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

## January 2012

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, EIOPA published a paper from the Joint Working Group (JWG) for Non-Life and Health NSLT calibrations.

This document contains the final advice from the JWG on the calibration of the premium and reserve risk factors underlying the Non-Life and Health NSLT underwriting risk module for the SCR standard formula.

The paper from the commitment of EIOPA in its advice for Level 2 measures to revise the QIS5 calibrations of the premium and reserve risk factors in the underwriting risk module of the SCR standard formula. The paper summarises the data collected, methodology and the recommendations of the JWG in assessing the parameters.

To assist you in digesting the draft guidelines, Milliman has provided this short summary of the content of the paper from a Non-Life perspective.

### JWG COMPOSITION AND SCOPE OF WORK

The JWG consisted of members from EIOPA, AMICE, the CRO Forum, Groupe Consultatif the CEA, and observers from the European Commission, tasked with developing 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, i.e. single market-wide factors per line of business.

The JWG took as its starting point the methodology adopted by CEIOPS in setting the non-life premium and reserve risk factors employed in QIS5. It further developed this to produce an improved and more streamlined methodology utilising data collected from several European organisations and associations. The JWG also developed a set of comprehensive validation tools to test the calibration.

The paper comments that there was a much higher participation rate in this exercise compared with the QIS5 calibration exercise. For motor vehicle liability, data was submitted from 308 companies across 26 countries. However, not all of the data submitted was valid, and once data validity tests had been applied, the data of 265 could be used to calibrate the premium and reserve risk factors.

*The calibration document contains the final advice of the JWG on the premium- and reserve risk factor that ultimately should lead to the factors to be included in the Level 2 implementing measures as part of the specifications of the standard SCR formula. At this moment it is expected that for the Non-Life lines of business the factors as presented in the JWG paper will be incorporated in the final specifications. For the Health lines of business further discussions take place on the calibration and applicability of these factors given the diversity in systems for Health insurance in different European countries.*

## PREMIUM RISK CALIBRATIONS

For premium risk, the design used by the JWG foresees a factor calculated gross of reinsurance with the risk mitigating effects of non-proportional reinsurance captured in a separate factor, the design of which was outside of the scope of the JWG's work.

The final recommended calibrations for premium risk factors, as set out in the paper, are as follows:

| Segment | Premium risk - Gross | |
|---|---|---|
| | QIS5 | JWG Recommendation |
| Motor Vehicle Liability | 10.0% | 9.6% |
| Other Motor | 7.0% | 8.2% |
| Marine, Aviation, Transport | 17.0% | 14.9% |
| Fire / Property Damage | 10.0% | 8.2% |
| General Liability | 15.0% | 13.9% |
| Credit and Suretyship | 21.5% | 11.7% |
| Legal Expenses | 6.5% | 6.5% |
| Assistance | 5.0% | 9.3% |
| Miscellaneous Financial Loss | 13.0% | 12.8% |
| Medical Expenses | 4.0% | 5.0% |
| Income Protection | 8.5% | 8.5% |
| Worker's Compensation | 5.5% | 8.0% |

*We note there are a number of large changes between the QIS5 premium risk parameters and those recommended by the JWG. These include a significant decrease in the premium risk factor for Credit and Suretyship and a significant increase in the premium risk factor for Assistance.*

*The decrease for Credit and Suretyship is not unexpected as the factors applied to this class have generally been believed to be too penal by the industry.*

## RESERVE RISK CALIBRATIONS

In contrast to the premium risk factors, the design for the reserve risk factors foresees a factor net of reinsurance already incorporating the effect of any reinsurance program.

The final recommended calibrations for reserve risk factors, as set out in the paper, are as follows:

| Segment | Reserve risk - Net | |
|---|---|---|
| | QIS5 | JWG Recommendation |
| Motor Vehicle Liability | 9.5% | 8.9% |
| Other Motor | 10% | 8.0% |
| Marine, Aviation, Transport | 14.0% | 11.0% |
| Fire / Property Damage | 11.0% | 10.2% |
| General Liability | 11.0% | 11.0% |
| Credit and Suretyship | 19.0% | NA |
| Legal Expenses | 9.0% | 12.3% |
| Assistance | 11.0% | NA |
| Miscellaneous Financial Loss | 15.0% | 20.0% |
| Medical Expenses | 10.0% | 5.3% |
| Income Protection | 14.0% | 13.9% |
| Worker's Compensation | 11.0% | 11.4% |

*We note there are a number of changes between the QIS5 reserve risk parameters and those recommended by the JWG with the majority moving as anticipated. The large reduction for medical expenses is to be expected as reserves for this class tend to be reasonably stable once estimated. We are surprised by the increase for legal expenses as this class tends to be short tailed in nature, and therefore reasonably stable.*

The report notes that, based on the data received, the JWG was not able to recommend reserve risk factors for the Credit & Suretyship and Assistance lines of business and was unable to make any recommendation for both premium and reserve risks factors for the non-proportional reinsurance

segments. Therefore they are not shown in the tables.

Based on the recommended risk factors given in the above tables, the JWG has estimated that the use of the recommended factors (rather than those employed in QIS5) would result in an average decrease of 3.0% in the capital required to be held in non-life for premium and reserve risk and an average increase of 3.6% in the capital requirements in respect of NSLT health premium and reserve risk.

## HEALTH CALIBRATION

With respect to the calibration of the premium- and reserve risk factors for the Health lines of business 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.

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.

## 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 that the reader could judge the credibility of the data.

By looking at range of methodologies for setting the final factors, and the volatility of those factors depending on the methodology, the paper highlights the serious lack of homogeneity of the European markets for specific lines of business and therefore the shortcomings of trying to impose a "one-size-fits-all approach". A lot of focus is on the mathematical fitting for the calibration, but then the recommended results are based on a fairly simple weighted average of individual member state.

The paper also recommends a further recalibration exercise 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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