

## Consultation Paper

Draft Regulatory Technical Standards (RTS)

On prudent valuation under Article 105(14) of Regulation (EU) 575/2013  
(Capital Requirements Regulation - CRR)



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# Consultation Paper on Draft Regulatory Technical Standards on prudent valuation under Article 105(14) of Regulation (EU) 575/2013 (Capital Requirements Regulation – CRR)

## Table of contents

1.	Responding to this Consultation	3
2.	Executive summary	4
3.	Background and rationale	6
4.	Draft Regulatory TS on prudent valuation under Article 105(14) of Regulation (EU) 575/2013 (Capital Requirements Regulation - CRR)	9
5.	Accompanying documents	26
5.1	Worked example of the calculation of market price uncertainty and close-out costs AVAs under the core approach	26
5.2.	Draft cost- benefit analysis / impact assessment	40
5.3.	Overview of consultation questions	44

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## 1. Responding to this Consultation

The EBA invites comments on all proposals put forward in this paper and in particular on the specific questions summarised in 5.3.

Comments are most helpful if they:

- respond to the question stated;
- indicate the specific point to which a comment relates;
- contain a clear rationale;
- provide evidence to support the views expressed / rationale proposed; and
- describe any alternative regulatory choices the EBA should consider.

### Submission of responses

To submit your comments, click on the 'send your comments' button on the consultation page by 08.10.2013. Please note that comments submitted after this deadline, or submitted via other means may not be processed.

### Publication of responses

Please clearly indicate in the consultation form if you wish your comments to be disclosed or to be treated as confidential. A confidential response may be requested from us in accordance with the EBA's rules on public access to documents. We may consult you if we receive such a request. Any decision we make not to disclose the response is reviewable by the EBA's Board of Appeal and the European Ombudsman.

### Data protection

The protection of individuals with regard to the processing of personal data by the EBA is based on Regulation (EC) No° 45/2001 of the European Parliament and of the Council of 18 December 2000 as implemented by the EBA in its implementing rules adopted by its Management Board. Further information on data protection can be found under the [Legal notice section](#) of the EBA website.

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## 2. Executive summary

Regulation 575/2013 (Capital Requirements Regulation - CRR) sets out requirements relating to prudent valuation adjustments of fair valued positions to determine prudent values that achieve an appropriate degree of certainty having regard to the dynamic nature of trading book positions. It mandates the EBA to prepare draft regulatory technical standards (RTS) in this area.

In this context, the EBA proposal presented here provides for the methodology for calculating additional valuation adjustments (AVAs) for determining the prudent value of fair valued positions. This consultation paper outlines two approaches, respectively a simplified and a core approach, in order to apply Article 105.

### 'Simplified' approach

In order to take account of proportionality and lower the operational burden on institutions with limited exposure to fair valued positions, the EBA proposes to introduce a proportionality threshold below which a 'simplified approach' can be used to calculate AVAs. Institutions may apply the simplified approach provided the sum of the absolute value of on- and off-balance-sheet fair valued assets and liabilities is less than €15bn. This threshold should be tested at the level at which capital resources are calculated.

The proposed 'simplified approach' calculates the required AVA based on the sum of: a percentage of the unrealised profit on fair valued positions held by the institution 25%; and a percentage of the aggregate absolute value of fair valued positions held by the institution 0.1%. This adjustment covers all AVAs.

### 'Core' approach

The proposed 'core approach' in the draft RTS is intended to provide a framework that can be consistently applied for prudent valuation. Central to that aim is a clear indication of the level of prudence that institutions should target when estimating AVAs.

The draft RTS describe a 'core approach' with the following key features:

- Each AVA shall be calculated as the excess of valuation adjustments required to achieve the identified prudent value over any adjustments applied in the institution's fair value adjustment (FVA) that can be identified as addressing the same source of valuation uncertainty as the AVA.
- Where possible the prudent value of a position is linked to a range of plausible values and a specified target level of certainty (90%)<sup>1</sup>. In practical terms this means that for the following AVAs; i) Market price uncertainty; ii) Close-out costs; and ii) Unearned credit spreads institutions should calculate the prudent value using market data and the specified target level of certainty.

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<sup>1</sup> The EBA accepts that for the majority of positions where there is valuation uncertainty, it is not possible to statistically achieve a specified level of certainty, however specifying a target level is believed to be the most appropriate way to achieve greater consistency in the interpretation of a 'prudent' value.

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- In all other cases an expert based approach is specified, together with the key factors that should be included in that approach. In these cases the same target level of certainty as above (90%) is set for the calibration of the AVAs.

Under the core approach, AVAs are based on either: the difference between the prudent value and fair value (in which case the AVA is the calculated difference); or the difference between the mean of the estimated plausible range of values and the prudent value (in which case the AVA is the excess of this difference over any related valuation adjustments already applied in fair value).

The calculations within the 'core approach' are designed to limit the burden of calculation by using data from the IPV process (Independent Price Verification) that should be readily available within institutions as the foundation of the approach.

#### *Aggregation of AVAs*

Under the 'core approach', the aggregation of individual AVAs related to market price uncertainty and close-out costs their aggregation is determined as follows (separately for each category):

- If the AVAs relate to a single Valuation Input, the AVAs are aggregated as a simple sum of individual; or
- If the AVAs relate to more than one Valuation Input, the aggregate AVA is 50% of the sum of individual AVAs

For all other categories of AVAs under the 'core approach', the aggregate category level AVA is calculated as a simple sum of individual AVAs. The total aggregate AVA under the 'core approach' is the simple sum of the category level AVAs.

The EBA will also carry out a Quantitative Impact Study ('QIS') on the capital impact relating to the CP on the draft RTS on Prudent Valuation before submitting the final RTS to the Commission. The QIS will also be used to discuss the final format of the RTS and for the calibration of thresholds and assumptions related to AVAs.

A standardised QIS reporting template will be published on EBA website shortly after the publication of this CP, just as the timeline for the QIS will be communicated. As a consequence of the EBA decision to conduct a QIS, the EBA currently envisages to finalise the technical standard in Q2 2014.

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### 3. Background and rationale

Regulation 575/2013 (Capital Requirements Regulation - CRR) requires the EBA to develop draft RTS to specify the conditions according to which the requirements of Article 105 shall be applied.

Article 105 describes a number of categories of valuation adjustments that should be considered in the context of prudent valuation. The adjustments should be applied to fair valued positions to determine a prudent value that achieves an *'...appropriate degree of certainty having regard to the dynamic nature of trading book positions, the demands of prudential soundness and the mode of operation and purpose of capital requirements in respect of fair valued positions'*.

Article 34 requires institutions to deduct from common equity tier 1 capital the aggregate AVA made for fair value assets and liabilities following the application of Article 105.

In November 2012 the EBA published a Discussion Paper (DP) expressing its preliminary views on this topic. The DP was designed to elicit discussion and gather stakeholders' opinions at an early stage of the development of the technical standards. The responses received have been taken into account when developing this Consultation Paper (CP).

The EBA has developed these RTS proposals on the basis of Regulation 575/2013. The EBA will review the RTS proposals to ensure that they take account of any changes arising out of the consultation process.

The EBA will also carry out a Quantitative Impact Study ('QIS') on the capital impact resulting from the proposals contained in this CP, before submitting the final RTS to the Commission. The QIS will provide valuable input for assessing the impact of the suggested approach and will assist in the calibration of thresholds and assumptions relating to the calculation of AVAs. A standardised QIS reporting template will be published on EBA website shortly after the publication of this CP, just as the timeline for the QIS will be communicated.

#### *Scope of the prudent valuation standards*

Article 105 of Regulation 575/2013 refers to the prudent valuation standards being applicable to all trading book positions. However, Article 34 of the same Regulation requires that institutions shall apply the standards of Article 105 to all assets measured at fair value.

The combination of the above articles implies that the prudent valuation requirements in these RTS apply to all fair valued positions regardless of whether they are held in the trading book or banking book.

#### *Overview of approaches for determining category level AVAs*

The proposed approaches in the draft RTS are intended to provide a framework that can be consistently applied for prudent valuation. Central to that aim is a clear indication of the level of certainty that institutions should target when estimating AVAs.

The draft RTS describe a 'core approach' with the following key features:

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- where possible the prudent value of a position is linked to a range of plausible values and a specified target level of certainty (90%)<sup>2</sup>; and
  - in all other cases an expert based approach is specified, together with the key factors that should be included in that approach. In these cases the same target level of certainty as above (90%) is set for the calibration of the AVAs.

Section 5.1 provides a worked example of how the 'core approach' described in the RTS would be implemented in practice for market price uncertainty and close-out costs.

Under the core approach, AVAs for which diversification benefits may be applied are based on either: the difference between the prudent value and fair value (in which case the AVA is the calculated difference); or the difference between the mean of the estimated plausible range of values and the prudent value (in which case the AVA is the excess of this difference over any related valuation adjustments already applied in fair value).

The calculations within the 'core approach' are designed to limit the burden of calculation by using data that should be readily available within institutions as the foundation of the approach. Nevertheless, in order to take account of proportionality and limit any excessive burden on institutions with low exposure to fair valued positions, the EBA proposes to introduce a proportionality threshold below which a 'simplified approach' can be used to calculate AVAs.

The 'simplified approach' calculates the required AVA based on the sum of: a percentage of the unrealised profit on fair valued positions held by the institution; and a percentage of the aggregate absolute value of fair valued positions held by the institution. All fair valued positions will be taken into account when determining the AVA; no distinction is made for liquid positions, with the exception of fair valued assets and liabilities which are demonstrated to contain matching, offsetting assets and liabilities, while under the core approach banks will be able to apply a zero AVA for unearned credit spread and close-out costs.

#### *Aggregation of AVAs*

Under the 'simplified approach', no aggregation is required, as the AVA is not calculated on categories of AVAs in the first place.

Under the 'core approach', for individual AVAs related to market price uncertainty and close-out costs their aggregation is determined as follows (separately for each category):

- (a) if the AVAs relate to a single valuation input, the AVAs are aggregated as a simple sum of individual AVAs; or
- (b) if the AVAs relate to more than one valuation input, the aggregate AVA is 50% of the sum of individual AVAs.

For all other categories of AVAs under the 'core approach', the aggregate AVA is calculated as a simple sum of individual AVAs.

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<sup>2</sup> The EBA accepts that for the majority of positions where there is valuation uncertainty, it is not possible to statistically achieve a specified level of certainty, however specifying a target level is believed to be the most appropriate way to achieve greater consistency in the interpretation of a 'prudent' value.

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Finally, the total aggregate AVA under the 'core approach' is the simple sum of the category level AVAs.

*Systems, controls, and documentation*

Article 105 of Regulation 575/2013 describes, at a high level, the minimum documentation, systems and controls that should support the prudent valuation process. The draft RTS provide further detail on these minimum standards and establish on how they can be implemented in a way which supports the approaches described.

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## 4. Draft Regulatory TS on prudent valuation under Article 105(14) of Regulation (EU) 575/2013 (Capital Requirements Regulation - CRR)

### Contents

<i>Section 1 – General Provisions</i>	12
<i>Article 1 – Methodology for calculating AVAs</i>	12
<i>Article 3 – Sources of market data</i>	13
<i>Section 2 – Simplified approach for the determination of AVAs</i>	14
<i>Article 4 – Conditions for use of the simplified approach</i>	14
<i>Article 5 – Determination of AVAs under the simplified approach</i>	14
<i>Article 6 – Determination of aggregate AVAs calculated under the simplified approach</i>	15
<i>Section 3 – Core approach for the determination of AVAs</i>	15
<i>Article 7 – Determination of category level AVAs under the core approach</i>	15
<i>Article 8- Calculation of market price uncertainty AVA</i>	16
<i>Article 9- Calculation of close-out costs AVA</i>	18
<i>Article 10- Calculation of Unearned credit spreads AVA</i>	19
<i>Article 11- Calculation of Model risk AVA</i>	20
<i>Article 12- Calculation of Concentrated positions AVA</i>	20
<i>Article 13- Calculation of Investing and funding costs AVA</i>	21
<i>Article 14- Calculation of Future administrative costs AVA</i>	21
<i>Article 15- Calculation of Early termination AVA</i>	21
<i>Article 16- Calculation of Operational risks AVA</i>	21
<i>Article 17 – Determination of aggregate AVAs calculated under the core approach</i>	22
<i>Section 4 – Documentation, systems and controls</i>	23
<i>Article 18 – Documentation requirements</i>	23
<i>Article 19 – Systems and controls requirements</i>	23
<i>Article 20 – Ongoing monitoring to assess adequacy of data sources of valuation inputs used to calculate AVAs according to Articles 8 to 10</i>	24
<i>Article 21- Final provision</i>	25



EUROPEAN COMMISSION

Brussels, **XXX**  
[...](2012) **XXX** draft

**COMMISSION DELEGATED REGULATION (EU) No .../..**

**of **XXX****

**[...]**

**supplementing Regulation (EU) No 575/2013 of the European Parliament  
and of the Council with regard to regulatory technical standards for  
prudent valuation under Article 105 (14)**

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**COMMISSION DELEGATED REGULATION (EU) No .../..**

**of XXX**

[...]

**supplementing Regulation (EU) No 575/2013 of the European Parliament  
and of the Council with regard to regulatory technical standards for  
prudent valuation under Article 105 (14)**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012<sup>3</sup>, and in particular Article 105(14) thereof,

Whereas:

- (1) Where the application of prudent valuation would lead to a lower carrying value than recognised in accounting, an additional valuation adjustment (AVA) should be calculated as the absolute value of the difference between the two, as the fair value cannot be lower than the prudent value. The aggregate amount of those AVAs should be deducted from Common Equity Tier 1 capital.
- (2) AVAs are determined only for the purpose of calculating adjustments to Common Equity Tier 1 capital, where necessary. AVAs do not affect the determination of the own funds requirements according to Article 92 paragraph 3(b)(i) (unless the derogation for small trading book business according to Article 94 applies), and 3(c)(i) and (iii) of Regulation (EU) 575/2013.
- (3) In order to provide a consistent framework by which AVAs are calculated by institutions, a clear definition of the target level of certainty and the elements of valuation uncertainty that should be considered when determining a prudent value is necessary together with defined methodologies for achieving the required level of certainty based on current market conditions.
- (4) Market Price uncertainty AVAs should be calculated on the basis of Valuation Exposures, which are based on financial instruments or portfolios of financial instruments. As such, where portfolios of instruments are demonstrated to contain matching, offsetting assets and liabilities, AVAs should only be required in relation to any residual valuation exposures.

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<sup>3</sup> OJ 176, 27.6.2013, p. 1.

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- (5) Given that certain AVAs are not additive, an aggregation approach that can take account of diversification benefit should be made possible to be used within certain categories of AVAs.
  - (6) Since institutions with small fair value portfolios will typically be subject to limited valuation uncertainty, they should be permitted to apply a simpler approach to estimate AVAs than those institutions with larger fair value portfolios. The size of fair value portfolios, for the purpose of determining whether a simpler approach can be applied, should be assessed at each level at which capital requirements are calculated.
  - (7) Institutions using the simpler approach should not be required to include in the calculation of the AVAs the on- and off-balance-sheet fair valued assets and liabilities which are demonstrated to contain matching, offsetting assets and liabilities, following the assumption that there is no residual valuation exposures.
  - (8) In order for competent authorities to be able to assess that institutions have correctly applied the requirements for assessing the aggregate level of AVAs required, appropriate documentation, systems and controls should be maintained by institutions.
  - (9) This Regulation is based on the draft regulatory technical standards submitted by the European Supervisory Authority (European Banking Authority) to the Commission.
  - (10) The European Supervisory Authority (European Banking Authority) has conducted open public consultations on the draft regulatory technical standards on which this Regulation is based, analysed the potential related costs and benefits and requested the opinion of the Banking Stakeholder Group established in accordance with Article 37 of Regulation (EU) No 1093/2010.

HAS ADOPTED THIS REGULATION:

### ***Section 1 – General Provisions***

#### *Article 1 – Methodology for calculating AVAs*

In order to ensure that the prudent valuation of their fair valued positions achieves an appropriate degree of certainty in accordance with Article 105 of Regulation (EU) 575/2013, institutions shall calculate the additional valuation adjustments ('AVAs') necessary to adjust the fair values to the prudent value and shall aggregate these AVAs according to the method provided in Section 3, unless they meet the conditions for applying the method provided in Section 2.

#### *Article 2 – Definitions*

For the purpose of this Regulation the following definitions shall apply:

- (a) 'valuation position' means a financial instrument or portfolio of financial instruments which are measured at fair value.

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- (b) ‘valuation input’ means a market observable or non-observable parameter or matrix of parameters that influences the fair value of a valuation position.
  - (c) ‘valuation exposure’ means the amount of a valuation position which is sensitive to the movement in a valuation input.

### *Article 3 – Sources of market data*

1. Where institutions calculate AVAs based on market data, they shall use the same market data used in the independent price verification (‘IPV’) process of Article 105(8) of Regulation (EU) 575/2013 subject to the adjustments described in this article.
2. The market data used to determine a prudent value shall include a full range of available and reliable data sources including all of the following:
  - (a) Exchange prices in a liquid market;
  - (b) Trades in the exact same or very similar instrument, either from the institution’s own records or, where available, trades from across the market;
  - (c) Tradable quotes from brokers and other market participants;
  - (d) Consensus service data;
  - (e) Indicative broker quotes; and
  - (f) Counterparty collateral valuations.
3. For cases where an expert based approach is applied for the purpose of Articles 8 to 10, alternative methods and sources of information shall be considered, including all of the following:
  - (a) The use of proxy data based on similar instruments for which sufficient data is available;
  - (b) The application of prudent shifts to valuation inputs; and
  - (c) The identification of natural bounds to the value of an instrument.

#### ***Explanatory text for consultation purposes***

**Q1. Do you agree with the minimum list of alternative methods and sources of information defined above for expert based approaches? If not, what others could be included, or which points from the current list should be removed? State your reasons.**

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## ***Section 2 – Simplified approach for the determination of AVAs***

### ***Article 4 – Conditions for use of the simplified approach***

1. Institutions may apply the simplified approach described in this Section only if the sum of the absolute value of on- and off-balance-sheet fair valued assets and liabilities under the applicable accounting framework is less than €15bn. This threshold shall be tested separately on both a solo and consolidated level basis.

2. Where institutions applying the simplified approach fail to meet the condition of paragraph 1 for two consecutive quarters, they shall immediately notify the relevant competent authority and determine a plan for the effective implementation of the approach referred to in Section 3 within the following two quarters.

#### ***Explanatory text for consultation purposes***

In calculating the summation required by paragraph 1, all instruments should be valued at their market prices. Assets and liabilities should be summed regardless of their signs.

The definition of the threshold would permit a subsidiary institution to apply the simplified approach if it met the criteria of paragraph 1. However if the parent institution of that subsidiary had consolidated fair value positions that did not meet the criteria of paragraph 1 then at the consolidated level the 'core approach' would be required to be applied to all fair value positions (including those of the subsidiary).

**Q2. Do you agree with the introduction of a threshold below which a simplified approach can be applied to calculate AVAs? If so, do you agree that the threshold should be defined as above? State your reasons.**

**Q3. Do you believe there are any practical issues with a parent institution being required to apply the 'core approach' to all fair value positions whilst a subsidiary is allowed to apply the simplified approach? State your reasons.**

### ***Article 5 – Determination of AVAs under the simplified approach***

Institutions shall calculate AVAs under the simplified approach as the sum of:

- (a) 25% of the net unrealised profit on financial instruments held at fair value; and
- (b) 0.1% of the sum of the absolute value of on- and off-balance-sheet fair valued assets and liabilities which are not demonstrated to contain matching, offsetting assets and liabilities.

#### ***Explanatory text for consultation purposes***

The net unrealised profit on financial instruments held at fair value should be based on the accounting valuation of those instruments. Unrealised gains and losses that are not included in regulatory capital (for example, currently, those on Available for Sale assets) should not be included in this calculation. The unrealised profit (or loss) on an individual financial instrument is the amount by which its current valuation is higher (or lower) than its value when it was originated. The net unrealised profit across all

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fair valued financial instruments should be calculated as the sum of the unrealised profits on fair valued financial instruments less the sum of the unrealised losses on fair valued financial instruments.

If the total unrealised losses are larger than total unrealised profits (i.e. there is a net unrealised loss) then the requirement under part (a) is zero. We welcome feedback on whether this is the appropriate approach.

Institutions using the simpler approach do not need to include in the calculation of the AVAs the on- and off-balance-sheet fair valued assets and liabilities which are demonstrated to contain matching, offsetting assets and liabilities.

**Q4. Do you agree with the proposed simplified approach? Do you think the risk sensitiveness of the approach is appropriate? Are there alternative approaches that you believe would be more appropriate? State your reasons.**

**Q5. Could a differentiated treatment for some asset/liability classes be considered, for example having regard to their liquidity? Please state the pros and cons of such a differentiation. How would you define the degree of liquidity of an asset/liability class (e.g. fair value hierarchy, eligibility for the LCR, other)?**

#### *Article 6 – Determination of aggregate AVAs calculated under the simplified approach*

For institutions applying the simplified approach, the aggregate AVA for the purpose of Article 1 shall be the AVA resulting from the calculation of Article 5.

### ***Section 3 – Core approach for the determination of AVAs***

#### *Article 7 – Determination of category level AVAs under the core approach*

1. Institutions shall calculate AVAs for each of the categories described in Article 105 (10) and (11) of Regulation (EU) 575/2013 ('category level AVAs').

2. In relation to the category level AVAs described in Articles 11 to 16, institutions shall aim to achieve a level of certainty in the prudent value that is equivalent to that set out in Articles 8 and 9.

3. AVAs shall be calculated as the excess of valuation adjustments required to achieve the identified prudent value calculated using the approaches described in article 8 to 16 over any adjustment applied in the institution's fair value that can be identified as addressing the same source of valuation uncertainty as the AVA.

4. Institutions shall calculate category level AVAs by applying Articles 8 to 16 or, where that is not possible, they shall identify the related financial instruments and calculate an AVA as the sum of:

- (a) 100% of the net unrealised profit on the related financial instruments; and

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- (b) Either: 10% of the notional value of the related financial instruments in the case of derivatives, or 25% of the market value reduced by the amount determined in (a) of the related financial instruments in the case of non-derivatives.

5. The remaining Articles of this Section shall not apply to financial instruments for which paragraph 4 is applied.

***Explanatory text for consultation purposes***

**Q6. Do you agree with the approach defined above to calculate an AVA where the approaches in Articles 8 to 16 are not possible for a valuation exposure? If not, what other approach could be prescribed? State your reasons.**

*Article 8- Calculation of market price uncertainty AVA*

1. Market price uncertainty AVAs shall be calculated at valuation exposure level.
2. The market price uncertainty AVA shall only be assessed to have zero value where all of the following conditions are met:
  - (a) the institution has firm evidence of a tradable price for a valuation exposure or a price can be determined from reliable data based on a liquid two-way market as defined in Article 338 of Regulation (EU) 575/2013;
  - (b) the sources of market data set out in Article 3 paragraph 2 do not indicate any material valuation uncertainty.

***Explanatory text for consultation purposes***

Market Price uncertainty AVAs are calculated on Valuation Exposures, which are based on financial instruments or portfolios of financial instruments. As such, where portfolios of instruments are demonstrated to contain matching, offsetting assets and liabilities, AVAs are only required on any residual valuation exposures.

3. Where a valuation exposure cannot be shown to have a zero AVA, in assessing the market price uncertainty AVA institutions shall use the data sources defined in Article 3. In this case the calculation of the market price uncertainty AVA shall be performed as described in paragraphs 4 and 5.
4. The granularity at which AVAs on valuation exposures shall be assessed shall be determined as follows:
  - (a) Institutions shall calculate AVAs on valuation exposures related to each valuation input used in the relevant valuation model. For non-derivative valuation positions, or valuation positions for which there is a directly observable price, the valuation input shall be the price of the instrument.

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- (b) In the case where a valuation input consists of a matrix of parameters, AVAs shall be calculated based on the valuation exposures related to each parameter within that matrix. Where a valuation input does not refer to tradable instruments, institutions shall map the valuation input and the related valuation exposure to a set of market tradable instruments. Institutions may reduce the number of parameters of the valuation input for the purpose of calculating AVAs provided:
- (1) The total value of the reduced valuation exposure is the same as the total value of the original valuation exposure.
  - (2) The reduced set of parameters can be mapped to a set of market tradable instruments.
  - (3) The ratio of volatility measure 2 over volatility measure 1 as defined below, based on historical data from the most recent 100 trading days, is less than 0.1:
    - (i) Volatility measure 1: Profit and Loss volatility of the valuation exposure based on the unreduced valuation input.
    - (ii) Volatility measure 2: Profit and Loss volatility of the valuation exposure based on the unreduced valuation input minus the valuation exposure based on the reduced valuation input.
- (c) Where a reduced number of parameters are used for the purpose of calculating AVAs, the determination that the above criteria are met shall be subject to independent review of the netting methodology and validation on at least an annual basis.

5. Market price uncertainty AVAs shall be determined as follows:

- (a) Where sufficient data exists to construct a range of plausible values for a valuation input:
  - (1) For a valuation input where the range of plausible values is based on exit prices, institutions shall estimate a point within the range where it is 90% confident it could exit the valuation exposure at that price or better.
  - (2) For a valuation input where the range of plausible values is created from mid prices, institutions shall estimate a point within the range where it is 90% confident that the mid value it could achieve in exiting the valuation exposure would be at that price or better.
- (b) Where insufficient data exists to construct a plausible range of values for a valuation input, institutions shall use an expert based approach based on qualitative and quantitative information available to achieve a level of certainty in the prudent value of the valuation input that is equivalent to that targeted in (a). Institutions shall notify competent authorities of the valuation exposures for which this approach is applied, and the methodology used to determine the AVA.
- (c) Institutions shall calculate the market price uncertainty AVA based on one of the following approaches:
  - (1) Calculating and aggregating, at each valuation input level, the valuation sensitivity of each valuation position based on the valuation input values estimated in (a) and (b); or
  - (2) Combining the valuation input values estimated in (a) and (b) and revaluing valuation positions based on those values.

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6. Institutions may calculate AVAs using valuation inputs which are the mean of the estimated plausible range of value in place of valuation inputs used for calculating fair value.

*Article 9- Calculation of close-out costs AVA*

1. Close-out costs AVAs shall be calculated at valuation exposure level.
2. When an institution has calculated a market price uncertainty AVA for a valuation exposure based on firm evidence of a tradable price, the close-out cost AVA may be assessed to have zero value.
3. Where an institution applies the derogation in Article 105 (5) of Regulation (EU) 575/2013 which allows a firm to base valuation on the mid-price provided it can close out its positions at that level, the close-out costs AVA may be assessed to have zero value. In this case the institution shall provide evidence that it is 90% confident that sufficient liquidity exists to support the exit of the related valuation exposures at mid-price.
4. Where a valuation exposure cannot be shown to have a zero close-out costs AVA, institutions shall use the data sources defined in Article 3. In this case the calculation of the close-out costs AVA shall be performed as described in paragraphs 5 and 6.
5. The granularity at which close-out costs AVAs on valuation exposures shall be assessed shall be determined as follows:
  - (a) Institutions shall calculate close-out costs AVAs on valuation exposures related to each valuation input used in the relevant valuation model. For non-derivative valuation positions, or valuation positions for which there is a directly observable price, the valuation input shall be the price of the instrument.
  - (b) In the case where a valuation input consists of a matrix of parameters, institutions shall assess the close-out cost AVA based on the valuation exposures related to each parameter within that matrix. Where a valuation input does not refer to tradable instruments, institutions shall explicitly map the valuation input and the related valuation exposure to a set of market tradable instruments. Institutions may reduce the number of parameters of the valuation input for the purpose of calculating AVAs provided:
    - (1) The total value of the reduced valuation exposure is the same as the total value of the original valuation exposure.
    - (2) The reduced set of parameters can be mapped to a set of market tradable instruments.
    - (3) The ratio of volatility measure 2 over volatility measure 1 as defined below, based on historical data from the most recent 100 trading days, is less than 0.1:
      - (i) Volatility measure 1: Profit and Loss volatility of the valuation exposure based on the unreduced valuation input.

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(ii) Volatility measure 2: Profit and Loss volatility of the valuation exposure based on the unreduced valuation input minus the valuation exposure based on the reduced valuation input.

(c) Where a reduced number of parameters are used for the purpose of calculating AVAs, the determination that the above criteria are met shall be subject to independent review and validation on at least an annual basis.

6. Close-out costs AVAs shall be determined as follows:

(a) Where sufficient data exists to construct a range of plausible bid-offer spreads for a valuation input, institutions shall estimate a point within the range where it is 90% confident that the spread it could achieve in exiting the valuation exposure would be at that price or better.

(b) Where insufficient data exists to construct a plausible range of bid-offer spreads, institutions shall use an expert based approach based on qualitative and quantitative information available to achieve a level of certainty in the prudent value that is equivalent to that targeted where a range of plausible values is available. Institutions shall notify competent authorities of the valuation exposures for which this approach is applied, and the methodology used to determine the AVA.

(c) Institutions shall base the close-out costs AVA on applying 50% of the estimated bid-offer spread defined in Stage 2 to the absolute value of the valuation exposures related to the valuation inputs defined in Stage 1.

7. Institutions may calculate AVAs using valuation inputs which are the mean of the estimated plausible range of value in place of valuation inputs used for calculating fair value.

#### *Article 10- Calculation of Unearned credit spreads AVA*

1. Institutions shall assess the unearned credit spreads AVA as the valuation uncertainty in the adjustment necessary according to the applicable accounting framework to include the current value of expected losses due to counterparty default on derivative positions ('ACVA'). The AVA shall include all of the following elements:

(a) An AVA for market price uncertainty, as defined in Article 8, for all valuation exposures relevant to the calculation of ACVA;

(b) An AVA for model risk, as defined in Article 11, for the model used to calculate ACVA.

2. Institutions shall include the element of the AVA relating to market price uncertainty within the market price uncertainty AVA category and calculate it using the methodology defined for that category. The element of the AVA relating to model risk shall be included within the model risk AVA category and calculated using the methodology defined for that category.

***Explanatory text for consultation purposes***

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**Q7. Do you agree with the approaches defined above to calculate AVAs for market price uncertainty, close-out costs, and unearned credit spreads? If not, what other approach could be prescribed? State your reasons.**

#### *Article 11- Calculation of Model risk AVA*

1. Institutions shall estimate a model risk AVA for each valuation model by considering valuation model risk which arises due to the potential existence of a range of different models or model calibrations (other than calibrations from market derived parameters) which are used by market participants and the lack of a firm exit price for the specific product being valued.

2. The model risk AVA shall be calculated using one of the approaches defined in paragraphs 3 and 4.

3. Where possible institutions shall calculate the model risk AVA by determining a range of plausible valuations produced from alternative appropriate modelling and calibration approaches. In this case, institutions shall estimate a point within the resulting range of valuations where it is 90% confident it could exit the valuation exposure at that price or better.

4. Where institutions are unable to use the approach defined in paragraph 3, they shall apply an expert based approach to estimate the model risk AVA. The expert based approach shall consider all of the following: complexity of products relevant to the model; diversity of possible mathematical approaches and model parameters (where those model parameters are not related to market variables); the degree to which the market for relevant products is one way; the existence of unhedgeable risks in relevant products; and the adequacy of the model in capturing the behaviour of the pay-off of the products in the portfolio. Institutions shall notify competent authorities of the models for which this approach is applied, and the methodology used to determine the AVA.

#### *Article 12- Calculation of Concentrated positions AVA*

1. Institutions shall estimate a concentrated position AVA for concentrated valuation positions by first identifying concentrated valuation positions. The identification of concentrated valuation positions shall consider the size of all valuation positions relative to the liquidity of the related market and the institution's ability to trade in that market. This assessment shall take into account the average daily market volume and typical daily trading volume of the institution. Institutions shall establish and document the methodology applied to determine concentrated valuation positions for which an AVA shall be calculated.

2. For each identified concentrated valuation position, where a market price applicable for the size of the valuation position is unavailable, a prudent exit period shall be estimated and an AVA shall be estimated taking into account the volatility of the valuation input, the volatility of the bid offer spread and the impact of the hypothetical exit strategy on market prices. Concentrated positions AVA is only required where the prudent exit period exceeds the time

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horizon for the market risk measure used to calculate own funds requirements as defined in Article 365 of Regulation (EU) 575/2013.

*Article 13- Calculation of Investing and funding costs AVA*

1. Institutions shall estimate an investing and funding costs AVA by assessing the uncertainty in its valuation framework for strongly-collateralised derivatives.
2. Institutions shall estimate the AVA by including the expected funding costs and benefits over the contractual lifetime of each derivative trade which is not strongly collateralised.

*Article 14- Calculation of Future administrative costs AVA*

1. Where an institution calculates a close-out cost AVA for a valuation exposure using market data other than the exit price, the institution shall calculate a future administrative cost AVA.
2. The future administrative cost AVA shall be calculated considering the administrative costs and future hedging costs over the expected life of the valuation exposures for which a direct exit price is not applied for the close-out costs AVA, discounted using a rate which reasonably approximates the risk free rate. Administrative costs shall include all staffing and fixed costs that will be incurred in managing the portfolio but a reasonable reduction in these costs may be assumed as the size of the portfolio reduces.

*Article 15- Calculation of Early termination AVA*

Institutions shall estimate an early termination AVA considering the potential losses arising from non-contractual early terminations of client trades. The early termination AVA shall be calculated taking into account the percentage of client trades that have historically terminated early and the losses that arise in those cases.

*Article 16- Calculation of Operational risks AVA*

1. Institutions shall estimate an operational risk AVA by assessing the potential losses that may be incurred as a result of operational risk related to valuation processes. This estimate shall include an assessment of valuation positions judged to be at-risk during the balance sheet substantiation process, including those due to legal disputes.

***Explanatory text for consultation purposes***

In accounting, balance sheet substantiation is a process of ascertaining the reasonableness, propriety and integrity of all account balances and assessing any potential financial impact to Profit and Loss that might arise from their misstatement. It entails regularly testing that each account balance can be

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backed up by reference to documented amounts owed to/from external parties and includes assessing the reasonableness of the valuations of those assets and liabilities.

2. Where an institution applies the Advanced Measurement Approach for Operational Risk as defined in Title III Chapter 4 of Regulation (EU) 575/2013, it may report a zero operational risk AVA by providing evidence that the operational risk relating to uncertainty in valuation is fully accounted for by the Advanced Measurement Approach calculation.

3. Where an institution does not apply the Advanced Measurement Approach, it shall calculate an operational risk AVA of 10% of the sum of the category level AVAs for market price uncertainty and close-out costs.

***Explanatory text for consultation purposes***

**Q8. Do you agree with the approaches defined in Articles 11 to 16 to calculate the various categories of AVAs? If not, what other approach could be prescribed for each AVA? State your reasons.**

**Q9. Are there cases where the above AVAs may have a zero value that could be defined in the RTS? If yes, please specify.**

*Article 17 – Determination of aggregate AVAs calculated under the core approach*

1. Institutions applying the core approach shall calculate their AVAs in the following manner:

(a) they shall calculate total category level AVAs for each of the categories described in Articles 11 to 16, in accordance with paragraph 2;

(b) they shall calculate total category level AVAs for each of the categories described in Articles 8 and 9 in accordance with paragraph 3;

(c) they shall calculate the aggregate AVA for the purpose of Article 1 as the sum of the category level AVAs that result from the calculation of paragraphs 2 and 3.

2. Institutions shall calculate the total category level AVA for each of the categories of Articles 11 to 16 as the sum of individual AVAs.

3. Institutions shall calculate the AVA for market price uncertainty and close-out costs, separately for each of these categories, according to one of the following approaches:

(a) where the valuation exposure level AVAs relate to a single valuation input, the sum of valuation exposure level AVAs; or

(b) where the valuation exposure level AVAs relate to more than one valuation input, as 50% of the sum of valuation exposure level AVAs;

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4. Where the alternative approach described in Article 8(6) or Article 9(7) is applied, the valuation differences calculated should replace the valuation exposure level AVAs in the calculation described in paragraph 3. In this case the category level AVA shall be calculated as the excess of the aggregated valuation differences over any related adjustments applied in the institution's fair value of those positions.

***Explanatory text for consultation purposes***

**Q10. Do you agree with the approach defined above for the aggregation of valuation exposure level AVAs within the market price uncertainty and close-out cost AVA categories? If not, what other approach could be prescribed? State your reasons.**

**Q11. Do you agree that category level AVAs described in Articles 11 to 16 within the core approach should be aggregated as a simple sum? If not, what other approach could be prescribed? State your reasons.**

***Section 4 – Documentation, systems and controls***

***Article 18 – Documentation requirements***

1. Institutions shall establish and maintain a prudent valuation methodology document, which shall be subject to annual review and approval by senior management. This document shall include all of the following elements:

- (a) The range of methodologies for quantifying AVAs for each valuation position;
- (b) The hierarchy of methodologies for each asset class, product, or valuation position;
- (c) The hierarchy of market data sources used in the AVA methodology;
- (d) The required characteristics of market data to justify a zero AVA for each asset class, product, or valuation position;
- (e) The methodology to determine whether a valuation position requires a concentrated position AVA;
- (f) The methodology applied where an expert based approach is used to determine an AVA;
- (g) The assumed exit horizon for the purpose of calculating AVAs for concentrated positions, where relevant.

2. Institutions shall also maintain sufficient records to allow the calculation of AVAs at valuation exposure level to be analysed, and sufficient information from the AVA calculation process shall be provided to senior management to allow an understanding of the level of valuation uncertainty on the institution's portfolio of fair valued positions.

***Article 19 – Systems and controls requirements***

1. AVAs shall be authorised initially, and monitored subsequently, by an independent control unit.

2. Institutions shall have effective controls related to the governance of all fair valued positions, and adequate resources to implement those controls and ensure robust valuation processes even during a stressed period. These shall include all of the following:

- 
- (a) At least an annual review of valuation model performance and all significant changes to valuation policies;
  - (b) A clear statement of the institution's appetite for exposure to positions subject to valuation uncertainty which is monitored at an aggregate institution-wide level;
  - (c) Independence in the valuation process between risk taking and control units; and
  - (d) A comprehensive internal audit process related to valuation processes and controls.

3. Institutions shall ensure there are effective and consistently applied controls related to the valuation process for fair valued positions. These controls shall be subject to regular internal audit review. The controls shall include all of the following:

- (a) Documented valuation methodologies, which shall be approved by senior management and reported to the institution's board at least annually;
- (b) Documented practices for the initial pricing, marking-to-market/model, valuation adjustments, observability and reliability of inputs, and periodic independent revaluation;
- (c) Defined thresholds based on observed market data for determining when valuation models are no longer sufficiently robust;
- (d) A formal IPV process based on prices independent from the relevant trading desk; and
- (e) A new product approval processes involving all internal stakeholders relevant to risk measurement, risk control, financial reporting and the assignment and verification of valuations of financial instruments, supported by a documented inventory of acceptable valuation methodologies for each product and business.

*Article 20 – Ongoing monitoring to assess adequacy of data sources of valuation inputs used to calculate AVAs according to Articles 8 to 10*

1. This article applies to institutions that have calculated non-zero AVAs according to Articles 8 to 10 at valuation exposure level. Institutions shall systematically use the actual prices from its own transactions to assess the quality of data sources of valuation inputs that it uses in its IPV process and to identify instances where reduced valuation inputs may not be prudent.

2. For each transaction institutions shall compare all parameter values of the reduced valuation inputs that match the contractual price ('actual parameter') to the respective estimated prudent parameter value of the reduced valuation inputs according to Articles 8 to 10. The same process shall be applied for transactions by which an institution removes an instrument from its portfolio by selling it or by entering in an offsetting transaction.

3. For all parameters of each reduced valuation input institutions shall conduct the following steps:

- (a) When AVAs are calculated, the prudent value of all parameters of each reduced valuation input shall be recorded.
- (b) When the institution engages in a transaction described in paragraph 2, the value of all actual parameters for all parameters of each reduced valuation input shall be recorded.

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- (c) For all parameters of each reduced valuation input the institution shall interpolate between the estimated prudent parameter value at the previous AVA calculation date and the estimated prudent parameter value at the current AVA calculation date.
- (d) The interpolated parameter values shall be compared to the actual parameter values observed since the previous AVA calculation date.

4. Institutions shall document the outcome of the process described in paragraph 3 and take account of indications that calculated AVAs are not prudent when assessing the quality of the data sources for valuation inputs and the market data according to Article 3.

***Explanatory text for consultation purposes***

**Q12. Do you agree with the requirement for institutions using the core approach to implement the above ongoing monitoring tool as an indicator of the adequacy of data sources of valuation inputs used to calculate the AVAs described in Articles 8 to 10? If not, what other approach could be prescribed? State your reasons.**

*Article 21- Final provision*

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

*For the Commission  
The President*

*[For the Commission  
On behalf of the President*

*[Position*

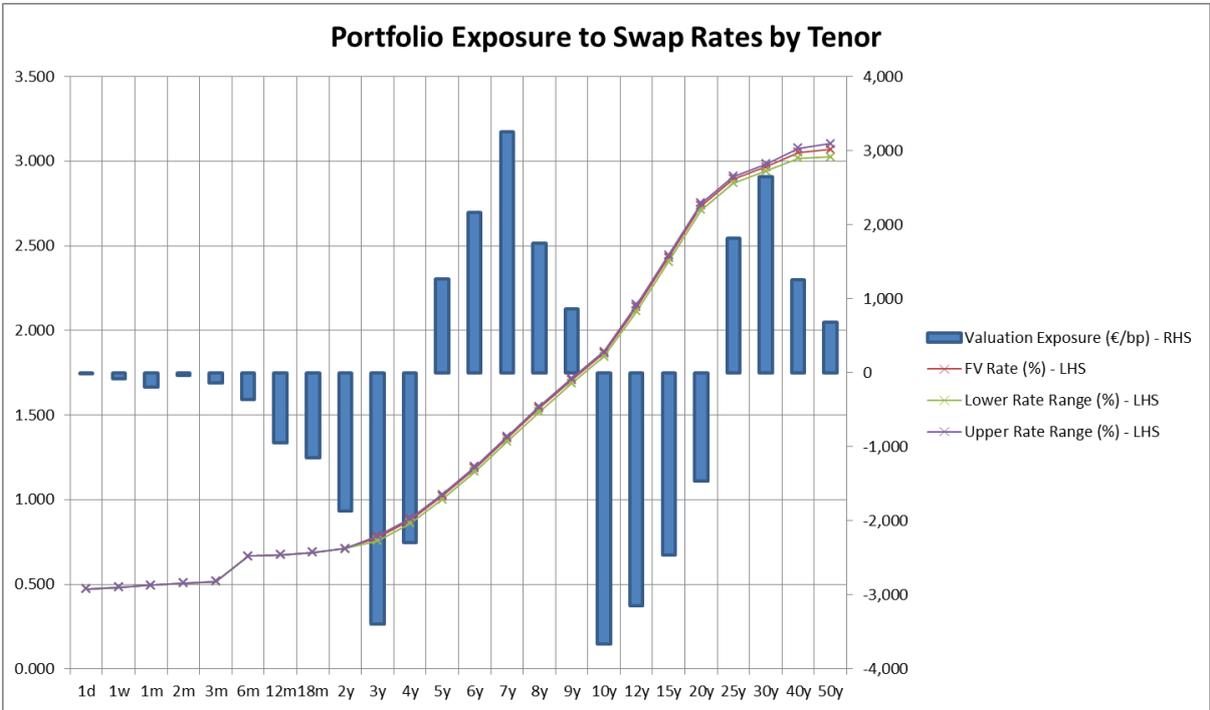
## 5. Accompanying documents

### 5.1 Worked example of the calculation of market price uncertainty and close-out costs AVAs under the core approach

The example described below is based on an interest rate swap portfolio consisting of a large number of long and short interest rate swaps, with a variety of maturities, sizes and fixed rates. For the purpose of the example the institution holding the portfolio is not assumed to be a significant market maker.

The portfolio of instruments are assumed to be valued using the same (mid-price) Fair Value Yield Curve which has 24 input parameters (ranging in maturities from 1 day to 50 years). This Fair Value Yield Curve is based on highly liquid cash prices for parameters up to 2 months, liquid exchange-traded futures prices from 3 month up to 2 years and swap prices from 3 years to 50 years, which are relatively liquid at shorter maturities but increasingly illiquid at longer maturities.

During the end of day (EOD) process, when the institution produces its EOD values, it also produces EOD sensitivities (the valuation change that would be caused by an input parameter being increased by 1 basis point). The Fair Value Yield Curve and the sensitivities of the portfolio are shown in Graph 1 below (the graph also shows the range of plausible yields for each parameter, which are used at a later stage in the AVA estimation).



Graph 1: Fair Value Yield Curve with associated valuation exposures

In the process described below, the requirements of Article 8 of the draft RTS are followed to arrive at AVAs for market price uncertainty and close-out costs. References to paragraphs relate to the paragraphs of Article 8 (for market price uncertainty) and Article 9 (for close-out costs).

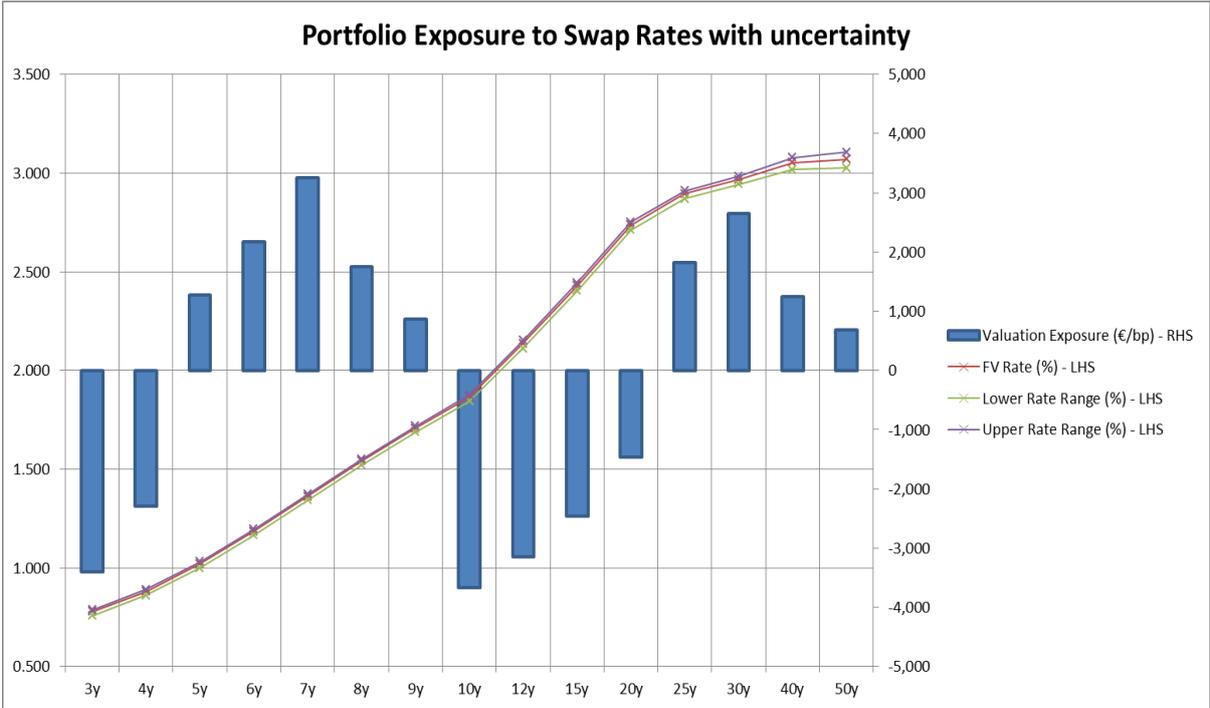
### 1. Valuation exposure level market price uncertainty AVA calculation

Paragraph 1 states that the AVA should be calculated at valuation exposure level. A valuation exposure is defined as the amount of a valuation position which is sensitive to the movement in either the price of a fungible security or valuation input. A valuation input is defined as a parameter or as a matrix of parameters that influences the fair value.

In this example, the valuation input is the yield curve which is a vector of parameters that influence the fair value. The institution may decide to calculate the AVA for each parameter individually or for the vector of parameters together. In this example, the institution chooses that the AVA will be calculated on the vector of parameters together.

Paragraph 2 states that the existence of evidence of a tradable price from a liquid two-way market would provide sufficient evidence that the AVA for a valuation exposure to be assessed to have a zero value. In this example, the short end of the Fair Value Yield Curve does have the level of liquidity required to support a zero AVA however the longer maturities do not – therefore since the institution is calculating an AVA for the full vector of parameters the AVA may not be assessed as having zero value at this point in the process.

However, the institution may choose to isolate the portions of the yield curve for which there is no valuation uncertainty, and only perform calculations on the portion for which there is uncertainty, as in Graph 2 below. This means that only 15 points on the curve are being considered for the market price uncertainty AVA (since all points below the 3 year maturity have sufficient evidence that the AVA for a valuation exposure on each maturity would be zero):



Graph 2: Fair Value Yield Curve with associated valuation exposures for those rates which have uncertainty.

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Paragraph 3 states that if there is not sufficient evidence to show that the AVA is non-zero, the data sources defined in Article 3 shall be used to calculate the AVA in the manner described in paragraphs 4 and 5.

Paragraph 4 describes how the institution may calculate the AVA based on the sensitivity to every parameter in the valuation input. However, the paragraph permits institutions to reduce the dimensions of the valuation input (i.e. the number of parameters for which valuation sensitivity should be analysed) provided the reduced set of parameters meet certain conditions. In particular:

- As part of the process of reducing the dimensions of the valuation input, the valuation exposure shall be translated to the same reduced dimensions. The resulting total net valuation exposure may not change; and
- The ratio of volatility measure 2 over volatility measure 1 as defined below, based on historical data from the most recent 100 trading days, is less than 0.1:
  - Volatility measure 1: Profit and Loss volatility of the valuation exposure based on the unreduced valuation input.
  - Volatility measure 2: Profit and Loss volatility of the valuation exposure based on the unreduced valuation input minus the valuation exposure based on the reduced valuation input.

In this example the institution could decide to reduce their AVA calculation in two ways, which can both be applied to the same portfolio:

- 1) Netting the exposure between different points – for example a long exposure of 1000 to the 9y swap rate could be netted against a short exposure of -3000 to the 10y swap rate, leaving a single exposure of -2000 to the 10y swap rate. This process reduces the dimensionality of the calculation and the accuracy of the calculation.
- 2) The netting methodology used will normally consider the distance between points on a curve – for example, if a 9y swap rate exposure is netted into the 5y and 10y points, then most of the risk will be mapped to the 10y point, but some of it will be mapped to the 5y point.

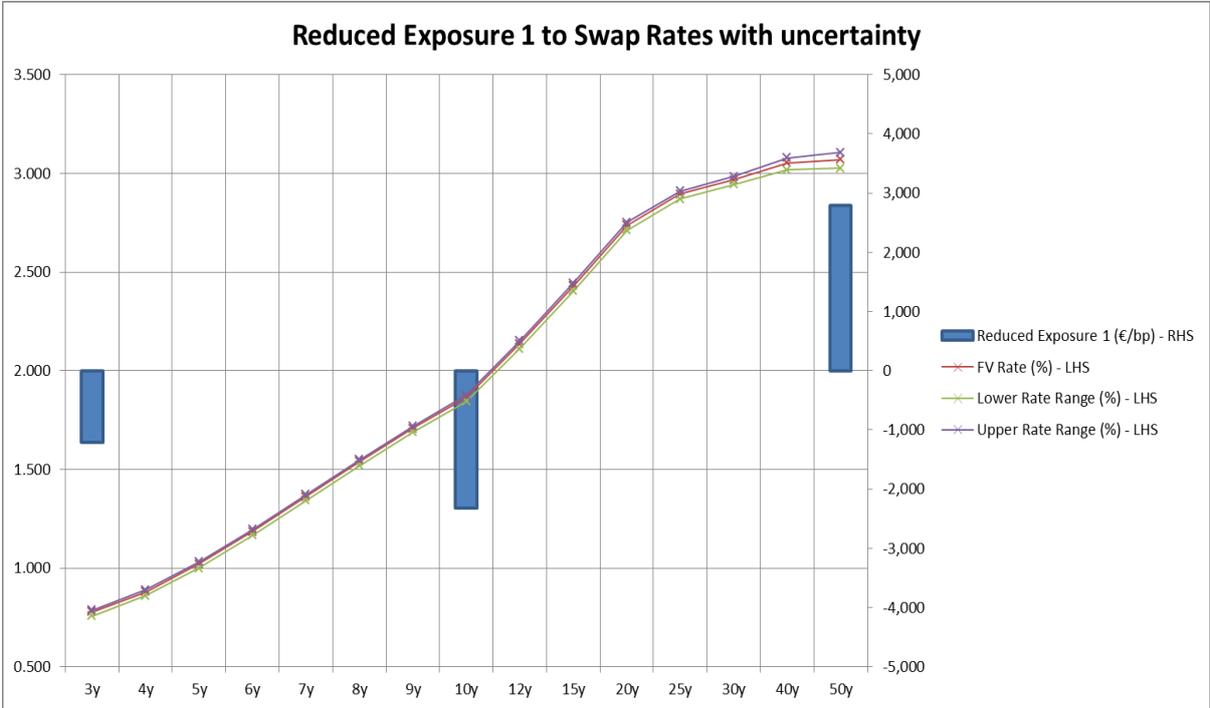
Mapping outright exposures to liquid spread exposures – for example a long exposure of 1000 to the 5yr swap rate and a short exposure of -3000 to the 10y swap rate could be remapped to an exposure of -1000 to the 10y – 5y spread, leaving a residual -2000 exposure to the 10y swap rate. This process does not reduce the dimensionality or accuracy of the calculation, but still provides netting benefit within the AVA calculation.

In order to determine a reduced valuation input which meets the criteria of paragraph 4, calculations have been performed on several alternative sets ('scenarios') of reduced valuation inputs for the portfolio:

- 1) Exposures to a reduced valuation input of 3 parameters ('reduced exposure 1')
- 2) Exposures to a reduced valuation input of 5 parameters ('reduced exposure 2')
- 3) Exposures to a reduced valuation input of 7 parameters ('reduced exposure 3')

**Scenario 1: Exposure Reduced to 3 Parameters:**

In the case of reduced exposure 1, the valuation exposure shown in Graph 2 was remapped to 3 points; 3y, 10y, 50y, as shown in Graph 3.



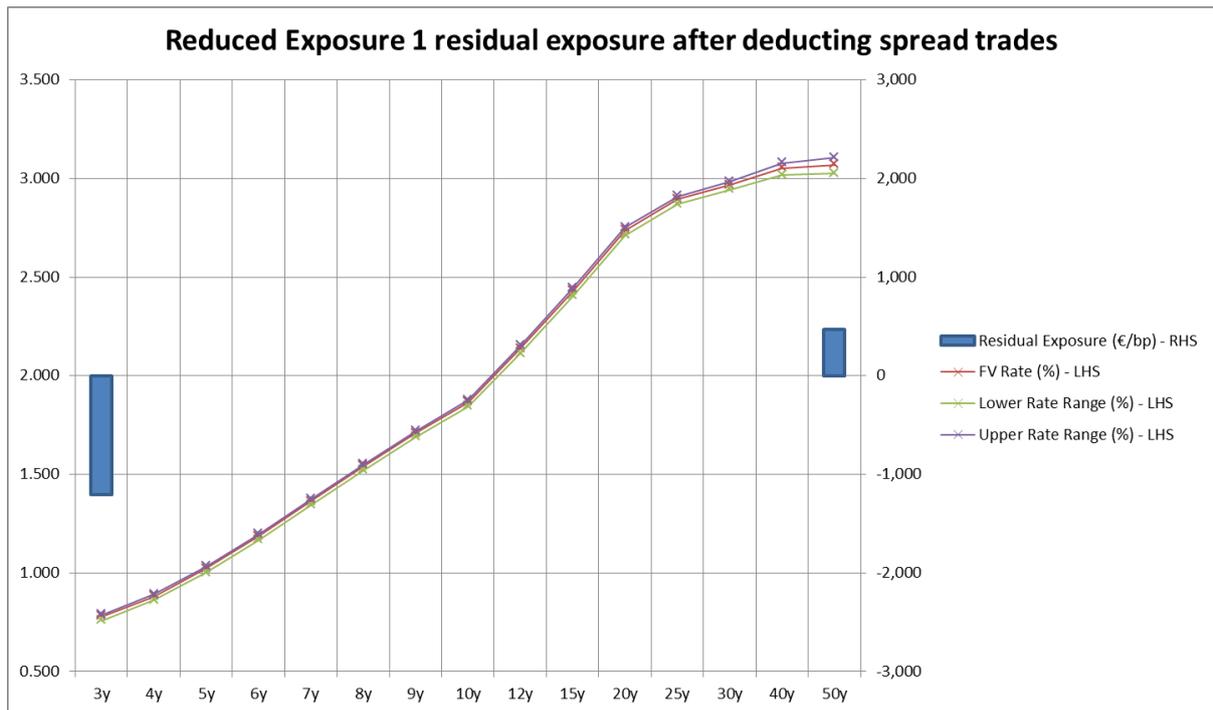
Graph 3: Reduced Yield Curve of 3 parameters with associated valuation exposure

The institution decided to perform a second step, in which the long exposure to the 50y swap rate and the short exposure to the 10y swap rate were mapped to a 50y-10y spread trade as in Graph 4. This left a residual exposure to the 3y and 50y swap rates as shown in Graph 5.

In this case, the reduced valuation exposure that would be the basis for calculating the AVA would be comprised of the exposure to the 50y-10y spread and the residual exposures to the 3y and 50y swap rates.



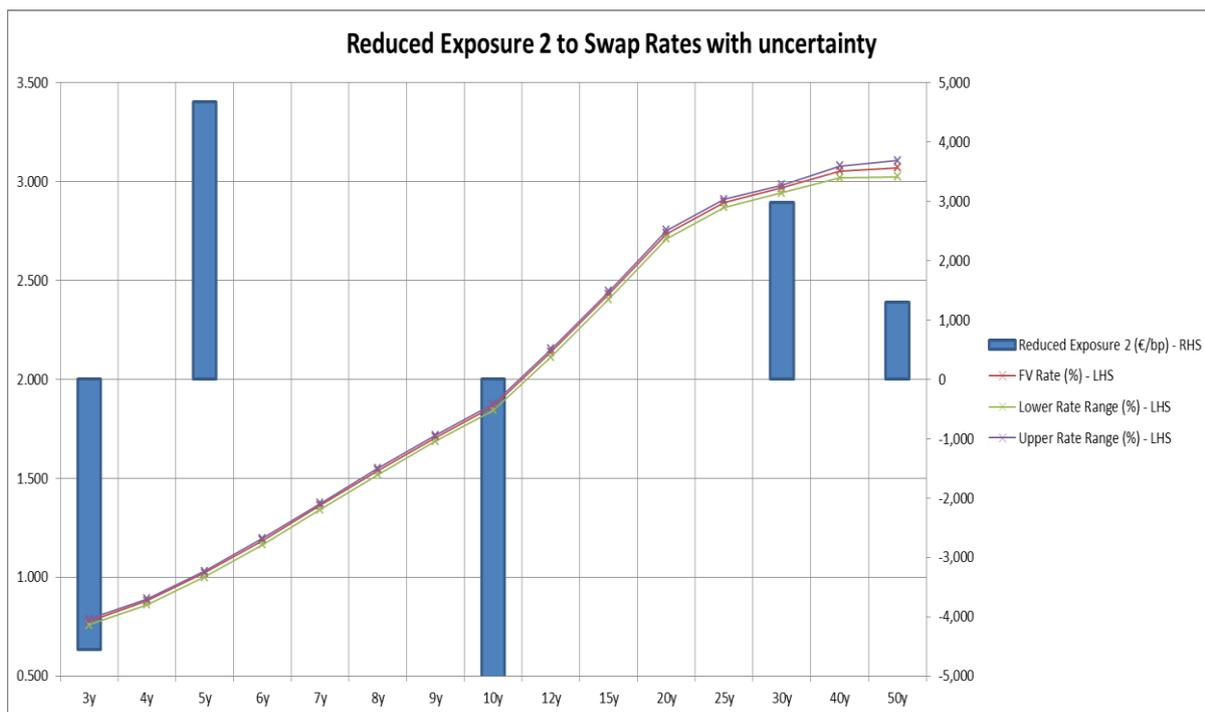
Graph 4: Reduced Yield Curve of 3 parameters with exposure to spread trades



Graph 5: Reduced Yield Curve of 3 parameters with residual exposure after removing spread trades

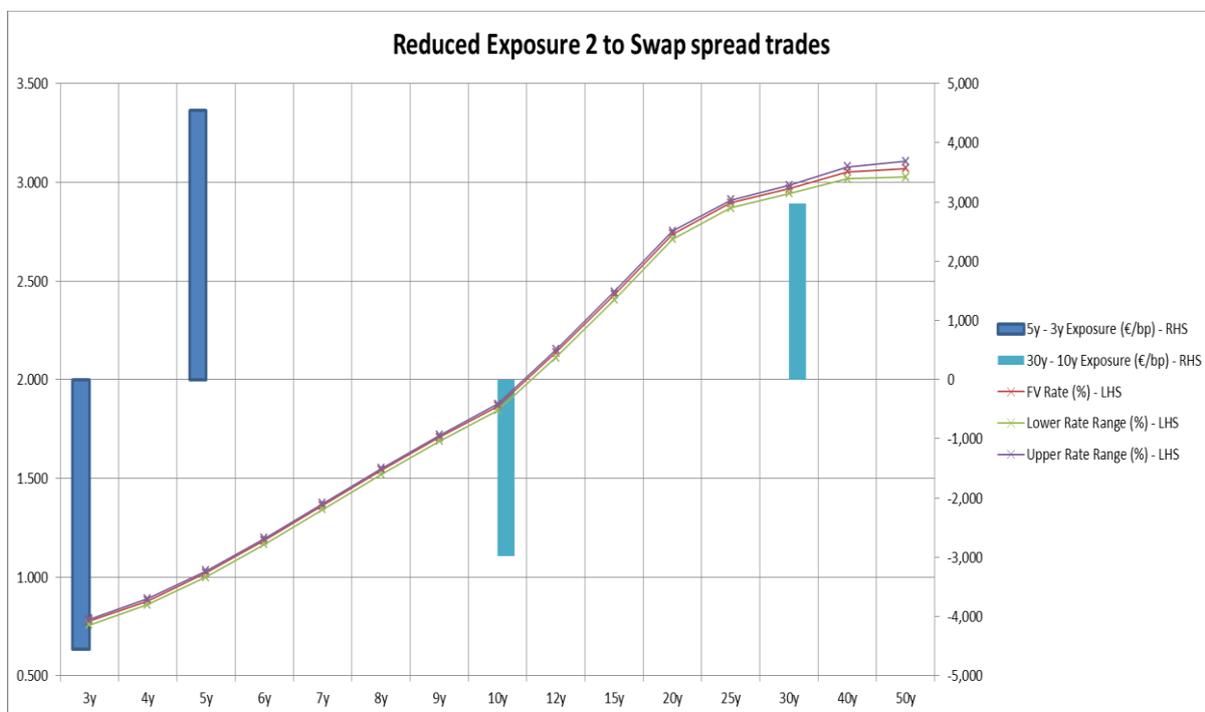
## Scenario 2: Exposure reduced to 5 parameters:

In the case of reduced exposure 2, the valuation exposure shown in Graph 2 was remapped to 5 points; 3y, 5y, 10y, 30y, 50y, as shown in Graph 6.

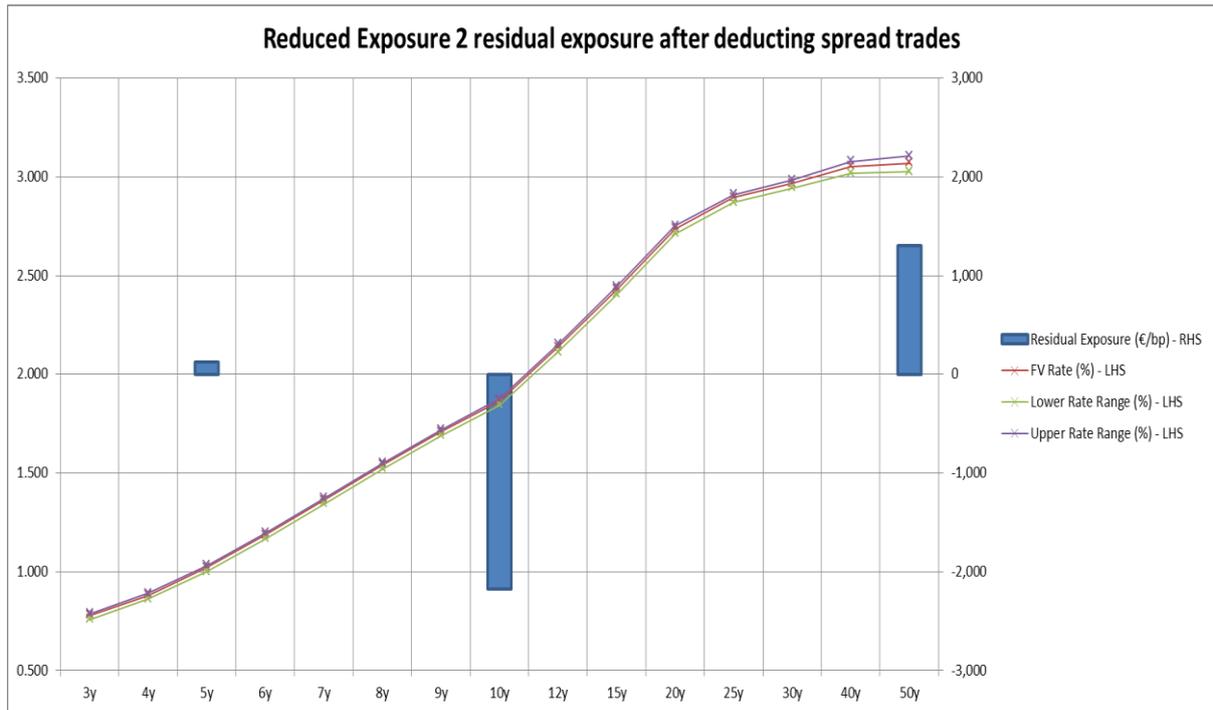


Graph 6: Reduced Yield Curve of 5 parameters with associated valuation exposure

In this case 2 separate spreads trades were then mapped to the exposure; a long 5y exposure against a short 3y exposure, and a long 30y exposure against a short 10y exposure. This is shown in Graph 7. This left a residual exposure to the 5y, 10y and 50y swap rates as shown in Graph 8. The combination of these two sets of exposures would in this case be the basis of the AVA.



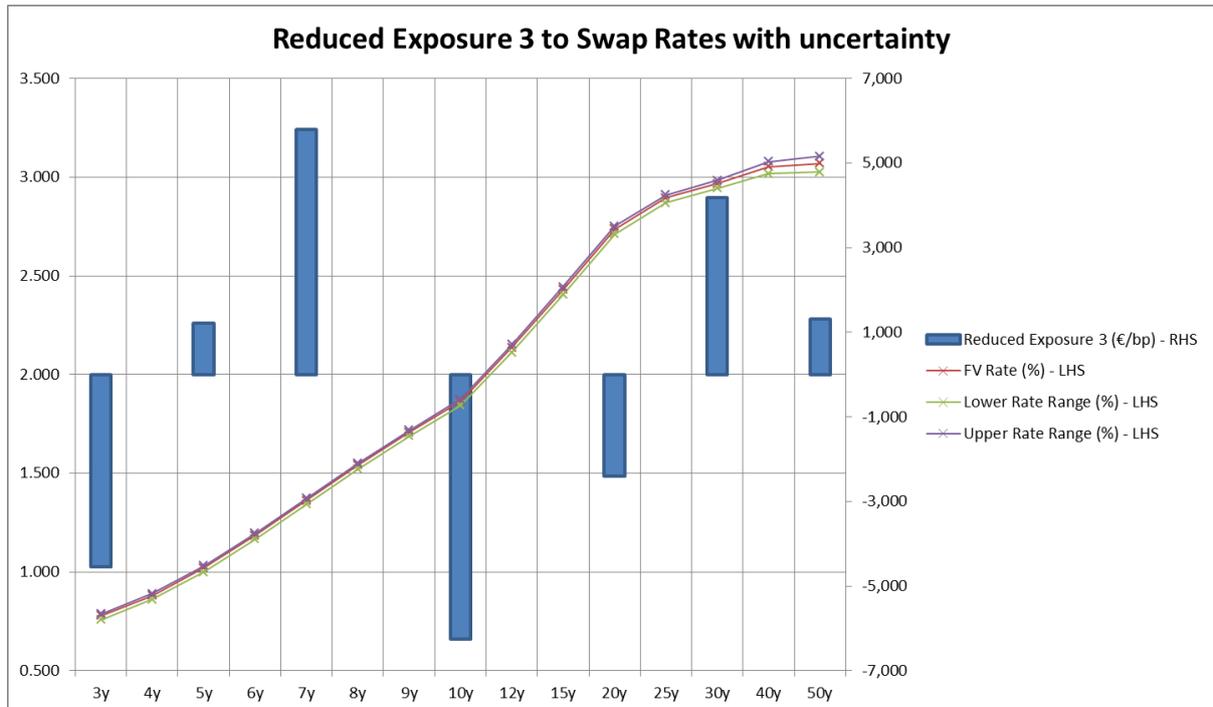
Graph 7: Reduced Yield Curve of 5 parameters with exposure to spread trades



Graph 8: Reduced Yield Curve of 5 parameters with residual exposure after removing spread trades

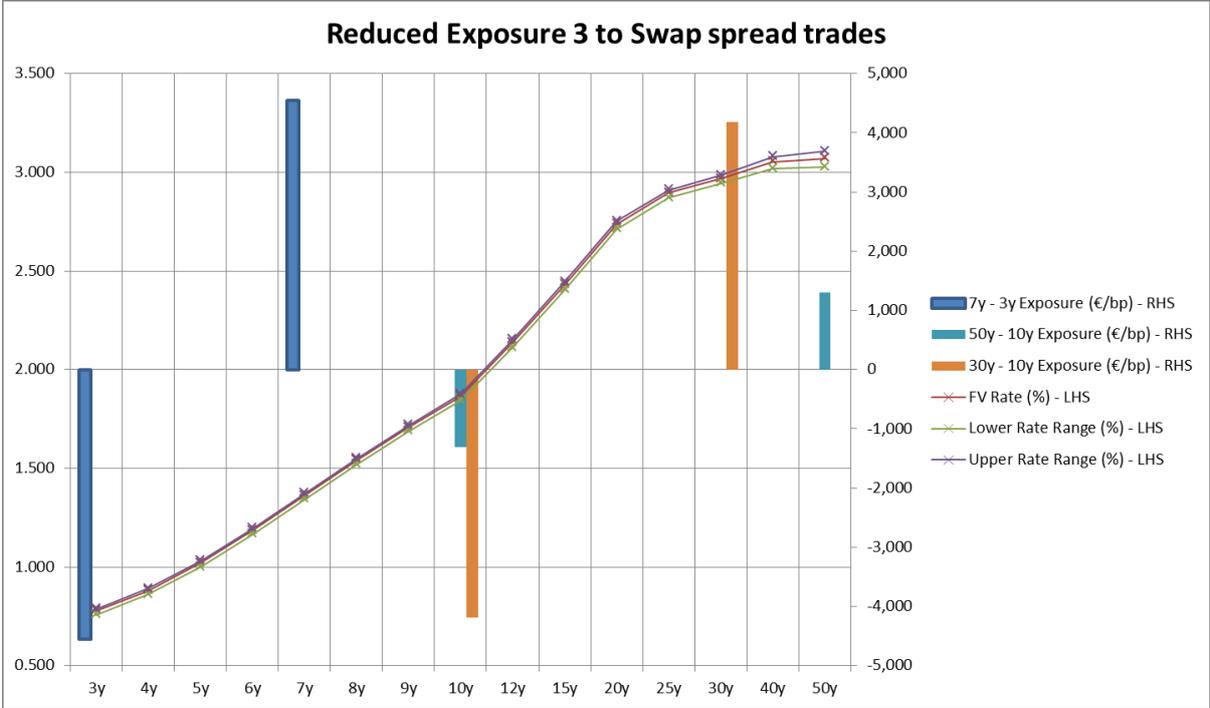
### Scenario 3: Exposure reduced to 7 parameters:

In the case of reduced exposure 3, the valuation exposure shown in Graph 2 was remapped to 7 points; 3y, 5y, 7y, 10y, 20y, 30y, 50y, as shown in Graph 9.

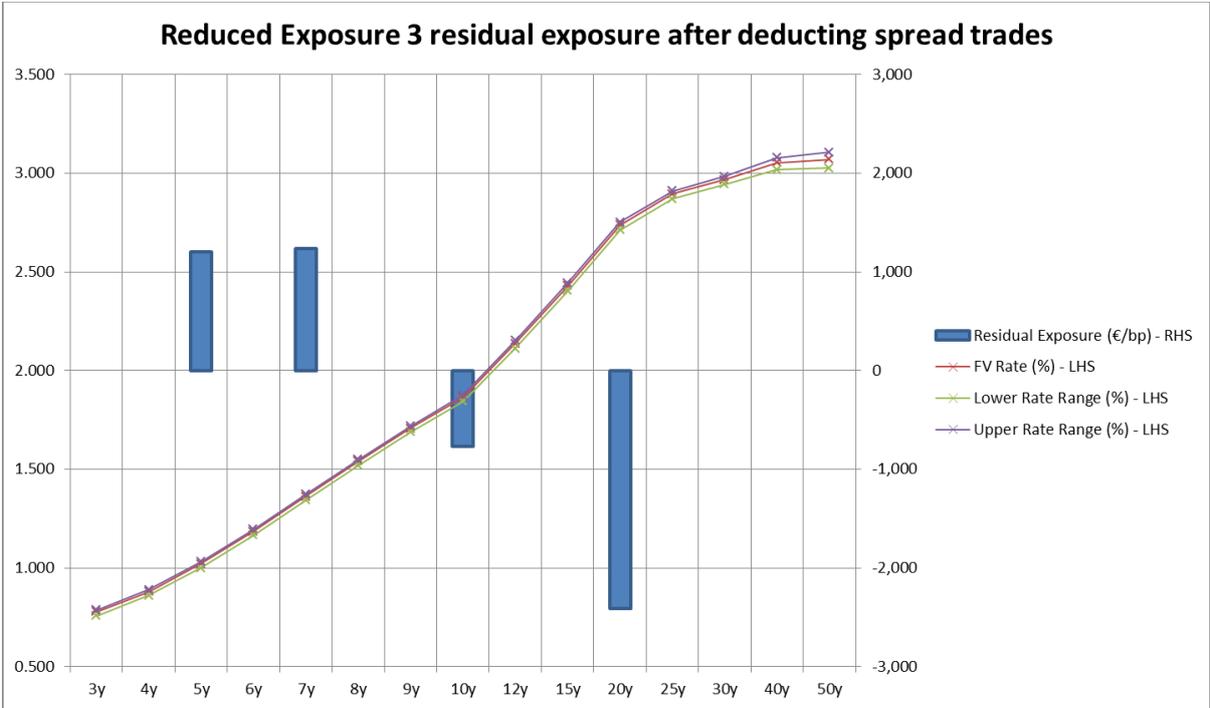


Graph 9: Reduced Yield Curve of 7 parameters with associated valuation exposure

In this case 3 separate spreads trades were mapped to the exposure; a long 7y exposure against a short 3y exposure, a long 30y exposure against a short 10y exposure, and a long 50y exposure against a short 10y exposure. This is shown in Graph 10. This left a residual exposure to the 5y, 10y and 50y swap rates as shown in Graph 11. The combination of these two sets of exposures would in this case be the basis of the AVA.



Graph 10: Reduced Yield Curve of 7 parameters with exposure to spread trades



Graph 11: Reduced Yield Curve of 7 parameters with residual exposure after removing spread trades

At a later stage in the process, the institution can assess which of these reduced exposures would meet the criteria of paragraph 4. Paragraph 5 describes how the market price uncertainty AVA should be calculated from the data sources in Article 3 and the reduced valuation inputs and valuation exposures determined by application of paragraph 4.

Firstly, for each parameter in the reduced valuation input, the available data should be used to determine whether there is a range of parameters available that enable the institution to estimate a value for which it has a 90% level of confidence that it could exit that parameter at that value or better. Whether this value is at the lower or higher end of the range of plausible values depends on whether the sensitivity of the portfolio is positive or negative for that parameter.

In this example, the level of liquidity and therefore available data for the input parameters to the curve is different depending on the maturity.

The institution had already determined that liquid deposits or exchange-traded futures prices are available for the parameters from 1d to 2y. The data shows that there exists a wide range of trades, bids and offers at consistent levels in the market at the time and date of the valuation. The institution can therefore be confident that, for these parameters, the prudent value would be the same as fair value.

Broker prices are available for the 3y – 7y swap rates as well as the 5y-3y and 7y-3y spread parameters. There are a range of broker prices available but there are some differences between them and uncertainty as to whether they could be traded on. For each of these parameters, there is a narrow band of uncertainty around their fair values.

For the 8y – 20y swap rates, the institution assesses broker prices to be less reliable as they are indicative only. A consensus pricing service is available and is assessed as being of good quality (the market is two-way and there are 10 accepted participants).

For the 25y – 50y swap rates as well as the long dated spread parameters, the consensus service is assessed as insufficient as there are only 3 submissions and none of the other data sources listed in Article 3 are available. The consensus service is used to provide the estimated fair value parameters. However, the institution considers the alternative approaches listed in Article 3 for situations where there is insufficient data and determines that the historical volatility of this parameter compared to more liquid shorter-dated parameters provides an indicative plausible range of prices with a similar level of confidence to that obtained for the rest of the curve.

The specific rates and spreads used in the calculations are shown in Table 1 and the resulting lower and upper rate range points are shown in Graph 2.

	<b>Source</b>	<b>FV Rate (%)</b>	<b>Upper Rate Range (%)</b>	<b>Lower Rate Range (%)</b>
<b>1d</b>	Deposit	0.4725	0.4725	0.4725
<b>1w</b>	Deposit	0.48125	0.48125	0.48125
<b>1m</b>	Deposit	0.49313	0.49313	0.49313
<b>2m</b>	Deposit	0.50625	0.50625	0.50625
<b>3m</b>	Future	0.515	0.515	0.515
<b>6m</b>	Future	0.66688	0.66688	0.66688
<b>12m</b>	Future	0.6725	0.6725	0.6725

<b>18m</b>	Future	0.6875	0.6875	0.6875
<b>2y</b>	Future	0.71	0.71	0.71
<b>3y</b>	Swap Rate	0.7775	0.7875	0.7575
<b>4y</b>	Swap Rate	0.88	0.89	0.86
<b>5y</b>	Swap Rate	1.02	1.03	1
<b>6y</b>	Swap Rate	1.185	1.195	1.165
<b>7y</b>	Swap Rate	1.3625	1.3725	1.3425
<b>8y</b>	Swap Rate	1.54	1.55	1.52
<b>9y</b>	Swap Rate	1.7075	1.7175	1.6875
<b>10y</b>	Swap Rate	1.865	1.875	1.845
<b>12y</b>	Swap Rate	2.1375	2.1525	2.1125
<b>15y</b>	Swap Rate	2.43	2.445	2.405
<b>20y</b>	Swap Rate	2.7375	2.7525	2.7125
<b>25y</b>	Swap Rate	2.895	2.91	2.87
<b>30y</b>	Swap Rate	2.9675	2.9825	2.9425
<b>40y</b>	Swap Rate	3.0525	3.0775	3.0175
<b>50y</b>	Swap Rate	3.07	3.105	3.025
<b>5y-3y</b>	Spread	0.2425	0.2575	0.2275
<b>7y-3y</b>	Spread	0.585	0.6	0.57
<b>30y-10y</b>	Spread	0.83	0.85	0.81
<b>50y-10y</b>	Spread	1.205	1.245	1.165

*Table 1: Parameters used in calculation of AVAs.*

For each of the scenarios of reduced valuation inputs, the P&L volatility and market price AVA have been calculated based on the above data and on historical data for 100 days in the case of P&L volatility, with the results displayed in Table 2 together with the AVA calculated for the original valuation input. Table 2 shows the AVAs before the institution maps the reduced exposure to spread trades.

The calculation of the AVA may be performed by multiplying the difference between the prudent parameter level and the fair value parameter level by the valuation exposure (or sensitivity) for each individual parameter in the reduced valuation input – this is the approach applied in the example. Alternatively, a new prudent yield curve could be built, taking either the upper or lower value from Table 1, depending upon the exposure to each point. This could then be applied to revalue the whole portfolio and the resulting AVA would be the difference between that revaluation and the valuation based on the fair value yield curve.

Table 3 shows the AVA using the exposures after the institution maps to spread trades.

The results for the market price AVA calculation for each set of exposures in Table 2 and Table 3 show that for this example a minimum of 7 points are needed to achieve the standard required by paragraph 4 for reduction in P&L volatility (i.e. the appropriate scenario is Reduced Input 3). Note that this scenario results in a 21.7% reduction in AVA if no spread trades are used in the reduced valuation exposure, or a 48.1% reduction in AVA if spread trades are included, relative to if the original valuation input is used as the basis of the AVA.

<b>Without Spread Trades</b>	<b>P&amp;L Volatility</b>	<b>P&amp;L Volatility Reduction</b>	<b>Market Price AVA</b>	<b>Reduction in AVA relative to when unreduced valuation input used</b>
Portfolio	€11,432		€57,185	
Reduced Input 1	€3,405	-70.2%	€16,113	-71.8%
Reduced Input 2	€1,859	-83.7%	€32,381	-43.4%
Reduced Input 3	€1,112	-90.3%	€44,750	-21.7%

Table 2: Market Price Uncertainty AVA where no spread trades are included in the reduced exposure.

<b>With Spread Trades</b>	<b>P&amp;L Volatility</b>	<b>P&amp;L Volatility Reduction</b>	<b>Market Price AVA</b>	<b>Reduction in AVA relative to when unreduced valuation input used</b>
Portfolio	€11,432		€57,185	
Reduced Input 1	€3,405	-70.2%	€12,623	-77.9%
Reduced Input 2	€1,859	-83.7%	€21,087	-63.1%
Reduced Input 3	€1,112	-90.3%	€29,690	-48.1%

Table 3: Market Price Uncertainty AVA where spread trades are included in the reduced exposure.

In this example the institution would therefore estimate an AVA of €29,690. If there are any fair value reserves held for market price uncertainty against this valuation exposure, according to Article 7 paragraph 3 these would be offset by the institution against the AVA to calculate the final AVA for market price uncertainty for the valuation exposure (the final AVA may not be less than zero and neither may the implied prudent value of any individual valuation exposure be greater from the institution's point of view than the fair value).

If the institution has valuation exposures to other valuation inputs, then this final AVA would be included in the aggregation methodology described in Article 17 in order to calculate a total AVA for market price uncertainty.

## 2. Valuation exposure level close-out costs AVA calculation

Paragraph 1 states that the close-out costs AVA should be calculated at valuation exposure level. In this example, the valuation input on which the valuation exposure is based is the yield curve which is a vector of parameters (the same as for the market price uncertainty AVA). As is the case for the market price uncertainty AVA, the institution may decide to calculate the AVA for each parameter individually or for the vector of parameters together. In this example, the institution chooses that the AVA will be calculated on the vector of parameters together.

Paragraph 2 states that, where an institution has calculated the market price uncertainty AVA based on an exit price, the close-out costs AVA may be assessed to have zero value. In this example, the yield curve used by the institution to estimate the market price uncertainty AVA was a mid-price curve so the close-out costs AVA may not be immediately assessed as having zero value.

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Paragraph 3 describes the evidence required by an institution to show that it is a significant market-maker in a product class and can therefore exit at mid-price implying the close-out costs AVA would have zero value. In this example, the institution is not considered to be a market maker so this approach is not applied.

Paragraph 4 states that if the close-out costs AVA is non-zero, the data sources defined in Article 3 must be used to calculate the AVA in the manner described in Paragraphs 11 and 12.

Paragraph 5 describes how the institution may calculate close-out costs AVAs individually for each parameter in the valuation input. However, in the same way as for the market price uncertainty AVA, the institution may also reduce the dimensions of the valuation input and consequently consider the valuation sensitivity to fewer individual parameters.

In this example, the analysis required to identify the appropriate reduced valuation input has already been performed for the market price uncertainty AVA, so the same reduced set of 7 parameters will be used for the close-out costs AVA calculation.

Paragraph 6 describes how the close-out costs AVA should be calculated from the data sources in Article 3 and the valuation inputs and valuation exposures in Paragraph 5.

As a first step, for each parameter in the reduced valuation input, the available data should be used to determine whether there is a range of bid/offer spreads available that enable the institution to estimate a value for which it has 90% level of confidence that it could exit that element at that value or better. In this example, the level of liquidity for the input parameters to the curve is different depending on their maturity.

Liquid deposits or exchange-traded futures prices are available for parameters from 1d to 2y. There are wide ranges of consistently priced trades, bids and offers in the market at the time and date of the valuation and so there is a significant range of evidence to support the level of the bid/offer spread. The institution assesses that it has a 90% level of confidence that the bid/offer spread that could be obtained if the short-dated parameters were to be exited would be the same as that used in assessing fair value close-out costs.

Broker prices are available for the 3y – 7y swap rates as well as the 5y-3y and 7y-3y spread parameters. There is a range of broker prices available which include bid/offer quotes but with some uncertainty as to whether they could be traded on. The institution assesses that it has 90% level of confidence that the bid/offer spread that could be obtained if the short-dated parameters were to be exited would be slightly wider than the spread used for fair value close-out costs.

At the remaining swap rates and spread parameters, the broker prices are assessed as less reliable as they are indicative only. The available consensus pricing service does not provide bid/offer spread quotes. The institution therefore considers alternative sources of evidence as described in Article 3 paragraph 3 and determines that there is sufficient (although infrequent) evidence of two-way quotes during the previous months that it can use to assess a range of values, with a similar level of confidence to that achieved for the shorter-dated parameters.

The specific rates and spreads used in the example calculations are shown in Table 4.

	<b>Source</b>	<b>FV Bid/Offer Spread</b>	<b>Prudent Bid/Offer Spread</b>
<b>1d</b>	Deposit	0.0025	0.0025
<b>1w</b>	Deposit	0.0025	0.0025
<b>1m</b>	Deposit	0.0025	0.0025
<b>2m</b>	Deposit	0.0025	0.0025
<b>3m</b>	Future	0.0025	0.0025
<b>6m</b>	Future	0.0025	0.0025
<b>12m</b>	Future	0.0025	0.0025
<b>18m</b>	Future	0.0025	0.0025
<b>2y</b>	Future	0.0025	0.0025
<b>3y</b>	Swap Rate	0.01	0.015
<b>4y</b>	Swap Rate	0.01	0.015
<b>5y</b>	Swap Rate	0.01	0.015
<b>6y</b>	Swap Rate	0.01	0.015
<b>7y</b>	Swap Rate	0.01	0.015
<b>8y</b>	Swap Rate	0.02	0.03
<b>9y</b>	Swap Rate	0.02	0.03
<b>10y</b>	Swap Rate	0.02	0.03
<b>12y</b>	Swap Rate	0.02	0.03
<b>15y</b>	Swap Rate	0.02	0.03
<b>20y</b>	Swap Rate	0.02	0.03
<b>25y</b>	Swap Rate	0.03	0.045
<b>30y</b>	Swap Rate	0.03	0.045
<b>40y</b>	Swap Rate	0.04	0.06
<b>50y</b>	Swap Rate	0.04	0.06
<b>5y-3y</b>	Spread	0.01	0.015
<b>7y-3y</b>	Spread	0.01	0.015
<b>30y-10y</b>	Spread	0.03	0.045
<b>50y-10y</b>	Spread	0.04	0.06

*Table 4: Parameters used in calculation of AVAs.*

The calculation of the close-out costs AVA is then calculated by multiplying 50% of the prudent bid/offer spread by the valuation exposure (or sensitivity) to each individual parameter. Tables 5 and 6 shows the resulting close-out cost AVA for each of the four sets of exposures used in assessing the market price uncertainty AVA.

<b>Without Spread Trades</b>	<b>P&amp;L Volatility</b>	<b>Reduction in P&amp;L volatility</b>	<b>Fair Value Close Out Cost</b>	<b>Prudent Close Out Cost</b>	<b>Close Out Cost AVA</b>	<b>Reduction in AVA relative to when unreduced valuation input used</b>
Portfolio	€€11,432		€9,121	€45,765	€36,644	
Reduced Input 1	€3,405	-70.2%	€9,121	€16,113	€6,992	-80.9%
Reduced Input 2	€1,859	-83.7%	€9,121	€32,381	€23,261	-36.5%
Reduced Input 3	€1,112	-90.3%	€9,121	€44,750	€35,629	-2.8%

Table 5: Close Out Cost AVA where no spread trades are included in the reduced exposure.

<b>With Spread Trades</b>	<b>P&amp;L Volatility</b>	<b>Reduction in P&amp;L volatility</b>	<b>Fair Value Close Out Cost</b>	<b>Prudent Close Out Cost</b>	<b>Close Out Cost AVA</b>	<b>Reduction in AVA relative to when unreduced valuation input used</b>
Portfolio	€11,432		€9,121	€45,765	€36,644	
Reduced Input 1	€3,405	-70.2%	€9,121	€9,891	€771	-97.9%
Reduced Input 2	€1,859	-83.7%	€9,121	€17,988	€8,867	-75.8%
Reduced Input 3	€1,112	-90.3%	€9,121	€23,951	€14,831	-59.5%

Table 6: Close Out Cost AVA where spread trades are included in the reduced exposure.

In this case the AVA would be €14,831 (as Reduced Input 3 was identified as the appropriate reduced valuation input to meet the requirements of paragraph 5). Institutions will typically hold fair value adjustments for close-out costs. Those adjustments for close-out costs which relate to this portfolio would be deducted from the total to calculate the final AVA for close-out costs for the valuation exposure (this may not be greater than zero and neither may the implied prudent value of any individual instrument be greater from the institution's point of view than the fair value).

If the institution has valuation exposures to other valuation inputs, then this final AVA will be included in the aggregation methodology described in Article 17 in order to calculate a total close-out costs AVA.

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## 5.2. Draft cost- benefit analysis / impact assessment

### Introduction

1. As per Article 10 (1) of the EBA regulation (Regulation (EU) No 1093/2010 of the European Parliament and of the Council), any draft implementing technical standards/regulatory technical standards developed by the EBA – when submitted to the EU Commission for adoption – shall be accompanied by an Impact Assessment (IA) which analyses ‘the potential related costs and benefits’. Such Impact Assessment shall provide the reader with an overview of the findings as regards the problem identification, the options identified to remove the problem and their potential impacts.
2. This note outlines the Impact Assessment (IA) on the approaches proposed to calculate additional valuation adjustments (AVAs).

### Problem definition

#### *Issues addressed by the European Commission (EC) regarding prudent valuation*

3. For many financial instruments, a range of alternate estimates may reasonably be acceptable for their valuation. While this range is expected to be narrow in liquid and transparent markets, it may be broad in markets that are illiquid and lack transparency. This is particularly the case for exotic products involving complex payoffs stemming from embedded non-linearities and option-type structures or products involving illiquid assets or products with volatile liquidity.
4. CRD3 tried to mitigate the effects that this uncertainty of valuation has on the capital of institutions (in particular on the permanence of capital) by widening the requirements regarding prudent valuation to cover all fair valued positions regardless of whether in the trading book or the banking book. As a result, all institutions should estimate a prudent valuation of all their assets measured at fair value when calculating the amount of their own funds and deduct from Core Equity Tier 1 capital the amount of any additional value adjustments necessary. The intended effect of these adjustments is to set valuations at a level that achieves an appropriate degree of certainty, so that the valuation used for regulatory purposes is not higher than the true realisable value.

#### *Issues addressed by the technical standard and objectives*

5. In its impact assessment of the CRDIV framework, the European Commission noted that the lack of details within certain CRD provisions allow for supervisory judgement and / or choice to be made. This uncertainty leads to a fragmented and inconsistent financial supervision, impeding legal clarity and resulting in excessive administrative burden for cross-border banks.
6. Prudent valuation adjustments have not been applied consistently among institutions and across member states. To encourage similar practices regarding prudent valuation among firms, the new Regulation 575/2013 Article 105 lays out a number of valuation adjustments that should be considered when making a prudent valuation and requires a RTS to be developed to provide further details on how the standards set out in Article 105 should be applied.

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7. The objective of this RTS is to provide a common methodology to calculate AVAs to harmonise the approaches followed by institutions across member states regarding prudent valuation, while taking in account the diversity of business models of EU financial institutions.

#### Technical options considered

8. This section explains the rationale behind some of the choices that the EBA has made when designing the RTS proposals.

#### *Proportionality*

9. For positions for which the uncertainty in the valuation is small, there is a limited analytical benefit of applying prudent valuation and the impact to capital will be negligible. Smaller and less complex institutions are less likely to hold a large portion of exotic, concentrated or illiquid positions portfolios for which there is significant valuation uncertainty. For these institutions, the benefits of calculating AVAs that are more precise are likely not to be proportional with the costs of using a more resource intensive method. Therefore, instead of only one method for calculating AVAs, the EBA has decided to propose two approaches:

- ▶ A simplified approach, for institutions holding an absolute value of on- and off-balance-sheet fair valued assets and liabilities lower than €15 bn. For these institutions, the calculation of the AVAs should be done using a simple formulaic approach based on the net unrealised profit on financial instruments held at fair value and the sum of the absolute value of on- and off-balance-sheet fair valued assets and liabilities. This approach should require very limited additional resource.
- ▶ A 'core' approach, for larger firms holding a large amount of fair value positions, which are more likely to hold portfolios of assets for which there may be a large uncertainty in the valuation. This approach will necessitate conducting a more detailed analysis for the calculation of the AVAs and will be more resource intensive. In order to reduce additional incremental compliance costs, the EBA has tried to propose requirements that can be readily adapted from the systems and controls used by large institutions in the current operational context, in particular those used for the independent price verification process.

#### *Treatment of diversification*

10. Institutions hold diversified portfolios to reduce losses occurring because of simultaneous adverse events. Even if the objective of prudent valuation is to ensure that the valuation used for regulatory purposes is not higher than the true realisable value, it would be excessively prudent to suppose that adverse valuation estimation errors are all perfectly correlated. Not recognising diversification could lead to an excessive overestimation of the deductions to core tier 1, which could create disincentives that would prevent some otherwise profitable transactions to be made.
11. The EBA proposes therefore to allow diversification in the core approach for the AVAs calculated regarding price uncertainty, close-out costs and unearned credit spreads. For these categories, as the valuation adjustments are based on uncertainty around market price data, it would be inappropriate to assume that all of an institution's positions would simultaneously crystallise a loss at a 90% level of certainty, as this would assume that the price uncertainty 100% correlated

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across asset classes. It seems therefore appropriate to assume that, across a diversified portfolio, an institution's valuation uncertainty would also be diversified.

#### *Documentation and controls*

12. The EBA has proposed high principles regarding the documentation, systems and controls that should support the prudent valuation process. These requirements have been made to achieve a minimum level of harmonisation of the documentation and controls practices in the EU.
13. For institutions that are using the core approach, the EBA is proposing to introduce an on-going monitoring requirement regarding the quality of data for some AVAs. It is believed that it may be beneficial to perform tests that may indicate a lack of prudence of the calculated AVAs.

#### **Impact of the proposals**

14. Although applying prudent valuation to all fair valued positions to calculate adjustments to Tier 1 capital is a requirement that has been in place since CRD3, the proposed methodology is new and will therefore require some adjustment for institutions. There will be two types of costs:

#### *Direct compliance costs*

15. Most institutions will be using the simplified approach, based on a simple formula. They should therefore require only very few additional resources to conduct this calculation. Larger institutions will have to follow the core approach, which may require additional resources. The main costs for these institutions will be related to changes in systems and processes and of hiring new staff however the EBA would expect that larger firms would already have many of the required systems and processes in place. The extent of these costs will vary among institutions and will depend mainly on how close the current methodology applied is from the methodology proposed in the RTS. The size of the adjustment to be made will also be driven by the size and complexity of the balance sheet and of the activities undertaken by the institution.

#### *Indirect capital costs*

16. Prudent valuation adjustments have been not applied consistently among institutions and across member states. For this reason, some large institutions may be using a very different method for applying prudent valuation than the core approach proposed in this RTS. Applying the core method may therefore produce a total amount of AVAs that may in some cases be different from the result obtained using the current method and necessitate a larger deduction to the current amount of Core Tier 1 held.

#### *Benefits*

17. The two methodologies proposed in this RTS will ensure that harmonised good practices regarding prudent valuation are applied across member states and that deductions to capital to take into account the uncertainty of valuation have been made effectively.
18. A more prescriptive AVA methodology will help to ensure firms perform their prudent valuation assessments properly and consistently. It will also allow easier comparison between institutions and enable national supervisory authorities to understand better institutions' choices regarding prudent valuation.

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***Explanatory text for consultation purposes***

Q13. Do you agree with our analysis of the impact of the proposals in this CP? If not, can you provide any evidence or data that would explain why you disagree or might further inform our analysis of the likely impacts of the proposals?

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### 5.3. Overview of consultation questions

- Q1. Do you agree with the minimum list of alternative methods and sources of information defined above for expert based approaches? If not, what others could be included, or which points from the current list should be removed? State your reasons.
- Q2. Do you agree with the introduction of a threshold below which a simplified approach can be applied to calculate AVAs? If so, do you agree that the threshold should be defined as above? State your reasons.
- Q3. Do you believe there are any practical issues with a parent institution being required to apply the 'core approach' to all fair value positions whilst a subsidiary is allowed to apply the simplified approach? State your reasons.
- Q4. Do you agree with the proposed simplified approach? Do you think the risk sensitiveness of the approach is appropriate? Are there alternative approaches that you believe would be more appropriate? State your reasons.
- Q5. Could a differentiated treatment for some asset/liability classes be considered, for example with regard to their liquidity? Please state the pros and cons of such a differentiation. How would you define the degree of liquidity of an asset/liability class (e.g. fair value hierarchy, eligibility for the LCR, other)?
- Q6. Do you agree with the approach defined above to calculate an AVA where the approaches in Article 8 and 9 are not possible for a valuation exposure? If not, what other approach could be prescribed? Explain your reasoning.
- Q7. Do you agree with the approaches defined above to calculate AVAs for market price uncertainty, close-out costs, and unearned credit spreads? If not, what other approach could be prescribed? State your reasons.
- Q8. Do you agree with the approaches defined in Articles 11 to 16 to calculate the various categories of AVAs? If not, what other approach could be prescribed for each AVA? State your reasons.
- Q9. Are there cases where the above AVAs may have a zero value that could be defined in the RTS? If yes, please specify.
- Q10. Do you agree with the approach defined above for the aggregation of valuation exposure level AVAs within the market price uncertainty and close-out cost AVA categories? If not, what other approach could be prescribed? State your reasons.
- Q11. Do you agree that category level AVAs described in Articles 11 to 16 within the core approach should be aggregated as a simple sum? If not, what other approach could be prescribed? State your reasons.
- Q12. Do you agree with the requirement for institutions using the core approach to implement the above ongoing monitoring tool as an indicator of the adequacy of data sources of valuation inputs used to calculate the AVAs described in Articles 8 to 10? If not, what other approach could be prescribed? State your reasons.
- Q13. Do you agree with our analysis of the impact of the proposals in this CP? If not, can you provide any evidence or data that would explain why you disagree or might further inform our analysis of the likely impacts of the proposals?