Policy Statement | PS23/18

# Solvency II: Internal models – modelling of the volatility adjustment

October 2018

BANK OF ENGLAND
PRUDENTIAL REGULATION AUTHORITY

BANK OF ENGLAND
PRUDENTIAL REGULATION
AUTHORITY

Policy Statement | PS23/18

# Solvency II: Internal models – modelling of the volatility adjustment

October 2018

© Bank of England 2018
Prudential Regulation Authority | 20 Moorgate | London EC2R 6DA

## Contents


| | | |
|---|---|---|
| 1 | Overview | 1 |
| 2 | Feedback to responses | 2 |
| Appendices | | 8 |

# 1 Overview

1.1 This Prudential Regulation Authority (PRA) Policy Statement (PS) provides feedback to responses to Consultation Paper (CP) 9/18 'Solvency II: Internal models – modelling of the volatility adjustment'.[1] It also contains the PRA's final Supervisory Statement (SS) 9/18 'Solvency II: Internal models – modelling of the volatility adjustment'[2] which sets out the PRA's expectations of internal model firms when determining the risks that might arise from the dynamic volatility adjustment (DVA) when calculating the solvency capital requirement (SCR). It also contains the amendments to SS17/16 'Solvency II: internal models – assessment, model change and the role of non-executive directors'[3] (links are also available in the appendices).

1.2 This PS is relevant to UK Solvency II firms and to the Society of Lloyd's and its managing agents. It is most relevant to firms with, or seeking, volatility adjustment (VA) approval and which use a full or partial internal model to determine the SCR, together with UK Solvency II firms that may develop a full or partial internal model in future.

## Background

1.3 In CP9/18 the PRA consulted on the possibility of allowing firms to apply DVA in internal models when calculating the SCR and the adoption of a new SS. The CP highlighted the areas that the PRA proposed firms considered in their internal model and model change applications when seeking approval to apply the DVA.

## Summary of responses

1.4 The PRA received four responses to the CP. All of the respondents welcomed the PRA's proposal to allow internal model firms to apply a DVA into the SCR calculation and many of the remaining comments made a number of observations and requests for clarification which are set out in Chapter 2, along with the PRA's final decisions.

## Changes to draft policy

1.5 After considering the responses, the PRA has made some changes to the draft policy. Details of the changes are included in Chapter 2. The PRA does not consider these to change the substance of its expectations, but rather to provide additional clarification where requested and therefore considers neither that the impact of the changes for firms as significant, nor that the impact is any different in respect of mutuals.

## Implementation

1.6 The expectations set out in the attached SSs will come into effect on the publication of the PS on Wednesday 17 October 2018.

1.7 The policy contained in this PS has been designed in the context of the current UK and EU regulatory framework. The PRA will keep the policy under review to assess whether any changes would be required due to changes in the UK regulatory framework, including changes arising once any new arrangements with the European Union take effect.

---

1 April 2018: https://www.bankofengland.co.uk/prudential-regulation/publication/2018/solvency-ii-internal-models-modelling-of-the-volatility-adjustment.

2 https://www.bankofengland.co.uk/prudential-regulation/publication/2018/solvency-ii-internal-models-modelling-of-the-volatility-adjustment-ss.

3 https://www.bankofengland.co.uk/prudential-regulation/publication/2016/solvency2-internal-models-assessment-model-change-and-the-role-of-non-executive-directors-ss.

# 2 Feedback to responses

2.1 The PRA must consider representations that are made to it in accordance with its duty to consult on its general policies and practise, and must publish in such manner as it thinks fit responses to the representations.[4]

2.2 The sections below have been structured broadly along the same lines as the chapters of the CP, with some areas rearranged to respond better to related issues. The responses have been grouped as follows:

- approval to apply DVA;
- reflecting EIOPA's volatility adjustment methodology within the SCR calculation;
  - General
  - Non-mechanistic approach
  - Nature and scale of other risks
  - Interest rate risks
  - Financial guarantees
- disclosure; and
- use of DVA

## Approval to apply DVA

2.3 Paragraph 2.5 of the draft SS explained that the PRA expects firms to treat the DVA as a new element of the (internal) model in accordance with EIOPA Guidelines. As such, any model extension to reflect the DVA would be expected to require PRA approval.

2.4 Three respondents queried the need for supervisory approval:

(i) One asked for clarification of the information that firms should provide for approval.

(ii) Another asked for clarification of the difference between a new element requiring PRA approval and a major model change, as set out in firms' internal model change policies.

(iii) One respondent challenged the expectation that the inclusion of DVA in the internal model should require separate approval. They accepted that it is reasonable for the PRA to require firms to explain the impact of a DVA, and then seek to investigate or open the model to scrutiny, where deemed necessary. But they believe modelling DVA is just a correction to the already-approved model and likely a minor model change. As such, it should not require approval 'irrespective of impact'.

2.5 The PRA excluded from the scope of model change policies the inclusion of new modelling elements, such as additional risks or business units as this was treated as automatically requiring approval as per recital 3 of the Commission Implementing Regulation (EU) 2015/460

4 Sections 2L and 2N of the Financial Services and Markets Act (FSMA).

on internal models, and EIOPA Guideline 6 and Guideline 10 on the use of internal models. The PRA considers that modelling DVA will require firms to assess risk areas which (given the PRA's previous position that internal models should not reflect changes in VA) will be outside of the scope of prior model approvals. For example, consistent with paragraph 10 of EIOPA's December 2017 Opinion on DVA, firms will have to assess their risk profile against the assumptions underlying the VA. This will require models to address areas previously out of scope of the model, and hence result in an additional risk area being added to the model.

2.6 The information required for a DVA major change application will be no different to the information that the PRA would require for any other major change, as set out in Articles 2 and 7 of the Commission Implementing Regulation (EU) 2015/460.

## Reflecting EIOPA's volatility adjustment methodology within the SCR calculation

### General

2.7 The PRA had proposed certain specific factors in the draft SS that firms should consider when modelling changes to the VA within the SCR.

2.8 One respondent commented that the PRA's proposal add requirements in addition to those set at the EU level. For example, the PRA's proposal that the undertaking earns a yield from its own assets at least equal to the VA, and that these additional requirements would also be met in stress. As such, the respondent expressed concern that the PRA is setting the hurdle for approval of a DVA at a higher level than other EU regulators, thereby reducing the supervisory convergence which EIOPA's Opinion is intended to foster.

2.9 The PRA considers that the factors set out in Chapters 3 and 4 of the draft SS are relevant areas in order to verify that the internal models reflect all of the risks that firms are exposed to, as required by Solvency II. DVA reduces capital requirements in unstressed circumstances as a result of the application of additional VA in the stressed conditions that underlie the calculation of the SCR. Therefore DVA anticipates in good times the relief to the valuation of liabilities that will be applied in adverse times. This will result in firms holding lower levels of capital going into any economic downturn. Therefore it is imperative that after any reduction, all of the risks that firms are exposed to are still reflected in the SCR, as required in the PRA Rulebook under rule 11.6 of the Solvency Capital Requirement - Internal Models Statistical Quality Standards.

2.10 When assessing all of the risks that the firm is exposed to, the PRA considers that it is helpful to consider the risks that the VA is not intended to provide protection against. Article 77d(3) of the Solvency II Directive clarifies that the risk-corrected currency spread should reflect 'the portion of that spread that is attributable to a realistic assessment of expected losses or unexpected credit or other risk of the assets'. Noted in Chapters 3 and 4 of the SS are the various prudential risks that the PRA has identified that could arise in or are potentially exacerbated by allowing DVA in internal models.

2.11 To clarify the rationale for Chapters 3 and 4, reference to Article 77d(3) has been added to paragraph 3.1 of the SS.

### Non-mechanistic approach

2.12 The PRA proposed that firms should not adopt a purely 'mechanistic' approach to determining the total and fundamental spread underlying the VA calculation when modelling changes to the VA within the SCR. The PRA considered that this type of approach would not be consistent with the Solvency II tests and standards for internal models and would be unlikely to capture all the quantifiable risks.

2.13 Two respondents asked for greater clarity on the expectation not to default to a 'mechanistic' recalculation. One of those respondents wanted acknowledgement of the role that expert judgement can play in the calculation of the DVA, and the composition of the reference portfolio, in order to avoid a mechanistic approach. They also sought more clarity on what the PRA's expectations are of firms regarding adjustments to the EIOPA VA methodology. Another respondent commented that considerable subjectivity remains over the approach that can be taken within the guidelines in SS9/18 and that more information is required setting out the PRA's expectations.

2.14 The PRA appreciates that some firms may experience modelling challenges in capturing changes in VA due to discrepancies between their risk profile and the methodology used by EIOPA in their monthly calculation of VA. As noted in the SS the PRA considers that a 'mechanistic approach' based on the re-application of the approach used to calculate technical provisions (TPs) is unlikely to result in an SCR that takes into account all quantifiable risks to which a firm is exposed. Firms should ensure that the modelling approach results in an SCR that covers those risks at the 99.5% confidence level.

2.15 As noted in a footnote to paragraph 3.2 of SS9/18, similar considerations arise regarding modelling the matching adjustment (MA), where the PRA has also advised firms not to assume a mechanistic recalculation of the MA benefit in stress and the PRA is aware of modelling challenges that may exist here. For MA the PRA has presented a five step framework for determining the MA used in the SCR calculation (see SS8/18)[5] and a process akin to this may be appropriate for capturing total and fundamental spread underlying the VA calculation when modelling changes to the VA within the SCR. Likewise, the stressed risk correction underlying the DVA calculation should reflect the stressed modelling economic environment, as indicated in relation to the updated fundamental spread calculation in paragraph2.5 of SS8/18. The reference in paragraph 3.2 of SS9/18 has been updated to refer to final policy that has now been published.

2.16 The PRA recognises the importance of expert judgement in this area. This is important throughout internal models and not specific to DVA.

## Nature and scale of other risks

2.17 Paragraph 4.1(i) sets out an expectation for firms to consider how the change in discount rate methodology implied by the DVA could change the nature and scale of other risks to which the firm is exposed, as well as the dependency between these risks.

2.18 One respondent commented that the PRA should be more explicit on how it believes that the nature and scale of other risks could change. They asked for clarification on what the PRA expects in this area, especially in relation to other stresses that could impact the post-stress value of assets and hence the reference portfolio composition.

2.19 The PRA considers that it would be inappropriate to set out a more detailed expectation in the SS given the interrelation between the internal model requirements, eg regarding statistical quality standards and validation. The expectation already set out in paragraph 4.1(i) will lead firms to consider other risks that they may be exposed to as a result of allowing for an increased VA in times of stress, and how the balance of risks may change as a result of applying

5 'Solvency II: Internal models – modelling of the matching adjustment', July 2018: https://www.bankofengland.co.uk/prudential-regulation/publication/2018/solvency-2-internal-models-modelling-of-the-matching-adjustment-ss.

DVA. For example, increased lapse stressed scenarios with elevated VA may exacerbate reinvestment risk.

### Interest rate risks

2.20 The PRA proposed paragraph 4.1(ii) in the SS to reduce the incentive by firms to cherry pick the risks modelled. The DVA introduces incentives for firms to extend their internal model scope to reduce the SCR and to ignore related risks that increase the SCR; in particular gilt-swap spread risk.

2.21 One respondent commented that they recognise firms need to consider whether it is necessary for the model to cover 'sovereign risk and other material interest rate risks'. They would like clarity as to why this expectation was addressed to firms seeking DVA approval and whether it should be a consideration for all internal model firms. Likewise, another respondent was looking for more clarity on what is meant by 'other material interest rate risks'.

2.22 The purpose of the expectation in paragraph 4.1(ii) of the SS is to remind firms seeking DVA approval to ensure that the scope of their model is appropriate and justifiable. In particular, the model scope should avoid 'cherry-picking' the risks that are modelled. The DVA introduces incentives for firms to extend their internal model scope to reduce the SCR, even where some aspects of modelling require the application of expert judgment. Firms should follow through in other parts of the model which likewise require the application of expert judgement. For example, if there are other areas that have hitherto not been modelled on the grounds of needing application of expert judgement, they may need to be revisited in a manner that is consistent with the application of expert judgement in the modelling of DVA.

### Financial guarantees

2.23 Paragraph 4.1(iv) in the SS states that the DVA model should not lead to 'excessive capital relief' in relation to the cost of guarantees or options.

2.24 Two respondents commented that this is subjective and will be difficult for firms to apply without further information. One of these respondents went on further to comment that the PRA should clarify its expectation for situations such as with-profits funds, where the effect of the VA is primarily to reduce the cost of guarantees rather than increase the risk-adjusted yield for discounting a future liability.

2.25 The PRA recognises that the benefit of DVA is potentially greatest in relation to treatment of costs of guarantees, such as those found in many with-profits funds. In the first instance, the PRA expects firms to consider if the application of an elevated level of VA in stress scenarios is consistent with their written policies, including the policy on the application of VA (as required by rules 2.4 and 2.5 of the Conditions Governing Business Part of the PRA rulebook). Moreover, in line with the principle of proportionality, it expects more intensive justification and validation where the benefit is greatest, including how any VA in stress is limited in order to address the risks noted in Chapters 3 and 4 of the SS.

2.26 The PRA has clarified this expectation in paragraph 4.1(iv) of the SS.

## Disclosure

2.27 The SS, consistent with EIOPA's December 2017 Opinion on DVA, sets an expectation that firms will quantify the DVA benefit separately from the effect of turning all VA to nil (which is already a required Solvency II disclosure).

2.28 One respondent commented that the disclosure requirement to quantify the DVA benefit is new, and they do not believe it is required by the Delegated Regulation. They consider that the Regulation already has comprehensive disclosure requirements, covering TPs, basic Own Funds, the SCR, and the minimum capital requirement (MCR) under the removal of volatility adjustment. They were not convinced that the requirement to provide another sensitivity would provide much additional information to users of the Solvency and Financial Condition Report (SFCR). Their preference would be to allow the market to determine whether the disclosure of this sensitivity is considered valuable.

2.29 This expectation is aligned with EIOPA's Opinion with respect to public disclosure of DVA. As set out in EIOPA's Opinion, the PRA considers that it is necessary for undertakings to provide the explanation of DVA methodology in the SFCR in order to fulfil the disclosure requirements defined in Article 297(4)(e) of the Delegated Regulation. EIOPA also noted that a specific requirement in the SFCR as defined in Article 296(2)(e) of the Delegated Regulation is to disclose the impact of a change to zero of the VA on the undertaking's financial position. This should be performed as if the regulatory concept of the VA would not exist at all.

### Use of DVA

2.30 One respondent commented that it would helpful if the PRA could confirm in the final SS that dynamic modelling of the VA is an option for internal model firms but not considered mandatory. They suggested that this would allow firms to continue with the current approach to modelling, if they consider this to be more appropriate to the nature, scale and complexity of their business.

2.31 The PRA is content to clarify that the application of the dynamic modelling of the VA is not mandatory for internal model firms. The PRA considers that this is already expressed in paragraph 2.4 which states that the PRA will consider (but not require) applications which include DVA.

## Appendices

| | |
|---|---|
| **1** | **SS9/18 'Solvency II: Internal model – modelling of the volatility adjustment', available at: https://www.bankofengland.co.uk/prudential-regulation/publication/2018/solvency-ii-internal-models-modelling-of-the-volatility-adjustment-ss** |
| **2** | **SS17/16 'Solvency II: internal models – assessment, model change and the role of non-executive directors', available at: https://www.bankofengland.co.uk/prudential-regulation/publication/2016/solvency2-internal-models-assessment-model-change-and-the-role-of-non-executive-directors-ss** |