Solvency II Standard Formula:
Volume measure for premium risk

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On 6 November 2017, a consultation paper (CP) was issued by the European Insurance and Occupational Pensions Authority (EIOPA) with respect to the second set of Advice to the European Commission, concerning specific items in the Solvency II Delegated Regulation[1]. This CP discusses possible future changes in the technical specifications of the Standard Formula and follows a previous discussion paper published in early 2017 which started a dialogue with the industry concerning EIOPA's review of the Delegated Regulation relative to the Standard Formula.

In this article we summarise the advice and suggestions put forward by EIOPA with regards to changes for the premium risk capital requirement calculation and in particular with regards to the definition of the volume measure, which has always been a controversial aspect of the Standard Formula and could impact the capital requirements of non-life companies.

Volume measure for premium risk

The underpinning principle for the assessment of the capital requirement for the non-life underwriting risk refers to the uncertainty in the results of (re)insurance undertakings related to the existing business as well as to the new business to be written over the following 12 months (Article 105[2] of the Directive). This principle was addressed in the Standard Formula throughout the sub-risk-modules of premium and reserve risk, catastrophe risk and lapse risk.

Definition of FPfuture

There has been a broad agreement within the industry that the formula used for the estimation of the volume measure (which is used in the calculation of the premium risk capital requirement) contained a gap with regards to the period of cover for future premium (FP). This gap resulted from the definition of FPfuture where premiums to be earned during the 12 months after the initial recognition date of the contracts from this component had to be excluded.

In a previous consultation paper, EIOPA suggested replacing the current definition of FPfuture in order to address the gap issue. This is the current definition:

*'FP(future,s) denotes the expected present value of premiums to be earned by the insurance and reinsurance undertaking in the segment s for contracts where the initial recognition date falls in the following 12 months but **excluding the premiums to be earned during the 12 months after the initial recognition date**.'*

This is the proposed definition:

*'FP(future,s) denotes the expected present value of premiums to be earned by the insurance and reinsurance undertaking in the segment s for contracts where the initial recognition date falls in the following 12 months but **excluding the premiums to be earned during the following 12 months**.'*

As a result of the previous consultation, the industry acknowledged that the new definition of FPfuture is more meaningful but expressed concerns that, everything else being equal, applying the premium risk factor to FPfuture would be departing from the 99.5th percentile value at-risk over a one-year time horizon principle. Indeed, the risk factor calibrated at the 99.5th percentile will be applied to business not only earned in the forthcoming 12 months but also to business earned in subsequent years (which could be several years for undertakings writing multiyear contracts) and therefore be more penal than initially intended.

The impact, on the volume measure calculated as at time t, of the proposed definition change is illustrated in the charts in Figures 1 to 3.
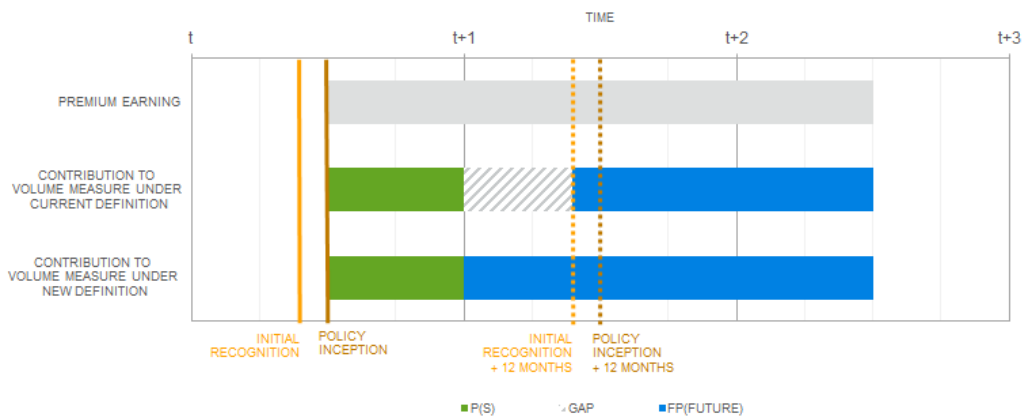
FIGURE 1: 2-YEAR CONTRACT
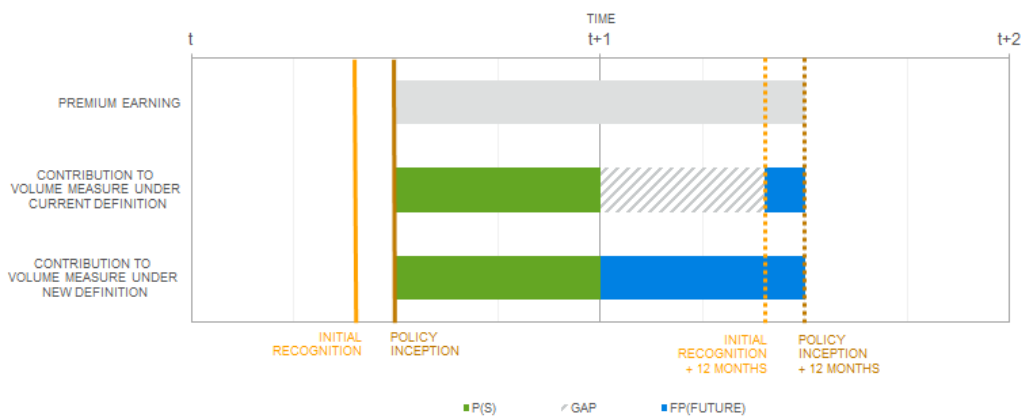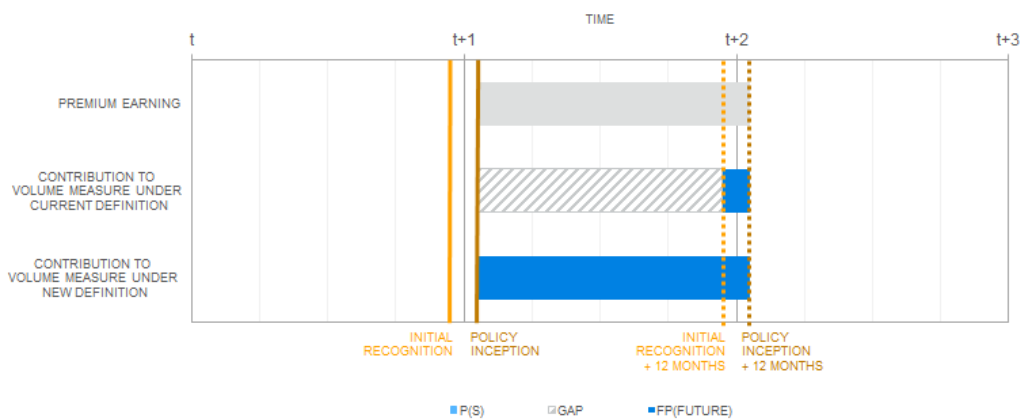

FIGURE 2: 1-YEAR CONTRACT

FIGURE 3: 1-YEAR CONTRACT WITH INITIAL RECOGNITION TOWARDS THE END OF THE YEAR

Risk sensitivity of the volume measure

The industry also reiterated its concern that premium was possibly not the best exposure measure to be used to assess the capital requirement for premium risk, as it is not risk-sensitive (the basic but meaningful example being that an undertaking writing a lower volume of premium with inadequate pricing will have a lower capital requirement than an undertaking writing a higher volume of premium adequately priced). The different suggestions from the industry to address this perceived issue were all ruled out by EIOPA on the ground of complexity, arbitrage opportunity or because of the need to recalibrate entirely the premium risk sub-module.

Definition of initial recognition date

EIOPA deemed it necessary to clarify its expectation of how undertakings should understand and apply the definition of the initial recognition date for FPfuture. The initial recognition date for FPfuture is to be interpreted in the same way as the initial recognition date for best estimate calculation purposes, i.e. it is the date at which *'the undertaking becomes a party to the contract that gives rise to the obligation or the date the insurance or reinsurance cover begins, whichever date occurs earlier.'*

An example of such an interpretation which may have been overlooked by undertakings is that tacit renewals which are given advanced notice in the year t+1 but which would incept in the year t+2 should be included within FPfuture.

Impact analysis

EIOPA carried out a data collection exercise in order to gauge what the impact of such a change in the definition of FPfuture would be for undertakings. The analysis has indicated that, everything else being equal, the suggested change would lead to an overall increase of 24% in the volume of premium used in the calculation of the capital charge for premium risk.

EIOPA advice

Following its first round of consultation and the impact analysis subsequently undertaken, EIOPA considers two different options for defining FPfuture and is seeking feedback:

- Option 1: No change to FPfuture.
- Option 2: Removing the gap (in the definition of FPfuture) and introducing an adjustment factor of 30% in FPfuture.

Under Option 2, the definition of the volume measure for premium risk for a Solvency II line of business s would therefore be as follows:

$$V(prem,s) = \max[Ps\ ;\ P(last,s)] + FP(existing,s) + 30\% \cdot FP(future,s)$$

where:

Ps denotes an estimate of the premiums to be earned by the insurance or reinsurance undertaking in the segment s during the following 12 months

$P(last,s)$ denotes the premiums earned by the insurance and reinsurance undertaking in the segments during the last 12 months

$FP(existing,s)$ denotes the expected present value of premiums to be earned by the insurance and reinsurance undertaking in the segments after the following 12 months for existing contracts

The addition and calibration of the 30% factor applied to FPfuture stem from the following reasons:

- EIOPA has recognised that in order to be in line with the initial calibration of the premium factor for each Solvency II line of business, the capital requirement for the period beyond the following 12 months should be lower than that of the following 12 months due to the absence of unexpected temporary risk beyond 12 months (therefore keeping consistency with the one-year time horizon principle). EIOPA has therefore suggested the introduction of an α factor to be applied to FPfuture in order to mitigate the capital requirement beyond the following 12 months. One could argue that the α factor should also apply to FPexisting but EIOPA is of the view that FPexisting, which mainly relates to multiyear contracts, would attract a higher unexpected permanent risk compared with annual contracts and, therefore, the use of a α factor is less relevant.

- Based on the impact analysis undertaken by EIOPA with regards to the use of the new definition of FPfuture, a 30% factor applied to FPfuture would have a limited impact (-2%) on the overall volume measure, based on the current definition. Moreover the combined impact by Solvency II line of business of the change of definition of FPfuture together with the 30% factor applied to it will be within a range of -2% to +6%. EIOPA considers therefore that an adjustment factor ranging from 20% to 40% would be reasonable and set 30% as a proposal for discussion purpose only (further data gathering and cleaning would be necessary to firm the adjustment factor proposal).

Conclusion

EIOPA's advice seems to indicate that the volume measure for premium risk would not change significantly should a change in the definition of FPfuture occur, which will be a relief for undertakings using the Standard Formula. With the introduction of a mitigating factor of 30% (still to be discussed), EIOPA has answered some concerns from the industry about the drifting away from the one-year time horizon principle. Nevertheless, premium, although not risk sensitive, is likely to remain the exposure measure for capital requirement for premium risk.

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