

## **Comments on EIOPA's advice on interest rate risk in its second set of advice to EC (EIOPA-BoS-18/075)**

On February 28, 2018, EIOPA published its second set of advice to the European Commission on specific items in the Solvency II Delegated Regulation (EIOPA-BoS-18/075). In this paper, we would like to draw your attention to EIOPA's advice on interest rate risk. According to our calculations, EIOPA's impact assessment is likely to underestimate the real impact of the proposed method (Shifted approach) on insurance undertakings with long term business, e.g. life insurers. We believe that this is due to EIOPA's simplified approach, where it bases its estimates on the 10 year maturity point of the stressed interest rate curve instead of on the full curve. In addition, EIOPA does not take into consideration that changes in the level of interest rates may affect the results of the impact assessment of the Shifted approach.

### **Background – EIOPA's advice**

EIOPA advises to model interest rate risk in the standard formula with a relative shifted approach, parameters of which vary in function of the maturity (see page 158-162 in the advice). The impact of the new methodology on the solvency positions of undertakings is analyzed by EIOPA on the basis of a specific information request (and two important simplifications which we will describe below). The result shows that for life undertakings that are exposed to the low-yield environment, the average impact on the solvency ratio is around 14 percentage points (from a solvency ratio of 216% to a solvency ratio of 202%).

It is important to note, however, that the impact on solvency positions varies significantly from one undertaking to another and, also, from one country to another. This can be seen in the box plot on page 481 of EIOPA's advice. According to this box plot, the median impact on solvency ratios among undertakings in the sample is a decrease by 11 percentage points; but for 25 percent of the undertakings the decrease is more than 37 percentage points; and for 10 percent of the undertakings the decrease is more than 90 percentage points. Thus, even ignoring the underestimation inherent in EIOPA's simplified impact assessment, which we will discuss below, the results by EIOPA recognize that many undertakings would experience reductions in solvency levels far higher than the estimated average of 14 percentage points.

According to EIOPA, the variation among undertakings may be explained by differences in average duration of liabilities and assets, while the variation among countries may be explained by different businesses and types of products. However, we believe that a more thorough analysis is needed to assess the economic consequences for the European insurance sector, as it is apparent that the impact of the proposal will be quite severe for many undertakings.

### EIOPA's impact assessment may underestimate the real impact

EIOPA uses a simplified approach to estimate the impact of the Shifted approach (see article 2452 and 2453 on page 477-478 in the advice). Specifically, EIOPA has not collected any data on the Shifted approach, but bases the impact assessment on the data it collected during the consultation phase on *two other* methodologies (proposal A and proposal B). Furthermore, EIOPA estimates the final impact on the basis of the 10 year maturity of the interest rate curve and does not make use of the full curve. As we will see below, this is likely to have implication for the results.

In our opinion, EIOPA's impact assessment is likely to underestimate the impact of the Shifted approach for undertakings with long-term businesses. This is clear from the findings of one of our member companies who report that the effect of the Shifted approach evaluated at the 10 year maturity is a decrease of 17 percentage points, whereas the effect calculated using the full curve is a decrease of 29 percentage points. That is, EIOPA's simplified approach produces a less severe result than if the full curve is used.

Furthermore, in the table on page 479 in the advice, EIOPA presents the average effect on the SCR ratio of proposal A and B as reported by insurance undertakings in EIOPA's information request; and the average effect on SCR of the Shifted approach as calculated by EIOPA. The results are presented both per country and at EU-level. The table below shows a copy of the top part of EIOPA's table:

**Table 1. EIOPA's impact assessment of the three new methods to calculate the interest rate risk – in relation to the current standard formula (change in SCR ratio)**

Country	Solvency ratio	Average decrease with proposal A	Average decrease with proposal B	Average decrease with shifted approach
<i>Low-yield environment currencies (EUR, BGN, CZK, DKK, CHF, NOK, SEK, GBP)</i>				
Average	216%	-33	-22	-14

Source: EIOPA's second set of advice to the European Commission on specific items in the Solvency II Delegated Regulation (EIOPA-BoS-18/075), p. 479.

According to this, the Shifted approach appears to have a *less severe* impact on the solvency positions of undertakings compared to proposal A and proposal B (-14 percentage points compared to -33 and -22 percentage points).

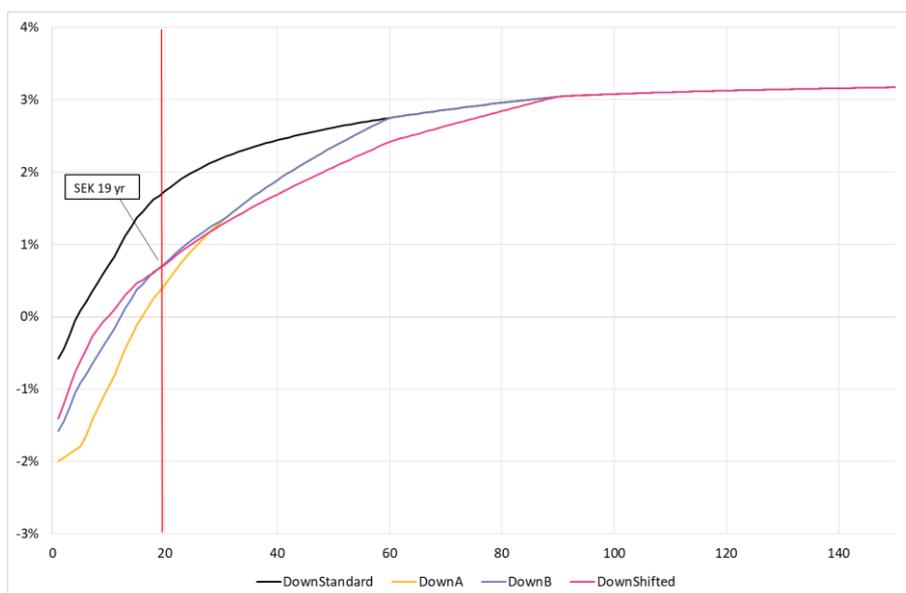
However, the estimates from our member companies indicate that this result may not be representative for all undertakings. As can be seen in Table 2, the Shifted approach produces an *equal or more severe* impact for two of our undertakings and a less severe impact only for one of the undertakings. The undertakings in question are all life insurers, but in contrast to EIOPA they have calculated the impact using the full interest rate curve, and not just the 10-year maturity point.

**Table 2. Results by Swedish life insurance undertakings (change in SCR ratio)**

Company	Average decrease with proposal A (pp)	Average decrease with proposal B (pp)	Average decrease with Shifted approach (pp)
Company 1	-	-26	-29
Company 2	-	-28	-28
Company 3	-	-30	-17

What can explain the differences between EIOPA's and our results and why do the results differ among our member companies? Well, this can be explained if one compares the stressed interest rates curves of the three methodologies, see Figure 1 below.

**Figure 1. Stressed interest rate curves, SEK, per 30-12-2016**



Source: EIOPA's information request (standard formula (current), proposal A, proposal B) and own calculations (Shifted approach).

As can be seen in Figure 1, the Shifted approach (pink line) gives rise to smaller interest rate stresses in the short end of the curve (up to 19 years), compared to proposal A (yellow line) and proposal B (blue line), but greater stresses in the long end the curve (i.e. above 19 years). This implies, all things being equal, that the Shifted approach will be more severe, the longer the duration of liabilities of undertakings. This is likely to explain at least part of the differences between the undertakings in Table 2. The main difference between the undertakings is namely that Company 1 and 2 have a longer duration in their liabilities than Company 3, and hence are affected more severely by the Shifted approach.

This is also likely to explain the difference against EIOPA's result. Recall, that EIOPA is only looking the 10 year maturity. At that maturity, the interest rate stress of the Shifted approach is smaller than those of Proposal A and Proposal B. It therefore follows by set up that the impact of the Shifted approach on solvency positions of undertakings will be smaller than those of Proposal A and B. Admittedly, EIOPA has tested also for other maturities (article 2466 on page 484 in the advice), but only up to 20 years, which does not cover the full curve. Therefore, this "maturity effect" is not properly captured by EIOPA. By looking only at the 10 year maturity, EIOPA's impact assessment is likely to underestimate the impact on all undertakings with long-term liabilities.

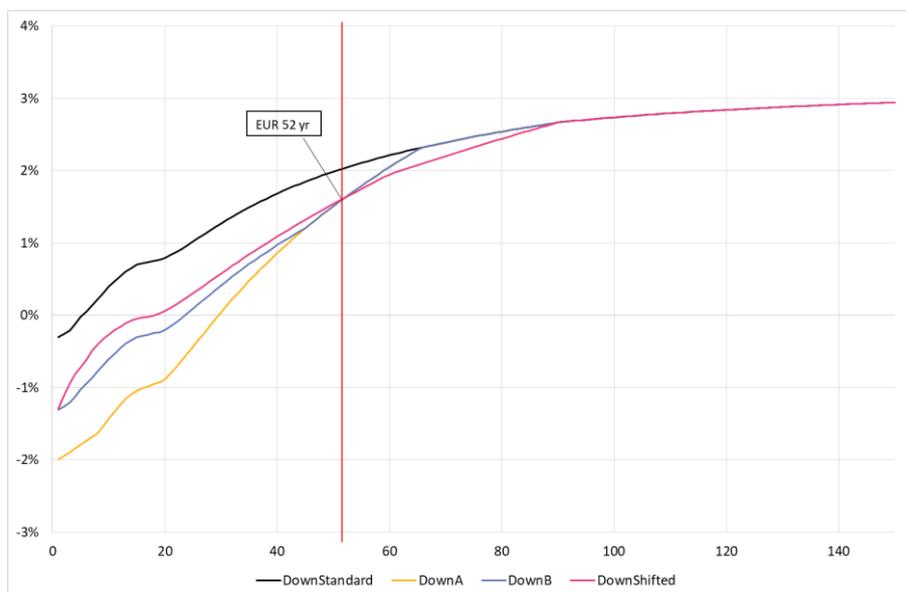
*In summary, EIOPA's simplified impact assessment, which it uses to assess the impact of Shifted approach (looking only at the 10 year maturity), is likely to underestimate the real impact of this approach, especially for undertakings offering long-term products. Therefore, we believe it is important to make a more thorough impact assessment before a decision on the interest rate risk module can be made.*

### **The interest rate stress affects the risk free rate in different currencies differently or Why the impact is likely to be more severe on Swedish undertakings**

As noted by EIOPA in its advice, the impact of the Shifted approach varies among countries. One explanation is, as EIOPA suggests, that undertakings in different countries may have different businesses and types of products. Another explanation, that we would like to highlight here, is that the size of the interest rate stresses themselves tends to differ among different currencies (due to different levels of interest rates of the original basic interest rate curve).

Comparing the stressed interest rate curves produced by the different methodologies (Current, Proposal A, Proposal B and Shifted approach) for the euro and the Swedish krona, respectively, reveals that the intersection point between the Shifted approach (pink line) and Proposal B (blue line) comes at a much earlier maturity for the Swedish krona (19 years), compared to the Euro (52 years), see Figure 1 and 2. This implies, all things being equal, that undertakings in Sweden are more likely to be negatively affected by the Shifted approach compared to Proposal B than undertakings in Euro member states.

**Figure 2. Stressed interest rate curves, EUR, per 30-12-2016**



Source: EIOPA's information request (standard formula (current), proposal A, proposal B) and own calculations (Shifted approach).

*In summary, the Shifted approach affects the risk free interest rate curve of different currencies differently. We believe that this has not been properly investigated by EIOPA and that a more thorough analysis is warranted before any decision is made.*

### **The results varies with the interest rate**

The results of the impact assessment of the Shifted approach may vary with the level of interest rate. When the level of interest rates increases, the intersection point between the Shifted approach and Proposal B moves in most cases towards lower maturities (thus rendering the Shifted approach less favourable in relation to Proposal B). This is also the main reason for why the stressed interest rate curves for the Swedish krona and the Euro differ, as presented in Figures 1 and 2.

The fact that the stressed interest rate curves vary with the level of interest rate, and that this will affect the impact of the Shifted approach, is an issue that EIOPA has not fully investigated in its advice. The impact assessment on page 479 in the advice is based only on the interest rate curves at one point in time (30-12-2016).

*In summary, the results of the impact assessment of the Shifted approach depend on the level of the interest rate. We believe that this is not properly investigated by EIOPA and that a more thorough analysis is warranted.*

### **Summary**

The EIOPA impact assessment is too simplified to rely on, since it assesses only one point on the interest rate curve (the 10y maturity) instead of the full curve. According to our estimates this tends to underestimate the real impact of the stress for undertakings with long term liabilities. In addition, the proposed calibration

(Shifted approach) tends to affect the basic risk free interest rate term structure of different currencies differently (due to differences in the original levels of interest rates). We believe that this is something that is not properly investigated by EIOPA and that a more thorough analysis is warranted before a decision on the interest rate risk can be made. Ultimately, we suggest that this is dealt with during the 2020-review, which includes also other aspects of the interest rate methodology.