

ICAP BENCHMARKS FAMILY METHODOLOGY

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Version 1.1

| Version | Approved by | Date approved | Summary of changes |
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| 1.0 | Board of Directors | April 2022 | Initial Draft |
| 1.1 | Oversight Committee | 24 August 2022 | Non-Material Changes and material change of calculation time change (effective 5 Sept) |

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0.0 INTRODUCTION

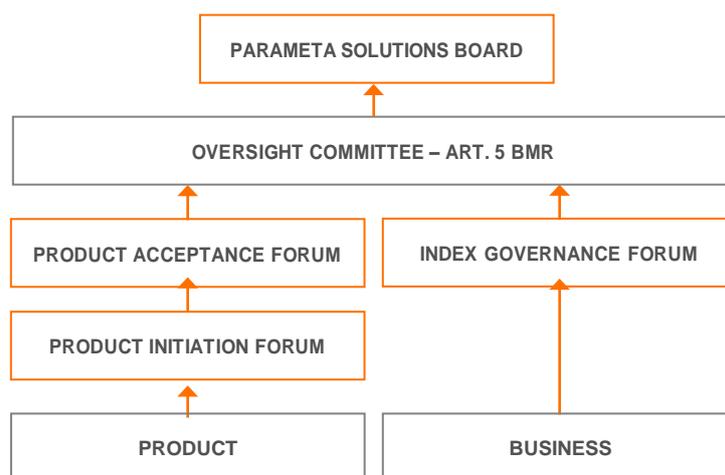
- 0.1 ICAP Information Services Limited trading as Parameta Solutions (“Parameta Solutions” or “Administrator”) develops, calculates and publishes indices. Such indices may also be licensed for use by third parties.
- 0.2 Parameta Solutions considers certain of these indices to fall within the definition of a ‘benchmark’ as defined under Regulation ((EU) 2016/1011) (EU BMR) or the UK version of Regulation (EU) 2016/1011 as onshored via the European Union (Withdrawal) Act 2018 (the “UK Benchmarks Regulation”) in each case together with the relevant technical standards (together the “Benchmark Regulation”).
- 0.3 This document sets out the methodology as required under Article 12 of Regulation (EU) 2016/1011 for the below mentioned benchmarks.
- 0.4 Parameta Solutions is the administrator of such benchmarks (as defined in Article 3(1)(6) of the Benchmark Regulation) and is regulated by the UK financial Conduct Authority.
- 0.5 This methodology is split into three parts (a) the governance section which is an overall framework for all benchmarks; (b) the specific details relating to the particulars for a benchmark and (c) disclosures and disclaimers.
- 0.6 The benchmarks are calculated and published intra-day by TP ICAP (Europe) SA (“Index Calculation Agent”). The Index Calculation Agent is responsible for compiling and calculating the benchmark pursuant to and on the basis of this methodology.
- 0.7 Benchmark data is published via various data vendors under licence from Parameta Solutions. Each vendor determines whether they will distribute/display the benchmark data via their respective information systems.
- 0.8 The benchmarks are made available via Reuters and Bloomberg.
- 0.9 For further information regarding the benchmarks including licensing and distribution, please contact findoutmore@parametasolutions.com

PART ONE

1.0 GOVERNANCE

1.1 OVERVIEW

1.1.1 Parameta Solutions has in place a “Three Lines of Defence” model, enabling close cross monitoring of the governance process - this being business, compliance/risk and audit who all have a key role in ensuring that Parameta Solutions meets its regulatory requirements. The overarching governance is complimented by the Oversight Committee. The Oversight Committee can escalate to the Parameta Solutions Board if required.



1.2 OVERSIGHT COMMITTEE

1.2.1 The Oversight Committee is appointed by the Administrator to review the integrity of the benchmarks, in accordance with the Oversight Committee Terms of Reference.

1.1.2 The Administrator is responsible for appointing the chairman and secretary of the Oversight Committee.

1.2.3 The Oversight Committee is independent oversight of, and challenge to the Administrator on all aspects of the Benchmark determination process. Its responsibilities include:

1.2.3.1 reviewing the benchmark definition and methodology at least annually;

1.2.3.2 determining and keeping under review the Terms of Reference for the Oversight Committee;

1.2.3.3 reviewing and approving the agenda and minutes of the Oversight Committee;

1.2.3.4 considering internal or external audits commissioned by the Oversight Committee and monitoring the implementation of any identified remedial actions;

1.2.3.5 overseeing any changes to this methodology and being able to request the Administrator to consult on such changes;

1.2.3.6 reviewing and approving procedures for cessation of the benchmarks, including any consultation about a cessation;

1.2.3.7 overseeing any third party involved in the provision of the benchmark, including calculation or dissemination agents.

1.3 BUSINESS FORUMS

- 1.3.1 The Product Initiation Forum (“PIF”) is responsible for the approval to initiate discussions regarding new products.
- 1.3.2 The Product Approval Forum (“PAF”) is responsible for the approval of new products.
- 1.3.3 Index Governance Forum (“IGF”) is responsible for (a) overseeing the provision of the benchmark operationally and with respect to the methodologies; and (b) supporting the Oversight Committee.

2.0 ERRORS

- 2.1 Whilst the benchmarks are governed by a set of rules that are set out in this methodology and are intended to be comprehensive, it is possible that errors, ambiguities or omissions to occur.
- 2.2 In such circumstances, Parameta Solutions shall:
 - 2.2.1 follow the process outlined in its Errors Policy;
 - 2.2.2 endeavor to resolve such ambiguity, error or omission using Expert Judgment and may, in consultation with the IGF, propose amendments to this methodology to reflect the resolution of such ambiguity, error or omission;
 - 2.2.3 assess the potential impact such change may have on Stakeholders in accordance with its Cessation and Transition Policy. Any such decision to consult with Stakeholders shall be considered by the Index Governance Forum and Oversight Committee;
 - 2.2.4 detail in the Benchmark Statement a summary of the specific procedures for dealing with errors in input data or in the determination of the benchmark, including when a re-determination of the benchmark is required. For example, with respect to the GBP Semi-Annual Swap Rate, if an error is made during the entry of the trade into TP ICAP systems (i.e. confusion between the identity of the buyer/seller, price or size), this will be addressed by carrying out trades that negate the effect of the error.

3.0 METHODOLOGY

- 3.1 Parameta Solutions may at any time undertake a periodic (and in any event annual) review of the benchmarks in circumstances where, for example, the benchmark is no longer representative of the economic reality or the relevant market. The IGF shall consider the findings following any such periodic review of a benchmark or benchmark family (as the case may be). In the event a change to a Benchmark is needed, this shall be handled in accordance with the Cessation and Transition Policy.
- 3.2 Each benchmark is subject to an initial approval and periodic review. Approval of this methodology is determined by the Benchmark Design Policy and the PAF Terms of Reference (for new methodologies) and the Cessation & Transition Policy and IGF (for reviews). Each terms of reference set out the process for nominating and removing persons involved in reviewing and approving the methodology guides.
- 3.3 In the event material changes are needed to this methodology, Parameta Solutions will assess the potential impact of such changes on stakeholders and (if it believes necessary) consult with stakeholders as set out below. The Oversight Committee may direct Parameta Solutions to consult on changes to this methodology with stakeholders or the wider market. The IGF will then approve any material amendments to this methodology before publication. Following approval, Parameta Solutions shall notify stakeholders of its determination to amend any methodology. Such notification shall where reasonable detail the proposed changes in the control sheet of this methodology. (where reasonable) the proposed changes.
- 3.4 In the event Parameta Solutions has determined a possible cessation of a benchmark is necessary, it shall prepare documentation to the IGF and Oversight Committee which will include but is not limited to (a) why cessation is deemed appropriate; (b) if a consultation is required and (c) if there is a suitable alternative identified by Parameta Solutions.

4.0 CONSULTATION PROCESS

4.1 Where Parameta Solutions determines a consultation is needed:

- 4.1.1 The IGF and the Oversight Committee will approve the contents of the consultation and the set of users and other stakeholders to which it should be distributed. The consultation will include as a minimum the key elements of the methodology Parameta Solutions believe will be affected by the proposed material change. The consultation will be available on the Parameta Solutions website.
- 4.1.2 Consultations will usually run for no less than 4 weeks, however, Parameta Solutions reserves the right to determine the most appropriate consultation period (including a shorter window for feedback) taking into consideration factors such as the complexity of the matters within the consultation.
- 4.1.3 Once the consultation period has closed, the results of the consultation and recommendations from the analysis are presented to the IGF and the Oversight Committee.
- 4.1.4 The final approval of a cessation, transition or the methodology change is made by the IGF. Following approval, Parameta Solutions shall notify stakeholders of its determination to terminate or amend this methodology. Such notification shall detail (where reasonable) the proposed changes.

5.0 MARKET DISRUPTION

- 5.1 Potential illiquidity, market disruption, unavailability of a pricing source may impact the ability to publish a benchmark and delay and/or suspension or discontinuance of a benchmark may result. In the case of extraordinary events or periods of market disruption, information about the event and the impact on the benchmarks will where reasonably practicable and proportionate be posted on the Parameta Solutions website and disseminated through client channels.

6.0 COMPLAINTS

- 6.1 Parameta Solutions has a publicly available Complaints Policy. All complaints are investigated by a person not directly involved with the benchmark calculation and dissemination. Information related to complaints will be stored in a restricted access area and kept for a period of up to 5 (five) years following the date when the complaint was first lodged. Complaints can be submitted at benchmarkqueries@parametasolutions.com

PART TWO

7.0 OVERVIEW OF THE BENCHMARKS

- 7.1 This section provides an overview of the methodology for the ICAP benchmarks set out in section 8 below.
- 7.2 The benchmarks provide mid-prices for the various swaps in which TP ICAP's Global Broking business provides broking services, derived from market data and the trades and expressions of interest it receives. These mid-prices are created to facilitate TP ICAP's broking activities, by providing an indication of the level of the implied mid-price in the relevant underlying swap rate, increasing transparency and the chances of successfully identifying counterparties for, and amongst its customers.
- 7.3 The mid-prices are anchored in bids, offers and trades received by the relevant ICAP trading desk using expert discretion where necessary, according to the governance principles outlined within this methodology and other policies and procedures followed by Parameta Solutions.
- 7.4 Each ICAP benchmark's underlying economic reality is an indication of the implied mid-price for the specific underlying swap, as listed and defined below, derived from data available to ICAP trading desks. The benchmarks are therefore indicative and do not necessarily represent the level at which any trade has or could be executed in the future.
- 7.5 The benchmarks are calculated to three decimal places.

| Benchmark | Economic reality |
|---|---|
| EUR 6M EURIBOR Swap - CME vs LCH | The rate that prices the basis point differential between an annual fixed vs 6-month EURIBOR floating rate Euro interest rate swap transaction cleared at CME and an annual fixed vs 6-month EURIBOR floating rate Euro interest rate swap transaction cleared at LCH, derived from data provided to the ICAP EUR Swaps desk. |
| EUR 6M EURIBOR Swap - EUREX vs LCH | The rate that prices the basis point differential between an annual fixed vs 6-month EURIBOR floating rate Euro interest rate swap transaction cleared at Eurex and an annual fixed vs 6-month EURIBOR floating rate Euro interest rate swap transaction cleared at LCH, derived from data provided to the ICAP EUR Swaps desk. |
| EUR 3M EURIBOR Swap - CME vs LCH | The rate that prices the basis point differential between an annual fixed vs 3-month EURIBOR floating rate Euro interest rate swap transaction cleared at CME and an annual fixed vs 3-month EURIBOR floating rate Euro interest rate swap transaction cleared at LCH, derived from data provided to the ICAP EUR Swaps desk. |
| EUR 3M EURIBOR Swap - EUREX vs LCH | The rate that prices the basis point differential between an annual fixed vs 3-month EURIBOR floating rate Euro interest rate swap transaction cleared at Eurex and an annual fixed vs 3-month EURIBOR floating rate Euro interest rate swap transaction cleared at LCH, derived from data provided to the ICAP EUR Swaps desk. |
| EUR EURIBOR - Annual Bond Swap vs 1m | The basis point differential between the EUR Annual Bond 30/360 Swap and the one-month EURIBOR Spot transactions, derived from data provided to the ICAP Euro IRS desk. |
| EUR EURIBOR Basis Swap - 3m vs 6m EURIBOR | The rate that prices the basis point differential between three-month EURIBOR vs six-month EURIBOR Spot transactions, derived from data provided to the ICAP Euro IRS desk. |
| EUR EURIBOR Basis Swap - 1m vs 3m EURIBOR | The rate that prices the basis point differential between one-month EURIBOR vs three-month EURIBOR Spot transactions, derived from data provided to the ICAP Euro IRS desk. |
| EUR Annual Swap Rate | The annual swap rate for euro swap transactions with a maturity of the Designated Maturity ¹ , derived from data provided to the ICAP Euro IRS desk. |

¹ Designated Maturity means an interest rate is a measure, typically stated as a percentage per annum, of the cost of borrowing funds in a specified currency for a stated period of time

8.0 BENCHMARKS

| Benchmark | Tenor | | | | | | Refinitiv Page* | Specific Criteria |
|---|-------|------|------|------|------|------|-----------------|--------------------------------|
| EUR 6M EURIBOR Swap - CME vs LCH | | 2yr | 3yr | 4yr | 5yr | 6yr | ICAPCCPBASIS4 | |
| | 7yr | 8yr | 9yr | 10yr | 12yr | 15yr | | Appendix – Section 1 - EUR IRS |
| | 20yr | 25yr | 30yr | 40yr | 50yr | | | |
| EUR 6M EURIBOR Swap - EUREX vs LCH | | 2yr | 3yr | 4yr | 5yr | 6yr | ICAPCCPBASIS4 | |
| | 7yr | 8yr | 9yr | 10yr | 12yr | 15yr | | Appendix – Section 1 - EUR IRS |
| | 20yr | 25yr | 30yr | 40yr | 50yr | | | |
| EUR 3M EURIBOR Swap - CME vs LCH | | 2yr | 3yr | 4yr | 5yr | 6yr | ICAPCCPBASIS5 | |
| | 7yr | 8yr | 9yr | 10yr | 12yr | 15yr | | Appendix – Section 1 - EUR IRS |
| | 20yr | 25yr | 30yr | 40yr | 50yr | | | |
| EUR 3M EURIBOR Swap - EUREX vs LCH | | 2yr | 3yr | 4yr | 5yr | 6yr | ICAPCCPBASIS5 | |
| | 7yr | 8yr | 9yr | 10yr | 12yr | 15yr | | Appendix – Section 1 - EUR IRS |
| | 20yr | 25yr | 30yr | 40yr | 50yr | | | |
| EUR EURIBOR - Annual Bond Swap vs 1m | 1yr | 2yr | 3yr | 4yr | 5yr | 6yr | ICAPEURO2 | |
| | 7yr | 8yr | 9yr | 10yr | 11yr | 12y | | Appendix – Section 1 - EUR IRS |
| | 15yr | 20yr | 25yr | 30yr | 40yr | 50yr | | |
| | 60yr | | | | | | | |
| EUR EURIBOR Basis Swap - 3m vs 6m EURIBOR | 1yr | 2yr | 3yr | 4yr | 5yr | 6yr | ICAPEUROBASIS | |
| | 7yr | 8yr | 9yr | 10yr | 11yr | 12y | | |
| | 15yr | 20yr | 25yr | 30yr | 40yr | 50yr | | Appendix – Section 1 - EUR IRS |
| | 60yr | | | | | | | |
| EUR EURIBOR Basis Swap - 1m vs 3m EURIBOR | 1yr | 2yr | 3yr | 4yr | 5yr | 6yr | ICAPEUROBASIS | |
| | 7yr | 8yr | 9yr | 10yr | 11yr | 12y | | Appendix – Section 1 - EUR IRS |
| | 15yr | 20yr | 25yr | 30yr | 40yr | 50yr | | |
| | 60yr | | | | | | | |
| EUR Annual Swap Rate | 1yr | 2yr | 3yr | 4yr | 5yr | 6yr | ICAPEURO | |
| | 7yr | 8yr | 9yr | 10yr | 11yr | 12y | | Appendix – Section 1 - EUR IRS |
| | 15yr | 20yr | 25yr | 30yr | 35yr | 40yr | | |
| | 45yr | 50yr | | | | | | |

*For details of the Bloomberg pages, please contact findoutmore@parametasolutions.com

9.0 INPUT DATA

- 9.1 The benchmarks primarily use input data that is either trades or trading interests received meeting minimum market sizes, denominated in notional amounts. Minimum market sizes are detailed in the tables within the appendix.
- 9.2 Secondary sources² include relevant trade data from futures or other regulated data exchanges with mandatory post trade transparency.
- 9.3 Trading interests that are restricted or qualified in such a way that they are only valid for a limited list of market participants, are excluded.
- 9.4 Only clients that have agreed to be bound by ICAP Terms of Business and that have been fully onboarded can agree transactions or show bids/offers to staff of the Index Calculation Agent.
- 9.5 The Index Calculation Agent shall notify Parameta Solutions of any issues with the input data which will then be investigated.
- 9.6 None of the Benchmarks are determined using contributions of input data.
- 9.7 All Benchmarks are subject to a number of tolerance checks with the intent of determining that the Benchmarks are reflective of the underlying market at a given time.
- 9.8 Input data used in the determination of the benchmarks is detailed below.

| Benchmark | |
|---|---------------------------|
| EUR 6M EURIBOR Swap - CME vs LCH | <i>Primary sources:</i> |
| EUR 6M EURIBOR Swap - EUREX vs LCH | |
| EUR 3M EURIBOR Swap - CME vs LCH | <i>Secondary sources:</i> |
| EUR 3M EURIBOR Swap - EUREX vs LCH | |
| EUR EURIBOR - Annual Bond Swap vs 1m | Bund futures |
| EUR EURIBOR Basis Swap - 3m vs 6m EURIBOR | EURIBOR futures |
| EUR EURIBOR Basis Swap - 1m vs 3m EURIBOR | Forwards |
| EUR Annual Swap Rate | |

- 9.9 The priority of the input data for all benchmarks is given to interests received and the nature of the trading interest, with the order of priority being outright, then outright with Futures crosses, then curve spreads and finally butterflies.

² This is a non-exhaustive list

10.0 BENCHMARK CALCULATIONS & DETERMINATIONS

- 10.1 The Index Calculation Agent will perform all calculations, determinations and adjustments in relation to the benchmarks (“Calculations”) with respect to the benchmarks. Neither the Index Calculation Agent or Parameta Solutions will have any responsibility for errors made in good faith or omissions in Calculations or other actions provided in this methodology.
- 10.2 The Calculations of the Index Calculation Agent shall be in accordance with this methodology.
- 10.3 It is not always possible for the Index Calculation Agent to be aware of (or independently validate) every order and every price in the market. However, Parameta Solutions undertakes quality assurance checks before the dissemination of any prices to the market. Neither Parameta Solutions or the Index Calculation Agent will publish or independently verify such data.
- 10.4 The calculation times are set out in the table below³:

| Benchmark | Open time (Madrid) | Close time (Madrid) |
|---|--------------------|---------------------|
| EUR 6M EURIBOR Swap - CME vs LCH | 8:00 | 18:30 |
| EUR 6M EURIBOR Swap - EUREX vs LCH | 8:00 | 18:30 |
| EUR 3M EURIBOR Swap - CME vs LCH | 8:00 | 18:30 |
| EUR 3M EURIBOR Swap - EUREX vs LCH | 8:00 | 18:30 |
| EUR EURIBOR - Annual Bond Swap vs 1m | 8:00 | 18:30 |
| EUR EURIBOR Basis Swap - 3m vs 6m EURIBOR | 8:00 | 18:30 |
| EUR EURIBOR Basis Swap - 1m vs 3m EURIBOR | 8:00 | 18:30 |
| EUR Annual Swap Rate | 8:00 | 18:30 |

- 10.5 The Index Calculation Agent will take the previous day’s close price as its basis for determining the benchmark opening price. In the event there is pre-open trading:
- 10.5.1 with respect to the EUR Annual Swap Rate, if such trading is on a futures or other regulated data exchange with mandatory post trade transparency, or other observable trading in instruments that are similar or have well understood correlation with the product each desk trades, price movements in these will be factored in to the opening price.
- 10.5.2 with respect to the other benchmarks (excluding EUR Annual Swap Rate), if such trading is on a forward or other regulated data exchange with mandatory post trade transparency, or other observable trading in instruments that are similar or have well understood correlation with the product each desk trades, price movements in these will be factored in to the opening price.
- 10.6 Throughout trading hours mid-prices will be continually assessed by reference to transactions brokered in market sizes and expressions of interest received by staff on the relevant desk, either by telephone, instant messenger such as Bloomberg or proprietary messaging electronic systems, and if deemed necessary, adjusted.

³ The Benchmarks are calculated on all days except Target (<https://www.ecb.europa.eu/paym/target/target2/profuse/calendar/html/index.en.html>) Holidays

- 10.7** The Index Calculation Agent uses expert judgment in accordance with principles set out in the relevant appendix as follows:
- 10.7.1** Priority is given to interests received and the nature of the trading interest, with the order of priority being outrights, then outrights with Futures crosses, then curve spreads and finally butterflies.
- 10.7.2** Discretion is retained to use trades executed and trading interests received that are smaller than market sizes, if deemed appropriate to maintain an accurate price.
- 10.7.3** In forming the mid-price, the chronological order of trading will always be taken into consideration.
- 10.7.4** In the absence of trading interests, the ICAP mid prices will continue to update, based on live levels of the appropriate (i) futures trading (with respect to the EUR Annual Swap Rate) or (ii) (with respect to all benchmarks excluding the EUR Annual Swap Rate) forwards trading in order to maintain the smoothness of the previous forward curve.
- 10.7.5** In the absence of counter interests, the last active trading interest will be reflected on the screen, in accordance with this protocol market size.
- 10.8** To the extent that (i) a market event is not fully anticipated or addressed in this methodology or (ii) any necessary data input is unavailable or considered by the Index Calculation Agent to be unreliable for any reason, then (after applying any applicable fall-back provision specified in this methodology) Expert Judgment may be used in determining the benchmark. Any exercise of Expert Judgment in non-routine circumstances and which could have a material effect⁴ on the Benchmark shall be escalated to the IGF for review and approval in advance wherever possible.

⁴ A material effect shall mean shall mean any changes which might significantly affect the Benchmark's representation of its intended Interest, including the composition that is impacted by the construction rules, market structure changes and/or eligibility rules.

APPENDIX TO PART 2

1.0 ICAP EUR IRS

THE PRINCIPLES WHICH INFLUENCE THE INDICATIVE PRICES

- 1.1 Due to running a model of voice markets in terms of price interaction and externally published indicative mids, ICAP wishes to treat each market fairly and with a similar approach to protocol while acknowledging the unique features of the voice market.
- 1.2 As a general principle, all voice indications of interest (“IOIs”) will therefore be matched with the best corresponding bid or offer, whether that is voice. In order to apply the same logic, the following principles apply:
 - 1.2.1 The notional amounts in Table 1A to 1E applies and will determine changes to the curves.
 - 1.2.2 Due to the hybrid features of the voice and electronic market, the externally published indicative mids may not reflect electronic trades when a better bid or offer is available in the voice market and is still available.
 - 1.2.3 Opposing electronic orders that are through the level of an existing voice order are flagged internally. This ensures oversight of the interaction between the unique features of electronic and voice markets and does not imply intent.
 - 1.2.4 Any pure voice trade which is greater than or equal to the Block Size that is traded in one notional block amount as a bilateral negotiation, will affect the published pages and will be reported to market participants unless requested not to by both parties to the trade.
 - 1.2.5 In the absence of trading interests, the EUR Annual Swap Rate will continue to update, based on live levels of Euribor, Bobl and Bund futures trading in order to maintain the smoothness of the previous forward curves.
 - 1.2.6 In the absence of trading interests, all benchmarks (excluding the EUR Annual Swap Rate) will continue to update, based on live levels of forwards trading in order to maintain the smoothness of the previous forward curve
 - 1.2.7 The ICAP Euro IRS desk will always take into consideration the chronological order of trading interests received and the nature of the trading interest, with the order of priority being outrights, then outrights with Futures crosses, then curve spreads and finally butterflies.
 - 1.2.8 Only trading interests that are in the minimum sizes (or larger) and also trading interests that remain in the market for a reasonable period of time for the market to trade on that price, are used to reflect the mid.
 - 1.2.9 The notional amounts in the tables below are in millions. The “reflection plus a margin” = 1/10th basis point for Euro IRS and Basis, except 3x6 basis which = 1/20th bp.
 - 1.2.10 Where a market exists on an outright tenor of 1/10th bp wide, any incremental price improvement will have no impact on the published mid.
 - 1.2.11 Any trading interests that are restricted or qualified in such a way that they are valid for a limited list of market participants will not impact the mid.
 - 1.2.12 ICAP has a regulatory obligation to maintain and support orderly markets. Any voice behaviour that could be interpreted as manipulative or disruptive will be flagged for investigation.

MATRIX OF NOTIONAL TRADE/TRADING INTEREST SIZES

- 1.3 See table 1A below.
- 1.4 The four columns refer to sizes:
 - 1.4.1 No impact on mid - (e.g. a trading interest of 8m 10yr will have no impact on mid);
 - 1.4.2 Mid reflection - (e.g. if 10yr mid =2.032 and a bid is shown to pay 2.032 in 30m, then the mid will not change. If the mid was 2.032 in 10yr and a bid is shown at 2.033 in 30m then the mid would move to 2.033 and then move in line with Eurex futures);
 - 1.4.3 Mid reflection plus a margin - the margin in Euro will be 1/10th bp (e.g. if 10yr mid = 2.032 and a bid is shown to pay 2.032 in 50m or more, the mid would be adjusted to 2.033). If liquidity changes either way, ICAP will advise change of the Euro margin (currently 1/10th bp) via email providing one week's notice;
 - 1.4.4 Block Sizes - any trade which is greater than or equal to the Block Size that is traded in one notional block amount will affect the published pages and will be reported to market participants unless requested not to by both parties to the trade.

OUTRIGHT IRS SPREAD AMOUNTS FOR MID REFLECTION PLUS A MARGIN

- 1.5 Shown in table 1B below.
- 1.6 An example of how this operates in practice is shown below:
 - 1.6.1 All spreads of 1yr gap or less = minimum of 200m longer leg.
 - 1.6.2 All spreads of 2yr gap = 100m longer leg
 - 1.6.3 All spreads that are 3yr gap or more but less than 10yr gap (e.g. 5x12) will use the greater of either the amounts shown in the matrix or 50m.

IRS BUTTERFLIES

- 1.7 Any butterfly of 3yr gap or less, on both gaps, needs to be in a minimum of 200m to have an impact on the mid, excluding any combination between, and inclusive, 1yr to 5yr which needs to be in 400m body to have mid reflection plus a margin. (This covers 1x2x3, 2x3x4 & 2x3x5 all in 400m body and also 3x5x7, 5x7x10 and 13x14x15 to be in min of 200m body).
- 1.8 Any butterfly with any gap longer than 3yr (so 2x5x10, 10x15x30, 20x25x30 etc.) needs to be in a minimum of 100m body for mid reflection plus a margin (the only exceptions to that rule are 30x40x50 and 40x50x60 flies at 50m), as long as any of those butterflies do not oppose the mid reflection for outrights, outrights with Futures crosses & curve spreads in that order of priority.
- 1.9 If the underlying interest of any Eurex future or cash bond is substantially less than the liquidity of the swap market (for example the BUXL in comparison to 30yr swap), then this will not be used as an accepted metric.

BASIS OUTRIGHT AMOUNTS

- 1.10 All Basis amounts for 3x6, 3x1, 6x1, 3x12 & 6x12, CCP Basis (Eurex v LCH and CME v LCH), are shown in tables 1C and 1D below.
- 1.11 Parameta Solutions and the Index Calculation Agent reserves the right to amend these amounts if we regularly observe a change in sizes traded and shall notify the market in accordance with its governance framework.

BASIS SPREAD AMOUNTS IN 3X6 FOR MID REFLECTION PLUS A MARGIN

| | |
|---------------------------------|---|
| All 1yr gap spreads | = 500m longer leg |
| All 2yr gap spreads | = 250m longer leg |
| All 3yr gap spreads | = 200m longer leg |
| All 4yr or 5yr gap spreads | = the greater of either 100m longer leg or the longer leg outright amount, using mid reflection plus a margin sizes. (e.g. 2x6 = 200m and 20x25 = 100m) |
| All spreads longer than 5yr gap | to be in minimum size of the longer leg outright amount, using mid reflection plus a margin sizes. |

BASIS SPREAD AMOUNTS IN EURIBOR, 3X1, 6X1, 3X12 & 6X12, CCP BASIS (EUREX V LCH AND CME V LCH) FOR MID REFLECTION PLUS A MARGIN

| | |
|-------------------------------------|---|
| All 1yr gap spreads | = 250m longer leg |
| All 2yr, 3yr, 4yr & 5yr gap spreads | = the greater of either 100m longer leg (e.g. 6x8, 9x12, 5x10 & 20x25), or the longer leg outright amount, using mid reflection plus a margin sizes (e.g. 1x4 = 250m) |
| All spreads longer than 5yr gap | to be in minimum size of the longer leg outright amount, using mid reflection plus a margin sizes. |

BASIS BUTTERFLY AMOUNTS FOR ALL BASIS STRUCTURES FOR MID REFLECTION PLUS A MARGIN

| | |
|--|---|
| All flies between, and inclusive, 1yr to 5yr | = 500m body (e.g. 2x3x4 & 2x3x5) |
| All 1yr gap flies where short leg is 5yr or longer | = 500m body (e.g. 5x6x7, 11x12x13 & 20x21x22) |
| Any other fly | = 250m body |

- 1.12 In all basis structures, we will also take into consideration the chronological manner that trading interests are given to us and the nature of the trading interests, with the order of priority being outrights, then spreads and finally butterflies.

MARKET NOTIFICATIONS

- 1.13 If the ICAP Euro IRS desk observes market size changes over a sustained period, it reserves the right to adjust the notional amounts either up or down, giving the market one week's notice before the change will be implemented which Parameta Solutions can notify the market in accordance with its governance framework.

TABLE 1C - OUTRIGHT BASIS NOTIONAL AMOUNTS FOR 3X6 BASIS

| | No impact on mid | Mid reflection | Mid reflection plus a margin | Block |
|-----|------------------|----------------|------------------------------|-------|
| 1y | 0 to <250 | 250 to <500 | 500+ | 1500 |
| 2y | 0 to <150 | 150 to <250 | 250+ | 750 |
| 3y | 0 to <100 | 100 to <250 | 250+ | 600 |
| 4y | 0 to <100 | 100 to <250 | 250+ | 600 |
| 5y | 0 to <100 | 100 to <200 | 200+ | 500 |
| 6y | 0 to <100 | 100 to <200 | 200+ | 500 |
| 7y | 0 to <100 | 100 to <200 | 200+ | 500 |
| 8y | 0 to <100 | 100 to <200 | 200+ | 400 |
| 9y | 0 to <100 | 100 to <150 | 150+ | 400 |
| 10y | 0 to <100 | 100 to <150 | 150+ | 350 |
| 11y | 0 to <75 | 75 to <100 | 100+ | 350 |
| 12y | 0 to <75 | 75 to <100 | 100+ | 350 |
| 15y | 0 to <75 | 75 to <100 | 100+ | 250 |
| 20y | 0 to <40 | 40 to <75 | 75+ | 200 |
| 25y | 0 to <30 | 30 to <50 | 50+ | 200 |
| 30y | 0 to <25 | 25 to <50 | 50+ | 200 |
| 35y | 0 to <25 | 25 to <50 | 50+ | 100 |
| 40y | 0 to <25 | 25 to <50 | 50+ | 100 |
| 45y | 0 to <25 | 25 to <50 | 50+ | 100 |
| 50y | 0 to <25 | 25 to <50 | 50+ | 100 |
| 60y | 0 to <25 | 25 to <50 | 50+ | 100 |

TABLE 1D – OUTRIGHT BASIS NOTIONAL AMOUNTS FOR 3X1 BASIS AND CCP BASIS (EUREX V LCH AND CME V LCH)

| | No impact on mid | Mid reflection | Mid reflection plus a margin | Block |
|-----|------------------|----------------|------------------------------|-------|
| 1y | 0 to <250 | 250 to <400 | 400+ | 1500 |
| 2y | 0 to <100 | 100 to <250 | 250+ | 750 |
| 3y | 0 to <100 | 100 to <200 | 200+ | 600 |
| 4y | 0 to <100 | 100 to <150 | 150+ | 400 |
| 5y | 0 to <100 | 100 to <150 | 150+ | 400 |
| 6y | 0 to <100 | 100 to <150 | 150+ | 400 |
| 7y | 0 to <100 | 100 to <150 | 150+ | 400 |
| 8y | 0 to <75 | 75 to <100 | 100+ | 250 |
| 9y | 0 to <75 | 75 to <100 | 100+ | 250 |
| 10y | 0 to <75 | 75 to <100 | 100+ | 250 |
| 11y | 0 to <75 | 75 to <100 | 100+ | 250 |
| 12y | 0 to <75 | 75 to <100 | 100+ | 250 |
| 15y | 0 to <50 | 50 to <100 | 100+ | 200 |
| 20y | 0 to <25 | 25 to <50 | 50+ | 200 |
| 25y | 0 to <25 | 25 to <50 | 50+ | 200 |
| 30y | 0 to <25 | 25 to <50 | 50+ | 200 |
| 35y | 0 to <25 | 25 to <50 | 50+ | 100 |
| 40y | 0 to <25 | 25 to <50 | 50+ | 100 |
| 45y | 0 to <25 | 25 to <50 | 50+ | 100 |
| 50y | 0 to <25 | 25 to <50 | 50+ | 100 |
| 60y | 0 to <25 | 25 to <50 | 50+ | 100 |

TABLE 1E - "PLUS A MARGIN" AMOUNTS

| | |
|---|----------------------|
| EUR IRS and Basis (excl. 3x6 basis and CCP Basis) | - 1/10th basis point |
| EUR 3x6 basis and CCP Basis | - 1/20th basis point |

EXPLANATION OF HOW ESG FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY

| | |
|---|---|
| ITEM 1. Name of the benchmark administrator. | ICAP Information Services Limited |
| ITEM 2. Type of benchmark or family of benchmarks. <i>Choose the relevant underlying asset from the list provided in Annex II to Commission Delegated Regulation (EU)2020/1816.</i> | |
| ITEM 3. Name of the benchmark or family of benchmarks. | ICAP Benchmarks |
| ITEM 4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <p>ITEM 5. Where the response to Item 4 is positive, please list below, for each family of benchmarks, those ESG factors that are taken into account in the benchmark methodology, taking into account the ESG factors listed in Annex II to Delegated Regulation (EU) 2020/1816.</p> <p>Please explain how those ESG factors are used for the selection, weighting or exclusion of underlying assets. The ESG factors shall be disclosed at an aggregated weighted average value at the level of the family of benchmarks.</p> | |
| (a) List of environmental factors considered: | Selection, weighting or exclusion: |
| (b) List of social factors considered: | Selection, weighting or exclusion: |
| (c) List of governance factors considered: | Selection, weighting or exclusion: |
| <p>ITEM 6. Where the response to Item 4 is positive, please list below, for each benchmark, those ESG factors that are taken into account in the benchmark methodology, taking into account the ESG factors listed in Annex II to Delegated Regulation (EU) 2020/1816, depending on the relevant underlying asset concerned.</p> <p>Please explain how those ESG factors are used for the selection, weighting or exclusion of underlying assets. The ESG factors shall not be disclosed for each constituent of the benchmark, but shall be disclosed at an aggregated weighted average value of the benchmark.</p> <p>Alternatively, all of this information may be provided in the form of a hyperlink to a website of the benchmark administrator included in this explanation. The information on the website shall be easily available and accessible. Benchmark administrators shall ensure that information published on their website remains available for five years.</p> | |
| (a) List of environmental factors considered: | Selection, weighting or exclusion: |
| (b) List of social factors considered: | Selection, weighting or exclusion: |
| (c) List of governance factors considered: | Selection, weighting or exclusion: |
| Hyperlink to the information on ESG factors for each benchmark: | |
| ITEM 7. Data and standards used | |
| (a) Data input <i>(i) Describe whether the data reported, modelled or sourced internally or externally</i> <i>(ii) Where the data are reported, modelled or sourced externally, please name third party data provider.</i> | |
| (b) Verification and quality of data. Describe how data are verified and how the quality of those data is ensured. | |
| (c) Reference standards <i>Describe the international standards used in the benchmark methodology.</i> | |
| Date on which information has been last updated and reason for the update: | |

ICAP BENCHMARKS FAMILY METHODOLOGY
EFFECTIVE DATE 05 September 2022
VERSION 1.1



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