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EBA FINAL draft Regulatory Technical Standards

on Back-testing requirements and Profit and Loss attribution requirements under Article 325bf(9) and 325bg(4) of Regulation (EU) No 575/2013 (revised Capital Requirements Regulation - CRR2)

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1 Executive summary

The amendments to Regulation (EU) No 575/2013¹ (the Capital Requirements Regulation 2 – CRR2) implement in European Union (EU) legislation, inter alia, the revised requirements to compute own funds requirements for market risk.

A key requirement for an institution to obtain approval to use an internal model approach (IMA) to calculate own funds requirements for market risk is that the IMA produces reliable capital requirements relative to the profit and loss (P&L) of the institution.

One way of assessing whether or not a model produces reliable capital requirements is the regulatory back-testing programme. Under the revised framework, back-testing will carry on relying on actual and hypothetical P&Ls (APL and HPL, respectively). Therefore, clarifying the definition of the APL and HPL for the purpose of back-testing is a prerequisite for smooth implementation of the new IMA under the revised market risk framework. Accordingly, the first section of these regulatory technical standards (RTS) sets the definition of actual and hypothetical P&Ls for the purpose of back-testing performed at both a trading desk level and a top-of-the-house level.

Another way of assessing whether or not a model produces reliable capital requirements is the P&L attribution (PLA) test. The P&L attribution requirement ensures that the theoretical changes in a trading desk portfolio's value, based on the institution's risk-measurement model and risk factors in the risk-measurement model, are sufficiently close to the hypothetical changes in the trading desk portfolio's value, based on the pricing methods used by the institution in the end-of-day valuation process and including all the risk factors included in such pricing methods.

The second section of the RTS deals with the P&L attribution test and is subdivided into five subsections following the order of the mandates within Article 325bh; in particular:

- The first subsection defines, in the light of the international standards, the criteria ensuring that theoretical changes in a trading desk portfolio's value are sufficiently close to hypothetical changes.
- The second subsection sets out the consequences for an institution with one (or multiple) trading desk(s) with theoretical and hypothetical changes in the value(s) of the portfolio(s) that are not sufficiently close.
- The third subsection sets the frequency at which the P&L attribution test should be performed.

¹ Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements, and Regulation (EU) No 648/2012.

- The fourth subsection provides the definition of hypothetical P&L and risk-theoretical P&L (RTPL) for the purpose of the P&L attribution test.
- The fifth subsection specifies how institutions using the IMA for some desks have to aggregate the total own funds requirement for market risk of all their trading book positions and non-trading book positions bearing foreign exchange or commodity risk taking into account the consequences of the P&L attribution test.

Under the amendments to Regulation (EU) No 575/2013 that relate to the EU implementation of the Basel Fundamental Review of the Trading Book (FRTB), meeting the PLA requirement is not a full condition for computing the own funds requirements for market risk with the IMA for the positions within a trading desk. This is in line with the international standards, where meeting the PLA requirement becomes a full condition that must be met for using the internal model approach only after a transitional period of 1 year.

Recital 41 of Regulation (EU) 2019/876 amending Regulation (EU) No 575/2013, in relation to the FRTB, clarifies that the European Commission should submit a legislative proposal by 30 June 2020 for fully implementing the FRTB framework in the Union. Accordingly, the PLA requirements are expected to become a full condition that must be met for calculating the own funds requirements for the positions in the relevant trading desks with the FRTB-internal model approach.

As a result, the draft RTS have been developed considering the CRR2 and how EU legislation text is expected to change in the near future to fully implement the FRTB standards in the Union. These draft RTS have been finalised considering the comments received in response to the Consultation Paper (CP).

2 Background and rationale

In December 2018, the Basel Committee on Banking Supervision (BCBS) finalised and published standards on minimum capital requirements for market risk². The text of these standards replaces the previous minimum capital requirements for market risk in the global regulatory framework, which are implemented in the EU via Regulation (EU) No 575/2013 (CRR).

The amendments to Regulation (EU) No 575/2013³ (CRR2) implemented the new market risk framework provided by the BCBS standards into EU legislation as a reporting requirement, as a first step. A key requirement for a credit institution to obtain approval to use an IMA to calculate own funds requirements for market risk is for the IMA to predict reliable (conservative and accurate) capital requirements relative to the realised P&L of the institution.

One way of assessing whether or not a model produces reliable capital requirements is the regulatory back-testing programme. Regulatory back-testing compares the model-generated risk metric at a given confidence level with the subsequent business day's realised trading actual and hypothetical P&Ls. In practice, many elements influence the realised P&L outcome of an institution (e.g. intra-day trading, market data movements). This implies, in particular, that there are several possible explanations for back-testing overshooting. Some overshootings may be attributed to poor model quality (missing risk factors, inappropriate use of proxies, etc.), while others may not be related to model performance (e.g. unforeseeable market movements). Finally, overshooting may be attributable to a non-modellable risk factor. However, in that case, the institution may be allowed to not count the overshooting, as outlined in Article 325bf(8).

The basic principles for the definition of actual and hypothetical P&Ls for regulatory back-testing purposes are set out in the CRR2. In particular, Article 325bf clarifies that back-testing should be performed for two different purposes, at two different levels:

1. Each trading desk must, on an ongoing basis, meet back-testing requirements for being eligible to be capitalised under the IMA. Consequently, only desks that are in the scope of the IMA approval are subject to back-testing at the desk level, performed separately for each desk.
2. All desks that are capitalised under the IMA are subject to a regulatory back-testing performed on the portfolio of all positions attributed to these trading desks. Back-testing in this case is performed at a top-of-the-house level, with the objective of defining an

² BCBS (2019), Minimum capital requirements for market risk, January 2019 (revised February 2019), available at: <https://www.bis.org/bcbs/publ/d457.htm>

³ Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements, and Regulation (EU) No 648/2012.

addend (on the multiplication factor) aimed at also ensuring adequate capital requirements for institutions with low-performing risk models.

A more specific definition of APL and HPL for the purpose of regulatory back-testing is provided in the RTS to ensure that the technical implementation does not undermine the usefulness of the test, and to ensure consistent implementation of the regulatory back-testing programme across EU institutions.

Another way of assessing whether or not a model produces reliable capital requirements is the P&L attribution test. The P&L attribution requirement ensures that the theoretical changes in a trading desk portfolio's value, based on the institution's risk-measurement model and risk factors in the risk-measurement model, are sufficiently close to the hypothetical changes in the trading desk portfolio's value, based on the pricing methods used by the institution in the end-of-day valuation process and including all the risk factors included in such pricing methods. Again, to ensure that the technical implementation does not undermine the usefulness of the test and to ensure consistent implementation across EU institutions, a more specific definition of HPL and RTPL for the purpose of the PLA test is provided in the RTS.

In the light of the international standards, the RTS also sets out (i) the criteria ensuring that theoretical changes in a trading desk portfolio's value are sufficiently close to the hypothetical changes, (ii) the consequences for a desk when the theoretical and hypothetical changes are not sufficiently close, (iii) the frequency of the P&L attribution and (iv) how institutions using the internal model for some desks have to aggregate the total own funds requirement for market risk.

The draft RTS are structured following the order of the mandates within Article 325bf and 325bg. However, the background of these draft RTS sets out, in a unique section, the technical elements to be included in the hypothetical, actual and theoretical changes in the relevant portfolio's value for the purpose of both back-testing and the P&L attribution test; this is to reflect that the two tests are interconnected.

2.1 Technical elements to be included in the P&Ls in the context of back-testing and the P&L attribution test

This section discusses:

- the technical elements to be included in the HPL and APL for the purpose of regulatory back-testing;
- the technical elements to be included in the HPL and RTPL for the purpose of the PLA test.

The BCBS regulatory standards, published in January 2019, already clarify some relevant aspects. Clarifying the definition of the three P&Ls is a prerequisite for smooth implementation of the new IMA under the revised market risk framework.

It has to be noted that, in principle, the European Banking Authority (EBA) could propose in these draft RTS a different definition of HPL for the purpose of regulatory back-testing and for the purpose of the P&L attribution test. However, in line with the international regulatory standards, the EBA sets out the same definition for hypothetical P&L in the two contexts. Accordingly, the criteria for inclusion/exclusion of technical elements in/from the HPL apply in the context of both back-testing and the PLA test.

Having the same definition of HPL is also expected to reduce the burden for institutions, as the same specification will be used for both back-testing and the PLA test. In addition, it provides a simplification to the overall framework, since consistent definitions are used.

2.1.1 Definitions of APL for the purpose of back-testing and HPL for the purpose of back-testing and the PLA test

As previously mentioned, the basic principles for the definition of actual and hypothetical P&Ls for regulatory back-testing purposes are set out in the CRR2. However, to ensure that the technical implementation does not undermine the usefulness of the two tests, and to ensure a consistent implementation across EU institutions, further specifications are needed. Accordingly, the draft RTS specify that:

- The actual and hypothetical changes in the relevant portfolio's value (i.e. the trading desk portfolio's value for the purpose of back-testing at the trading desk level and for the purpose of the P&L attribution test, and the IMA portfolio's value for the purpose of the top-of-the-house back-testing) should be computed based on the pricing methods, the model parametrisations, market data and any other technique (e.g. bootstrapping techniques) used by the institution in the end-of-day valuation process.
- For computing the hypothetical changes in the relevant portfolio's value, any fee or commission should not be considered. It is worth mentioning that the same holds true for the computation of the actual changes; however, in the context of the APL, such specification has been already included in the Level 1 text.

- When computing the actual changes in the relevant portfolio's value, the institution should reflect any changes in the portfolio's value following the independent price verification (IPV) process.
- The institution should capture the passage of time (i.e. the theta effect) in the APL and should reflect the same effect in the context of the HPL consistently with the treatment the institution applies for capturing this effect in the calculation of the expected shortfall and in the calculation of the stress scenario risk measure.

Treatment of adjustments

The draft RTS also clarify the treatment of adjustments in actual and hypothetical P&Ls. For the purpose of this paper, 'adjustment' is a generic term that includes, for example, fair value adjustments, X-value adjustments (XVAs), reserves and model risk valuation adjustments.

In particular, the draft RTS specify that the institution should not include the following in the calculation of the APL and HPL that are used in the context of back-testing and the P&L attribution test:

- the credit valuation adjustment (CVA; as calculated in the front office for pricing purposes) – it is worth mentioning that the draft RTS propose that the CVA be excluded, as a separate regulatory capital treatment has been specified in terms of own funds requirements for such VA;
- adjustments that are deducted from the Common Equity Tier 1 (CET1) – this is the case for the additional valuation adjustments used in the context of prudent valuation in the sense of Articles 34 and 105 of the CRR, as well as for adjustments related to changes in institutions' creditworthiness.

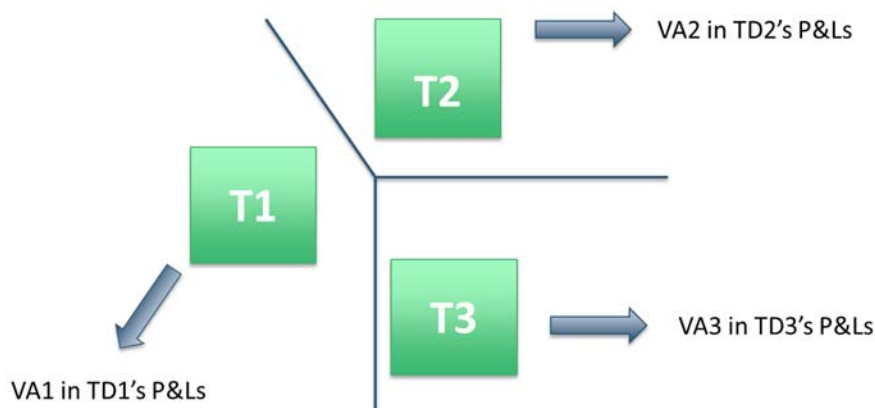
By contrast, the draft RTS require institutions to include the following:

- In the HPL, adjustments that are sensitive to market risk factors (defined as market risk related in the draft RTS) and are updated daily, provided that they are included in the risk-measurement model. Limiting the inclusion of adjustments to those included in the risk-measurement model is meant to ensure that, for example, the risk-theoretical changes and the hypothetical changes are calculated on the same scope;
- In the APL, adjustments that are sensitive to market risk factors regardless of the frequency at which they are calculated. The main reasons behind the policy proposal are that the actual P&L should be as close as possible to the P&L resulting from the end-of-day valuation process, and that back-testing the value-at-risk (VaR) against the actual P&L is a way to check if the VaR is sufficient to cover the P&L stemming from intra-day trading and, more generally, P&L elements not included in the VaR. Accordingly, adjustments that are not updated with a daily frequency must also be included.

It is worth noting that, where an adjustment is included in the hypothetical changes in the relevant portfolio's value, institutions should calculate the value of the adjustment assuming unchanged positions in the relevant portfolio in line with the definition of the HPL. In addition, where an adjustment is updated with a less than daily frequency (e.g. weekly or monthly), the changes in this adjustment should be reflected in the APL only on the date at which the calculation is actually performed (i.e. at the reference date for the calculation of the adjustment). In other words, any smoothing of the adjustment over the period between two reference dates for its calculation is not allowed.

Finally, the RTS specify that, for the purpose of back-testing at the trading desk level and for the purpose of the P&L attribution test (which is performed at the trading desk level), where an adjustment is included in the actual and hypothetical P&Ls, institutions are required to compute this adjustment considering only positions within the desk (i.e. on a stand-alone basis). In other words, the diversification effect between positions assigned to different desks must not be captured when computing the adjustment. Figure 1 provides a graphical representation of the calculation of an adjustment (a valuation adjustment) considering the positions within the desk on a stand-alone basis.

Figure 1: Calculation of a valuation adjustment (VA) on a stand-alone basis for each trading desk for the purpose of calculating the HPL or the APL per desk



The VA is computed for each trading desk on a stand-alone basis and this value should be used in the computation of the actual and hypothetical changes in the trading desk's P&L.

As previously mentioned, where an adjustment is included in the APL or HPL at the trading desk level (because it is related to market risk and does not fall within the scope of those that should be excluded in first place, e.g. the CVA), the institution should perform a calculation of this adjustment considering the positions in the desk on a stand-alone basis. However, there might be cases where computing the adjustment considering only positions within the desks would not be meaningful from an economic point of view (e.g. an institution may compute the funding valuation adjustment

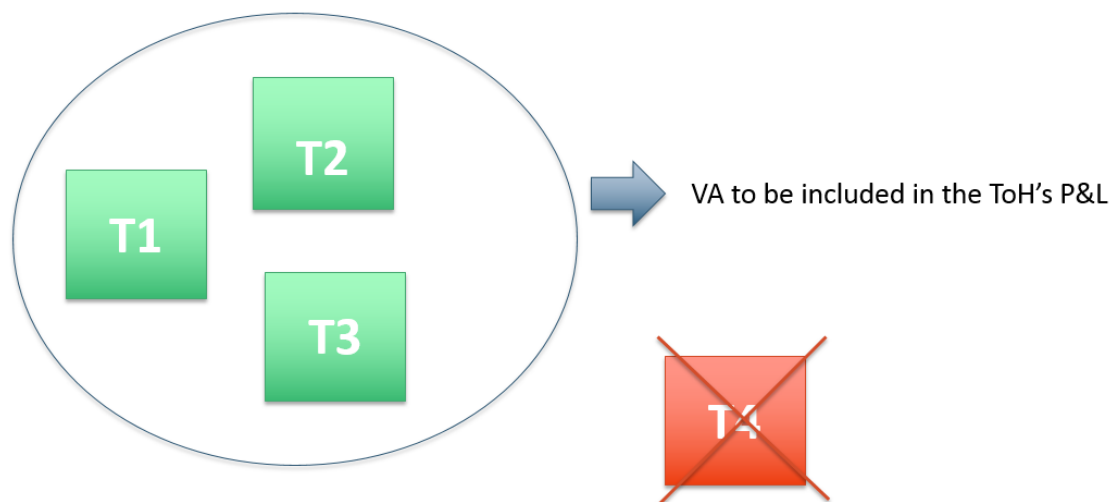
(FVA) at the funding set level, which might include positions that are actually held in multiple trading desks). Accordingly, the draft RTS specify that institutions may be allowed to exclude from the APL and HPL calculated at the trading desk level adjustments that in the end-of-day valuation process are calculated on sets of positions assigned to multiple trading desks due to the nature of the adjustment. For such adjustments, the institution must be able to prove that its internal risk management is consistent with the level at which the adjustment is calculated (e.g. for institutions calculating the FVA on a funding set basis, the institution should be able to prove that the risk stemming from its changes is actually managed on a funding set basis as well) and should fulfil specific documentation requirements.

It is worth mentioning that the way institutions calculate the HPL and APL is subject to supervisory approval as part of the internal model approval process. Accordingly, if competent authorities deem that the institution does not fulfil the conditions laid down in these RTS for excluding an adjustment from the trading desk's P&L (e.g. this may be the case where the institution is not able to prove that the internal risk management of the adjustment is done consistently with its level of calculation), then the institution should include such an adjustment in the trading desk's P&L performing a stand-alone calculation as shown in Figure 1.

It is also important to stress that where the conditions laid down in these RTS for excluding the adjustment from the trading desk's P&L are met, the institutions may still include such an adjustment at the trading desk level; however, if it chooses to do so, it will have to do so by computing its value on the positions within the desk only (i.e. on a stand-alone basis). In other words, any proportional allocation (which the institution might have in place for deriving the end-of-day-value of a trading desk's portfolio) reflecting the contribution of the positions in a desk to the total value of the adjustment (computed on a set of positions across multiple trading desks, e.g. on a set spanning multiple trading desks) is not foreseen for the calculation of the APL and HPL in these draft RTS.

Along the same lines as the 'stand-alone calculation' of adjustments at the trading desk level, where an adjustment is included in the actual and hypothetical P&Ls for the purpose of the top-of-the-house back-testing, institutions should compute them only on the basis of positions assigned to desks, for which the institution got the permission to calculate the own funds requirements for market risk with the IMA and which meet the back-testing requirements (and the P&L attribution requirement once such requirement is a full condition for computing the own funds requirements with the IMA). In other words, the diversification effect with positions assigned to desks capitalised with the standardised approach (SA) must not be captured when computing the adjustment. Figure 2 provides a graphical representation of the calculation of an adjustment (a valuation adjustment) considering only the positions capitalised under the IMA.

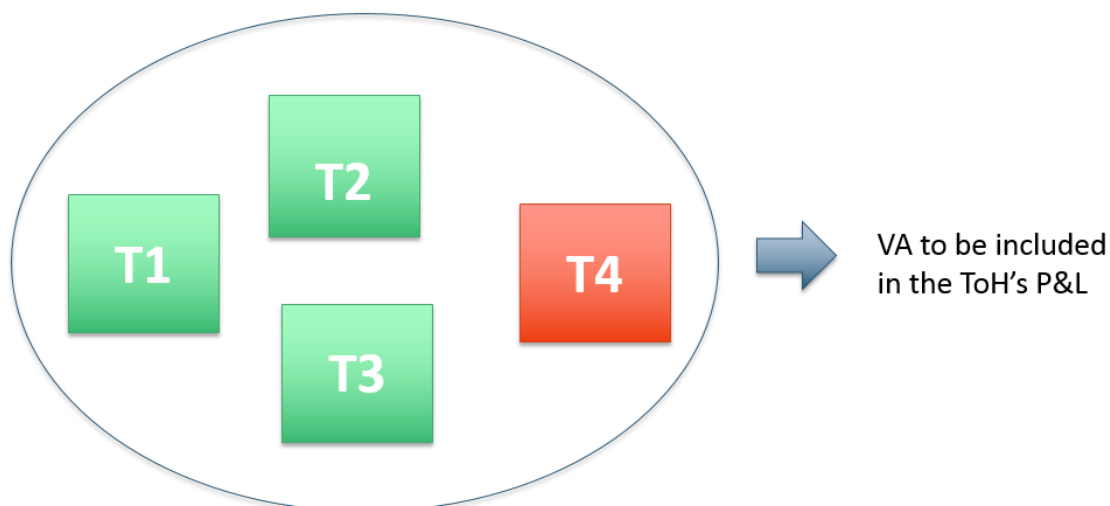
Figure 2: Calculation of the VA considering only desks capitalised under the IMA



T1, T2 and T3 are desks with positions capitalised under the IMA. Positions in T4 are capitalised with the SA, either because T4 is outside the scope of the desks for which the permission was granted by the supervisor to calculate the own funds requirements with the IMA, or because T4 did not meet the back-testing requirements (or the P&L attribution requirements once such requirements are a full condition for computing the own funds requirements with the IMA). For the purpose of the top-of-the-house (ToH) back-testing the VA shall be computed considering only desks T1, T2 and T3 capitalised under the IMA.

However, there might be cases where the institution calculates an adjustment on all positions subject to market risk own funds requirements (i.e. also on those held in SA desks), and it could be too burdensome for the institution to recompute such an adjustment only on positions in desks that are capitalised under the IMA just for the purpose of the top-of-the-house back-testing. Accordingly, as long as this is done on a permanent basis, these RTS provide the institution with the possibility to include in the APL and HPL (calculated for the purpose of the top-of-the-house back-testing) the changes in the value of an adjustment calculated on the set, including all positions subject to market risk own funds requirements. Figure 3 provides a graphical representation of the calculation of an adjustment (a valuation adjustment) considering all positions held in the institution's desks.

Figure 3: Calculation of the VA considering all positions held in the institution's desks



Documentation requirements

Institutions are required to fulfil several documentation requirements. In particular, institutions should have in place policies that outline:

- how the actual changes in the portfolio's value are calculated, highlighting the differences between such actual changes (i.e. the APL) and the daily P&L produced by the end-of-day valuation process;
- how the hypothetical changes are calculated, outlining the differences between the APL and HPL;
- the definitions of fees and commissions, and the methods used for excluding them from the APL.

In addition, institutions must maintain a comprehensive list of adjustments that are computed for fair valuing the relevant portfolio. For each adjustment, institutions should specify:

- its definition;
- the methods used for its calculation;
- the frequency at which it is calculated and the reasoning in the event of a less than daily frequency;
- whether it is related to market risk;
- the sets of positions and level on which the adjustment is calculated and the reasoning for computing it at that level;

- whether the institution is actively hedging it;
- whether and how the adjustment is included in the APL and/or in the HPL of the relevant portfolio's value.

2.1.2 Definition of RTPL

The RTPL is the P&L (ignoring intra-day trading) calculated using the risk factors and valuation engines in the risk-management model. The desk's risk-management model takes into account all risk factors that are included in the institution's expected shortfall model and any non-modellable risk factors included in the institution's stress scenario risk measure. The RTPL must not take into account any risk factors that the institution does not include in its trading desk's risk-measurement model.

Accordingly, the RTS specify that:

- The theoretical changes in the trading desk's portfolio value must be calculated considering only changes in risk factors that are included in the risk-measurement model to which the institution applies scenarios of future shocks when calculating the expected shortfall and the stress scenario risk measure.
- The theoretical changes in the trading desk's portfolio value must be calculated using the pricing methods, model parametrisations, market data and any other technique used in the internal risk-measurement model.
- The theoretical changes in the trading desk's portfolio value must be calculated assuming a 1-day static portfolio as for the computation of the hypothetical changes.

2.2 Test metrics for the P&L attribution

2.2.1 Introduction and background

This section outlines, in the light of the international standards, the test metrics that institutions should apply to ensure that theoretical changes in a trading desk portfolio's value, based on the institution's risk-measurement model, are sufficiently close to the hypothetical changes in the trading desk portfolio's value, based on the institution's pricing models, parametrisations and market data and any other technique used by the institution in the end-of-day valuation process. In addition, specifications in relation to the possible alignment of input data for the HPL and RTPL are provided.

The test is performed for each trading desk in the scope for use of the internal model approach and should:

- measure the materiality of simplifications in institutions' internal models used for determining market risk capital requirements driven by missing risk factors and differences in the way positions are valued compared with their front office systems;
- prevent institutions from using their internal models for the purposes of capital requirements when such simplifications are considered material.

For meeting these intentions, the HPL is compared with the RTPL. This comparison is performed to determine whether the risk factors included and the valuation engines used in the trading desk's risk-management model capture the material drivers of the institution's P&L by determining if there is a significant degree of association between the two P&L measures observed over a suitable time period. A trading desk's risk-management model should indeed provide a reasonably accurate assessment of the risks of a trading desk being deemed eligible for the internal models-based approach.

2.2.2 P&L attribution test metrics

Design of the test

The P&L attribution requirements are based on the following two test metrics:

1. **The Spearman correlation metric**, which assesses the correlation between the RTPL and the HPL: a high correlation between HPL and RTPL indicates that both P&Ls move in the same direction on a daily basis.
2. **The Kolmogorov-Smirnov (KS) test metric**, which assesses the similarity of the distributions of the RTPL and the HPL: close distributions of their values indicate that the institution's model is accurately capturing the range of losses of the trading desk across different market conditions.

These metrics are generally not particularly sensitive to outliers and, in determining whether a desk is well modelled, they consider a range of distributional characteristics of both time series. Importantly, the metrics can cope with trading desks that have significant changes in the level of risk they hold over time and also desks that are well hedged.

To calculate each test metric for a trading desk, the institution should use the time series of the most recent 250 trading days of observations of the RTPL and HPL.

The RTS also establish that institutions are allowed to align the snapshot time used for the calculation of the RTPL of a desk with the snapshot time used in the calculation for the derivation of its hypothetical P&L.

Spearman correlation metric

The Spearman correlation coefficient test metric measures the correlation between the two P&Ls to assess the level of statistical dependence between the HPL and RTPL. A well-modelled trading desk would be expected to exhibit a high dependence between its HPL and its RTPL.

Institutions should apply the following process for determining the Spearman correlation metric for a trading desk in the scope for use of the internal model approach:

1. The institution determines the time series of the most recent 250 trading days of observations of the RTPL and HPL of the trading desk.
2. For a time series of the HPL, the institution produces a corresponding time series of ranks based on the size of the P&L (R_{HPL}), namely the lowest value in the HPL time series receives a rank of 1, the next lowest value receives a rank of 2 and so on.
3. Similarly, for a time series of the RTPL, institutions must produce a corresponding time series of ranks based on size (R_{RTPL}).
4. Institutions must calculate the Spearman correlation coefficient (r_s) of the two time series of rank values of R_{RTPL} and R_{HPL} based on size using the following formula:

$$r_s = \frac{cov(R_{HPL}, R_{RTPL})}{\sigma_{R_{HPL}} \times \sigma_{R_{RTPL}}}$$

where $\sigma_{R_{HPL}}$ and $\sigma_{R_{RTPL}}$ are the standard deviations of HPL and RTPL, respectively.

Finally, the draft RTS clarify how the time series of ranks should be built if, for example, two observations in the originating time series take the same value. For example, if the originating time series is [4.5, 5.2, 6.3, 5.2], then the time series of ranks is [1, 2.5, 4, 2.5], namely the average of ranks 2 and 3 (i.e. 2.5) is the rank that should be assigned to the second and third highest values (which are actually equal).

Kolmogorov Smirnov test metric

As previously mentioned, the Kolmogorov-Smirnov (KS) test metric assesses the similarity of the distributions of the RTPL and the HPL. Well-modelled trading desks would be expected to feature smaller differences between the distributions. The test metric is well acknowledged in academic literature and does not require specification of assumptions regarding the distributions to be measured.

Institutions should apply the following process for determining the KS test metric for a trading desk in the scope for use of the internal model approach:

1. The institution determines the time series of the most recent 250 trading days of observations of the RTPL and HPL of the trading desk.
2. The institution must calculate the empirical cumulative distribution function of the RTPL. For any value of RTPL, the empirical cumulative distribution is the product of 0.004 (i.e. 1/250) and the number of RTPL observations that are less than or equal to the specified RTPL.
3. The institution must calculate the empirical cumulative distribution function of the HPL. For any value of HPL, the empirical cumulative distribution is the product of 0.004 (i.e. 1/250) and the number of HPL observations that are less than or equal to the specified HPL.
4. The KS test metric is the largest absolute difference observed between these two empirical cumulative distribution functions at any P&L value.

Allocation of desks to zones following the results of the test metrics

Based on the outcome of the metrics, a trading desk is allocated to a 'red zone', an 'orange zone', a 'yellow zone' or a 'green zone'. The allocation is set out as follows:

- A trading desk is in the P&L attribution test 'green zone' if both the Spearman correlation metric is above 0.8 and the KS distributional test metric is below 0.09.
- A trading desk is in the P&L attribution test 'red zone' if the Spearman correlation metric is less than 0.7 or if the KS distributional test metric is above 0.12.
- A trading desk is in the P&L attribution 'orange zone' if it is allocated to neither the 'green zone' nor the 'red zone' and the institution was not calculating the own funds requirements for the positions in the desk with the internal model approach in the previous quarter.
- In all other cases, the trading desk is allocated to the 'yellow zone'.

It should be noted that, with respect to the Basel standards, new colours (i.e. yellow and orange) have been added (while amber has been removed). However, this does not change the substance of the provisions, since these colours have been introduced to more easily identify those desks that, in accordance with the Basel standards, should be capitalised under the standardised approach (i.e. orange and red desks) and those desks that are subject to a capital surcharge (i.e. yellow desks).

2.2.3 Alignment of input data for the purpose of the PLA test

The PLA test is designed to assess the materiality of risks that may be missing from the internal risk-measurement model and simplifications in the model's approaches to valuation. Beyond these sources of discrepancy between the HPL and RTPL, additional differences may arise as the result of misalignments in the data that the institution uses as inputs for determining the values of the HPL and RTPL. To avoid issues resulting from such differences, institutions are allowed to align the data used in the RTPL with those used in the HPL as long as some specific conditions are met.

In particular, the draft RTS identify two cases where the institution may be allowed to align the data:

1. The institution may use the HPL input data as input data for the RTPL for a given risk factor (e.g. zero rate tenor x) that is included in both the RTPL and the HPL where:
 - a. the input data used in the RTPL and HPL to derive the value of the risk factor are of the same nature (e.g. par rate tenor x);
 - b. the differences in the value of the input data are due to either different providers of market data (e.g. par rate tenor x taken from provider A in the HPL computation and par tenor x taken from provider B in the APL computation) or different time fixing of market data sources.
2. The institution may substitute the value of a risk factor used in the calculation of the RTPL with the value taken by the same risk factor used in the calculation of the HPL as long as:
 - a. in the calculation of the HPL, the value taken by the risk factor has been derived, transforming input data into suitable data for that risk factor (in other words, in the computation of the HPL, the risk factor does not directly correspond to the input data);
 - b. the value of the risk factor in the HPL has been obtained using techniques of the valuation systems used for the hypothetical changes in the trading desk portfolio's value;
 - c. none of the techniques of the valuation systems used for computing the HPL have been rebuilt in the valuation systems to derive the value of the risk factor for computing the RTPL.

Example

When computing both the HPL and the RTPL, the zero rate tenor x is used as a risk factor by the institution. In the HPL, the value of the risk factor (i.e. the zero rate tenor x) has been derived constructing the fixed-income yield curve from interest rate swaps (via bootstrapping). Accordingly, the input data for the risk factor are the rates in the interest rate swaps. In the RTPL, the value of the risk factor (i.e. the zero rate tenor x) has not been derived via bootstrapping (i.e. the technique used in the valuation systems used to determine the value of the risk factor for computing the HPL). Instead, the value of the risk factor is taken directly from a market data source (e.g. provider A). Accordingly, in this case, the institution is allowed (just for the purpose of the PLA) to substitute the value of the risk factor in the RTPL (i.e. the value of the zero rate tenor x as given by the market data provider A) with the value of the risk factor in the HPL (i.e. the value of the zero rate tenor x as derived via bootstrapping from data on interest rate swaps).

Institutions are required to document any alignment to the input data, providing a rationale for undertaking such an alignment. In addition, institutions are required to:

- compare the RTPL obtained without any alignment and the RTPL obtained following the alignments and document such comparison;
- assess the impact of such alignment on the P&L attribution results and document such assessment.

2.3 Consequences following a poor performance in the P&L attribution test

Article 325az of Regulation (EU) No 575/2013 lays down that the competent authority must also grant permission for using the internal model approach to calculate the own funds requirements for market risk for positions held in desks not meeting the PLA requirement (as long as all conditions in Article 325az(2) are met). This is in line with the international standards, where meeting the PLA requirement becomes a full condition that must be met for using the internal model approach only after a transitional period of 1 year.

Recital 41 of Regulation (EU) 2019/876 amending Regulation (EU) No 575/2013 states that the European Commission should, where appropriate, submit a legislative proposal by 30 June 2020 for fully implementing the FRTB framework in the Union. The draft RTS have been designed to comply with the provisions in Regulation (EU) No 575/2013, while also being compatible with potential future changes to Regulation (EU) No 575/2013 such as making the PLA requirement a condition for applying the IMA.

As previously mentioned, desks are allocated to one of four different zones based on the outcome of the two metrics, and consequences are defined on the basis of this allocation.

In accordance with the Basel standards:

- If a trading desk is in the PLA 'red zone' or 'orange zone', then it is considered to not meet the P&L attribution requirements and, accordingly, should be capitalised under the standardised approach.
- If the trading desk is in the 'yellow zone', then the relatively poor performance in the PLA test does not imply that the desk does not meet the PLA attribution requirements; instead, institutions with yellow desks are required to compute a capital surcharge.
- If the trading desk is the 'green zone', then the institution is not subject to any consequence with respect to the positions held in that desk.

Considering that the current wording of the CRR does not require institutions to use the standardised approach for desks not meeting the PLA requirements, the draft RTS specify that a capital surcharge will apply to all trading desks meeting both of the following conditions:

1. The desk meets all of the conditions set out in Article 325az(2) for calculating the own funds requirements for the positions in the relevant trading desks with the internal model approach⁴.

⁴ This condition has been reflected in the legal text by specifying that the capital surcharge applies for institutions with trading desks for which they calculate the own funds requirements with the IMA (indeed, if they do so, this means that those desks meet the conditions in Article 325az(2)).

2. The desk shows misalignment in its HPL and RTPL (i.e. the desk has been allocated in the yellow, orange or red zone in accordance with these RTS).

As a result, institutions are required to calculate a capital surcharge for positions in all trading desks showing a certain degree of misalignment between the HPL and RTPL and meeting all conditions in Article 325az(2) for calculating the own funds requirements for the positions in the relevant trading desks with the internal model approach.

With such conditions in place, as soon as a new version of Article 325az(2) starts applying the PLA requirement as a condition that must be met for using the internal model approach, it will be automatic that:

- institutions will have to calculate the own funds requirements for trading desks not meeting the PLA requirement in accordance with the standardised approach (since the permission cannot be granted for institutions not meeting the PLA requirement);
- only yellow desks (i.e. not orange or red desks) will be subject to such a surcharge.

As a result, the EU would automatically be in line with the Basel standards without the need to extensively amend the RTS in relation to this aspect⁵.

How institutions are required to compute the capital surcharge is outlined below and is included in the aggregation formula of Section 2.5 defining the own funds requirements for an institution with desks under the IMA.

Before outlining how the capital surcharge should be computed, it is worth stressing that the scope under which such a capital surcharge applies will change as soon the requirements for using the IMA are changed. Accordingly, as soon as the P&L attribution requirement becomes a full condition for using the IMA, positions in desks not meeting the PLA requirement will no longer be subject to a capital surcharge, as they will be capitalised using the SA. However, the capital surcharge will still apply for positions in trading desks for which the institution still has the permission to use the IMA for computing the own funds requirements that show a certain degree of misalignment between the HPL and RTPL (i.e. yellow desks).

For determining the capital surcharge, the following steps need to be performed:

1. First, the institution must consider only those desks with positions capitalised under the IMA.
2. Second, the institution must calculate IMA_{ima} (i.e. the aggregated capital requirement for desks under the IMA in accordance with Article 325ba), as follows:

$$IMA_{ima} = CA + DRC$$

⁵ Minor changes may still be needed depending on the final wording used in the CRR3 in relation to this aspect. For example, there may be a need to determine which desks are not meeting the PLA requirement (i.e. red and orange desks).

where:

- a. CA is used as defined in Article 325ba(1), namely the *maximum* ($ES_{t-1} + SS_{t-1}; m_c * ES^{avg} + SS^{avg}$), where $ES_{t-1}, m_c, SS_{t-1}, ES^{avg}, SS^{avg}$ have been defined in the same article;
 - b. DRC is the default risk charge obtained in accordance with Article 325ba(2).
3. Third, the institution calculates the aggregated standardised capital charge (SA_{ima}) of the portfolio of all positions in the trading desks identified in point 1 (i.e. IMA desks).
 4. Finally, the institution calculates the capital surcharge as:

$$\text{Capital surcharge} = k \cdot \max\{0, SA_{ima} - IMA_{ima}\}$$

$$\text{where: } k = 0.5 \times \frac{\sum_{i \in NG} SA_i}{\sum_{i \in ima} SA_i},$$

- a. SA_i denotes the standardised capital charge for all the positions of trading desk 'i';
- b. $i \in NG$ denotes the indices of all trading desks among those identified in point 1 that have not been allocated to the 'green zone' (i.e. all trading desks for which the hypothetical and risk-theoretical changes are not sufficiently close among those identified in point 1);
- c. $i \in ima$ denotes the indices of all trading desks identified in point 1.

It is worth remarking that, for a trading desk, meeting the PLA requirements will be a necessary condition for computing capital requirements only under the IMA. Indeed, desks should always be compliant with back-testing requirements at the trading desk level set out in Article 325bg (along with supervisory approval for using the IMA for the desk).

Finally, institutions are also required to flag to the competent authority the trading desks that, in accordance with the Basel standards, are not meeting the P&L attribution requirements (i.e. orange and red desks).

2.4 Frequency of the P&L attribution

The RTS specify that the test must be performed on a quarterly basis. Consequently, the frequency of the PLA test is aligned with the frequency of the assessment of modellability of risk factors, and the frequency at which the back-testing results are assessed for determining whether the desk meets the back-testing requirements. Institutions should perform the PLA tests on a quarterly basis for all desks in the IMA scope (i.e. including those that are not currently meeting the PLA or back-testing requirements).

2.5 Calculation of the own funds requirements for institutions having desks capitalised under the IMA

Institutions having desks capitalised under the IMA should compute the own funds requirement for market risk (i.e. for all their trading book positions and non-trading book positions bearing foreign exchange risk or commodity risk) using the following formula:

$$OFR_{market\ risk} = \min (IMA_{ima} + capital\ surcharge + C_u; SA_{all\ desks}) \\ + \max\{0, IMA_{ima} - SA_{ima}\}$$

where:

- IMA_{ima} , *capital surcharge*, SA_{ima} are used as defined in Section 2.3;
- C_u denotes the standardised approach capital requirement for all positions that are not capitalised under the internal model approach (including those that were outside the IMA scope, i.e. those for which the permission to use internal models was not granted by the competent authority).
- $SA_{all\ desks}$ denotes the aggregated standardised charge for all desks within the institution.

3 Draft Regulatory Technical Standards on back-testing and profit and loss attribution requirements under Articles 325bf and 325bg of Regulation (EU) No 575/2013 (revised Capital Requirements Regulation - CRR2)



Brussels, **XXX**
[...](2020) **XXX** draft

COMMISSION DELEGATED REGULATION (EU) .../...

of **XXX**

supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards on back testing and profit and loss attribution requirements under Articles 325bf and 325bg of Regulation (EU) No 575/2013

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

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

Having regard to Regulation (EU) No 575/2013 of 26 June 2013 of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012⁶, and in particular the third subparagraph of Article 325bf(9) and the third subparagraph of Article 325bg(4) thereof,

Whereas:

- (1) Articles 325bf and 325bg of Regulation (EU) No 575/2013 specify tests that need to be performed for different purposes, namely assessing whether trading desks meet the back-testing and the profit and loss attribution requirements and determining the multiplication factor that an institution should use for calculating own funds requirements using internal models. Accordingly, the elements to be included in the actual, hypothetical and theoretical daily portfolio's changes should reflect the purpose of the tests that require their computation.
- (2) Back-testing the value-at-risk number with the hypothetical and actual changes in the portfolio's value should capture the ability of the trading desk or of the institution, depending on the level at which the test is performed, to model the risks embedded in the respective portfolios and to determine an adequate level of own funds requirements. Accordingly, when calculating the hypothetical and actual changes of the portfolio's value, the end-of-day portfolio value should be used as a starting point including all adjustments such as fair value adjustments, reserves or any other valuation adjustment.
- (3) Back-testing the value-at-risk number with actual changes in the portfolio's value should capture effects that are not modelled in the risk-measurement model but are within the scope of the market risk, such as intra-day trading. Accordingly, adjustments related to market risk, regardless of the frequency with which they are updated, should be included in the actual changes in the portfolio's value. On the contrary, the back-testing of the value-at-risk number with hypothetical changes in the portfolio's value is performed under the assumption of a static portfolio, so in the computation of such hypothetical changes in the portfolio's value, the only adjustments which should be included are those that are calculated daily and that are included in the internal risk-measurement model.
- (4) In some cases, it may be that an adjustment is computed across sets of positions (e.g. netting sets) assigned to more than one trading desk due to its nature, and due to the internal risk-management applicable to this adjustment. In order to ensure harmonisation across the Union, for the purpose of calculating the actual and hypothetical changes in the trading desk's portfolio value, institutions should be required to either recompute such adjustment for each trading desk on the stand-alone basis of the positions assigned to the trading desk only, or, where specific conditions are met, to reflect the changes arising from such adjustment only in the context of the back-testing referred to in Article 325bf(6) of Regulation (EU) No 575/2013. Accordingly, for the purpose of the calculation of hypothetical and actual changes at the trading desk level, a proportionate allocation of the adjustment to the trading desks according to each trading desks' contribution to the value of the adjustment, which an institution might perform in the end-of-day valuation process to derive the trading desks' end-of-day portfolio values, should not be allowed.

⁶ OJ L 176, 27.6.2013, p. 1.

- (5) Considering the prominent role the profit and loss attribution has in the determination of the own funds requirements for market risk, it is necessary that the criteria ensuring that theoretical changes in the trading desk portfolio's value are sufficiently close to the hypothetical changes in the trading desk portfolio's value are aligned with those outlined in the international regulatory standards.
 - (6) Institutions with trading desks meeting all conditions set out in Article 325az(2) of Regulation (EU) No 575/2013 for which the theoretical changes and hypothetical changes in the value of a trading desk's portfolio are not sufficiently close in terms of the profit and loss attribution requirement referred to in Article 325az(2)(d) of that Regulation, should be required to calculate an additional capital surcharge. This would be proportionate to the level of misalignment between theoretical and hypothetical changes. Furthermore, when reporting the profit and loss attribution results to competent authorities, institutions should highlight significant misalignments between the hypothetical changes and theoretical changes in the value of a trading desk's portfolio. The alternative internal model approach, to which this Regulation relates, is itself established for the purpose of reporting to the competent authorities, in accordance with Article 325az(2)(c) of Regulation (EU) No 575/2013. Nevertheless, as it is necessary for competent authorities to be able to ensure compliance with the requirements of this Regulation, it was necessary to specify further that aspect of reporting relating to the profit and loss attribution requirement as a further consequence where the theoretical changes in the value of a trading desk's portfolio are not sufficiently close to the hypothetical changes thereof.
 - (7) Under the tests for the profit and loss attribution requirement, theoretical changes in the portfolio's value are analysed against hypothetical changes computed under the assumption of a static portfolio. This aims at measuring the materiality of simplifications in the institution's risk-measurement model compared to the systems producing the daily hypothetical changes. Accordingly, in order to ensure the effectiveness of the tests for the profit and loss attribution requirement, theoretical changes in the portfolio's value should be computed under the assumption of a static portfolio, and should only capture changes in risk factors in the risk-measurement model to which the institution applies the scenarios of future shocks for the purpose of calculating the expected shortfall risk measure or the stress scenario risk measure.
 - (8) To ensure consistency with international practices, the hypothetical changes in the portfolio's value computed for the purpose of testing the profit and loss attribution requirement should be aligned with the hypothetical changes in the portfolio's value that an institution computes for the purpose of the back-testing.
 - (9) Beyond the sources of discrepancy between the hypothetical and theoretical changes in the portfolio's value owed to the omissions and simplifications of the risk-measurement model, additional differences between the two measures may arise as a result of misalignments in the data that the institution uses as inputs for determining their respective values. To avoid issues resulting from such differences in input data, institutions should be allowed to align the input data as long as some specific conditions are met.
 - (10) The frequency with which the tests for the profit and loss attribution requirement are to be performed should be set considering the frequency at which the modellability of the risk factors is assessed and the own funds requirements for market risk are reported. In this way, an institution can determine the own funds requirements for market risk based on the results of the back-testing requirements, the profit and loss attribution requirements and the risk-factor eligibility test at the same time.
 - (11) The aggregation formula that institutions should use for calculating the own funds requirements for market risk should be aligned with the aggregation formula set out in the international regulatory standards. In accordance with those requirements, the aggregation
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formula is meant to reflect the results obtained from the tests relating to the profit and loss attribution requirement; accordingly it should include the capital surcharge which the institution calculates, where such results show a level of misalignment between theoretical and hypothetical changes. In addition, in line with the international standards, the aggregation formula should reflect the loss of diversification benefits the institution might face where the own funds requirements for a trading desk are calculated with the alternative standardised approach and not with the alternative internal model approach.

- (12) In order to assist competent authorities in their efforts to check compliance of institutions with the requirements of this Regulation, it is necessary for institutions to document their implementation of the requirements of this Regulation.
- (13) This Regulation is based on the draft regulatory technical standards submitted by the European Banking Authority to the Commission.
- (14) EBA 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 1093/2010⁷,

HAS ADOPTED THIS REGULATION:

SECTION 1

TECHNICAL ELEMENTS TO BE INCLUDED IN THE ACTUAL AND HYPOTHETICAL CHANGES IN THE PORTFOLIO'S VALUE FOR THE PURPOSES OF THE REGULATORY BACK-TESTING OF ARTICLE 325bf OF REGULATION (EU) No 575/2013

SUBSECTION 1

TECHNICAL ELEMENTS TO BE INCLUDED IN THE ACTUAL CHANGES IN THE PORTFOLIO'S VALUE FOR THE PURPOSES OF THE REGULATORY BACK-TESTING OF ARTICLE 325bf OF REGULATION (EU) No 575/2013

Article 1

Technical elements to be included in the actual changes in a trading desk portfolio's value for the back-testing in accordance with Article 325bf(3) of Regulation (EU) No 575/2013

1. For the purpose of the trading desk back-testing referred to in Article 325bf(3) of Regulation (EU) No 575/2013, actual changes in the trading desk portfolio's value shall be computed using the same pricing methods, model parametrisations, market data and any other technique as those used in the end-of-day valuation process, taking into account the independent price verification process in accordance with Article 105(8) of Regulation (EU) No 575/2013.

2. Institutions shall reflect the passage of time in the actual changes in the trading desk portfolio's value.

⁷ Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC (OJ L 331, 15.12.2010, p. 12).

3. Institutions shall include in the actual changes in the trading desk portfolio's value only the adjustments that have been considered in the end-of-valuation process referred to in paragraph 1 that are market risk related, with the exception of all of the following:

(a) credit valuation adjustments reflecting the current market value of the credit risk of counterparties to the institution;

(b) adjustments attributed to the institution's own credit risk that have been excluded from own funds in accordance with point (b) or (c) of Article 33(1) of Regulation (EU) No 575/2013;

(c) additional value adjustments deducted from Common Equity Tier 1 capital in accordance with Article 34 of Regulation (EU) No 575/2013.

4. Institutions shall compute the value of an adjustment on the basis of only the positions assigned to that trading desk and shall reflect changes in its value only on the reference date for the calculation of the adjustment.

5. By way of derogation from paragraph 3, institutions may also exclude from the calculation of the actual changes an adjustment that is computed, in the end-of-valuation process, across sets of positions assigned to more than one trading desk on a net basis, where all of the following conditions are met:

(a) that adjustment is computed across sets of positions assigned to more than one trading desk on a net basis due to its nature;

(b) the internal risk management of that adjustment is consistent with the level at which it is calculated;

(c) the institution documents all of the following:

(i) the sets of positions on which the adjustment is computed;

(ii) the reasoning underpinning the computation of the adjustment on the sets of positions referred to in point (i);

(iii) the justification for not computing the adjustment on the basis of positions assigned to that trading desk only.

Article 2

Technical elements to be included in the actual changes in the portfolio's value for the back-testing in accordance with Article 325bf(6) of Regulation (EU) No 575/2013

1. For the purpose of the back-testing referred to in Article 325bf(6) of Regulation (EU) No 575/2013, actual changes in the portfolio's value shall be computed using the same pricing methods, model parametrisations, market data and any other technique as those used in the end-of-day valuation process, taking into account the independent price verification process in accordance with Article 105(8) of Regulation (EU) No 575/2013.

2. Institutions shall reflect the passage of time in the actual changes in the portfolio's value.

3. Institutions shall include in the actual changes in the portfolio's value the adjustments that have been considered in the end-of-valuation process referred to in paragraph 1 that are market risk related, with the exception of all of the following:

(a) credit valuation adjustments reflecting the current market value of the credit risk of counterparties to the institution;

(b) adjustments attributed to the institution's own credit risk that have been excluded from own funds in accordance with point (b) or (c) of Article 33(1) of Regulation (EU) No 575/2013;

(c) additional value adjustments deducted from Common Equity Tier 1 capital in accordance with Article 34 of Regulation (EU) No 575/2013.

4. Institutions shall compute the value of an adjustment in either of the following ways:

(a) on the basis of only those positions that are assigned to trading desks for which institutions calculate the own funds requirements for market risk in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013;

(b) on the basis of all positions subject to own funds requirements for market risk; in this case institutions shall include the changes in the value of that adjustment in the calculation of the actual changes in the portfolio's value.

Institutions shall reflect changes in the value of that adjustment only on the reference date for the calculation of the adjustment

SUBSECTION 2

TECHNICAL ELEMENTS TO BE INCLUDED IN THE HYPOTHETICAL CHANGES IN THE PORTFOLIO'S VALUE FOR THE REGULATORY BACK-TESTING PURPOSES OF ARTICLE 325bf OF REGULATION (EU) No 575/2013

Article 3

Technical elements to be included in the hypothetical changes of a trading desk portfolio's value for the back-testing in accordance with Article 325bf(3) of Regulation (EU) No 575/2013

1. For the purpose of the trading desk back-testing referred to in Article 325bf(3) of Regulation (EU) No 575/2013, hypothetical changes in the trading desk portfolio's value shall be computed using the same pricing methods, model parametrisations, market data and any other technique as those used in the end-of-day valuation process, without considering any fees and commissions.

2. Institutions shall reflect the passage of time effect in the hypothetical changes in the trading desk portfolio's value consistently with the treatment they apply in relation to such effect in the calculation of the expected shortfall risk measure referred to in Article 325bb of Regulation (EU) No 575/2013 and in the calculation of the stress scenario risk measure referred to in Article 325bk of Regulation (EU) No 575/2013.

3. Institutions shall include in the hypothetical changes in the trading desk portfolio's value only adjustments that have been considered in the end-of-valuation process referred to in paragraph 1 that are market risk related, are calculated on a daily basis and are included in the institution's risk-measurement model, with the exception of all of the following:

- (a) credit valuation adjustments reflecting the current market value of the credit risk of counterparties to the institution;
- (b) adjustments attributed to the institution's own credit risk that have been excluded from own funds in accordance with point (b) or (c) of Article 33(1) of Regulation (EU) No 575/2013;
- (c) additional value adjustments deducted from Common Equity Tier 1 capital pursuant to Article 34 of Regulation (EU) No 575/2013.

4. Institutions shall compute the value of an adjustment on the basis of the positions assigned to that trading desk only and shall reflect changes based on a comparison between the end-of-day value of that adjustment and, assuming unchanged positions in the trading desk's portfolio, the value of that adjustment at the end of the subsequent day.

5. By way of derogation from paragraph 3, institutions may also exclude from the calculation of the hypothetical changes an adjustment that is computed, in the end-of-valuation process, across sets of positions assigned to more than one trading desk on a net basis, where all of the following conditions are met:

- (a) that adjustment is computed across sets of positions assigned to more than one trading desk on a net basis due to its nature;
- (b) the internal risk management of that adjustment is consistent with the level at which it is calculated;
- (c) the institution documents all of the following:
 - (i) the sets of positions on which the adjustment is computed;
 - (ii) the reasoning underpinning the computation of the adjustment on the sets of positions referred to in point (i);
 - (iii) the justification for not computing the adjustment on the basis of positions assigned to that trading desk only.

Article 4

Technical elements to be included in the hypothetical changes in the portfolio's value for the back-testing in accordance with Article 325bf(6) of Regulation (EU) No 575/2013

1. For the purpose of the back-testing referred to in Article 325bf(6) of Regulation (EU) No 575/2013, hypothetical changes in the portfolio's value shall be computed using the same pricing methods, model parametrisations, market data and any other technique as those used in the end-of-day valuation process, without considering any fees and commissions.
2. Institutions shall reflect the passage of time effect in the hypothetical changes in the portfolio's value consistently with the treatment the institution applies for such effect in the calculation of the expected shortfall risk measure as referred to in Article 325bb of Regulation (EU) No 575/2013 and in the calculation of the stress scenario risk measure referred to in Article 325bk of Regulation (EU) No 575/2013.

3. Institutions shall include in the hypothetical changes in the portfolio's value only the adjustments that have been considered in the end-of-valuation process referred to in paragraph 1 that are market risk related, are calculated on a daily basis and are included in the institution's risk-measurement model, with the exception of all of the following:

(a) credit valuation adjustments reflecting the current market value of the credit risk of counterparties to the institution;

(b) adjustments attributed to the institution's own credit risk that have been excluded from own funds in accordance with point (b) or (c) of Article 33(1) of Regulation (EU) No 575/2013;

(c) additional valuation adjustments deducted from Common Equity Tier 1 capital as per Article 34 of Regulation (EU) No 575/2013.

4. Institutions shall compute the value of an adjustment in either of the following ways:

(a) on the basis of only those positions that are assigned to trading desks for which institutions calculate the own funds requirements for market risk in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013;

(b) on the basis of all positions subject to own funds requirements for market risk; in this case, institutions shall include the changes in the value of that adjustment in the calculation of the actual changes in the portfolio's value.

Article 5

Documentation requirements

Institutions shall have policies and procedures in place defining how they calculate the actual and hypothetical changes in accordance with Articles 1 to 4, which shall include at least the following elements:

(a) where describing how the actual changes in the relevant portfolio's value are calculated, an outline of the differences between the changes in the end-of-day portfolio values produced by the end-of-day valuation process and the actual changes in the relevant portfolio's value;

(b) the definitions of fees and commissions and the methods used to apply the exclusion referred to in Article 325bf(4)(b) of Regulation (EU) No 575/2013;

(c) a list of all adjustments specifying for each adjustment all of the following:

(i) definition;

(ii) calculation methodology and process;

(iii) frequency of calculation and reasoning in case of a less than daily calculation frequency;

(iv) whether the adjustment is sensitive to market risk;

(v) the sets of positions on which the adjustment is calculated and the reasoning for performing the computation on such sets;

(vi) whether and how the risk stemming from changes in the adjustment is actively hedged and which trading desk or desks are responsible for this;

(vii) whether and how each adjustment is taken into account in the actual changes in the relevant portfolio value for the purpose of the back-testing referred to in Article 325bf(6) of Regulation (EU) No 575/2013 and the back-testing referred to in Article 325bf(3) of that Regulation;

(viii) whether and how each adjustment is taken into account in the hypothetical changes in the relevant portfolio value for the purpose of Article 325bf and Article 325bg of Regulation (EU) No 575/2013, also outlining how the change in the adjustment is calculated if one assumes unchanged positions in the portfolio.

SECTION 2

SPECIFICATION OF VARIOUS ASPECTS OF THE PROFIT AND LOSS ATTRIBUTION REQUIREMENT FOR THE PURPOSES OF ARTICLE 325bg OF REGULATION (EU) No 575/2013

SUB-SECTION 1

Criteria

Article 6

Criteria

1. With regard to ensuring that the theoretical changes in a trading desk portfolio's value are sufficiently close to the hypothetical changes in the trading desk portfolio's value for the purposes of paragraph 2 of Article 325bg of Regulation (EU) No 575/2013, institutions shall calculate the Spearman correlation coefficient as laid down in Article 7, and the Kolmogorov-Smirnov test metric as laid down in Article 8.

2. For the purposes of paragraph 1, institutions may align the snapshot time for which they calculate the theoretical changes in the trading desk portfolio's value with the snapshot time for which they calculate the hypothetical changes in the trading desk portfolio's value.

Article 7

Calculation of the Spearman correlation coefficient

1. In order to calculate the Spearman correlation coefficient for a trading desk referred to in Article 6(1), institutions shall perform the following steps in sequence:

(a) they shall determine the time series of observations of the hypothetical and theoretical changes in the trading desk portfolio's value for the most recent 250 business days;

(b) from the time series of the hypothetical and theoretical changes referred to in point (a), they shall produce the corresponding time series of ranks in the manner set out in paragraph 2, treating the time series of the hypothetical and theoretical changes as the originating time series;

(c) they shall compute the Spearman correlation coefficient in accordance with the following formula:

$$r_s = \frac{COV (R_{HPL}, R_{RTPL})}{\sigma_{R_{HPL}} * \sigma_{R_{RTPL}}}$$

Where:

R_{HPL} = the time series of ranks produced from the time series of hypothetical changes as per point (b);

R_{RTPL} = the time series of ranks produced from the time series of theoretical changes as per point (b);

$\sigma_{R_{HPL}}$ = the standard deviation of the time series of ranks R_{HPL} calculated in accordance with paragraph 3(a);

$\sigma_{R_{RTPL}}$ = the standard deviation of the time series of ranks R_{RTPL} calculated in accordance with paragraph 3(b);

$COV (R_{HPL}, R_{RTPL})$ = the covariance calculated in accordance with paragraph 3(c) between the times series of ranks R_{HPL} and R_{RTPL} .

2. Institutions shall produce the time series of ranks referred to in point (b) of paragraph 1 from an originating time series by performing the following steps in sequence:

(a) for each observation within the originating time series, they shall count the number of observations with a lower value than that observation within that times series;

(b) they shall label each observation with the number resulting from the application of point (a) increased by one;

(c) where, as a result of the application of point (b), two or more observations are labelled with the same number, institutions shall in addition increase the numbers of those labels with the decimal fraction of one divided by the quantity of the labels with the same number;

(d) they shall consider as time series of ranks the time series of the labels obtained in accordance with points (b) and (c).

3. Institutions shall calculate the standard deviation of the time series of ranks R_{HPL} in accordance with the formula in point (a), the standard deviation of the time series of ranks R_{RTPL} in accordance with the formula in point (b) and the covariance between them in accordance with the formula in point (c) as follows:

$$(a) \sigma_{R_{HPL}} = \sqrt{\frac{\sum_{i=1}^{250} (R_{HPLi} - \mu_{R_{HPL}})^2}{249}};$$

$$(b) \sigma_{R_{RTPL}} = \sqrt{\frac{\sum_{i=1}^{250} (R_{RTPLi} - \mu_{R_{RTPL}})^2}{249}};$$

$$(c) COV (R_{HPL}, R_{RTPL}) = \frac{\sum_{i=1}^{250} (R_{HPLi} - \mu_{R_{HPL}}) * (R_{RTPLi} - \mu_{R_{RTPL}})}{249};$$

Where:

i = the index that denotes the observation in the time series of ranks;

R_{HPL_i} = the ' i -th' observation of the time series of ranks R_{HPL} ;

$\mu_{R_{HPL}}$ = the mean of the time series of ranks R_{HPL} ;

R_{RTPL_i} = the ' i -th' observation of the time series of ranks R_{RTPL} ;

$\mu_{R_{RTPL}}$ = the mean of the time series of ranks R_{RTPL} .

Article 8

Calculation of the Kolmogorov-Smirnov test metric

1. In order to calculate the Kolmogorov-Smirnov test metric for a trading desk referred to in Article 6(1), institutions shall perform the following steps in sequence:

(a) they shall determine the time series of the most recent 250 business days of observations of the hypothetical and theoretical changes in the trading desk portfolio's value;

(b) they shall compute the empirical cumulative distribution function of the hypothetical changes in the trading desk portfolio's value from the time series of the hypothetical changes referred to in point (a);

(c) they shall compute the empirical cumulative distribution function of the theoretical changes in the trading desk portfolio's value from the time series of theoretical changes referred to in point (a);

(d) they shall obtain the Kolmogorov-Smirnov test metric by calculating the maximum difference observed between the two empirical cumulative distributions calculated in accordance with points (b) and (c) at any possible value of profit and loss.

2. For the purpose of paragraph 1, the empirical distribution function obtained from a time series shall be understood as the function that, given any number as input, results in the ratio of the number of observations within the time series with lower or equal value than the input number, to the number of observations within the full time series.

SUB-SECTION 2

CONSEQUENCES FOR POORLY PERFORMING DESKS

Article 9

Classification of trading desks

1. For the purpose of determining the consequences for trading desks for which theoretical changes in their portfolio's value are not sufficiently close to the hypothetical changes in the trading desk portfolio's value, each of the trading desks shall be classified as green, orange, yellow or red zone trading desk as set out in paragraphs 2 to 5.

2. A trading desk shall be classified as a 'green zone desk' where both of the following conditions are met:

- (a) the Spearman correlation coefficient for the trading desk, computed in accordance with Article 7, is greater than 0.8;
- (b) the Kolmogorov-Smirnov test metric for the trading desk, computed in accordance with Article 8, is lower than 0.09.
3. A trading desk shall be classified as a ‘red zone desk’ where either of the following conditions is met:
- (a) the Spearman correlation coefficient for the trading desk, computed in accordance with Article 7, is lower than 0.7;
- (b) the Kolmogorov-Smirnov test metric for the trading desk, computed in accordance with Article 8, is greater than 0.12.
4. Trading desks which are not classified as either green or red zone desks, and where the own funds requirements for the positions assigned to those trading desks were computed in the previous quarter based on the alternative standardised approach in accordance with Part Three, Title IV, Chapter 1a of Regulation (EU) No 575/2013, shall be classified as orange zone desks.
5. Trading desks which are not green zone, orange or red zone desks shall be classified as yellow zone desks.

Article 10

Consequences for trading desks based on the result of the tests relating to the profit and loss attribution requirement

1. Institutions calculating the own funds requirements in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013 for positions assigned to trading desks that have been classified as red, orange or yellow zone desks shall compute, in relation to those positions, a capital surcharge in accordance with the following formula:

$$\text{Capital surcharge} = k * \max (SA_{ima} - IMA_{ima}; 0)$$

Where:

k = as specified in paragraph 2;

SA_{ima} = the own funds requirements calculated in accordance with Part Three, Title IV, Chapter 1a of Regulation (EU) No 575/2013 for the portfolio of all positions assigned to trading desks for which the institution calculates the own funds requirements in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013;

IMA_{ima} = the own funds requirements calculated in accordance with Article 325ba of Regulation (EU) No 575/2013 for the portfolio of all positions assigned to trading desks for which the institution calculates the own funds requirements in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013.

2. For the purpose of paragraph 1, the coefficient k shall be calculated on the basis of the following formula:

$$k = 0.5 \times \frac{\sum_{i \in NG} SA_i}{\sum_{i \in ima} SA_i}$$

Where:

SA_i = the own funds requirements capital charge calculated in accordance with Part Three, Title IV, chapter 1a of Regulation (EU) No 575/2013 for all the positions attributed to trading desk “i”;

$i \in NG$ = the indices of all trading desks that have been classified as red, orange or yellow desks among those for which the own funds requirements are calculated in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013;

$i \in ima$ = the indices of all trading desks for which the own funds requirements are calculated in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013.

3. Institutions calculating the own funds requirements in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013 for positions assigned to trading desks that have been classified as red or orange zone desks shall inform the competent authority accordingly when reporting the results of the profit and loss attribution requirement in accordance with point (d) of Article 325az(2) of Regulation (EU) No 2013/575.

SUBSECTION 3

FREQUENCY OF THE TESTS FOR THE PROFIT AND LOSS ATTRIBUTION REQUIREMENT

Article 11

Frequency of the tests relating to the profit and loss attribution requirement

The tests relating to the profit and loss attribution requirement shall be performed on a quarterly basis for all trading desks for which the institution has the permission referred to in Article 325az(2) of Regulation (EU) No 575/2013 to calculate the own funds requirements using internal models.

SUBSECTION 4

TECHNICAL ELEMENTS TO BE INCLUDED IN THE THEORETICAL AND HYPOTHETICAL CHANGES IN A TRADING DESK PORTFOLIO'S VALUE FOR THE PROFIT AND LOSS ATTRIBUTION REQUIREMENT IN ACCORDANCE WITH ARTICLE 325bg OF REGULATION (EU) No 575/2013

Article 12

Technical elements to be included in the theoretical changes in the portfolio's value for the profit and loss attribution requirement in accordance with Article 325bg of Regulation (EU) No 575/2013

1. For the purposes of Article 325bg of Regulation (EU) No 575/2013, institutions shall calculate the theoretical changes in a trading desk's portfolio value based on a comparison between the portfolio's end-of-day value and, assuming unchanged positions, the value of that portfolio at the end of the subsequent day.
2. Theoretical changes in a trading desk's portfolio shall be based on the pricing methods, model parametrisations, market data and any other technique used in the risk measurement model.
3. Theoretical changes in a trading desk's portfolio value shall only include the changes in the value of all risk factors included in the risk-measurement model to which institutions apply the scenarios of future shocks for the purpose of calculating the expected shortfall risk measure referred to in Article 325bb of Regulation (EU) No 575/2013 or the stress scenario risk measure referred to in Article 325bk of that Regulation.

Article 13

Technical elements to be included in the hypothetical changes in a trading desk portfolio's value for the profit and loss attribution requirement in accordance with Article 325bg of Regulation (EU) No 575/2013

For the purposes of Article 325bg of Regulation (EU) No 575/2013, institutions shall compute hypothetical changes in a trading desk portfolio's value as set out in Article 3.

Article 14

Alignment of data for the P&L attribution requirements

1. For the purpose of Article 325bg of Regulation (EU) No 575/2013, institutions may replace the value of an input data of a risk factor used in the calculation of the theoretical changes in the trading desk portfolio's value with the value of an input data of the same nature used for the same risk factor in the calculation of the hypothetical changes in the trading desk portfolio's value, only in the following situations:
 - (a) where differences in the input data are due to the fact that the data are sourced from different providers of data;
 - (b) where differences in the input data are due to different times during the same business day at which the input data are extracted from the market data source.

2. For the purpose of Article 325bg of Regulation (EU) No 575/2013, institutions may replace the value of a risk factor used in the calculation of the theoretical changes in the trading desk portfolio's value with the value of the same risk factor used in the calculation of the hypothetical changes in the trading desk portfolio's value, where all of the following conditions are met:

(a) the risk factor used in the calculation of the hypothetical changes in the trading desk portfolio's value does not directly correspond to an input data;

(b) the risk factor has been derived from input data using techniques of the valuation systems used for the hypothetical changes in the trading desk portfolio's value;

(c) none of the techniques of the valuation systems referred to in point (b) have been rebuilt in the valuation systems used in the risk-measurement model in order to derive the value of the risk factor which is used in the calculation of the theoretical changes in the trading desk portfolio's value.

Article 15
Documentation requirements

1. Institutions shall have policies and procedures in place defining how they calculate the theoretical changes in accordance with Articles 12 and Article 14, which shall include at least an explanation of how the theoretical changes in the trading desk portfolio's value are calculated for modellable and non-modellable risk factors.

2. Where designing the procedures for aligning the data in accordance with Article 14, institutions shall apply both of the following:

(a) they shall compare the theoretical changes in the trading desk portfolio's value without the alignments referred to in Article 14, and the theoretical changes in the trading desk portfolio's value with the alignments referred to in Article 14 and they shall document that comparison;

(b) they shall assess the effect of the alignments on the metrics of the test relating to the profit and loss attribution requirement referred to in Articles 7 and 8 and document that assessment.

3. Institutions shall document any adjustments to input data for the risk factors within the calculation of the theoretical changes in the trading desk portfolio's performed in accordance with Article 14, as well as the rationale for such adjustments.

SUB-SECTION 5

OWN FUNDS REQUIREMENTS FOR INSTITUTIONS USING THE INTERNAL MODEL

Article 16

Computation of the Own Funds requirements for Market Risk for institutions having trading desks under the Internal Model Approach

Institutions calculating the own funds requirements in accordance with Part Three, Title IV, Chapter 1b of Regulation (EU) No 575/2013 for the positions assigned to some of their trading desks shall calculate the own funds requirements for all their trading book positions and all their non-trading book positions generating foreign exchange or commodity risks as the sum of the results of formulas (a) and (b) as follows:

- (a) $\min(IMA_{ima} + \text{Capital surcharge} + C_U; SA_{all desks})$
 (b) $\max(IMA_{ima} - SA_{ima}; 0)$

Where:

IMA_{ima} = as specified in Article 10;

SA_{ima} = as specified in Article 10;

Capital surcharge = the capital surcharge calculated in accordance with Article 10;

C_U = the own funds requirements calculated in accordance with Part Three, Title IV, Chapter 1a of Regulation (EU) No 575/2013 for the portfolio of positions not assigned to trading desks for which institutions calculate the own funds requirements in accordance with Part Three, Title IV, chapter 1b of Regulation (EU) No 575/2013;

$SA_{all desks}$ = the own funds requirements of all trading book positions and all non-trading book positions generating foreign exchange or commodity risks in accordance with Part Three, Title IV, chapter 1a of Regulation (EU) No 575/2013.

Article 17

Entry into force

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]

4 Accompanying documents

4.1 Draft cost-benefit analysis/impact assessment

Article 325bf of the CRR2 requires the EBA to develop draft RTS to specify the technical elements that must be included in the actual and hypothetical changes of the portfolio's value of an institution for the purpose of meeting the back-testing requirements. In addition, under Article 325bg, the EBA is mandated to implement in the EU the PLA requirement. In particular, the EBA is mandated to specify (i) criteria that ensure that the theoretical changes in a trading desk portfolio's value are sufficiently close to the hypothetical changes in the trading desk portfolio's value for the purposes of the P&L attribution requirement, (ii) the consequences for an institution if the theoretical changes in a trading desk portfolio's value are not sufficiently close to the hypothetical changes in the trading desk portfolio's value for the purposes of the P&L attribution requirement, (iii) the frequency at which the P&L attribution has to be performed by an institution, (iv) the technical elements that must be included in the theoretical and hypothetical changes in a trading desk portfolio's value for the purpose of the P&L attribution requirement and (v) how institutions using the internal model have to aggregate the total own funds requirement for market risks of all their trading book positions taking into account the consequences specified under point (ii).

Article 10(1) of the EBA Regulation provides that when any regulatory technical standards developed by the EBA are submitted to the Commission for adoption, they should be accompanied by an analysis of 'the potential related costs and benefits'. This analysis should provide an overview of the findings regarding the problem to be dealt with, the solutions proposed and the potential impact of these options.

This section presents the cost-benefit analysis of the provisions included in the draft RTS. The analysis provides an overview of the problems identified, the proposed options to address those problems and the costs and benefits of those options.

A. Problem identification

In January 2019, the BCBS finalised the standards on minimum capital requirements for market risk⁸. Under the revised framework, the model approval process has been enhanced. To use internal models to determine capital requirements for the positions in a given trading desk, the institution must perform and pass two tests at the level of that trading desk:

1. Profit and loss attribution: a test to determine whether the internal model comprehensively measures the risks that drive the daily P&Ls of the trading desk. The test compares daily RTPL with the daily HPL for each trading desk.

⁸ BCBS (2019), Minimum capital requirements for market risk, January 2019 (revised February 2019), available at: <https://www.bis.org/bcbs/publ/d457.htm>

2. **Back-testing:** a test to determine if the risk estimated by the internal model is sufficiently conservative to cover observed trading losses. The test compares the VaR against the APL and the HPL at the trading desk level.

The FRTB sets out that trading desks failing these tests must use the standardised approach.

In addition, once the institution has identified the trading desks that meet all of the conditions for using the internal model approach, it has to perform the 'top of the house' back-testing on the portfolio of all positions attributed to these trading desks. The top-of-the-house back-testing is performed to identify the multiplication factor that institutions should use when calculating the own funds requirements for market risk under the FRTB framework.

The CRR2 requires the EBA to set the definition of APL and HPL for back-testing, and to implement in the EU several features of the PLA requirement (i.e. a definition of the tests, the consequences for failing the tests, the frequency of the tests, a definition of RTPL and HPL for PLA, and aggregation formula for the own funds requirements).

A lack of the aforementioned specifications would result in inconsistent implementation of the regulatory back-testing requirements and PLA test across institutions.

B. Policy objectives

The specific objective of the draft RTS are to establish a common definition for HPL, APL for the purpose of back-testing, and HPL and RTPL for the purpose of the PLA test. In this way, the draft RTS aim to ensure a consistent implementation of the regulatory back-testing programme and the PLA test across EU institutions. Moreover, they also aim to ensure that the technical implementation of back-testing and the PLA tests does not undermine their usefulness in assessing model performance. Finally, the draft RTS aim to harmonise the assessment criteria for the PLA requirement, the consequences for institutions with desks that fail the PLA test, the frequency of the PLA test and the way institutions using the internal model for some desks have to aggregate the total own funds requirements for market risk.

Generally, the draft RTS aim to create a level playing field, promote convergence of institutions' practices and enhance comparability of own funds requirements across the EU. Overall, the draft RTS are expected to promote the effective and efficient functioning of the EU banking sector.

C. Baseline scenario

The baseline scenario aims to describe the regulatory environment and regulatory developments, as well institutions' practices.

In terms of the regulatory environment, the baseline assumes the entry into force of the CRR2, which does not provide a definition of APL, HPL, RTPL or any assessment criteria for the PLA test. Moreover, it does not specify the frequency of the PLA test or what the implications would be for a desk when it fails such test.

The FRTB standards provides some guidance on the definition of APL, HPL and RTPL. In addition, they prescribe a quarterly frequency for the PLA test and the two test metrics: the Spearman correlation metric and the KS test metric. Finally, they outline the consequences of failing the PLA test and the formula to aggregate the total own funds requirements for market risks of all their trading book positions.

In terms of institutions' practices, the baseline scenario considers that institutions use the current definition of HPL and APL.

D. Options considered, cost-benefit analysis and preferred options

With regard to the assessment criteria for the PLA requirement, the consequences for institutions with desks that fail the PLA test, the frequency of the PLA test and the way that institutions using the internal model for some desks have to aggregate the total own funds requirements for market risk, the EBA did not consider any option that could deviate from the international standards, as this could undermine the international level playing field. Accordingly, the options presented below mainly deal with the calculation of HPL and APL for the purpose of back-testing and the P&L attribution requirements, for which the EBA developed additional specifications with respect to those agreed in the international standards.

Treatment of adjustments in the HPL

In the Discussion Paper, one of the implementation issues identified as potentially having a significant impact on institutions was the definition of the scope of technical elements to be included in the HPL and APL for the purpose of regulatory back-testing and to be included in the HPL and RTPL for the purpose of the PLA test.⁹ While the basic principles for the definition of the APL, HPL and RTPL are set out in the CRR2, the treatment of adjustments is a key aspect in the calculation of APL and HPL for which further clarification is needed. Accordingly, several options have been considered:

Option 1a: to include adjustments in the HPL that are market risk related, regardless of the frequency at which they are calculated.

Option 1b: to include adjustments in the HPL that are market risk related and are updated daily.

Option 1c: to include adjustments in the HPL that are market risk related and are updated daily, provided that they are included in their risk-measurement model.

Under Option 1a, all adjustments regardless of their updating frequency, would be included in the hypothetical P&L¹⁰. However, including adjustments updated less frequently than daily (e.g. monthly) in the hypothetical P&L would affect the PLA results, as it would lead to a (e.g. monthly) bump in hypothetical P&L versus RTPL. Consequently, there is the potential that this option would

⁹ [EBA/DP/2017/04 Discussion paper on the implementation in the European Union of the revised market risk and counterparty credit risk](#)

¹⁰ Adjustments referred to under Article 3(3) of these draft RTS are excluded from HPL under all options.

lead to an increase in the number of desks failing the PLA tests, since these adjustments are usually not taken into account in the calculation of the expected shortfall or the stress scenario risk measure.

Option 1b would produce a 'smoother' hypothetical P&L. However, it could provide an incentive to start calculating adjustments using a less than daily frequency simply for the purpose of sidestepping the effect of the adjustments on the PLA test. For example, adjustments calculated every 2 days would be excluded under Option 1b, even though they are not expected to lead to bumps in the HPL. For this reason, the CP put in place certain criteria that would avoid creating a competitive disadvantage for institutions calculating VAs daily. In particular, institutions should provide a list of the frequency of the calculation of VAs and the rationale behind this frequency, which will be subject to supervisory approval as part of the internal model approval process.

Some respondents to the CP suggested that some flexibility be introduced with regard to Option 1b: they proposed that the possibility (dependent on the approval of the supervisory authority) be included of excluding market risk-related valuation adjustments from the HPL in order for only those valuation adjustments that are in the VaR to be included in the HPL. Respondents considered that such flexibility would align the draft RTS with the international standards and enable a consistent and meaningful HPL back-testing exercise.

In line with industry feedback, Option 1c limits the inclusion of the adjustments to those included in the risk-measurement model. In this way, it ensures that, for example, the risk-theoretical changes and the hypothetical changes are calculated based on the same scope.

Option 1c has been retained.

Computation of adjustments at top of the house

Where an adjustment is included in the actual and hypothetical P&Ls for the purpose of the top-of-the-house back-testing, the following options were considered on how institutions should compute such adjustments:

Option 2a: compute such adjustments only on the basis of the positions assigned to desks for which the institution calculates the own funds requirements for market risk using the IMA. Under this option, the diversification effect with positions assigned to desks capitalised with the SA is not captured when computing the adjustment.

Option 2b: allow institutions to compute such adjustments on the portfolio, including all positions subject to market risk own funds requirements (i.e. also on those held in SA desks), and proportionally allocate the total value of the adjustments to the IMA portfolio considering the contribution of the IMA desks to the total value of the adjustments based on the approach that the institution uses in the end-of-day valuation process (reallocation approach).

Option 2a does not allow any diversification effect between adjustments stemming from desks under the IMA and desks under the SA to be recognised. This is in line with the FRTB philosophy, in

which there is a clear distinction between positions held in desks under the IMA and in desks under the SA.

On the other hand, Option 2b recognises that there might be cases where (in the end-of-day valuation process) an institution calculates an adjustment on all positions subject to market risk own funds requirements (i.e. also on those held in SA desks), and it could be too burdensome for the institution to recompute such an adjustment only on positions in desks that are capitalised under the IMA just for the purpose of the top-of-the-house back-testing. However, given that there is not an established/common methodology to reallocate these adjustments to desks that are capitalised under the IMA, this option could lead to inconsistent implementation of the top-of-the-house back-testing requirement across EU institutions, and potentially to regulatory arbitrage.

Most respondents to the CP disagreed with Option 2a claiming that:

- not being able to net positions in the IMA desks with positions in SA desks will force them to use P&Ls for the purpose of back-testing that deviate from the P&Ls used by institutions for other purposes;
- it would be overly burdensome to run valuation adjustment calculation based on the IMA population only.

The EBA acknowledges that, for some institutions, it may be burdensome to compute an adjustment only considering positions in the scope of the internal model approach. However, this requirement is in place to ensure a consistent perimeter between positions captured in the VaR and positions captured in the HPL/APL.

Option 2a has been retained; however, to alleviate some of the operational burden that Option 2a could create, the draft RTS provide a derogation, where institutions can compute such adjustments on all positions subject to market risk own funds requirements (i.e. also on those held in SA desks) and use the total value of that adjustment in the APL and HPL.

Computation of adjustments at the trading desk level

Where an adjustment is included in the actual and hypothetical P&Ls for the purpose of back-testing at the trading desk level and for the purpose of the P&L attribution test (which is performed at the trading desk level), the following options were considered on how institutions should compute such adjustments:

Option 3a: compute such adjustments by considering only positions within the desk (i.e. on a stand-alone basis). Under this option, the diversification effect between positions assigned to different desks is not captured when computing the adjustment.

Option 3b: allow institutions to compute such adjustments at a different level from the trading desk level (i.e. considering positions across multiple trading desks, e.g. on a funding set spanning multiple trading desks for the FVA) and proportionally allocate the total value of the adjustments

to various trading desks by considering the contribution of the positions in a desk to the total value of the adjustments based on the approach the institution uses in the end-of-day valuation process (reallocation approach).

Option 3c: allow institutions to exclude from the APL and HPL of the trading desks adjustments that in the end of-day valuation process are calculated on sets of positions assigned to multiple trading desks due to the nature of the adjustment. The exclusion is subject to a number of conditions.

Option 3a is a simple and straightforward approach. In general, respondents to the CP said it would be possible to calculate adjustments at the trading desk level, although the process for doing so could be too burdensome.

Option 3b allows institutions to calculate adjustments on a valuation set basis, which might be more meaningful from an economic perspective (e.g. an institution may compute the FVA at the funding set level, which could include positions that are actually held in multiple trading desks). However, there is not a common/unique approach to reallocating these adjustments across trading desks. Accordingly, this could lead to inconsistent implementation across EU institutions, and potentially to regulatory arbitrage.

Option 3c, on the other hand, allows institutions to exclude those adjustments from the APL and HPL of the trading desk. To avoid institutions starting to include adjustments only at top of the house simply with the purpose of sidestepping the effect of the adjustment in the trading desk back-testing and in the PLA, the institution must be able to prove that its internal risk management is consistent with the level at which the adjustment is calculated (e.g. for institutions calculating the FVA on a funding set basis, the institution should be able to prove that the risk stemming from its changes is actually managed on a funding set basis as well) and should fulfil specific documentation requirements.

Most respondents to the CP did not support the calculation at the trading desk level. Two respondents argued that the provision was not in line with the risk-management policies of the institutions and would force them to compute two P&Ls: one for other front office purposes and one for back-testing and PLA test purposes. However, one respondent noted that, in many cases, the adjustments would meet the conditions set out under Option 3c and thus the provisions under Option 3a would not be applicable. The EBA believes that many VAs computed at a level higher than the single trading desks will fall under the scope of Option 3c. Furthermore, for VAs that do not fall under Option 3c, the computation at the level of the single trading desk should not be overly burdensome and should remain meaningful from an economic point of view.

Options 3a and 3c have been retained.

4.2 Feedback on the public consultation

The EBA undertook a public consultation on the draft proposal contained in this paper.

The consultation period lasted for 3 months and ended on 4 September 2019. Nine responses were received, of which seven were published on the EBA website.

This section presents a summary of the key points and other comments arising from the consultation, the analysis and discussion triggered by these comments and the actions taken to address them if deemed necessary.

In a number of cases, several industry bodies made similar comments or the same body repeated its comments in response to different questions. Such comments and the EBA's analysis of them are included in the section of this paper where the EBA considers them most appropriate.

Changes to the draft RTS have been incorporated as a result of the responses received during the public consultation.

4.2.1 Summary of key issues and the EBA's response

In the feedback table that follows, the EBA has summarised the comments received and explains which responses have and have not led to changes, and the reasons for this.

With respect to the scope of adjustments that are captured in the HPL and APL, in general respondents proposed that the wording be aligned with that in the Basel standards (i.e. it was proposed that adjustments that are market risk related be referred to, instead of referring to adjustments that are market risk sensitive). The EBA decided to amend the draft RTS and to refer to adjustments that are market risk related. However, it should be noted that the EBA interprets the two terms in the same way and, accordingly, adjustments such as XVAs should be considered as market risk related.

Some respondents suggested that some flexibility be introduced with regard to the possibility of excluding market risk valuation adjustments from the HPL in order for only those valuation adjustments that are in the VaR to be included in the HPL. Without requiring it explicitly, the FRTB encourages a broader inclusion of valuation adjustments in the risk-measurement model. However, the EBA acknowledges that having in the HPL only those valuation adjustments that are in the VaR would ensure that the HPL and RTPL are calculated based on the same scope. Accordingly, the EBA amended the draft RTS, requiring institutions to include in the HPL only those adjustments that are included in the risk-measurement model.

Some respondents suggested that provisions related to the theta effect and to the smoothing of adjustments in the APL be removed, while others agreed with what was proposed in the CP. The EBA decided to not amend any of those provisions, as they are meant to ensure full alignment of the EU with the international standards.

Some respondents suggested that the provision requiring institutions to consider the IPV process where computing the HPL be removed. The EBA acknowledges some of the issues raised in the comments received and therefore decided to remove the reference to the IPV from Articles 3 and 4 of the draft RTS. As a result, IPV adjustments should be treated like all other adjustments (i.e. IPV adjustments should be included in the HPL only where they are computed daily, and only if the institution models, in the risk-measurement model, any loss that may occur due to IPV adjustment).

In general, respondents did not agree with the provisions requiring institutions to compute adjustments considering only positions in the trading desk. However, in general, they agreed with the provision allowing institutions to include a valuation adjustment (in the APL or HPL) only for the purpose of back-testing performed at the institution level. The EBA decided to not modify these requirements, since it is deemed that many adjustments computed at a level higher than the single trading desks will meet the conditions for not being 'captured' at the trading desk level. Furthermore, for those adjustments that do not meet those conditions, the computation at the level of the single trading desk should not be overly burdensome and should be meaningful from an economic point of view.

Finally, in the light of the comments received regarding the operational burden to which institutions may be subject if they were required to compute adjustments only considering trading desks in the IMA scope, the EBA decided to retain in its final draft RTS the possibility for institutions to compute adjustments for the purpose of the institution-wide back-testing, considering either only trading desks with positions capitalised using the internal model approach or all trading desks (i.e. also SA desks).

4.2.2 Summary of responses to the consultation and the EBA's analysis

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
General comments			
Identification of non-modellable risk factors (NMRFs) for their exclusion from the VaR for back-testing	<p>Some respondents argued that the CRR2 is not consistent with the Basel provision on the exclusion of NMRFs from the VaR used for back-testing purposes.</p> <p>In accordance with the CRR2, institutions are required to shock only modellable risk factors (MRFs) for the purpose of the trading desk level back-testing, while this requirement is not explicitly stated in the Basel standards.</p> <p>They also highlighted alleged inconsistencies with the CRR2, which specifies that the risk factor eligibility test must be performed after back-testing takes place (so it is impossible to exclude NMRFs because they would not be identified in the first place).</p>	<p>The CRR states that only MRFs shall be shocked for the purpose of back-testing. In addition, the Basel standards state that, for the institution-wide back-testing, only MRFs must be shocked. The same provision is not explicit for back-testing at the trade desk level.</p> <p>The EBA interpretation of the Basel standard is that NMRFs must not be shocked in the VaR for the following reasons:</p> <ul style="list-style-type: none"> - The Basel standards grant the possibility to discard overshootings due to NMRFs. The EBA interprets this provision in the sense that overshootings due to NMRFs may be disregarded because they are not considered in the VaR. - In addition, if the Basel standards were to be interpreted in the sense suggested by the respondents, provisions would have been included to also deal with overshootings hidden by NMRFs in the VaR. - NMRFs cannot be accurately modelled by institutions; thus, their inclusion in the VaR reduces the reliability of the results. 	No amendments

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
		<p>The EBA deems this comment to be outside the scope of the mandate of these RTS, which are thus not amended.</p>	
Behaviour of well-hedged portfolios/desks for the purpose of the PLA test	<p>One respondent highlighted a possible unintended consequence in the Basel standards (transposed in the RTS) that would cause well-hedged portfolios/desks to fail the PLA test (while directional portfolios/desks are more likely to pass the PLA test). The respondent would prefer an observation period before the thresholds for passing or not passing the PLA test are fixed.</p>	<p>The EBA deems that fully aligning with the international standards regarding the criteria determining whether a trading desk meets the P&L attribution requirement or not is appropriate.</p> <p>The EBA therefore decided not to amend the draft RTS to reflect this comment.</p>	No amendments
Disregard of breaches due to the time effect in back-testing	<p>One respondent argued that the theta effect (or passage of time effect) should not be considered in back-testing because the back-testing of theta-negative desks would be inconsistent, causing multiple breaches that could in the end disqualify a desk for IMA only because of the theta effect.</p>	<p>The Basel standards require that the time effect must be included in the back testing. Furthermore, the time effect is already included in the APL by definition, since institutions are requested to revalue the portfolio on the subsequent day, thus capturing the time effect.</p> <p>The purpose of APL back testing is to test the quality of institutions' assumptions on all factors, including the time effect.</p> <p>Furthermore, for HPL, institutions are required to reflect risk factors, including the time effect, consistently with the methodology used in the expected shortfall, where the portfolio is assumed to be static.</p> <p>The EBA therefore decided not to amend the RTS.</p>	No amendments

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Exclusion of own credit spread on liabilities from back-testing and the VaR	Two respondents noted that an institution's own credit spread on liabilities should be outside the scope for the purpose of back-testing. They further suggested that a reference to Article 33(1) of the CRR be included in order to automatically exclude institutions' own credit spread on liabilities from back-testing and the VaR.	To ensure consistency with the Basel standards, institutions should exclude all VAs that are deducted from the CET1 from the scope of the APL/HPL. Accordingly, the EBA agrees that own credit spread on liabilities should not be included in the HPL/APL and therefore decided to address this issue by amending the RTS, adding a reference to both Article 33(1)(b) and Article 33(1)(c).	Reference to Articles 33(1)(b) and 33(1)(c) added in the legal text
Valuation adjustments in HPL	Some respondents suggested that some flexibility be introduced with regard to the possibility (dependent on the approval of the supervisory authority) of excluding market risk valuation adjustments from the HPL in order for only those valuation adjustments that are in the VaR to be included in the HPL. It is hence proposed to specify that <i>"Institutions shall include in the hypothetical changes in the trading desk portfolio's/portfolio's value only the adjustments that have been considered in the end-of-valuation process referred to in paragraph 1 that are market risk sensitive and are calculated on a daily basis provided that they are part of the VaR model' and to complement the list of valuation adjustments to be excluded with any valuation adjustments for which the exclusion was approved by the supervisory authority.</i> Respondents considered that such flexibility would align the RTS with the international	The Basel standards set out the possibility for competent authorities to exclude adjustments from the HPL. The EBA acknowledges that the HPL and RTPL should be calculated based on the same scope. Accordingly, the EBA amended the RTS, requiring institutions to include in the HPL only adjustments that are included in the risk-measurement model.	Amendments to Article 3 and Article 4.

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	standards and enable a consistent and meaningful HPL back-testing exercise.		
Daily IPV in HPL	<p>Some respondents suggested that any IPV adjustments should be removed from the HPL or, should this first option be considered not compliant with international standards, that it should be made more explicit that IPV adjustments taken into account by banks in the end-of-day valuation process are calculated on a daily basis.</p> <p>Respondents considered that the latter option would nevertheless introduce an asymmetry between the HPL and RTPL because the requirement for inclusion of daily IPV adjustments is for HPL only. Such asymmetry would lead to undue failure in the PLA tests.</p>	<p>The EBA acknowledges that requiring institutions to include IPV adjustments in the HPL may lead to unintended consequences. Accordingly, IPV adjustments should be treated like all other adjustments in the calculation of the HPL (i.e. they are captured in the HPL only if updated daily and captured in the risk-measurement model).</p>	<p>Reference to IPV removed from Article 3(1) and Article 4(1).</p>
Responses to questions in Consultation Paper EBA/CP/2019/06			
<p>Question 1. Which are the adjustments that institutions include in the fair value of a financial instrument that you consider not sensitive to market risk? Please provide a list of adjustments or a list of types of adjustments?</p>	<p>Most respondents considered that market risk-sensitive adjustments were not equivalent to market risk-related (or in the scope of market risk) adjustments and that only the latter should be included in both APL and HPL (the scope of the former being too broad).</p> <p>One respondent considered that including market-sensitive adjustments would lead to the inclusion of XVAs in the APL, whereas they adjust the price of derivatives for elements that are not in the scope of the risk-management model (i.e.</p>	<p>The EBA interpretation of market risk-related adjustments is the same as that of market risk-sensitive adjustments. However, the EBA decided to amend the wording used in the RTS to the wording used in the international standards.</p> <p>In addition, the EBA believes that, for example, XVAs are market risk-sensitive (or market risk-related) adjustments, as their value is driven by market risk factors.</p> <p>Finally, it should be noted that the EBA believes that the ECB TRIM guidelines should be fully aligned with</p>	<p>Amended <i>market risk sensitive</i> into <i>market risk related</i> in Articles 1, 2, 3, 4.</p>

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	<p>other risk sources influenced by market risk factors).</p> <p>One respondent recommended using, for the purpose of back-testing, the wording of the European Central Bank (ECB) targeted review of internal models (TRIM) guide, which refers to adjustments ‘in scope of market risk’, which can be understood as adjustments measuring something that the VaR model is intended to capture as opposed to any element that an exit price would embed.</p> <p>Some respondents listed the adjustments that they believed should not be included in the APL for back-testing purposes (rather than stating which were adjustments they considered to be market risk sensitive). Some of the adjustments that were identified in this sense were the following:</p> <ul style="list-style-type: none"> - XVAs in general (CVAs, debit valuation adjustments, FVAs, margin valuation adjustments and capital valuation adjustments) - write down/write-offs - liquidity - concentration. <p>One respondent considered that only adjustments already deducted from CET1 or covered by regulatory own funds requirements</p>	<p>the wording proposed in the RTS (i.e. in the scope of market risk, this is understood to be equivalent to market risk related or market risk sensitive in that context).</p>	

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	<p>are expected to be excluded from the APL (i.e. others should be included).</p> <p>The specific list provided by each respondent can be found on the EBA website.</p>		
<p>Question 2. Which are the adjustments that institutions include in the fair value of a financial instrument that you consider market risk sensitive? Please provide a list of adjustments or a list of types of adjustments</p>	<p>Like in Question 1, most respondents listed the adjustments that they believed should be part of the APL, rather than identifying those that were market risk sensitive. In this context:</p> <ul style="list-style-type: none"> - One respondent reported that only adjustments addressing deficiencies in pricers or market data should be included in the APL. - The following were the adjustments that most respondents considered should be included in the APL: <ul style="list-style-type: none"> • IPV adjustments • close-out cost adjustment (uncertainty around mid-price) • less liquid position adjustment (uncertainty around bid-ask) • model risk adjustment (pricing model-driven uncertainty) - The following were the adjustments that one respondent considered market sensitive: <ul style="list-style-type: none"> • IPV 	<p>Please refer to the EBA analyses in Question 1.</p>	<p>No amendments</p>

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<p data-bbox="159 331 533 555">Question 3. Paragraph 4 specifies that no smoothing of adjustments is permitted over the readjustment period. Do you agree with the provision?</p> <p data-bbox="159 579 533 635">Do you consider the provision clear?</p>	<ul data-bbox="667 331 801 355" style="list-style-type: none"> • bid-ask. <p data-bbox="557 395 1095 751">The majority of respondents, while acknowledging that this provision is provided in the Basel standard, believed that it should not be implemented in the RTS (i.e. the smoothing effect should be allowed) in order to reduce the probability that bumps in back-testing may put a desk in the amber or red zones. One respondent also raised the issue that no smoothening generates a substantial burden for the bank because it does not reflect the accounting practice that P&Ls are additive.</p> <p data-bbox="557 775 1095 863">Conversely, two respondents agreed that smoothing of adjustments should not be permitted.</p> <p data-bbox="557 887 1095 946">All respondents considered the provision to be clear.</p>	<p data-bbox="1122 539 1697 691">In accordance with the Basel standard, no smoothing effect is permitted. Furthermore, the EBA is of the opinion that institutions would be able to reduce or eliminate bumps in back-testing due to adjustments by increasing the frequency of their calculation.</p> <p data-bbox="1122 715 1697 807">Therefore, in order to ensure consistency with the international standards, the EBA decided not to amend the related provision of the RTS.</p>	No amendments
<p data-bbox="159 1002 533 1321">Question 4. Paragraph 4 requires institutions to compute (for the purpose of back-testing) the value of an adjustment (which is included in the changes in the portfolio's value) performing a stand-alone calculation (i.e. considering only the positions in the trading desk). Do you agree with the provision?</p>	<p data-bbox="557 986 1095 1042">Most respondents did not support the calculation of VAs at the trading desk level.</p> <p data-bbox="557 1066 1095 1193">One respondent argued that the calculation at a single trading desk is technically possible, but very burdensome and not in line with the risk-management policies of banks.</p> <p data-bbox="557 1217 1095 1337">Another respondent added that this provision will force banks to compute two P&Ls: one for other front office purposes and one for back-testing and PLA test purposes.</p>	<p data-bbox="1122 1050 1697 1273">The EBA believes that many VAs computed at a level higher than the single trading desks will fall under the scope of paragraph 5. Furthermore, for VAs that do not fall under paragraph 5, the computation at the level of the single trading desk should not be overly burdensome and should remain meaningful from an economic point of view.</p>	No amendments

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Do you consider the provision clear?	<p>One respondent acknowledged that, in many cases, the provisions of paragraph 4 would not be applicable because the adjustment will meet the conditions identified in paragraph 5.</p> <p>One respondent supported the calculation of VAs at the single trading desk level.</p> <p>All respondents considered the provision to be clear.</p>		
<p>Question 5. Do you agree with the criteria in paragraph 5 allowing institutions to exclude an adjustment from the changes in the trading desk's portfolio value?</p> <p>Are there any other criteria you deem useful for this purpose?</p>	<p>Most respondents supported the provision of paragraph 5. They pointed out that the criteria of paragraph 5 should be relevant only for market risk-related (as opposed to market risk-sensitive) VAs. One respondent sought more clarity on the interpretation of the provision, stating that in their understanding only adjustments that reflect non-linear effects would meet the criteria of paragraph 5.</p> <p>One respondent deemed this provision irrelevant because they compute VAs to single trading desks.</p> <p>All respondents considered the provision to be clear.</p>	<p>The EBA decided to keep the provision in paragraph 5 unchanged.</p> <p>In addition, the EBA believes that cases where institutions will fulfil the conditions to include an adjustment at the top-of-the-house level only are expected to occur more often than on an exceptional basis, and accordingly decided to modify recital 4 to reflect this.</p>	<p>Recital 4 was amended as follows: 'In exceptional some cases, an adjustment ...'</p>
<p>Question 6. How do institutions identify client margins and day-one profits/losses in the systems (e.g. as commissions, margins)? Please specify if currently they are taken into account in the end-of-</p>	<p>Most respondents indicated that 1-day P&Ls, client margins and commission were included in the end-of-day valuation process but not in the HPL. Only 1-day P&Ls were included in the APL.</p> <p>Some respondents declared that the client margin was explicitly identified not for over-the-</p>	<p>The EBA recognises the diversity of practices among market participants as regards the treatment of clients margins and 1-day P&Ls in the end-of-day valuation process, the HPL and the APL and therefore did not add specific provisions in the draft RTS in relation to this aspect.</p>	No amendments

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<p>day valuation process, in the actual P&L and in the hypothetical P&L.</p>	<p>counter transactions but rather on a declaratory basis and as part of the final price of the trade.</p> <p>One respondent indicated that client margins, commissions and 1-day P&Ls were included in neither the HPL nor the APL.</p>		
<p>Question 7. Paragraph 4 requires institutions to compute (for the purpose of the back-testing) the value of an adjustment (that is included in the changes in the portfolio's value) performing a stand-alone calculation, i.e. considering only the positions in trading desks that are calculating the own funds requirements using the internal model approach (i.e. desks meeting all conditions in article 325az(2)). Do you agree with the provision? Do you consider the provision clear?</p>	<p>All respondents found the provision to be clear.</p> <p>Most respondents disagreed with the provision considering that (i) not being able to net with standard desks will considerably deviate from the 'fair value' that is the foundation on which P&L is based, (ii) it would be overly burdensome to run valuation adjustment calculations based on the IMA population only and (iii) adjustments at the desk level, in practice, have no recognition in accounting/economic terms and thus are not managed or steered by the banks.</p> <p>One respondent fully agreed with the provision in order to keep coherence among perimeters.</p>	<p>The EBA acknowledges that, for some institutions, it may be burdensome to compute an adjustment only considering positions in the scope of the internal model approach. However, this requirement is in place to ensure a consistent perimeter between positions captured in the VaR and positions captured in the HPL/APL.</p> <p>The EBA believes that the possibility of using the provision of Article 2(5) sufficiently addresses the concerns related to the potential burden of the treatment laid down in paragraph 4.</p> <p>Accordingly, the EBA decided to not amend the provision in Article 2(4), namely institutions are allowed to compute the adjustment on positions in IMA desks only.</p>	No amendments
<p>Question 8. Do you agree with the possibility outlined in paragraph 5 to include in the portfolio's changes the value of an adjustment stemming from the entire portfolio of positions subject to own funds requirements (i.e. both positions</p>	<p>Some respondents agree with the provision as it aligns with industry's business practice.</p> <p>One respondent proposed using back-allocation rules instead of engaging specific recalculations, and suggested keeping the provision of paragraph 4 as an option.</p>	<p>The EBA acknowledges the perimeter inconsistency issue that the provision laid down in Article 2(5) may create, as noted by one respondent.</p> <p>At the same time, the EBA recognises that, for several institutions, computing adjustments only on the set of positions in trading desks that are calculating the</p>	No amendments

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<p>in standard-approach desks and positions in internal model approach desks)? Or do you think it would not be overly burdensome for institutions to compute adjustments on the positions in trading desks that are calculating the own funds requirements using the internal model approach only?</p>	<p>One respondent considered the possibility of including in the portfolio's changes the value of an adjustment stemming from the entire portfolio of positions (as outlined in Article 2(5) of the draft RTS) as overly burdensome.</p> <p>One respondent raised a perimeter inconsistency issue and stated that it would not be overly burdensome to compute adjustments only for IMA positions.</p>	<p>own funds requirements using the internal model approach may be too operationally burdensome.</p> <p>Therefore, the EBA decided not to amend the provision included in Article 2(5).</p>	
<p>Question 9. Do you agree with the criteria outlined in this article for the alignment of input data?</p> <p>Please provide some examples where an institution could use the provision set out in paragraph 2.</p>	<p>Most respondents agreed with the provision.</p> <p>One of them considered the criteria unclear, while others provided drafting suggestions aimed at also including data alignment derived from input data used in the calculation of the hypothetical changes in the trading desk portfolio's value.</p> <p>Some respondents provided additional examples of when an institution could use the provision set out in paragraph 2:</p> <ul style="list-style-type: none"> - use of the US dollar LIBOR interest rate for the HPL and transformation of the curve in order to get a more orthogonal representation of risk factors in the RTPL - computation of the APL and HPL using source system reference prices as of 	<p>To ensure consistency with the international standards, the EBA decided not to amend Article 15.</p>	<p>No amendments</p>

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p data-bbox="656 331 1095 389">17:15, while using closing prices from different sources for RTPL</p> <ul data-bbox="607 411 1099 783" style="list-style-type: none"><li data-bbox="607 411 1099 667">- transformation of observations of interest rate futures contract with fixed maturity date (used for the HPL) into an equivalent price of synthetic instruments with fixed time-to-maturity (used in the RTPL) to exclude time decay effects from the calibration of risk factors<li data-bbox="607 689 1099 783">- risk factors not in the model because the actual return realised in the HPL can be used to help pass the PLA test.		