Symmetric adjustment of the equity capital charge under Solvency II

Analysis and forecast for 2019 and 2020

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Symmetric adjustment of the equity capital charge under Solvency II – Analysis and forecast for 2019 and 2020

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 2019 and 2020. This projection shows that the symmetric adjustment may well remain negative in the coming period, making equities - ceteris paribus - relatively attractive from a capital point of view.

Solvency II came into effect on January 1, 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 2019 and 2020. We find that the strongly negative equity performance at the end of 2018 tends to lower the capital charge for equity in the upcoming period. All other things being equal, equities thus continue to present an opportunity in terms of asset allocation, as the capital charge for equity probably remains below the base level in the coming months.

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 Organisation 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, also considering that equity is already the most penalized risk module (i.e., has the largest shock). The symmetric adjustment aims to mitigate procyclical 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 maintain 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 next table presents the global index composition.\(^7\)

<table>
<thead>
<tr>
<th>The global equity index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equity (price) Index</strong></td>
</tr>
<tr>
<td>AEX</td>
</tr>
<tr>
<td>CAC 40</td>
</tr>
<tr>
<td>DAX</td>
</tr>
<tr>
<td>FTSE All-Share Index</td>
</tr>
<tr>
<td>FTSE MIB Index</td>
</tr>
<tr>
<td>IBEX 35</td>
</tr>
<tr>
<td>Nikkei 225</td>
</tr>
<tr>
<td>OMX Stockholm 30 Index</td>
</tr>
</tbody>
</table>


\(^6\) 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>
<thead>
<tr>
<th>Index</th>
<th>Country</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<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>

Table 1: Composition of the global equity index which is used to calculate the symmetric equity adjustment. Source: EIOPA (2015).

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.¹

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

![Long-term evolution of the symmetric adjustment](image)

**Figure 1:** Evolution of the symmetric adjustment over a long historical period. Source: EIOPA, as of February 28, 2019.

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 order 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). 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 (55 times since the beginning of 2011).

Figure 2: Evolution of the current and average equity index over time. The difference between the two lines determines the sign of the symmetric adjustment. Source: Bloomberg; Aegon Asset Management calculations as of February 28, 2019.

Forecasts for 2019 and 2020
The above formula makes it possible, under certain assumptions, to make a projection for the symmetric adjustment for the end of 2019. Our starting point is the situation at the end of February 2019. In the formula we need to account for the number of working days in the historical period (564 days) and the remaining number of working days in 2019 (219). 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.

\[
\hat{C}_{\text{end 2019}} = C_{\text{end Feb. 2019}} (1 + r\%)
\]

\[
\hat{A}_{\text{end 2019}} = \frac{564 \times A_{\text{end Feb. 2019}} + 219 \times C_{\text{end Feb. 2019}} (1 + 0.5 \times r\%)}{783}
\]

This formula needs to be adjusted for other calculation or projection dates. The table below presents the corresponding projected values for three different scenarios:

**Baseline scenario (probability: 60%)**
Our macroeconomic base case anticipates a gradual slowdown of economic growth in the coming years, but no large asymmetric macroeconomic shocks. After the sell-off in equity markets in late 2018, most equity markets have returned to average valuations. On the basis of a combination of a moderate economic slowdown and average valuations, we expect moderate returns for European equities in the coming two years.

**Positive scenario (probability: 25%)**
Our positive outlook foresees above-average equity returns. These returns are based on a positive macroeconomic outlook where growth remains solid and temporary headwinds turn into tailwinds. The solid growth can occur via a
pickup in productivity growth to compensate for the lower monetary and fiscal stimulus, providing room for stocks to trade at more expensive valuations.

**Negative scenario (probability: 15%)**
The negative scenario could unfold if one/multiple risk factors materialize causing growth slowdown, e.g. a hard Brexit, a full blown trade war, Eurozone fragility or when capacity constraints materialize.

### Projections for the end of 2019

<table>
<thead>
<tr>
<th>Equity price index: growth assumption</th>
<th>Forecast CI 31/12/2019</th>
<th>Forecast AI 31/12/2019</th>
<th>Forecast SA 31/12/2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (+10% for March-Dec. ’19)</td>
<td>117.15%</td>
<td>109.14%</td>
<td>-0.33%</td>
</tr>
<tr>
<td>Baseline (+4.5% for March-Dec. ’19)</td>
<td>111.29%</td>
<td>108.32%</td>
<td>-2.63%</td>
</tr>
<tr>
<td>Negative (-12% for March-Dec. ’19)</td>
<td>93.72%</td>
<td>105.86%</td>
<td>-9.73%</td>
</tr>
</tbody>
</table>

**Table 2:** Projection of the symmetric equity adjustment for the end of 2019. Calculations as of February 28, 2019. The growth assumptions are for the period March 1 - December 31, 2019. Source: Bloomberg, Aegon Asset Management.

The (annualized) realized equity performance from January 2017 to February 2019 was +2.95%, 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 (-0.33%). All other projections for the symmetric adjustment also point toward a negative value at the end of 2019, ranging from -2.63% in our baseline scenario to -9.73% in our negative scenario. From a capital point of view, equities thus probably remain relatively attractive during the remainder of 2019.

The projections for the end of 2020 are summarized in the following table:

### Projections 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 (+7.9% for Jan.-Dec. ’20)</td>
<td>113.26%</td>
<td>102.05%</td>
<td>+1.49%</td>
</tr>
<tr>
<td>Baseline (+4.4% for Jan.-Dec. ’20)</td>
<td>104.10%</td>
<td>98.78%</td>
<td>-1.30%</td>
</tr>
<tr>
<td>Negative (-1.9% for Jan.-Dec. ’20)</td>
<td>82.38%</td>
<td>90.11%</td>
<td>-8.29%</td>
</tr>
</tbody>
</table>

**Table 3:** Projection of the symmetric equity adjustment for the end of 2020. Calculations as of February 28, 2019. For the remainder of 2019 the growth assumptions listed in Table 2 have been used; the growth assumptions for 2020 are listed in this table. Source: Bloomberg, Aegon Asset Management.

The (annualized) realized equity performance from January 2018 to February 2019 was -3.94%, so well below the break-even return of +5.34% that is needed to keep the SA at 0%. As a result, the carry-over is very negative, which means that the SA will only be positive in 2020 (+1.49%) in the positive scenario. In the baseline and negative scenarios the SA will be negative (-1.30%, resp. -8.29%). This indicates that the SA is likely to remain in negative territory in 2020, except if our positive equity scenario materializes.

The following figure summarizes the projected level of the symmetric adjustment for 2019 and 2020.
Figure 3: Projected evolution of the symmetric equity adjustment during 2019 and 2020. Source: Bloomberg; Aegon Asset Management calculations as of February 28, 2019.

The yellow line, for instance, shows the level of the symmetric adjustment for our baseline growth expectation for the equity markets. The decrease of the equity markets at the end of 2018 clearly creates negative pressure on the symmetric adjustment, leading to relatively low projected values for the rest of 2019 and 2020.

Conclusions
After strong fluctuations over the last two years, the symmetric adjustment is now slightly negative. This means that the capital charge for equities is currently relatively low under Solvency II. The symmetric adjustment can change rapidly, depending on the evolution of the underlying basket of equities. However, in our projections for 2019 and 2020 we mainly see a negative symmetric adjustment, except in our positive equity scenario. This is due to the negative equity performance at the end of 2018, which created a negative drag on the symmetric adjustment for 2019 and 2020. Thus, all other things being equal, the equity asset class continues to present an opportunity in terms of asset allocation, as the capital charge for equity may well stay below its base level in the coming period.
References


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