Revision of the Solvency II standard formula approach
Highlights and implications for European insurance companies

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By David van Bragt & Rémi Lamaud
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Revision of the Solvency II standard formula approach – Highlights and implications for European insurance companies

The standard formula approach under Solvency II is used by many European insurance companies to calculate the required solvency capital. The European Committee (EC) has now finalized several changes of the standard formula, which has an impact on all insurers which do not apply an internal model. This article reviews some important changes and discusses the possible impact. In 2020 a global review of the Solvency II framework will follow, with a broader scope than the standard formula.

In this article, we focus on the following changes:

Treatment of government guarantees (like NHG) for residential mortgage investments

The risk-mitigating effect for Dutch residential mortgage loans which are guaranteed by the Dutch National Mortgage Guarantee scheme ("Nationale Hypotheekgarantie" or NHG) will be acknowledged. This will significantly lower the solvency capital charge for these mortgage loans.

Guarantees by regional authorities and local governments (RGLA)

Guarantees by RGLA will be treated similarly as guarantees by the central government. Because guarantees by the central government of EU member states are solvency free, this implies that guarantees by RGLA in member states also become solvency free.

Reduction of reliance on credit rating agencies

A simplified calculation method for the credit risk module becomes possible for unrated instruments. This simplified method may be used if rated fixed-income instruments cover at least 80% of the debt portfolio. In this case, vanilla (fixed or callable and unstructured) securities not covered by a credit agency can be treated as BBB-rated debt.

Treatment of long-term and unlisted equities

Insurers are allowed to create a long-term equity portfolio with a lower capital charge (22%). In addition, unlisted equity that meets certain specifications may classify as type 1 (instead of type 2) equities, leading to a lower capital charge as well.

Look-through approach

If a look-through is not available for an investment class, it becomes possible to use the reported target allocation to calculate market risk. The upper limit for applying this approach is 20% of the total asset allocation.

Specific conditions apply, of course, in the above cases. More information follows in the remainder of this article. Note also that the standard solvency capital requirements for interest rate risk are not changed at this moment. This topic
already generated much discussion during the standard formula review and has been postponed to the global Solvency II review that starts in 2020.

We start this article with a short overview of the legislative process up to this point. We then give more information about the above topics and discuss the possible impact on insurance companies.

**Timeline**


After a consultation phase during 2017, EIOPA, the European Insurance and Occupational Pensions Authority, published a first set of advice on 30 October, 2017.⁴ A second, comprehensive, set of advice was published on 28 February, 2018.⁵ EIOPA’s advice was subsequently discussed with experts from EU member states and the European Parliament. Draft delegated regulation was released by the European Committee (EC) in November 2018, followed by a short consultation period at the end of 2018. The final proposals from the European Commission were published on March 8, 2019.⁶ The amendments will now be subject to a scrutiny period of 3 months by the European Parliament and the Council. The new regulations discussed in this article will enter into force 20 days after publication in the **Official Journal of the European Union**. All amendments should be in force by January 1, 2020. A global Solvency II review is scheduled for 2020/2021.⁷

**Treatment of government guarantees (like NHG) for residential mortgage investments**

The treatment of Dutch residential mortgage loans which are guaranteed by the National Mortgage Guarantee scheme ("Nationale Hypotheekgarantie" or NHG) will be modified.⁸ The NHG scheme is administered by the Homeownership Guarantee Fund (Waarborgfonds Eigen Woningen, or "WEW"). The WEW guarantees approximately €190 billion in mortgage loans. The NHG scheme provides a partial guarantee.⁹ Currently, such a partial guarantee is not recognized under Solvency II, whereas partial guarantees are accounted for under Basel III.¹⁰ This discrepancy is now removed in

¹ See EU (2009) and EU (2014).
² See EU (2015b).
³ See EU (2016).
⁴ See EIOPA (2017).
⁵ See EIOPA (2018).
⁶ See EC (2018).
⁷ The EC request to EIOPA for the 2020 review of the Solvency II text can be found here: https://eiopa.europa.eu/Publications/Requests%20for%20advice/RH_SRAnnex%20-%20CfA%202020%20SII%20review.pdf.
⁹ This is due to several reasons. First, the payment in case of a default only covers the difference between the nominal value of the mortgage loan and the value of the property. Second, the guaranteed amount decreases over time because the assumption is made that the mortgage loan is repaid within 30 years. This implies that the guarantee becomes weaker over time for non-amortizing loans. Third, as of 2014 an own risk clause of 10% applies.
¹⁰ See CRD IV / CRR (2013) for a detailed specification of the standard capital requirements under Basel III.
the sense that partial guarantees will also be acknowledged when the counterparty risk module is used for residential mortgages. This further reduces the required capital for Dutch NHG mortgages.11

We now investigate the impact of the new Solvency II rules for NHG mortgages in more detail. We consider an example mortgage pool with 52% NHG mortgages and an average loan-to-value of 69%.12 The required capital for counterparty risk in the mortgage portfolio is equal to 3.2% in this case under the old Solvency II rules (so when neglecting the effect of the NHG guarantee). When we take the effect of the NHG guarantee into account, the required capital becomes much smaller: only 2.0%. More information about the standard treatment of NHG mortgages under the new Solvency II rules can be found in the appendix.

On the overall balance sheet, such a small capital charge becomes even smaller due to large diversification benefits. To illustrate this point, we have repeated the earlier analysis in Van Bragt (2016) with the proposed new rules. In this analysis, we consider a stylized life insurer which allocates 10% of its assets to mortgages.13 We then study the effect of adding mortgages on the Solvency II ratio (the initial Solvency II ratio is set at 150%). The results are shown in the following table.

<table>
<thead>
<tr>
<th></th>
<th>Base Funding: sovereigns</th>
<th>Funding: credits</th>
<th>Funding: all</th>
<th>Funding: equities</th>
</tr>
</thead>
<tbody>
<tr>
<td>% mortgages</td>
<td>0%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>% equities</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>% sovereigns</td>
<td>40%</td>
<td>30%</td>
<td>40%</td>
<td>36%</td>
</tr>
<tr>
<td>% credits</td>
<td>40%</td>
<td>40%</td>
<td>30%</td>
<td>36%</td>
</tr>
<tr>
<td>Solvency II ratio (old rules)</td>
<td>150.0%</td>
<td>148.8%</td>
<td>158.5%</td>
<td>162.5%</td>
</tr>
<tr>
<td>Solvency II ratio (new rules)</td>
<td>150.0%</td>
<td>149.3%</td>
<td>159.0%</td>
<td>163.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>210.2%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Impact of lower capital charges for NHG mortgages on the Solvency II ratio when allocating assets to mortgages. Source: Aegon Asset Management, as of 31 December, 2018.

Table 1 shows that when we sell sovereigns and buy mortgages, the solvency ratio decreases only slightly (by 0.7%-point) when we implement the new treatment for NHG guarantees. Under the current rules (i.e., when the NHG guarantee is ignored) the decrease in solvency ratio is approximately 1.2%-points. Similar effects are visible when we fund mortgages with credits, all assets or equity. The attractiveness of Dutch NHG mortgages under Solvency II thus further increases under the new Solvency II rules.

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11 This different approach has no impact if the spread risk (instead of the counterparty default risk) module is used for residential mortgages. The standard formula for spread risk is based on the rating of the instruments. Partial guarantees already have an impact on the rating, so no adjustments are needed here.

12 The mortgage pool of the AeAM Dutch Mortgage Fund [as of 31 December, 2018] is used as the reference portfolio here.

13 See Van Bragt (2016) for more information about the assumptions made in this analysis.
Guarantees by regional governments and local authorities (RGLA)

Guarantees by RGLA that are listed in Article 1 of EU (2015a) will be treated similarly as guarantees by their central government. Again, this is a similar approach as under Basel III. Since guarantees by the central government of member states are solvency free, this implies that guarantees by RGLA also become solvency free.8 To give an example: a loan that is guaranteed by a municipality (“gemeente”) in the Netherlands was not solvency free under Solvency II. This changes under the new rules, and such loans become solvency free as well (as is the case under Basel III). Exposures to RGLA of EU member states that are not listed in Article 1 of EU (2015a) shall be treated as instruments with a rating of A. The same holds for guarantees by such RGLA.

Reduction of reliance on credit rating agencies

A new, simplified calculation method for the credit risk module is also introduced. This simplified method may be used if instruments which are rated by a credit rating agency already cover 80% of the debt portfolio. In this case, vanilla (fixed or callable and unstructured) securities not covered by a credit agency can be treated as BBB-rated debt. Structured notes and collateralized securities are excluded from the simplified calculation.

One reason for this simplification is that increasing the number of credit agencies, in the hope of obtaining more rated securities, typically only increases the number of ratings of securities that have already been rated. Therefore, complete coverage of all securities would require a large number of credit agencies to be consulted, with all associated costs. Medium-sized insurers will be able to benefit from this, but not very much because the treatment of unrated debt is already not very penalizing.

For unrated bonds or loans, in the context of a co-investment, the possibility is also created of using the bank’s internal model, where applicable. The co-investor should retain an exposure of at least 20% of the nominal value of each bond and loan. However, this option is not applicable to real estate or infrastructure debt loans, since all applicable indicators are based on an enterprise income statement.

Treatment of long-term and unlisted equities

The new regulations allow insurers to create a long-term equity portfolio with a low SCR (of 22%, like strategic participations). These equity investments must be ring-fenced and held for more than 5 years. The solvency and liquidity position should also be such that forced sales of these equity investments can be avoided for at least 10 years. In addition, unlisted equity that meets certain specifications (e.g. shares of companies which have their head office in the EEA) may be classified as type 1 equities, leading to a base capital charge of 39%. These securities were previously classified as type 2 equities, with a base capital charge of 49%.

Look-through approach

It becomes possible to use the reported allocation to calculate market risk if a look-through or target underlying asset allocation is not available for an investment class. All market modules must be evaluated, however, including interest rate risk and credit risk. The upper limit for applying this approach is 20% of the total asset allocation.

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15 To qualify, the guarantee of the RGLA should be a full, unconditional and irrevocable guarantee.
16 See EC (2018), Article 180(3). Again, the guarantee should be a full, unconditional and irrevocable guarantee.
18 See EC (2018), Article 176c.
19 Additional criteria for the internal assessment of the credit quality of bonds and loans are given in EC (2018), Articles 176a and b.
20 See EC (2018), Article 169 and 171a.
21 See EC (2018), Article 168a.
22 The base capital charge for equities should be modified by the symmetric adjustment mechanism (Lamaut, 2017).
23 See EC (2018), Article 84.
Mutual funds or unit-linked investments for which the market risk is fully borne by the policy holders are excluded from the 20% limit.

Conclusions

This article reviews some important modifications of the standard required capital calculation under Solvency II. We discuss the possible impact of these changes on European insurance companies. The amendments will now be subject to a scrutiny period of 3 months by the European Parliament and the Council. The new regulations discussed in this article will then enter into force 20 days after publication in the *Official Journal of the European Union*. In 2020, a global Solvency II review will commence. A review of the standard solvency capital requirement for interest rate risk will be part of that review.

An important step is that the risk-mitigating effect of an NHG government guarantee for Dutch mortgage loans will be accounted for, as is already the case under Basel III. This will significantly lower the solvency capital charge for these mortgage loans. The attractiveness of Dutch mortgages under Solvency II will thus further increase. Guarantees by regional authorities and local governments (RGLA) will also be treated similarly as guarantees by the central government.

On another note, a simplified calculation method for the credit risk module also becomes possible. This simplified method may be used if 80% of the debt portfolio is rated. This may limit the costs for rating agencies for smaller insurance firms. On the equities side, a more beneficial treatment of long-term holdings and unlisted equities becomes possible, if certain restrictions are obeyed. The look-through requirement is also relaxed, in the sense that it becomes possible to use the reported target allocation under specific circumstances.

The complete package with revisions is available via EC (2018). This marks the conclusion of the Solvency II standard formula review. Next, the global Solvency II review will commence in 2020. This global review will also look at the capital requirements for interest rate risk, a topic that has already generated much debate during the standard formula review.
Appendix: Standard treatment of NHG mortgages under new Solvency II rules

We start with the standard treatment of residential mortgages without an NHG guarantee. Then the impact of the NHG guarantee is explained.

**Mortgages without an NHG guarantee**

Article 176, paragraph 1, in EU (2015b) explicitly states that mortgage loans do not fall under the spread risk module, provided those mortgages meet the requirements in Article 191.

Article 191 in EU (2015b), states that residential mortgages shall be treated in the “Counterparty Default Risk Module”, provided that mortgages fulfil 13 requirements mentioned in Article 191. All mortgages in the AeAM Dutch Mortgage Fund (DMF) do fulfil those requirements.

Article 202 states that the SCR for Type 2 exposures (mortgages) the probability of default (PD) is equal to:

- PD for performing mortgages: 15%
- PD for non-performing mortgages: 90%

Article 192, paragraph 4, describes the loss-given default (LGD) of mortgages:

\[
LGD = \max[0, \text{market value (MV)) mortgage} - 80\% \times \text{risk-adjusted value of mortgage}]
\]

Article 198 describes the risk-adjusted value of mortgages:

\[
\text{Risk-adjusted value of mortgage = MV property} - \text{adjustment for market risk}
\]

The adjustment for market risk equals the capital charge that an insurance company would need to hold if it had the property on its balance sheet. The capital charge for direct property is 25% of the MV of the property according to Article 174. See also EIOPA (2012).

Hence, the capital charge for mortgages is:

\[
\begin{align*}
\text{SCR} &= \text{PD} \times \max[0, \text{MV mortgage} - 0.8 \times (\text{MV property} - 0.25 \times \text{MV property})] \quad \text{NHG, <2014} \\
\text{SCR} &= \text{PD} \times \max[0, \text{MV mortgage} - 0.6 \times \text{MV property}] \quad \text{NHG, 2014 or later}
\end{align*}
\]

**Mortgages with an NHG guarantee**

For NHG mortgages issued after January 1, 2014 an own risk clause of 10% of the claim on the WEW applies. For simplicity, we start with NHG mortgages without an own risk clause and then extend this case.

**NHG mortgages without an own risk clause (issued before January 1, 2014)**

Taking into account the part of the mortgage covered by the NHG guarantee we immediately find that:

\[
\text{SCR (NHG, <2014)} = \text{PD} \times \max[0, \text{MV mortgage} - \max(0.6 \times \text{MV property, NHG guarantee})]
\]

**NHG mortgages with an own risk clause (issued in 2014 or later)**

In this case an own risk of 10% of the claim on the WEW applies. This claim is equal to:

\[
\text{Claim on WEW} = \max[\min(\text{MV mortgage, NHG guarantee}) - 0.6 \times \text{MV property}, 0]
\]

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24 This is a conservative approach, since diversification effects in the market risk module may be taken into account, leading to a lower stress than 25% in practice.
The LGD thus increases with 10% of this claim on the WEW. This implies that the SCR becomes:

$$\text{SCR (NHG, \geq 2014) = PD \times \max\{0, \text{MV mortgage} - \max(60\% \text{ MV property}, \text{NHG guarantee})\} + PD \times 10\% \times \max(\min(\text{MV mortgage, NHG guarantee}) - 60\% \text{ MV property}, 0)$$
References


About the authors
This article is written by David van Bragt of Aegon Asset Management and Rémi Lamaud of La Banque Postale Asset Management (LBPAM). David van Bragt is a senior consultant in the Investment Solutions team at Aegon Asset Management. Rémi Lamaud is Head of Regulation and ALM at LBPAM. The authors advise institutional investors about ALM, LDI, risk management and regulatory developments.

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More information
Frank Drukker, Executive Director Institutional Business Development
Aegon Asset Management
T. + 31 (0)6 10 13 28 25
E. frank.drukker@aegonassetmanagement.com

Marianne Hamerslag, Executive Director Institutional Business Development
Aegon Asset Management
T. + 31 (0)6 12 41 67 68
E. marianne.hamerslag@aegonassetmanagement.com
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