

## The need for a Dynamic Volatility Adjustment within the Solvency II standard formula

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### Summary

Solvency II came into force in January 2016 after many years of discussion. Insurance Europe supported, and continues to support, its primary objectives, namely a risk-based, harmonised European rule book for the insurance market which ensures a robust level of policyholder protection, a level playing field for all insurers and the ability for consumers to afford (new) insurance products. However, Insurance Europe has also consistently raised concerns about certain aspects of the design and calibration of the framework and in particular, the treatment of long-term business (arising from both life and non-life) and the related long-term investments.

One of the key aspects of Solvency II's design regularly highlighted as being economically unjustified is the treatment of corporate bonds and loans that are exposed to spread risk. The core assumption underlying the calculation of the capital requirements for those bond holdings (which typically mainly corporate bonds) is that the insurer could be forced to sell all of them at any time and therefore forced to accept a price which is significantly lower than their current value. However, in reality, both life and non-life insurers, particularly those with long-term liabilities, plan their investments and liquidity needs carefully, often using sophisticated risk management techniques. Therefore, the insurer has limited risk of being a forced seller of these investments which allows them to avoid the risk of selling when prices are depressed. If it does sell them, it does so to optimise risk and returns.

Although there is the possibility that some insurers may need to sell some of their investments at an inopportune time, this is not the reality for most insurers and should not be the core assumption underlying the capital requirement calculations.

The current approach in the spread risk module which applies a scenario to the assets but not to the liabilities is also in contradiction to Solvency II's key principle of taking a total balance sheet approach and assessing overall risk on both assets and liabilities together.

This can lead to a significant exaggeration of spread risk especially for companies holding long-term bonds and can therefore create unnecessary disincentives to invest and/or costs for customers.

This problem has been mitigated within Solvency II but only for a limited number of companies and situations. Internal model users can apply the dynamic VA (DVA) in the valuation of their liabilities as part of their internal model spread risk SCR, Matching Adjustment users are required to apply a dynamic VA type adjustment when



calculating the standard formula spread SCR and for EIOPA Stress Testing, EIOPA supplies an adjusted VA to go along with the spread stress scenario so there is consistency between the measurement of assets and liabilities.

Standard Formula VA users are however left with the wrong measurement of spread SCR. Allowing Standard Formula users who apply the VA to include apply a Dynamic VA (provided by EIOPA) will address this significant issue with the Solvency II. Insurance Europe notes this would not and should not impact the 0% risk weighting for Member State sovereign debt.

In its recent Call for Advice on the 2020 Review of Solvency II, and in relation to its on-going Capital Markets Union project and objectives for removing barriers to investment and growth, the European Commission requested EIOPA to assess whether the methods, assumptions and standard parameters underlying the calculation of the standard formula market risk module appropriately reflect the long-term nature of the insurance business, in particular equity and spread risk.

**Insurance Europe recognises the need to review the capital requirements for investments that support European growth and wants to emphasise the need to be ambitious in this work** and to thoroughly investigate whether Solvency II appropriately measures the actual risks to which insurers are exposed when investing in corporate bonds.

**Insurance Europe supports the dynamic volatility adjustment as a key mechanism that permits companies using internal models to ensure the correct measurement of the real economic impact of spread risk.** This is permitted in internal models, and therefore the focus of the 2020 Review needs to be on how to improve the standard formula treatment of spread risk. To achieve this aim, Insurance Europe proposes to extend the dynamic volatility adjustment to the standard formula to allow all insurers to better reflect the credit risks within their portfolios.

## Background

The EU's Solvency II insurance regulation, which came into force in January 2016, is a ground-breaking, risk-based regulation that remains strongly supported by the European insurance industry.

From the outset, the insurance industry supported the core objectives of Solvency II because it wanted a modern, risk-based framework that:

- was consistent with the good risk management methods many insurers were already using;
- created a harmonised rulebook for Europe; and,
- ensured both fair competition and a consistently high level of policyholder protection across Europe.

Particularly welcome is Solvency II's three-pillar approach, which recognises that internal governance, risk management and supervisory interaction (Pillar 2), along with supervisory and public disclosures (Pillar 3), are as important as capital requirements (Pillar 1).

During Solvency II's development, the insurance industry highlighted a range of technical problems and, in particular, voiced major concerns about the treatment of long-term business and guaranteed products. In an attempt to fix this, a package of long-term guarantee measures was added to Solvency II in the "Omnibus II" Directive.

The industry made clear that these long-term guarantee measures were not sufficient to solve the problem but accepted that they could be improved in the two major review processes built into the Directive. At that time, Insurance Europe's President, Sergio Balbinot, said "While the compromise reached between the institutions on Omnibus II is not the ideal solution the insurance industry would have wished for in terms of correctly reflecting insurers' long-term business and low exposure to market volatility, we do believe it is a workable base from which to develop the technical details of the new regulatory regime."



One of the key technical areas in which Insurance Europe raised concerns during the Omnibus II negotiations and continues to support further improvement is the capital requirements for corporate bonds and loans.

### **Insurer's investment in corporate bonds**

Corporate bonds and loans are important part of an insurer's investment portfolio. At YE 2018, European insurers held 20.3%, or €2,200bn<sup>1</sup>, of their aggregate investment portfolio in corporate bonds and 4%, or €360bn, in loans.

Insurers make extensive use of corporate bonds and other fixed income instruments because they provide contractual payments which are known in advance and can provide matches for long-term liabilities. The fixed payments enable insurers to plan and match their cash inflows and outflows. The alignment of cashflows in this way is part of a risk management strategy called asset-liability management (ALM) which is a widely practiced by insurers.

The ALM strategies used by insurers entail the (sophisticated) modelling of current and future investments to ensure that the investment returns, and loans are sufficient in both amount and timing to meet its expected future liabilities. Critically, as part of this approach the insurer will typically hold corporate bonds for a longer duration subject to risk management assessment and risk-return considerations.

Corporate bonds also often provide a higher yield than comparable government bonds or swaps to compensate the investor for the additional credit risk. The amount of additional yield available on a corporate bond is dependent on the credit worthiness of the issuer, the term to maturity of the bond and idiosyncratic features of the bond. The additional yield is known as **the credit spread**.

The insurer's corporate bond portfolio therefore generates a higher return than if the insurer was investing solely in government bonds or cash. This enables the insurer to provide better returns pensions and other long-term savings products and reduce the cost of protection products for consumers. Insurers' corporate bond portfolios can be well diversified thanks to the extensive and varied corporate bond markets prevalent across Europe.

### **The risks of corporate bond investment**

As with any loan, the primary risk for the corporate bond investor (the lender) is the risk that the issuer (the borrower) will default on its obligations. If a default does occur, then the lender will, in most cases, receive less than the expected contractual payments. This is known as the **default risk**.

A secondary risk for corporate bond investors is the risk that they will be forced to sell the corporate bond for a price which is lower than they originally paid for it. For a bond not in default, a decrease in the market price of a bond normally arises due to either a change in market risk-free interest rates or a change in the bond's credit spread. Interest rate risk is the term used to describe the risk of adverse price movements due to changes in prevailing market interest rates. Solvency II deals with interest rate risk separately and it is not in scope of this paper. Changes in the value of the bond due to changes the spread is referred to as **spread risk**.

Spread movements can be caused by changes in the market's perception of the borrower's ability to repay the bond, but also other factors such as overall market liquidity, supply and demand for that asset class and monetary policy.

It is important to highlight that spread risks can only materialise in the real world if the insurer actually sells the bond at a loss. If the insurer holds the bond to maturity or until its value increases, it is only exposed to default risk. If there is no default, then unrealised losses will always recover at maturity and be zero at the maturity of the bond.

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<sup>1</sup> Source: EIOPA

## Solvency II treatment of corporate bonds

The Solvency II standard formula capital requirement for corporate bond holdings is calculated based spread risk<sup>2</sup>. The core assumption underlying this calibration is that insurers will decide to sell their entire bond portfolios after an extreme increase in spreads (1 in 200 type event) and therefore incur a loss on the bond. This is a completely unrealistic assumption which makes no sense from an economic or risk management point of view, would be against the interests of both policyholders and shareholders and also seems contrary to the going concern principle underlying Solvency II.

It would only make sense **IF** the insurer believed a) it was very unlikely that the spreads would lower and the price recover **AND** b) significant risk that the default losses from holding on to the bonds would be as large or larger than the losses from selling. However, in practice we are not aware of any cases where extreme spread movements have ever been permanent and or where default losses at a portfolio level have equalled the losses from extreme spread movements.

The only other logic is that the insurer would be forced to sell its entire portfolio against its will. As noted previously, insurers use ALM strategies to plan their investments and liquidity needs to ensure that they are not exposed to the risk of having to sell all their corporate bonds at the same time, even during periods of stress.

This incorrect assumption creates capital requirements for corporate bonds which are much larger than the losses that insurers would incur in the reality of an extreme market event. The additional capital requirements increase the cost of providing long-term insurance products for many insurers and markets. It also detracts from the risk-sensitive nature of the solvency framework as it does not adequately reflect an insurer's risk management practices.

Assessing exposure to spread risk by applying a shock only to the asset side of the balance sheet without considering is also inconsistent with the fundamental Solvency II principle that scenarios must be applied to the total balance sheet – assets and liabilities and leads to a significant exaggeration of the real exposure to spread risk.

Indeed, Solvency II itself recognises this is an incorrect assumption for insurers who hold their assets to maturity.

- The standard formula capital requirement for an insurer's investments in **residential mortgage portfolios**<sup>34</sup> is calculated based predominantly on the default risk.
- **Matching Adjustment (MA) portfolios** are subject to a strict set of application criteria<sup>5</sup> relating to the ALM practices of the insurers as well as the features of the products in the portfolio. Solvency II recognises that the insurer will hold the bonds in the MA portfolio to maturity and calculates the capital requirement for spread risk to reflect long-term nature of these investments.
- Insurers who use an internal model can use a tool called the **Dynamic Volatility Adjustment (DVA)**. This permits the insurer to adjust the capital charge for its corporate bond portfolio in a similar way to the capital calculations for the Matching Adjustment portfolio. In December 2017, EIOPA published an Opinion<sup>6</sup> on the use of DVA in internal models which provided guidance on the modelling of a DVA and the risk management aspects of its use.

Furthermore, **EIOPA incorporates the DVA into its EU-wide Stress Testing Exercise**<sup>7</sup> which it uses to identify and quantify systemic risk. This demonstrates that the use of a DVA is not inconsistent with EIOPA's financial stability objectives.

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<sup>2</sup> Spread risk in Solvency II implicitly includes downgrade and default risk

<sup>3</sup> See Article 101 (2) of Directive 2009/138/EC and Article 7 of Regulation 2015/35

<sup>4</sup> See Article 191 of Delegated Regulation for the requirements on the treatment of Mortgage Loans in the counterparty default risk submodule.

<sup>5</sup> See Article 77b of Solvency II Directive

<sup>6</sup> [Opinion on the supervisory assessment of internal models including a dynamic volatility adjustment](#)

<sup>7</sup> See EIOPA Insurance Stress Test 2018 [Technical Specifications](#)

## **How should Solvency II be improved to better reflect the true risks of corporate bond investments?**

Insurance Europe supports the extension of the DVA to the standard formula to resolve the incorrect treatment of corporate bonds within Solvency II. This approach is already implemented by many internal model firms who model market risk and could be easily implemented for standard formula users by EIOPA providing the VA adjustments that standard formula companies should use under the SCR spread shock scenario as they do already for their stress tests. This will ensure that the capital requirements for corporate bond exposures for all insurers are more reflective of the true economic risks. Insurance Europe notes that the introduction of the dynamic VA in Standard Formula would not and should not impact the 0% risk weighting for Member State sovereign debt.

The dynamic volatility adjustment does not change the risk measurement of the asset side but ensures that the total balance sheet approach<sup>8</sup> of Solvency II is obeyed, ie that assumed spread changes are adequately reflected in the risk measurement of liabilities as well the assets. This is consistent with the standard formula calculations for interest rate and currency risk where the off-setting effects between assets and liabilities are modelled.

### ***The Dynamic Volatility Adjustment***

To understand the rationale for and effect of a DVA, it is necessary to revisit the volatility adjustment (VA) which is a measure that was introduced as part of the Omnibus II package to ensure the appropriate treatment of insurance products with long-term guarantees under Solvency II.

The VA is an adjustment to the risk-free discount rate used to calculate the value of the insurer's liabilities. It is derived from the prevailing credit spreads of European insurers portfolios. As such, the size of the VA and therefore the value of the insurer's liabilities are sensitive to changes in credit spreads.

For an insurer applying the VA, an increase in credit spreads<sup>9</sup> should have two impacts: 1) a decrease in the value of the corporate bond portfolio and 2) a decrease in the value of the liabilities (due to an increased VA). From a balance sheet perspective, the decrease in the value of the assets is offset by the decrease in the value of the liabilities.

Recognising and accounting for the impact on the value of the liabilities, as well as the assets, has the economically-justified effect of reducing the impact on the value of the insurer's own funds and also its solvency position.

The DVA is a tool which enables insurers to model the impact of increased spreads on the VA in the stress scenario ie to calculate the increase in the VA which would occur in the prescribed scenario. The value of the insurer's liabilities is then recalculated using the increased VA and the decrease in the value of the liabilities is included in the spread risk capital requirements.

The inclusion of the impact on the value of liabilities in the capital calculation effectively transforms some of the spread risk into default risk. This is because the impact of changes in credit spreads on the value of the liabilities is typically the opposite of the impact on the assets.

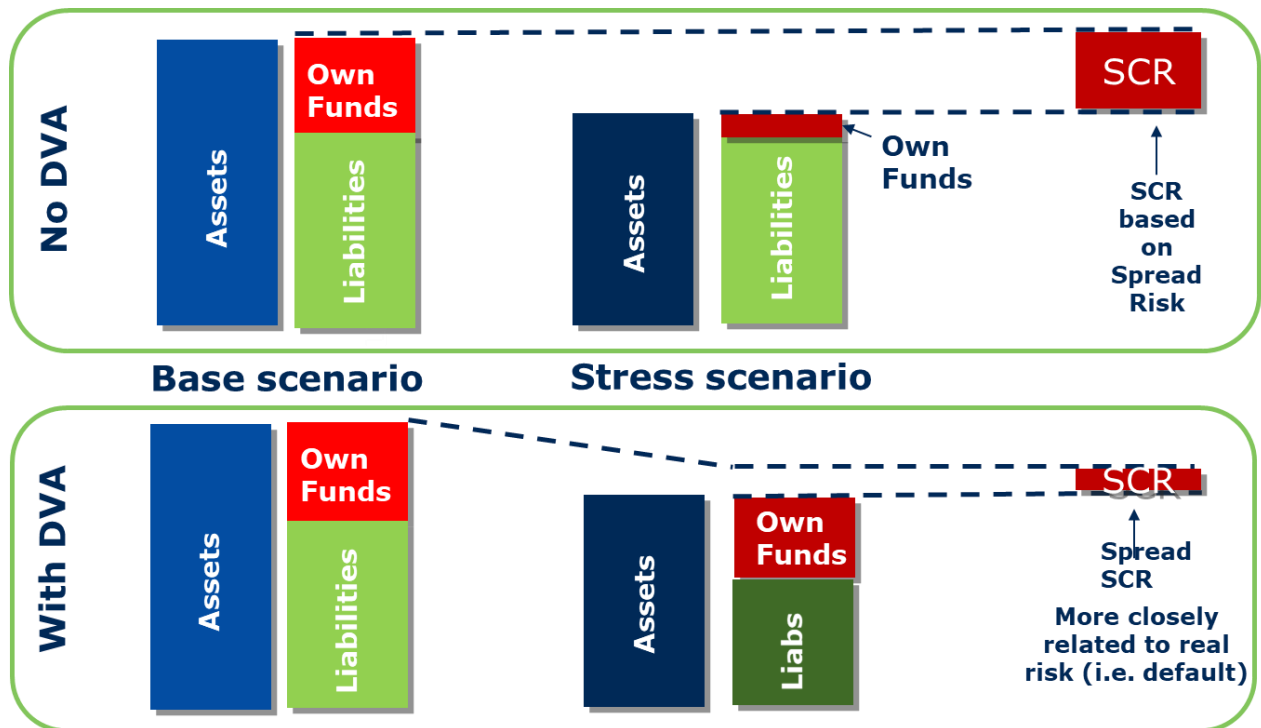
A pre-requisite of the implementation of a DVA approach in the standard formula is that it should result in positive risk management outcomes and deter poor risk management. The impact of the DVA could be enhanced even further if the VA calculation methodology is improved as part of the 2020 Review.

The following schematic illustrates the impact of the DVA in the calculation of the capital requirement for spread risk.

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<sup>8</sup> Article 105, Solvency II Directive

<sup>9</sup> Ceteris paribus



Operationally, the inclusion of a DVA into the standard formula should be a straightforward. As EIOPA already publishes the VA on a monthly basis, it would add to this a publication of a DVA. Insurers would then simply calculate the difference in the value of their liabilities using the DVA and consider this value in the context of the calculation of the Spread SCR.

### The 2020 Review of Solvency II

When finalising Solvency II in 2013, policymakers realised the need to embed review provisions in the Solvency II framework, to ensure that clear opportunities were created to use the experience from Solvency II application, as well as the ever-changing economic environment to make the framework work as intended.

The EC has recently sent a Request for Advice to EIOPA on the 2020 Review of Solvency II. This requests EIOPA to investigate the treatment of corporate bonds in the standard formula and to assess whether the current treatment appropriately reflects the long-term nature of insurance business. It also requests EIOPA to investigate the modelling of the DVA by internal model users.

**Insurance Europe recognises the need to review the capital requirements for investments that support European growth and wants to emphasise the need to be ambitious in this work and to thoroughly investigate whether Solvency II appropriately measures the actual risks that insurers are exposed to when investing in corporate bonds (as well as other asset classes).**

**Insurance Europe supports the dynamic volatility adjustment as a key mechanism that permits the correct measurement of the real economic impact of credit/spread risk. The effect of the dynamic volatility adjustment could be enhanced by improving other aspects of the VA calculation methodology. It trusts that the Commission will investigate and test this claim and ask EIOPA to extend the dynamic volatility adjustment to standard formula users as one of the potential ways to address this deficiency in the framework.**