Symmetric adjustment of the equity capital charge under Solvency II

Analysis and forecast for 2020 and 2021

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The Solvency II capital charge has become an important aspect in portfolio construction and asset allocation for insurance companies, next to the traditional trade-off between risk and return. For most assets, the capital charge is fixed and known upfront. However, for equities a capital charge with a variable component is used. This variable component is called the symmetric adjustment. This note explains the calculation of the symmetric adjustment and also makes a projection for the remainder of 2020 and 2021. This projection shows that the symmetric adjustment may well become negative in the coming period, making equities - ceteris paribus - relatively inexpensive from a capital point of view.

Solvency II came into effect on 1 January 2016 and is the regulatory risk framework for European insurance companies. Solvency II consists of three pillars: quantitative, qualitative (governance) and reporting. Pillar I evaluates the market and insurance risks by imposing an appropriate capital charge. The required capital depends on the composition of the insurer’s assets and liabilities. Typically a stress scenario is evaluated, corresponding to a theoretical annual probability of 0.5% (i.e., once every 200 years). The equity risk module presents one of the highest shocks with the precise level depending on the evolution of the equity markets in the past three years.

This article begins by explaining the calculation of the equity capital charge, with a focus on the symmetric adjustment. We then make a forecast of the symmetric adjustment for the remainder of 2020 and 2021. We mainly see a negative symmetric adjustment in the upcoming period, even in our positive equity scenario. This is due to the relatively low equity returns predicted in our outlook for 2019 and 2020. The capital charge for equity may thus well drift below its base level in the coming period.

Capital charge for equity under Solvency II

The equity risk module does not use a fixed stress scenario, in contrast with the other components of the market risk module. The base shock level is 39% for Type I equities and 49% for Type II equities. Type 1 equities consist of equities listed on regulated markets in countries which are members of the European Economic Area (EEA) or the Organization for Economic Cooperation and Development (OECD). Type 2 equities consist of equities listed on stock exchanges in countries which are not members of the EEA or the OECD, equities which are not listed, commodities and other alternative investments.

The base shock level (so 39% or 49%) is then modified by at most plus or minus 10%-points, depending on the evolution of the equity markets over the past three years. This modification is called the symmetric adjustment of the equity capital charge. The shock to be applied for equity risk thus lies between 29% and 49% for Type I equity and 39% to

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1 Capital requirements can be determined using a standard model approach or using an internal model. We use the standard model approach in this article.
2 See EU (2015), Article 168.
3 The shock for strategic equity participations (related undertakings) is fixed and equal to 22%. See EU (2015), Article 169.
4 See EU (2015), Article 172.
59% for Type II equity. This amplitude is very material, particularly considering that equity is already the most penalized risk module (i.e., has the largest shock). The symmetric adjustment aims to mitigate pro-cyclical market effects by making equity more expensive (in terms of required capital) in an equity bull market and vice versa.

**Symmetric adjustment of equity capital charge**

The symmetric adjustment (SA) was introduced into Directive 2009/138/EC by Article 106 (amended by Directive 2014/51/EU) and detailed into Commission Delegated Regulation 2015/35/EU by Article 172.\(^5\)

It is described by the following formula:

\[
SA = \left[ \frac{1}{2} \left( \frac{CI - AI}{AI} - 8\% \right) \right]^{10\%} - 10\%
\]

with:

- \(AI\) = average value over 3 years of the global equity index\(^6\)
- \(CI\) = current value of the global equity index

The 8% term of this formula accounts for the long-term return in equity markets. This means that the expected growth for the ratio between the current index and the average index is +8%. To illustrate this, we searched for the level of equity performance where the symmetric adjustment would be exactly 0%. It turns out that the equity market would need to grow at a constant annual rate of 5.34% in order to reach a value of zero for the symmetric adjustment. To maintain the upper limit of 10%, equity markets would need to rise by at least 18.76% per year. They would need to fall by at least -8.01% per year to reach the lower limit of -10% for the symmetric adjustment.

The global equity index is specified in EIOPA (2015). This index should represent the average composition of European insurers’ equity portfolios. The weights are determined by EIOPA and could possibly change in the future if these weights do not reflect the average equity exposure anymore. The following table presents the global index composition.\(^7\)

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\(^6\) Only working days are included in the averaging procedure. ‘Working day’ here means every day other than Saturdays and Sundays. Public holidays are thus considered to be working days, except when they fall on the weekend.

\(^7\) See EIOPA (2015).
Table 1: Composition of the global equity index

<table>
<thead>
<tr>
<th>Equity (price) Index</th>
<th>Country</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEX</td>
<td>Netherlands</td>
<td>14%</td>
</tr>
<tr>
<td>CAC 40</td>
<td>France</td>
<td>14%</td>
</tr>
<tr>
<td>DAX</td>
<td>Germany</td>
<td>14%</td>
</tr>
<tr>
<td>FTSE All-Share Index</td>
<td>United Kingdom</td>
<td>14%</td>
</tr>
<tr>
<td>FTSE MIB Index</td>
<td>Italy</td>
<td>8%</td>
</tr>
<tr>
<td>IBEX 35</td>
<td>Spain</td>
<td>8%</td>
</tr>
<tr>
<td>Nikkei 225</td>
<td>Japan</td>
<td>2%</td>
</tr>
<tr>
<td>OMX Stockholm 30 Index</td>
<td>Sweden</td>
<td>8%</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>United States</td>
<td>8%</td>
</tr>
<tr>
<td>SMI</td>
<td>Switzerland</td>
<td>2%</td>
</tr>
<tr>
<td>WIG30</td>
<td>Poland</td>
<td>8%</td>
</tr>
</tbody>
</table>


EIOPA indicates that price return indices should be used, i.e. the reinvestment of dividends should not be taken into account. The weights are divided into three categories: 14%, 8% and 2%. All relevant information about the symmetric adjustment is published each month on the website of EIOPA.  

EIOPA has recently analyzed the above mechanism in their advice for the 2020 global review of the Solvency II framework. This analysis shows that the recalibrated index weights differ significantly from the prescribed weights in Table 1. However, the impact of this is deemed to be relatively small due to the typically high correlation between different equity indices in stress scenarios. EIOPA is therefore of the view that the composition of the equity index for the symmetric adjustment does not currently need to be updated.

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8 See Section 2.10 of EIOPA (2019).
**Historical analysis**

The following graph presents the official level of the symmetric adjustment as published by EIOPA.

**Figure 1: Long-term evolution of the symmetric equity adjustment**

This adjustment is very volatile, as is shown in the graph. It can go from one extreme point to another in only one year, as was the case in 2000-2001 and in 2007-2008. In other words, the amount of capital that an investor needs to set aside for equity investments can vary significantly from one year to the next. In relative terms, the capital charge for equity can vary by almost 70% for equity type I (50% for equity type II) if going from the minimum to maximum capital charge. Figure 2 shows the development of the current equity index (CI) and the three-year rolling average index (AI) since 2011. The difference between the CI and AI index determines the sign of the symmetric adjustment. This sign has changed very frequently in the past years (61 times since the beginning of 2011).
Forecasts for 2020 and 2021

The above formula makes it possible, under certain assumptions, to make a projection for the symmetric adjustment. We here give an example for the projection until the end of 2020. Our starting point is the situation at the end of 2019.

In the formula we need to account for the number of working days in the historical period (522 days over 2018 and 2019) and the number of working days in 2020 (262 days). The projected return for the remainder of 2019 is denoted as \( r\% \). Note that the projected return should be specified as an expected price return, so excluding the expected dividend yield.

\[
\begin{align*}
\overline{C}_\text{I}_{\text{end } 2020} &= C_{\text{I}_{\text{end } 2019}}(1 + r\%) \\
\overline{A}_\text{I}_{\text{end } 2019} &= \frac{522 \times A_{\text{I}_{\text{end } 2019}} + 262 \times C_{\text{I}_{\text{end } 2019}}(1 + 0.5 \times r\%)}{784}
\end{align*}
\]

Of course, this formula would need to be adjusted for other calculation or projection dates. The table below presents the corresponding projected values for two different scenarios:

**Positive scenario (probability: 50%)**

In our positive scenario, we expect moderate growth in the coming years. As equities are already relatively expensive, we expect the return potential to be limited through higher valuations. The combination of already high valuations and moderate economic growth and inflation prospects results in low positive (price) return expectations for the coming years: +2% per annum on average.

**Negative scenario (probability: 50%)**

In our negative scenario, we take into account a growth slowdown and a revaluation of shares. This leads to negative price return expectations: -10.7% per annum on average.
Table 2: Projections of the symmetric adjustment for the end of 2020

<table>
<thead>
<tr>
<th>Equity price index: growth assumption</th>
<th>Forecast CI 31-12-2020</th>
<th>Forecast AI 31-12-2020</th>
<th>Forecast SA 31-12-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (+2% for 2020)</td>
<td>107.03%</td>
<td>100.39%</td>
<td>-0.69%</td>
</tr>
<tr>
<td>Negative (-10.7% for 2020)</td>
<td>93.71%</td>
<td>98.15%</td>
<td>-6.26%</td>
</tr>
</tbody>
</table>


The (annualized) realized equity performance from January 2018 to December 2019 was +2.44%, so below the break-even return of +5.34% that is needed to keep the SA at 0%. As a result, the carryover is negative, which means that even in the positive scenario the SA will be slightly negative at the end of 2019 (-0.69%). The symmetric adjustment drops to -6.26% in our negative scenario. From a capital point of view, equities are thus probably relatively inexpensive during the remainder of 2020.

Equivalent projections until the end of 2021 are summarized in the following table:

Table 3: Projections of the symmetric adjustment until the end of 2021

<table>
<thead>
<tr>
<th>Equity price index: growth assumption</th>
<th>Forecast CI 31-12-2021</th>
<th>Forecast AI 31-12-2021</th>
<th>Forecast SA 31-12-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (+4.0% for Jan ’20 - Dec ’21)</td>
<td>125.02%</td>
<td>119.09%</td>
<td>-1.51%</td>
</tr>
<tr>
<td>Negative (-20.3% for Jan ’20 - Dec ’21)</td>
<td>95.83%</td>
<td>109.33%</td>
<td>-10.00%</td>
</tr>
</tbody>
</table>


The (annualized) realized equity performance from January 2019 to December 2019 was +20.17%, so well above the break-even return of +5.34% that is needed to keep the SA at 0%. As a result, the carry-over from 2019 is strongly positive, which creates an upward pressure on the SA. The annualized expected return in the positive and negative scenario is however below the break-even return (+2%). Overall, this still leads to a negative SA at the end of 2021. This indicates that the SA is likely to remain in negative territory in 2021, even if our positive equity scenario materializes.
The following figure summarizes the projected level of the symmetric adjustment for 2020 and 2021.

**Figure 3: Projection of the symmetric equity adjustment**

![Graph showing symmetric equity adjustment projections from 2019 to 2021.](image)

Source: Bloomberg; Aegon Asset Management; calculations as of 31 December 2019.

This figure clearly shows that we expect that the symmetric adjustment remains negative in 2020 and 2021. This is clearly so in our negative equity scenario (the red line). However, also in our positive equity scenario (the blue line) the symmetric adjustment tends to remain slightly negative, because the break-even return of +5.34% is not reached in our positive outlook in 2020 and 2021.

**Conclusions**

After strong fluctuations over the last years, the symmetric adjustment is now close to zero. This means that the capital charge for equities is currently at its base value under Solvency II. The symmetric adjustment can change rapidly, depending on the evolution of the underlying basket of equities. However, in our projections for 2020 and 2021 we mainly see a negative symmetric adjustment, even in our positive equity scenario. This is due to the relatively low equity returns predicted in our macroeconomic outlook for 2020 and 2021. The capital charge for equities may thus well drift below its base level in the coming period, making this asset class relatively inexpensive from a capital point of view.
References


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