of the relative representation at a country or market level.

The paper makes specific reference to the heterogeneity of data across different markets for health-related lines of business. It is worth noting that even within the UK, the market for medical expenses is not at all homogeneous, unlike in a number of other countries, where health insurance consists of a mandated minimum set of benefits. Therefore, even modelling at the member state level does not solve the problem of heterogeneous data sets for this line of business.

JWG RESULTS AND RECOMMENDATIONS

The paper comments that the EIOPA members of the JWG favour the development of a pan-European factor, set on the basis of the pooled data set by line of business. However, the industry's side of the JWG is concerned that the heterogeneity of the dataset and the significant differences in markets for the same lines of business would not be

allowed for sufficiently in this approach, and therefore they would prefer an averaging approach. The proposed average approach would derive the factors as the weighted average of the country-specific factors, weighted by country premiums, which takes into account the volumes of premiums and reserves in each individual region.

The JWG therefore considered a third option as:

- Developing the European factor as a weighted average of regional factors.
- Deriving the regional factors by a single consistent methodology. The methodology would incorporate data on the relationship between the portfolio size and the degree of volatility.
- Compared with the simple averaging approach, the averaging methodology would be consistent with the results of the statistical analysis.
- The calibration is therefore conceptually based on the median size of the portfolio in the EEA.

The paper comments that this approach takes into account the heterogeneity of the risks in individual markets, while ensuring that the final factors acknowledge the average size of the portfolios of insurers in the markets to which they are applied.

We note that under the first method, the pan-European approach, both the premium and reserve risk factors for medical expenses are considerably higher than the JWG final recommendations, which use an average approach. This reflects the volatile nature of medical expenses in some of the larger markets where private insurance covers most health risks. In the UK, where private medical expenses covers a smaller, less volatile, set of risks, the averaging approach provides a more credible estimate of the likely level of risk inherent in the business.

IMPACT ASSESSMENT

The paper includes an initial quantitative impact assessment for the combined methodology option, which observes that moving from QIS5 to the combined approach would lead to an average increase of 3.6% in NSLT health for premium and reserve risk. This comprises +4.8% for medical expenses, -0.4% for income protection and + 15.2% for workers' compensation.

SUMMARY

This consultation paper provides a useful technical summary of the methodology for the calibration exercise and the data received, although more information on the exact nature of the data by line of business and country would have been helpful, so the reader could judge the credibility of the data.

By looking at a range of methodologies for setting the final factors, and the variability of the derived factors depending on the methodology, the paper highlights the significant lack of homogeneity within the European insurance markets for certain lines of business. It therefore highlights the shortcomings of trying to impose a "one-size-fits-all" approach.

Complex mathematical techniques have been applied to develop the calibrations, and a great deal of focus is placed on this analysis and the selection of the most appropriate methodology and model for each market. Yet, arguably, much of this technical complexity is ultimately diminished, since the final recommended market-wide factors are developed using a simple weighted average of the factors derived for each individual member state.

A further recalibration exercise is also recommended in an appropriate number of years, and this should benefit from the greater data homogeneity arising from the Solvency II regime.

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CONTACT

If you have any questions or comments on this briefing paper or any other aspect of Solvency II, please contact any of the consultants below or your usual Milliman consultant.

Simon Moody
simon.moody@milliman.com
+44 20 7847 1632

William Coatesworth
william.coatesworth@milliman.com
+44 20 7847 1655

Joanne Buckle
joanne.buckle@milliman.com
+44 20 7847 1630