

EBA/RTS/2021/10

22 October 2021

Final Report

Draft Regulatory Technical Standards

on the specification of what an exotic underlying is and which instruments are instruments bearing residual risks for the purposes of Article 325u(2) under Article 325u(5) of Regulation (EU) No 575/2013 (Capital Requirements Regulation)

Contents

1. Executive summary	3
2. Background and rationale	5
3. Draft regulatory technical standards on the specification of what an exotic underlying is and which instruments are instruments bearing residual risks for the purposes of Article 325u(2) under Article 325u(5) of Regulation (EU) No 575/2013 (Capital Requirements Regulation)	17
4. Accompanying documents	23
4.1 Draft cost-benefit analysis / impact assessment	23
4.2 Feedback on the public consultation	27

1. Executive summary

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

Institutions using the alternative standardised approach are required to compute three separate own funds requirements for market risk: the sensitivities-based method (SbM) own funds requirements, the residual risk add-on (RRAO) and own funds requirements for the default risk (DRC).

The RRAO is intended to provide simple and conservative capital treatment for any other risks that are not covered by the SbM or the DRC. Therefore, instruments exposed to residual risks, i.e. instruments referencing an exotic underlying or instruments bearing other residual risks, are subject to the RRAO treatment.

The RRAO amounts to 1% or 0.1% of the gross notional amount of the instrument, depending on whether it is an instrument referencing an exotic underlying or an instrument bearing other residual risks, respectively.

Article 325u(2) of the CRR provides guidance on the meaning of instruments referencing an exotic underlying and instruments bearing other residual risks. Instruments referencing exotic underlyings can be identified as soon as they have underlying exposures to risk factors that are outside the scope of the SbM or the DRC. Similarly, instruments bearing other residual risks can be identified as those that are subject to vega and curvature risk whose pay-offs cannot be written or perfectly replicated as a finite linear combination of vanilla options with a single underlying, or as those falling under the definition of the ACTP (and not recognised as eligible hedges in the ACTP).

These draft regulatory technical standards (RTS) specify what an exotic underlying is and which instruments are instruments bearing residual risks, for the purpose of Article 325u(2) of the CRR. In particular, longevity risk, weather, natural disasters and future realised volatility were examined and deemed to constitute exotic underlyings. In addition, these draft RTS set out a non-exhaustive list of instruments bearing residual risks and a list of risks that, in themselves, do not constitute residual risks.

On 12 March 2021, the EBA published a Consultation Paper² (CP), on which these draft RTS are based. One respondent provided a response to the CP, which was published on the EBA website.

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.

²

https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Consultations/2021/Consultation%20on%20draft%20RTS%20on%20residual%20risk%20add-on/963901/CP%20draft%20RTS%20on%20RRAO.pdf

The feedback in general stressed the importance of consistency in capital rules implementation. It also requested the exclusion from the scope of the RRAO of a number of underlying or exotic instruments. The EBA assessed the feedback and a summary of the response, along with the EBA's analysis, is included at the end of this document. However, no changes were made to the final draft RTS, given that the requested exclusions appeared to deviate from the Fundamental Review of the Trading Book (FRTB) framework developed by the Basel Committee. Such a deviation would ultimately lead to a global unlevel playing field.

The draft RTS represent a deliverable of the third phase of the EBA roadmap for the new market and counterparty credit risk approaches published on 27 June 2019³. They constitute a further contribution to a smooth and harmonised implementation of FRTB international standards in the EU.

³ <https://eba.europa.eu/sites/default/documents/files/documents/10180/2844544/ab272ad0-f256-4d70-9563-376e1d772feb/EBA%20roadmap%20for%20the%20new%20marke%20and%20counterparty%20credit%20risk%20approaches.pdf>.

2. Background and rationale

1. The Basel Committee on Banking Supervision (BCBS) published standards on 'Minimum capital requirements for market risk'⁴ (also known as the Fundamental Review of the Trading Book – FRTB) in January 2019. Regulation (EU) No 2020/876 (the revised CRR), amending Regulation (EU) No 575/2013 (CRR), incorporated the FRTB into EU legislation, including the revised standardised approach (indicated as alternative standardised approach and included in Part 3 Title IV Chapter 1a of the CRR).
2. In accordance with Article 430b of the CRR, from the date of application of Commission Delegated Regulation (EU) 2021/424⁵ referred to in Article 461a, institutions that do not meet the conditions set out in Article 94(1) or Article 325a(1) of the CRR shall report, for all their trading book positions and all their non-trading book positions that are subject to foreign exchange (FX) or commodity risks, the results of the calculations made using the alternative standardised approach.
3. The alternative standardised approach has three parts:
 - the sensitivities-based method (SbM);
 - the residual risk add-on (RRAO);
 - the own funds requirements for the default risk (DRC).
4. Article 325u of the CRR transposes the RRAO into EU legislation, which is intended to provide a simple and conservative capital treatment for any other risks not covered by the SbM or the DRC.
5. Under the RRAO, own funds requirements for residual risks should be calculated in addition to other own funds requirements computed under either the SbM or the DRC, for instruments exposed to residual risks. Instruments are considered to be exposed to residual risks when they are either instruments referencing an exotic underlying or instruments bearing other residual risks.
6. In accordance with Article 325u(3) of the CRR, the additional own funds requirements amount to 1% or 0.1% of the gross notional amount of the instrument, depending on whether it is an instrument referencing an exotic underlying or an instrument bearing other residual risks, respectively.
7. Article 325u(5) of the CRR includes a mandate for the EBA to draft RTS:

'5. EBA shall develop draft regulatory technical standards to specify what an exotic underlying is and which instruments are instruments bearing residual risks for the purposes of paragraph 2.

⁴ Minimum capital requirements for market risk, January 2019 (rev. February 2019).

⁵ [Commission Delegated Regulation \(EU\) 2021/424 of 17 December 2019 amending Regulation \(EU\) No 575/2013 of the European Parliament and of the Council with regard to the alternative standardised approach for market risk.](#)

When developing those draft regulatory technical standards, EBA shall examine whether longevity risk, weather, natural disasters and future realised volatility should be considered exotic underlyings.

EBA shall submit those draft regulatory technical standards to the Commission by 28 June 2021.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.'

8. Article 325u(2) of the CRR specifies that instruments exposed to residual risks are i) instruments referencing an exotic underlying and ii) instruments bearing other residual risks, where points (a) and (b) of that Article provide guidance on the respective meanings of i) and ii):

'2. Instruments are considered to be exposed to residual risks where they meet any of the following conditions:

(a) the instrument references an exotic underlying, which, for the purposes of this Chapter, means a trading book instrument referencing an underlying exposure that is not in the scope of the delta, vega or curvature risk treatments under the sensitivities-based method laid down in Section 2 or the own funds requirements for the default risk set out in Section 5;

(b) the instrument is an instrument bearing other residual risks, which, for the purposes of this Chapter, means any of the following instruments:

(i) instruments that are subject to the own funds requirements for vega and curvature risk under the sensitivities-based method set out in Section 2 and that generate pay-offs that cannot be replicated as a finite linear combination of plain-vanilla options with a single underlying equity price, commodity price, exchange rate, bond price, credit default swap price or interest rate swap;

(ii) instruments that are positions that are included in the ACTP referred to in Article 325(6); hedges that are included in that ACTP, as referred to in Article 325(8), shall not be considered.'

9. These specifications in the CRR text allow for the identification of instruments that should be subject to the RRAO without the need to wait for the finalisation and adoption of these EBA RTS. In fact, instruments referencing 'exotic underlyings' can be identified as soon as they have underlying exposures to risk factors that are outside the scope of the sensitivities-based method (SbM) or the default risk charge (DRC).

10. Similarly, instruments bearing 'other residual risks' can be identified as instruments that are subject to vega and curvature risk (i.e. options) whose pay-offs cannot be written or perfectly replicated as a finite linear combination of vanilla options with a single underlying, or as instruments falling under the definition of the ACTP (and not recognised as eligible hedges within the ACTP).

11. In addition to general criteria set out in paragraphs MAR23.3 and MAR23.4 (and included in points (a) and (b) of Article 325u(2) of the CRR), the Basel text also provides:

- a non-exhaustive list of risks that may meet the criteria to identify instruments exposed to residual risks (paragraph MAR23.5 of the Basel text);
- a list of risks which in themselves will not cause the instrument to be subject to the RRAO (paragraph MAR23.6 of the Basel text);
- a list of instruments that should be excluded from the scope of the RRAO, (paragraph MAR23.7 of the Basel text).

12. With regard to the list of instruments that should be excluded from the scope of the RRAO, Article 325u(4) transposes paragraph MAR23.7 of the Basel text into the CRR, i.e. an instrument should be excluded from the scope of the RRAO in the following cases:

- a) the instrument is listed on a recognised exchange;
- b) the instrument is eligible for central clearing in accordance with Regulation (EU) No 648/2012;
- c) the instrument perfectly offsets the market risk of another position in the trading book (i.e. a back-to-back transaction). In such cases, the two matching positions should be excluded from the RRAO capital requirement.

2.1 Definition of exotic underlyings and instruments bearing residual risk

13. The mandate included in Article 325u(5) of the CRR requires the EBA to draft RTS, which should include the following points:

- specification of what an exotic underlying is;
- specification of which instruments are instruments bearing residual risks;
- an assessment of longevity risk, weather, natural disasters and future realised volatility, in order to determine whether they should be considered exotic underlyings.

2.1.1 Specification of what an exotic underlying is

14. In accordance with the CRR, exotic underlyings are defined as any underlying exposures that are not in the scope of the delta, vega or curvature risk treatments under the SbM (set out in Part Three Title IV Chapter 1a Section 2 of the CRR) or the own funds requirements for default risk (set out in Part Three Title IV Chapter 1a Section 5 of the CRR). The EBA, considering that the definition laid down in point (a) of Article 325u(2) of the CRR was sufficiently clear for identifying instruments that reference exotic underlyings, did not include any additional guidance with respect to this definition

in the CP. As no elements of the definition laid down in point (a) of Article 325u(2) were identified by the respondent to the CP as requiring additional clarification (in relation to exotic underlyings, the only point mentioned by the respondent related to the treatment of future realised volatility, as explained below), the EBA understands that no additional clarification is needed and finalised these draft RTS without any amendments to the CP.

Longevity risk, weather, natural disasters and future realised volatility

15. As explicitly requested in the mandate, the EBA has examined the characteristics of longevity risk, weather, natural disasters and future realised volatility, confirming that all these underlyings should be considered exotic underlyings, in line with the indication provided in the Basel text (see footnote 1 of paragraph MAR23.3⁶).

16. In relation to future realised volatility, the respondent to the CP argued that institutions could model future realised volatility either as an exotic underlying or as an instrument with an exotic pay-off (i.e. as an instrument bearing other residual risk). Therefore, the respondent proposed not to categorise future realised volatility as an exotic underlying.

17. However, the EBA considers that future realised volatility should be treated as an exotic underlying for the purpose of RRAO, as also clearly indicated in the Basel text (see FAQ1 to paragraph MAR23.3⁷), and finalised these draft RTS maintaining future realised volatility as an exotic underlying.

2.1.2 Specification of which instruments are instruments bearing residual risks

18. The definition of instruments bearing other residual risks included in point (b) of Article 325u(2) of the CRR identifies these as either of the following:

- instruments that are subject to the own funds requirements for vega and curvature risk under the SbM and that generate pay-offs that cannot be replicated as a finite linear combination of plain-vanilla options with a single underlying equity price, commodity price, exchange rate, bond price, credit default swap price or interest rate swap;
- instruments that are included in the ACTP referred to in Article 325(6) of the CRR.

For the purpose of the last point, hedges that are included in an ACTP, as referred to in Article 325(8), shall not be considered for the purpose of the RRAO.

⁶ Footnote 1 of paragraph MAR23.3: 'Examples of exotic underlying exposures include: longevity risk, weather, natural disasters, future realised volatility (as an underlying exposure for a swap).'

⁷ FAQ1 to paragraph MAR23.3: 'Is future realised volatility considered an 'exotic underlying' for the purpose of the RRAO? Yes, future realised volatility is considered an exotic underlying for the purpose of the RRAO.'

19. The EBA, considering that the definition laid down in point (b) of Article 325u(2) of the CRR was sufficiently clear for identifying the scope of instruments bearing other residual risks, did not include additional clarification with respect to this definition in the CP.
20. In relation to the definition of instruments bearing other residual risks, the only point mentioned by the respondent related to the treatment of caps and floors with risk-free rates replacing IBOR rates as the underlying, which should not be considered path dependent options where the risk-free rates are fixed in arrears. On this, the EBA points out that in accordance with paragraph MAR23.5(1) of the Basel text, path dependent options are subject to the RRAO, with no exceptions. The path dependent nature of the instruments mentioned by the respondent would need to be further assessed. As no other points were identified by the respondent to the CP in regard to the definition laid down in point (b) of Article 325u(2) as requiring additional clarification, the EBA understands that no additional clarification is needed and finalised these draft RTS without any amendments to the CP.
21. Beyond the issue of defining the instruments bearing other residual risks, the EBA considered that additional guidance should be provided to complement the provisions in the CRR and ensure harmonised application across the Union. Therefore, these draft RTS specify a non-exhaustive list of instruments that are deemed to be 'instruments bearing residual risks', and also specify the risks exposure to which does not, in itself, give reason for an instrument to be considered exposed to residual risks.

Non-exhaustive list of instruments bearing residual risks

22. With respect to the non-exhaustive list of instruments bearing residual risks, the EBA considers that including such a list in the RTS is a useful tool, which enables the immediate allocation of instruments to the scope of the RRAO.
23. In this respect, paragraph MAR23.5 of the Basel text proposes a non-exhaustive list of residual risk types that may fall within the criteria set out in paragraph MAR23.4 - including gap risk, correlation risk and behavioural risk. The Basel text also provides a general definition for each of these risks. Gap risk is defined as the risk of a significant change in the vega parameter of the option due to small movements in the underlying price, which can result in hedge slippage. Correlation risk is defined as the risk of a change in a correlation parameter necessary for determining the value of an instrument with multiple underlyings. Behavioural risk is defined as the risk of a change in exercise/prepayment outcomes such as those that arise in fixed rate mortgage products where retail clients may make decisions motivated by factors other than pure financial gain. For each of the three types of risks mentioned, the Basel text also provides examples of instruments that are subject to them.
24. Article 325u(2)(b)(i) of the CRR indicates that an instrument bearing other residual risks is an instrument that is subject to the own funds requirements for vega and curvature risk under the sensitivities-based method and that generate pay-offs that cannot be replicated as a finite linear combination of plain-vanilla options with a single underlying. In addition, Article 325e, as amended

by Commission Delegated Regulation (EU) 2021/424, identifies the positions in instruments with optionality to be subject to the own funds requirements for vega and curvature risk under the sensitivities-based method. Article 325e also clarifies that instruments with optionality include, among others: calls, puts, caps, floors, swap options, barrier options and exotic options, while instruments whose cash flows can be written as a linear function of the underlying's notional amount shall be considered instruments without optionality.

25. Therefore, taking into account the indications provided in the Basel text, and with a view to covering the vast majority of exotic derivatives meeting the conditions established in Article 325u(2)(b)(i), the EBA considers that the non-exhaustive list of instruments bearing residual risks included in the RTS should cover at least the following elements.

- Options where the pay-offs depend on the path followed by the price of the underlying asset, and not just on the price of the underlying asset at exercise. Such options are normally referred to as 'path dependent' options and are exposed to gap risk. Examples of path dependent options are Asian options, barrier options, options with autocallable features and lookback options.
- Options that start at a predefined date in the future and whose strike price (or other characteristics of the pay-offs) is set according to the market conditions of a future date. Examples of these kinds of options are forward start options and, in general, options belonging to the cliquet family.
- Options whose underlying is another option. Such options are normally referred to as compound options, and they can be of the following types: Call-on-Call, Call-on-Put, Put-on-Put and Put-on-Call.
- Options with discontinuous pay-offs, including, for example, digital options, which give fixed pay-offs if the underlying is below or above a certain point, and do not give any pay-offs in all other cases. Depending on the pay-offs, digital options can be of the following types: Cash-or-Nothing or Asset-or-Nothing. These options are exposed to gap risk.
- Options allowing the holder to modify the strike price or other terms of the contract before the maturity of the option. Shout options are an example of this kind of option. In particular, an example of a shout option is one where the holder of the option has the flexibility to reset the strike price when it is deemed optimal to do so. Another example is a European option where the holder has the possibility during the life of the option to mark the underlying's price at one specific point in time. At the end of the life of the option, the holder receives either the usual pay-offs from a European option or the intrinsic value at the time of the shout, whichever is greater.
- Options that can be exercised on more than one predetermined date. These options are normally referred to as Bermudan options, and their features differentiate them from plain-vanilla options. Examples include Bermudan swaptions, i.e. options where the holder has the right to enter into an Interest Rate Swap (IRS) on multiple dates. Cancellable swaps, where an

IRS can be cancelled at predetermined dates, can be represented as an IRS with an embedded Bermudan swaption and, under the Basel text⁸, should also be assigned to the scope of the RRAO. Additionally, bonds with multiple call dates, i.e. bonds with optionality features and where the embedded option can be exercised on more than one predetermined date, should be considered instruments bearing other residual risks, under the Basel text⁹.

- Multi-underlying options, where the underlyings can either be in the same asset class or in different asset classes. These options are exposed to correlation risk. There are different types of multi-underlying options, including (but not limited to):
 - basket options (i.e. options whose pay-offs are dependent on the value of a portfolio of underlyings);
 - best-of and worst-of options (i.e. options where the pay-offs depend on the value of the best or the worst performing underlying among a number of predefined underlyings);
 - spread options (i.e. options where the pay-offs depend on the difference in price between two or more underlyings).

It is worth mentioning here that the Basel text also envisages, in paragraph MAR23.6, a list of risk types exposure to which, in itself, does not cause an instrument to be subject to the RRAO. Correlation risk is mentioned among these risk types, referring in particular to correlation risk arising from index options. Therefore, with the aim of aligning these RTS with international standards, the EBA specifies the treatment for such index options when setting out a list of risks that do not constitute residual risks in themselves (see below).

- Options whose underlying is denominated in one currency but whose pay-offs are received in another currency. These options are normally indicated as quanto options and are exposed to correlation risk.
- Options subject to behavioural risk, i.e. that depend on the behaviour of agents, which may be affected by factors other than pure financial gain, such as the remaining maturity and size of the loan, demographical features and/or other social factors. Institutions should include the instrument under the scope of the RRAO only where:
 - the option lies with a retail client;
 - a significant amount of these instruments with prepayment risk is held in the trading book;
 - the behavioural risk for the instrument is considered material (the materiality of behavioural risk is assessed based on the criteria embedded in the Guidelines on

⁸ See FAQ1 in paragraph MAR21.26 of the Basel text.

⁹ See FAQ1 in paragraph MAR23.4 of the Basel text.

corrections to modified duration for debt instruments under Article 340(3) of Regulation (EU) 575/2013¹⁰.

26. The list would be used to automatically assign an instrument to the scope of the RRAO. However, should an instrument not feature in the list, the criteria based on the definitions provided in the CRR would apply.

27. The non-exhaustive list of instruments bearing residual risks was included in the CP and the respondent provided feedback on the following points.

- Digital options should be excluded from the scope of the non-exhaustive list where they can be replicated by a linear combination of a spot position and two vanilla options.
- Asian options should be excluded from the scope of the RRAO because (i) their pricing is only slightly more complex than under a simple Black-Scholes method and (ii) their risk management is not influenced by this additional complexity. As an alternative to general exclusion, the respondent also proposed the targeted exclusion of specific Asian options that are only technically Asian but should be considered vanilla options.
- The inclusion of Bermudan options in the scope of the RRAO is questionable, considering the treatment envisaged for American options.
- Constant Maturity Swap (CMS) spread options (and, more generally, interest rate spread options), which the respondent acknowledges are subject to correlation risk, are liquid products used by institutions for hedging purposes.

28. The EBA understands that paragraph MAR23.5 of the Basel text explicitly mentions digital options, Asian options, Bermudan options and spread options as instruments subject to residual risks, with no specific exceptions. The EBA is of the view that instruments subject to residual risks should be treated under the RRAO. Accordingly, the EBA considers it appropriate to keep those instruments in the scope of the non-exhaustive list of instruments bearing residual risks. The EBA also acknowledges that the scope of application of the RRAO is defined under Article 325u(2) of the CRR. Therefore, the EBA understands that it is the intention of the co-legislators to treat those instruments under the RRAO, considering that they all meet the definition set out in point (b) of Article 325u(2).

Specific instruments mentioned in the CRR that shall fall under the scope of the RRAO

29. Finally, although they are not included in the list of instruments bearing residual risks, the following instruments shall also be subject to the RRAO, as explicitly stated in the CRR:

- options that do not have a maturity, as mentioned in Article 325s(2);

¹⁰ [Final Report Guidelines on corrections to modified duration for debt instruments under Article 340\(3\) of Regulation \(EU\) 575/2013.](#)

- options that do not have a strike or barrier and options that have multiple strikes or barriers, as mentioned in Article 325s(3).

2.1.3 List of risks that do not constitute residual risks in themselves

30. Regarding the list of risks that do not constitute residual risks in themselves, the EBA considers that including such a list in the RTS helps to provide greater legal certainty and transparency to the scope of application of the RRAO.

31. In this respect, paragraph MAR23.6 of the Basel text proposes a list of risk types that, in themselves, do not cause an instrument to be subject to the RRAO.

32. Considering the additional guidance provided in the Basel text and with a view to complementing the general notions of instruments exposed to residual risks, the EBA is of the view that the risks that do not, in themselves, imply that an instrument complies with the criteria set out in points (a) and (b) of Article 325u(2), should be the following:

- risk from a cheapest-to-deliver option, with this option understood as the possibility of fulfilling a delivery obligation within a range of deliverable instruments, and where the delivery of the least valuable instrument within that range ('cheapest to deliver') is usually assumed;
- smile risk, i.e. the risk of a change in the implied volatility parameter necessary for determining the value of an instrument with optionality, relative to the implied volatility of other instruments with optionality with the same underlying and maturity, but different moneyness;
- correlation risk arising from index options or from positions in CIUs, where these index options or positions in CIUs meet certain specific conditions (as discussed in further detail below);
- dividend risk arising from a derivative instrument whose underlying does not consist solely of dividend payments.

Index options, multi-underlying options and CIUs

33. Correlation risk is one of the risk types that the Basel text indicates as meeting the criteria of paragraph MAR23.4 and that should therefore be subject to the RRAO. In particular, paragraph MAR23.5(2) describes correlation risk as the risk of a change in a correlation parameter necessary for determining the value of an instrument with multiple underlyings. Among the relevant instruments subject to correlation risk, the Basel text includes the following: all basket options, best-of options, spread options, basis options, Bermudan options and quanto options.

34. However, in paragraph MAR23.6(3), the Basel text includes correlation risk as one of the risk types that, in themselves, do not cause an instrument to be subject to the RRAO, referring in particular to the correlation risk arising from multi-underlying European or American plain vanilla options,

and from any options that can be written as a linear combination of these options. In addition, it is specified that the exemption applies in particular to the relevant index options.

35. In addition, paragraph MAR23.6(5) makes explicit mention of index instruments and multi-underlying options for which treatment for delta, vega or curvature risk is set out in paragraphs MAR21.31 and MAR21.32 of the Basel text. Under the Basel text, these instruments should be understood as not being subject to the RRAO in themselves, but only if they meet the definitions set out in Chapter MAR23.

36. Paragraphs MAR21.31 and MAR21.32 set out the treatment to be applied in the delta and curvature risk context. In particular, MAR21.31 prescribes that, for index instruments and multi-underlying options, a look-through approach should be used. However, an institution may opt not to apply the look-through approach for instruments referencing any listed, widely recognised and accepted equity or credit index, where specific conditions are met. If an institution opts not to apply the look-through approach, a single sensitivity shall be calculated to each index that the instrument references, as stated in paragraph MAR21.33.

37. From a sequential reading of paragraphs MAR23.5(2), MAR23.6(3), MAR21.31, MAR21.32 and MAR21.33 of the Basel text, it appears that:

- paragraph MAR23.5(2) requires, in general, options subject to correlation risk to be treated under the RRAO;
- paragraph MAR23.6(3), by way of derogation from MAR23.5(2), excludes from the scope of the RRAO multi-underlying European or American plain vanilla options, without clarifying, however, which instruments should be considered multi-underlying European or American plain vanilla options;
- paragraph MAR23.6(3) is clear in excluding the relevant index options from the scope of the RRAO;
- paragraph MAR23.6(5) seems to imply that the relevant index options to be excluded from the scope of the RRAO should be understood as those for which the treatment in MAR21.31 and MAR21.32 applies;
- paragraph MAR21.31, while stating that in general institutions should use a look-through approach, sets out the conditions that should be satisfied for not applying a look-through approach, as a derogation from the general look-through approach treatment;
- in accordance with paragraph MAR21.33, if an institution opts not to apply the look-through approach, a single sensitivity shall be calculated to each index that an instrument references.

38. Therefore, the EBA understands that the exemptions mentioned in MAR23.6(3) and MAR23.6(5) should be identified as those where an institution has the possibility of not applying the look-through approach and to treat the underlying index as a single underlying asset. In such cases, the

EBA is of the opinion that the correlation risk should not be considered to be a residual risk of the instrument.

39. In addition, the EBA understands that, without specific indications of which instruments the Basel text is targeting in paragraph MAR23.6(3) when it mentions multi-underlying European or American plain vanilla options, the general provision included in paragraph MAR23.5(2) should be applied to all multi-underlying options. The only exception would be index instruments where the index meets the conditions to be treated as a single underlying.

40. Hence, the EBA considers that index options that do not imply the application of the RRAO in themselves, are those referred to in Article 325i(2) of the CRR, as amended by Commission Delegated Regulation (EU) 2021/424, which is the article that transposes the provisions of paragraphs MAR21.31 and MAR21.33 of the Basel text into EU legislation.

41. However, notwithstanding the considerations made above and in line with paragraph MAR23.6(5), the EBA considers that the index options referred to in Article 325i(2) are still eligible for the application of RRAO, if they meet the conditions established in Article 325u(2) for other reasons.

42. The EBA considers that this approach is fully consistent with Article 325i(6), as amended by Commission Delegated Regulation (EU) 2021/424. Article 325i(6) establishes that index or multi-underlying instruments which bear other residual risks, as referred to in Article 325u(5), shall be subject to the RRAO. As the reference in Article 325i(6) is to Article 325u(5), which is the article where the EBA is mandated to specify which instruments are instruments bearing residual risks, the EBA understands that it is also the intention of the co-legislators to cover the cases of index or multi-underlying instruments under these RTS.

43. In addition, in accordance with Article 325j(1), as amended by Commission Delegated Regulation (EU) 2021/424, collective investment undertakings (CIUs) are also subject to the RRAO, where:

- an institution uses one of the approaches set out in point (b) of Article 325j(1), and
- the mandate of the CIU implies that some exposures in the CIU shall be subject to the RRAO.

44. Moreover, Article 325j(2), by way of derogation from Article 325j(1), allows institutions to treat a position in a CIU that tracks an index benchmark as a position in the tracked index benchmark, subject to the condition that the annualised return difference between the CIU and the tracked index benchmark over the last 12 months is below 1% in absolute terms, ignoring fees and commissions.

45. In order to ensure consistency in the application of the RRAO and in light of the discussion on the treatment of index instruments, the EBA has aligned the treatment of options on CIUs with that envisaged for options on indices.

46. More specifically, where institutions may treat an option in a CIU that tracks an index benchmark as a position in the tracked index benchmark, and where the index of the resulting position meets the conditions to be treated as a single underlying, the correlation risk should not be considered

residual risk for that position. However, as specified for index options in paragraph 41, the EBA considers also in this case that this position is still eligible for the application of the RRAO, where the conditions in Article 325u(2) are met for other reasons.

47. In addition, as specified in Article 325j(1), whenever a position in a CIU is treated under one of the approaches in Article 325j(1)(b), this position will be eligible for the application of the RRAO, in the case that the mandate of the CIU implies that some exposures in the CIU meet the criteria in Article 325u(2).

48. In relation to the treatment of correlation risk, as mentioned in Section 2.1.2 above, the respondent to the CP suggested not treating interest rate spread options, where the spread is between two maturity points on the same yield curve, as multi-underlying options, but rather to consider the interest rate spread as a single bundled underlying, similar to an index. However, the EBA considers this interpretation is not supported by the Basel text or by any provision set out in the CRR. In particular, as mentioned above, the EBA acknowledges that for indices meeting specific conditions, both the Basel text (in paragraphs MAR21.31 and MAR21.33) and the CRR (in Article 325i(2), as amended by Commission Delegated Regulation (EU) 2021/424), envisage treatment as a single underlying, while no corresponding treatment is envisaged for interest rate spreads.

3. Draft regulatory technical standards on the specification of what an exotic underlying is and which instruments are instruments bearing residual risks for the purposes of Article 325u(2) under Article 325u(5) of Regulation (EU) No 575/2013 (Capital Requirements Regulation)



Brussels, **XXX**
[...](2021) **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 for specifying what an exotic underlying is and which instruments are instruments bearing residual risks for the purposes of Article 325u(2) under Article 325u(5)

(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 the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012¹, and in particular the fourth subparagraph of Article 325u(5) thereof,

Whereas:

- (1) Since the definition of an instrument referencing an exotic underlying provided in Article 325u(2)(a) of Regulation (EU) 575/2013 is sufficiently clear and exhaustive, no further specification is necessary other than clarifying that longevity risk, weather, natural disasters and future realised volatility should be considered as exotic underlyings for the purpose of that Article, given that such underlyings are not treated under the sensitivities-based method or the own funds requirements for the default risk, and considering the indication provided in the relevant international framework defined by the Basel Committee on Banking Supervision (BCBS)².
- (2) While Article 325u(2) of Regulation (EU) No 575/2013 provides sufficiently clear, specific and exhaustive criteria for identifying instruments bearing residual risks, a non-exhaustive list of instruments bearing residual risks should be specified to further complement the notion of such instruments and to ensure a harmonised treatment for them. The elements of such a list should be selected considering the relevant international BCBS framework. In addition, the instrument specified in Article 325u(4) of Regulation (EU) No 575/2013, the instruments mentioned in paragraphs 2 and 3 of Article 325s of that Regulation and the hedges included in an ACPT as referred to in Article 325(8) of that Regulation, should not be included in such a list, given that the treatment for those instruments is already set out in that Regulation.
- (3) Given the non-standard nature of many of the instruments bearing residual risk, a non-exhaustive list of risks which should not in themselves trigger the inclusion of an instrument under the definition of instruments bearing residual risks should also be specified in order to provide greater legal certainty and transparency. Again, in accordance with the relevant international BCBS framework, an instrument exposed to any of the risks included in such a list should not be considered as exposed to residual risks merely because of the exposure to such risks. However, that instrument could still be considered as an instrument exposed to residual risk on the basis of the other reasons referred to in Article 325u(2) of Regulation (EU) 575/2013.
- (4) This Regulation is based on the draft regulatory technical standards submitted to the Commission by the European Banking Authority.
- (5) The European Banking Authority has conducted open public consultations on the draft regulatory technical standards on which this Regulation is based, analysed the potential related costs and benefits and requested the advice of the Banking Stakeholder Group

¹ OJ L 176, 27.6.2013, p. 1.

² Minimum capital requirements for market risk, January 2019 (rev. February 2019).

established in accordance with Article 37 of Regulation (EU) No 1093/2010 of the European Parliament and of the Council³.

HAS ADOPTED THIS REGULATION:

Article 1

Specification of exotic underlyings

Longevity risk, weather, natural disasters and future realised volatility shall be considered as exotic underlyings for the purposes of point (a) of Article 325u(2) of Regulation (EU) No 575/2013.

Article 2

Specification of instruments bearing residual risks

The instruments listed in the Annex to this Regulation shall be considered as instruments meeting the conditions of Article 325u(2) of Regulation (EU) No 575/2013 and constituting instruments bearing residual risks.

Article 3

Specification of risks that, in themselves, do not constitute residual risks

Where an instrument includes one or more of the following risks, this, in itself, does not cause the instrument to be exposed to residual risks in accordance with Article 325u(2) of Regulation (EU) No 575/2013:

- (a) risk arising from transactions where the delivery obligation can be fulfilled within a range of deliverable instruments and where the counterparty has the possibility to deliver the least valuable of those instruments ('cheapest-to-deliver' option);
- (b) risk of a change in the implied volatility of an instrument with optionality, relative to the implied volatility of other instruments with optionality with the same underlying and maturity, but different moneyness;

³ 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).

- (c) correlation risk arising from an index option, where the index meets the conditions set out in Article 325i(3) of Regulation (EU) No 575/2013;
- (d) correlation risk arising from an option in a CIU tracking an index benchmark, where the tracking meets the conditions set out in Article 325j(2) of Regulation (EU) No 575/2013 and the index meets the conditions set out in Article 325i(3) of that Regulation;
- (e) dividend risk arising from a derivative instrument whose underlying does not consist solely of dividend payments.

Article 4

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]

ANNEX

Non-exhaustive list of instruments bearing residual risks for the purpose of Article 2

1. Options where the pay-offs depend on the path followed by the price of the underlying asset and not just its final price on the exercise date.
2. Options that start at a predefined date in the future and whose strike price is not yet determined at the time at which the option is in the trading book of the institution.
3. Options whose underlying is another option.
4. Options with discontinuous pay-offs.
5. Options allowing the holder to modify the strike price or other terms of the contract before the maturity of the options.
6. Options that can be exercised on a finite set of predetermined dates.
7. Options whose underlying is denominated in one currency but whose pay-offs are settled in a different currency, with a predetermined exchange rate between the two currencies.
8. Multi-underlying options, excluding the options referred to in points (c) and (d) of Article 3.
9. Options subject to behavioural risk, only where all the following conditions are met:
 - (a) the option lies with a retail client;
 - (b) a significant amount of these instruments are held in the trading book;
 - (c) the behavioural risk of those instruments is assessed to be material, based on the criteria used for determining the materiality of behavioural factors for the purpose of the second subparagraph of Article 340(3) of Regulation (EU) No 575/2013.

4. Accompanying documents

4.1 Draft cost-benefit analysis / impact assessment

Article 325u(5) of the CRR mandates the EBA to develop a draft RTS to specify what an exotic underlying is and which instruments are instruments bearing residual risks for the purposes of paragraph 2 of Article 325u. In addition, when developing those draft RTS, the EBA shall examine whether longevity risk, weather, natural disasters and future realised volatility should be considered exotic underlyings.

Article 10(1) of Regulation (EU) No 1093/2010 (EBA Regulation) provides that any RTS developed by the EBA 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 options proposed and the potential impact of these options.

This section presents the cost-benefit analysis of the main policy options included in the draft RTS. The analysis is high level and of a qualitative nature.

A. Background, problem identification, baseline scenario

The alternative standardised approach consists of three parts: (a) the sensitivities-based method (SbM) for calculating the own funds requirement for market risk; (b) the residual risk add-on (RRAO); (c) the own funds requirements for the default risk (DRC).

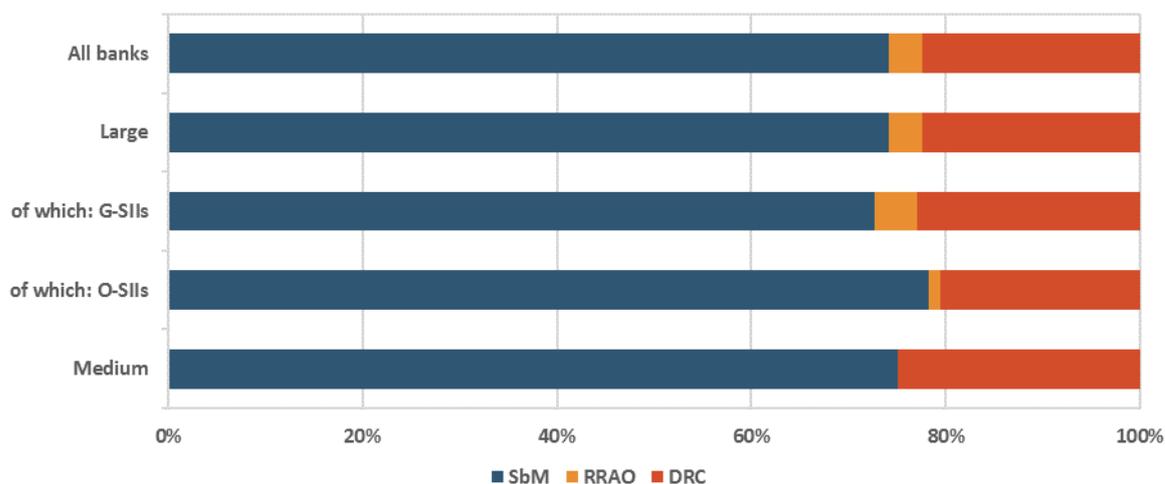
In accordance with Article 325u, the RRAO applies to instruments exposed to residual risks where they are either instruments referencing to an exotic underlying or instruments bearing other residual risks. Article 325u(2) provides additional guidance on the meaning of those notions.

The EBA is mandated to develop draft RTS specifying what an exotic underlying is and which instruments are instruments bearing residual risks. The lack of common specification could result in an inconsistent application of the RRAO across institutions, undermining the implementation of the alternative standardised approach in the EU. Given that institutions may hold various types of instruments, it is important to set minimum requirements identifying which instruments are considered to be exposed to residual risks and would therefore be subject to the RRAO.

Based on the EBA QIS 2018 Q2 data, only a small share of the market risk requirements under the alternative standardised approach is attributed to RRAO¹⁴. On average, the overall contribution of RRAO to total market risk SA capital requirements stands at around 3.5% (see Figure 1).

¹⁴ These figures do not take into account the provisions put forward in this CP.

Figure 1 Composition of FRTB-SA RWA, by bank size



Sources: EBA 2018-Q4 QIS data and EBA calculations.

Notes: Based on a sample of 44 banks: large (39), of which G-SIIs (7) and of which O-SIIs (27); medium (4); small* (1). SbM, sensitivities-based method; RRAO, residual risk add-on; DRC, default risk capital requirement.

*Not shown in the chart because there are fewer than three entities in the cluster.

B. Policy objectives

The specific objective of these draft RTS is to establish a common specification of what an exotic underlying is and which instruments are instruments bearing residual risks. In this way, these draft RTS aim to ensure a consistent implementation of the RRAO across EU institutions.

Generally, these 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, these draft RTS are expected to promote the effective and efficient functioning of the EU banking sector.

C. Options considered, cost-benefit analysis, preferred options

Longevity risk, weather, natural disasters and future realised volatility as exotic underlyings

Article 325u(5) of the CRR requests the EBA to examine whether longevity risk, weather, natural disasters and future realised volatility should be considered exotic underlyings.

The EBA has considered the following options.

Option 1a: Consider longevity risk, weather, natural disasters and future realised volatility as an exotic underlying.

Option 1b: Do not consider some or all of the above underlyings as exotic underlyings.

In accordance with paragraph (a) of Article 325u(2) of the CRR2, an instrument referencing an exotic underlying means a trading book instrument referencing an underlying exposure that is not in the scope of the delta, vega or curvature risk treatments under the sensitivities-based method or the own funds requirements for the default risk. Longevity risk, weather, natural disasters and future realised volatility are considered to meet this definition as they are underlyings which are not properly captured either under the sensitivities-based method (i.e. they are not general interest rate, credit spread, equity, commodity or foreign exchange risk factors) or the default risk charge.

Therefore, Option 1a is consistent with the general definition provided in paragraph (a) of Article 325u(2) of the CRR for instruments with an exotic underlying. In addition, it is in line with the Basel text, which recognises longevity risk, weather, natural disasters and future realised volatility as exotic underlyings and thus has the advantage of ensuring international harmonisation on what constitutes an exotic underlying.

The feedback received to the CP suggests that future realised volatility could be modelled by institutions either as an exotic underlying or as an instrument with an exotic pay-off referencing an underlying exposure (e.g. a variance swap on the S&P500 index may be modelled as an exotic pay-off referencing the underlying equity, i.e. the S&P500 index). Thus, the respondent proposed not to categorise future realised volatility as an exotic underlying, but rather to let volatility and variance derivatives be subject to the 0.1% RRAO charge as instruments bearing other residual risks.

However, the EBA has considered that treating future realised volatility as an exotic underlying ensures consistent application of the Basel standards and a level playing field across institutions.

No concerns were raised with respect to longevity risk, weather and natural disasters being treated as exotic underlyings.

Option 1a is preferred.

Options subject to behavioural risk as instruments bearing residual risks

The draft RTS provides for a non-exhaustive list of instruments that are deemed to be instruments bearing residual risks. These include options subject to behavioural risk. The EBA has assessed whether additional conditions need to be met for those options to be included in the scope of RRAO.

Option 2a: Specify additional conditions for options subject to behavioural risk to fall under the scope of the RRAO.

Option 2b: Do not specify additional conditions for options subject to behavioural risk to fall under the scope of the RRAO.

Under Option 2a, the EBA has considered that options subject to behavioural risk should fall under the scope of the RRAO only where: (a) the option lies with a retail client; (b) a significant amount of these instruments with prepayment risk is held in the trading book; and (c) the behavioural risk for



those instruments is considered material. The Basel text specifies only condition (a). Conditions (b) and (c) ensure that instruments with insignificant amounts of prepayment risk or immaterial levels of behavioural risk are not in scope of RRAO, alleviating the operational burden for institutions.

Option 2b does not specify any additional conditions and leaves more room for interpretation of which options subject to behavioural risk will fall under the scope of the RRAO. This may create an unlevel playing field across the EU.

Option 2a is preferred.

4.2 Feedback on the public consultation

The EBA publicly consulted on the draft proposal contained in this paper.

The consultation period lasted for three months and ended on 12 June 2021. One response was received, which is non-confidential and was published on the EBA website.

This paper 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.

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

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.

As part of the general comments, the respondent highlighted the importance of consistency in capital rules implementation, both across EU institutions and globally across regions, welcoming in particular globally consistent timelines and standards. The EBA supports a consistent worldwide application of the standards in general and of the RRAO framework in particular, to ensure a level playing field to the maximum possible extent. Therefore, these draft RTS are drafted to be fully compliant with Basel standards.

In addition, the respondent referred to the response provided to the consultation on the implementation of CRR3, where the following requests were made: (1) ensure that future realised volatility is excluded from the exotic underlyings (letting volatility and variance derivatives be subject to the 0.1% RRAO charge); (2) a reduction of RRAO charges to 0.01% for interest rate yield curves options; and (3) provide clarity as to whether long and short positions with same underlying risk can be netted. The EBA considers points (2) and (3) to be outside the scope of these RTS, while on point (1), as detailed in the analysis to Q1, the EBA is of the view that the Basel text is clear in considering future realised volatility an exotic underlying for the purpose of the RRAO. Hence, in order to ensure the consistent application of the standards, the EBA considers that future realised volatility is an exotic underlying for the purpose of these draft RTS.

On the points referring to the conditions in Article 325u(2)(a) and (b) of the CRR which potentially require additional clarification, the only feedback received related to the treatment of future realised volatility (under Article 325u(2)(a)), and the treatment of instruments with risk-free rates replacing IBOR rates as the underlying, such as caps and floors, when these rates are fixed in arrears (under Article 325u(2)(b)). However, in the EBA's view, the CRR and these draft RTS, as proposed in the CP, are sufficiently clear on the treatment of those cases, and no additional clarifications of the conditions in Article 325u(2)(a) and (b) have been included.



With respect to the non-exhaustive list of ‘instruments bearing residual risks’, the feedback received focused on (1) digital options, (2) Asian options, (3) Bermudan options and (4) CMS spread options (and, more generally, interest rate spread options). Based on the feedback received, those instruments should be excluded from the scope of the RRAO for various reasons. However, the EBA acknowledges that (1) the Basel text explicitly mentions digital options, Asian options, Bermudan options and spread options as instruments subject to residual risks, and (2) all those instruments meet the definition set out in point (b) of Article 325u(2) of the CRR. Therefore, the EBA deems it appropriate to keep those instruments in the scope of the non-exhaustive list of ‘instruments bearing residual risks’ and of the RRAO.

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



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
General comments			
	<p>The respondent highlights that consistency in capital rules implementation is important both across EU institutions and globally across regions. This is particularly relevant to the implementation timelines. The respondent welcomes globally consistent timelines and standards.</p>	<p>The EBA supports a consistent worldwide application of the FRTB in general and hence of the RRAO treatment, to ensure a level playing field to the maximum possible extent. Therefore, these draft RTS have been drawn up to be fully compliant with the Basel text in the area of RRAO.</p>	No amendments.
	<p>The respondent pointed to the response provided to the European Commission on the consultation on the implementation of CRR3, where the following recommendations were provided.</p> <ol style="list-style-type: none"> 1. Ensure that exotic underlyings are subject to the 1% RRAO charge, e.g. exclude future realised volatility from this category and thereby let volatility and variance derivatives be subject to the 0.1% RRAO charge. 2. For interest rate yield curves options: a reduction of RRAO charges to 0.01%, defining a risk sensitive notional, or an allowance to recognise positions that materially hedge the price risk of the exposure subject to the RRAO. 3. Provide clarity as to whether long and short positions with same underlying risk can be netted. 	<p>The EBA acknowledges the point raised by the respondent on future realised volatility, which is assessed in question 1, while it considers the other two proposals to be outside the scope of these draft RTS.</p>	No amendments.



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
Responses to questions in Consultation Paper EBA/CP/2021/10			
Question 1. Do you think that any of the elements constituting the conditions in Article 325u(2)(a) require additional clarification? If yes, which elements should be clarified?	The respondent requested further clarification on future realised volatility by pointing out that institutions could model future realised volatility either as an exotic underlying (subject to the 1.0% RRAO charge) or as an instrument bearing other residual risk (subject to the 0.1% RRAO charge) ¹⁵ . Therefore, the respondent proposed not to categorise future realised volatility as an exotic underlying, thereby letting volatility and variance derivatives to be subject to the 0.1% RRAO charge.	The EBA is of the view that footnote 1 of paragraph MAR23.3 of the Basel text together with FAQ1 to that paragraph, are clear that future realised volatility should be considered an exotic underlying for the purposes of the RRAO. The EBA understands that the term in brackets in footnote 1 is a clarification, and it does not establish an option for future realised volatility to be modelled either as an exotic underlying or an instrument bearing other residual risk. Hence, in order to ensure Basel compliance, the EBA considers that future realised volatility is an exotic underlying for the purpose of these draft RTS. In light of the feedback received, the EBA understands that no elements constituting the conditions in Article 325u(2)(a) require additional clarification.	No amendments.
Question 2. Do you think that the list of exotic underlyings should be extended beyond the ones mentioned in the CRR mandate (i.e. longevity risk, weather, natural disasters and future realised volatility)? If yes, which other exotic underlyings should be included?	The respondent commented that the list should not be extended.	The EBA takes note of the comment.	No amendments

¹⁵ For example, a variance swap on the S&P500 index may be modelled as an exotic pay-off referencing the underlying equity, i.e. the S&P500 index.



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
Question 3. Do you think that any of the elements constituting the conditions in Article 325u(2)(b) require additional clarification? If yes, which elements should be clarified?	The respondent pointed out that instruments with risk-free rates replacing IBOR rates as the underlying, such as caps and floors, shall not be considered path dependent options subject to RRAO treatment when these rates are fixed in arrears.	Paragraph MAR23.5(1) of the Basel text explicitly states that all path dependent options are subject to the RRAO, with no exceptions. The path dependent nature of the instruments mentioned by the respondent would need to be further assessed. In light of the feedback received, the EBA understands that no elements constituting the conditions in Article 325u(2)(b) require additional clarification.	No amendments.
Question 4. Do you think that the terminology used in the non-exhaustive list of instruments bearing residual risks is clear? If not, please provide your views, including rationale and alternative terminology that it would be preferable to use.	The respondent referred to the feedback included in Q8.	The EBA takes note of the comment.	No amendments.
Question 5. Do you think that the non-exhaustive list of instruments bearing residual risks should be extended? If yes, which other instruments should be included?	The respondent did not propose to add further instruments to the list but suggested enhancing the list using defined criteria in the case of digital options, which can be replicated by a linear combination of a spot position and two vanilla options. Additionally, the respondent provided a simple example to support the arguments.	The EBA is of the view that paragraph MAR23.5(1) of the Basel text explicitly states that all digital options are subject to gap risk. Hence, exemptions for specific instruments within the category of digital options would be a deviation from the Basel text. In addition, the approximation provided by the respondent cannot be considered to meet the condition of a 'finite linear combination of plain vanilla options' set out in Article 325u(2)(b)(i) of the CRR.	No amendments.



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
Question 6. Do you think that the non-exhaustive list of instruments bearing residual risks should be reduced? If yes, which instruments should be excluded?	<p>The respondent proposed to remove Asian options completely from the scope of RRAO for the following reasons:</p> <ul style="list-style-type: none"> a) the pricing is only slightly more complex than under a simple Black-Scholes method since it depends on the full term structure of implied volatility; and b) risk management is not influenced by this additional complexity. <p>As an alternative to the general exclusion of Asian options, the respondent proposed a targeted exclusion of specific Asian options, as it makes a distinction between options that are only technically Asian options but are considered to be vanilla options. Examples for this category include options on OIS and futures options where the underlying future is cash-settled based on the average spot price observed during the delivery month.</p> <p>The respondent also highlighted that the inclusion of Bermudan options in the scope of RRAO is questionable, considering the treatment envisaged for American options and suggested excluding Bermudan options from the scope of RRAO.</p>	<p>The respondent provides statements on both Asian options and Bermudan options. The EBA is of the view that paragraph MAR23.5 of the Basel text explicitly mentions Asian options and Bermudian options among the instruments bearing residual risks. Hence, a general exemption (or targeted exemptions for specific instruments) would be a deviation from the Basel text, which would raise level playing field issues at an international level.</p>	No amendments.
Question 7. Do you agree with the proposed approach for the	The respondent proposed a differentiated treatment for interest rate spread options.	The EBA is of the view that paragraph MAR23.5(1) of the Basel text explicitly states that all spread options,	No amendments.



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
<p>treatment of correlation risk? If not, please provide your views, including rationale motivating your preference for an alternative treatment.</p>	<p>Although generally acknowledging that those options are subject to correlation risk and thus within the scope of RRAO, the respondent proposed to treat those options as outside the scope of the RRAO where the spread is determined by different tenor points on the same yield curve. Additionally, the respondent highlighted the high importance of interest rate spread options in the context of hedging. In this context, the respondent pointed to potentially inconsistent RRAO treatment between hedges within the ACTP (excluded from the scope of RRAO) and hedges outside the ACTP.</p>	<p>including interest rate spread options, are subject to correlation risk. Therefore, a targeted exemption for interest spread options (where the spread is determined by different tenor points on the same yield curve) would be a deviation from the Basel text, which would raise level playing field issues at an international level.</p> <p>In addition, the EBA does not see any consistency issues with respect to the application of RRAO requirements. The EBA acknowledges that the Basel text and the CRR only exclude hedges which are part of the ACTP from the scope of RRAO. However, it should be taken into account that there are strict criteria for instruments to be allocated to the ACTP (see paragraphs (5) to (8) of Art. 325 of the CRR), e.g. restrictions on the type of underlyings and high standards of liquidity for those instruments.</p>	
<p>Question 8. Do you think that there are other products, not currently covered in these RTS (e.g. CMS derivatives), which are potential candidates for being covered in one of the parts of these RTS? Please provide your views, including rationale motivating the needs for such inclusions.</p>	<p>The respondent, while acknowledging that in general spread options are within the scope of the RRAO due to the embedded correlation risk, proposed to exclude CMS spread options (including caps, floors and swaptions) from the RRAO scope, due to their plain vanilla characteristics (e.g. simple pay-off based on the spread between two maturity points). As an alternative to the general exclusion, the respondent proposed to exempt from the RRAO charge CMS spread options that are used for hedging purposes.</p>	<p>The EBA is of the view that paragraph MAR23.5(1) of the Basel text explicitly states that all spread options, including CMS spread options, are subject to correlation risk. Hence, a targeted exemption for CMS spread options would be a deviation the Basel text, which would raise level playing field issues at an international level.</p> <p>The EBA takes note of the overview of the survey, which includes the potential impact of the FRTB-SA (SBM, DRC and RRAO) specifically connected to CMS spread options on a number of institutions. However, the EBA refersto the analysis of the Basel Committee</p>	No amendments.



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>The following reasons were provided.</p> <ul style="list-style-type: none"> a) Although they bear correlation risk, CMS spread options are considered plain vanilla instruments, i.e. simple and liquid products. In support of the liquidity argument, the respondent provided monthly data on broker quotes in the period from June 2019 to February 2020 for selected IR products (including CMS spread options). b) The RRAO framework is not risk sensitive and does not take into account specific DV01 characteristics. In support of this argument, the respondent highlighted that the DV01 ranges from 1bp for the 1y tenor swaption to 23bp for the 30y tenor swaption, whereas the DV01 for CMS products is fixed at 1bp. In addition, noting that the RRAO charge for hedging transactions which are not strictly 'back-to-back' is considered excessive/unwarranted, the respondent highlighted that CMS spread options are intensively used for hedging purposes, especially by European real money clients (pension funds and insurance companies). In support of this argument, the respondent provided sample calculations 	<p>on QIS data¹⁶ (31 December 2020), where the impact of the RRAO has been analysed on an aggregated basis.</p>	

¹⁶ <https://www.bis.org/bcbs/publ/d524.pdf>



Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>of IR delta, correlation delta, IR vega, the RRAO charge and lifetime cost of capital for an example trade together with the respective hedge.</p> <p>The respondent additionally provided a summary overview of a survey conducted by banks on CMS spread options (based on data of eight internationally active banks with significant activities in the EU). The results can be summarised as follows:</p> <ul style="list-style-type: none"> a) the share of RRAO of CMS spread options for a non-flow desk is 63% compared to the total FRTB-SA own funds requirements for that desk (SbM and DRC 23%, other RRAO 14%); b) the FRTB-SA own funds requirements for CMS spread options for a non-flow desk increase by 870% compared to Basel 2.5 own funds requirements; c) at firm level, the share of RRAO is 15% of the total FRTB-SA own funds requirements, of which 9% are allocated to CMS options and 6% to other instruments subject to the RRAO). 		