AUD Interest Rate Swap Volatility Index Family Methodology

June 2026

Version	Approved by	Date	Summary of changes
1.0	Product Acceptance Forum	5th June 2025	Initial Draft
1.1	IGF	25th Jun 2026	Annual review

1 Introduction

1.1 Overview

1.1.1 ICAP Information Services Limited trading as Parameta Solutions (“Parameta Solutions”) develops, calculates and publishes indices.

1.1.2 This methodology is split into three parts

a) The governance section which is an overall framework for all indices;
b) The specific details relating to the particulars for an index and
c) Disclosures and disclaimers

1.1.3 The indices are calculated and published by Parameta Solutions (“Index Calculation Agent”). The Index Calculation Agent is responsible for compiling and calculating the index pursuant to and on the basis of this methodology.

1.1.4 Indices are published via various data vendors under licence from Parameta Solutions. Each vendor determines whether they will distribute/display the index via their respective information systems.

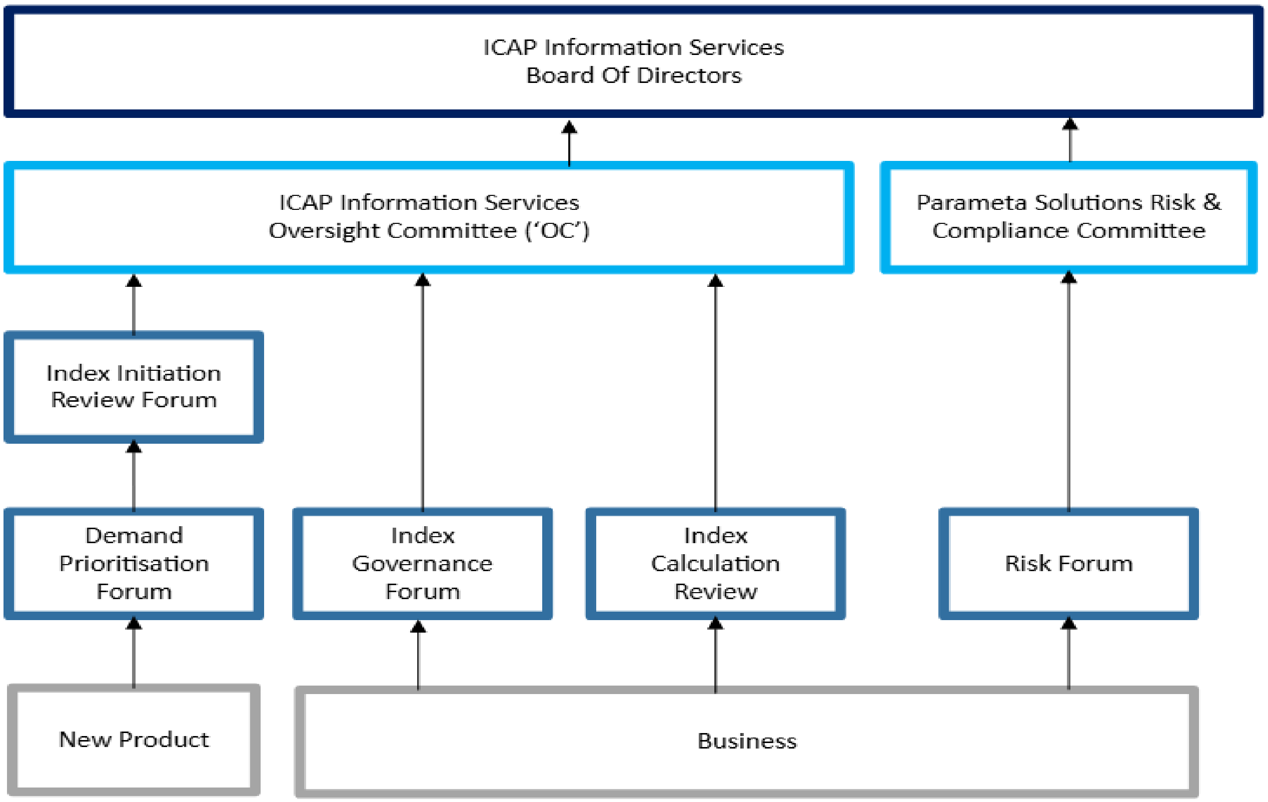
1.1.5 These indices cannot be used as a benchmark as defined under UK or EU Benchmark Regulation(“BMR”), neither under IOSCO principles without a signed licence or agreement with Parameta Solutions.

1.1.6 For further information regarding the indices including licensing and distribution, please contact findoutmore@parametasolutions.com

2 Part One -Governance

2.1 Overview

2.1.1 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 where it has either (a) indices capable of being Benchmarks under the relevant Benchmark Regulation or (b) Benchmarks as defined under the relevant Benchmark Regulation. The over-arching governance is complimented by the Oversight Committee which can escalate to the Parameta Solutions Board if required.



2.2 Oversight Committee ("OC")

2.2.1 The OC is appointed by the Parameta Solutions to review the integrity of the indices, in accordance with the Oversight Committee Terms of Reference.

2.2.2 Parameta Solutions is responsible for appointing the chairman and secretary of the OC.

2.2.3 The OC provides independent oversight of, and challenge to Parameta Solutions on all aspects of the index determination process. Its responsibilities include:

2.2.4 Reviewing the index definition and methodology at least annually

2.2.5 Determining and keeping under review the Terms of Reference for the OC.

2.2.6 Reviewing and approving the agenda and minutes of the OC.

2.2.7 Considering internal or external audits commissioned by the OC and monitoring the implementation of any identified remedial actions

2.2.8 Overseeing any changes to this methodology and being able to request Parameta Solutions to consult on such changes

2.2.9 Reviewing and approving procedures for cessation of the indices, including any consultation about a cessation

2.2.10 Overseeing any third party involved in the provision of the index, including calculation or dissemination agents.

2.3 Business Forums

2.3.1 The Parameta Solutions Change Management Forum ("PS CMF") is responsible for the approval to initiate new products and the approval of new products.

2.3.2 Index Governance Forum ("IGF") is responsible for (a) overseeing the provision of the index operationally and with respect to the methodologies; and (b) supporting the OC..

3 Errors

3.1 Errors or Omissions

3.1.1 Whilst the indices 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.

3.1.2 In such circumstances, Parameta Solutions shall:

3.1.3 Follow the process outlined in its Errors Policy

3.1.4 Endeavour 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

3.1.5 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 IGF and OC.

3.1.6 Detail in the Benchmark Statement a summary of the specific procedures for dealing with errors in input data or in the determination of the index, including when a re-determination of the index is required.

4 Methodology

4.1 Overview

4.1.1 Parameta Solutions may at any time undertake a periodic (and in any event annual) review of the indices in circumstances where, for example, the index is no longer representative of the economic reality or the relevant market. The IGF shall consider the findings following any such periodic review of an index or index family (as the case may be). In the event a change to an index is needed, this shall be handled in accordance with the Cessation and Transition Policy.

4.1.2 Each index is subject to an initial approval and periodic review. Approval of this methodology is determined by the Benchmark Design Policy and the PS CMF 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.

4.1.3 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 OC 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.

4.1.4 In the event Parameta Solutions has determined a possible cessation of an index is necessary, it shall prepare documentation to the IGF and OC 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.

5 Consultation Process

5.1 Where Parameta Solutions determines a consultation is needed:

5.1.1 The IGF and the OC 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.

5.1.2 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.

5.1.3 Once the consultation period has closed, the results of the consultation and recommendations from the analysis are presented to the IGF and the OC.

5.1.4 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.

6 Market Disruption

6.1 Unavailability of a pricing source

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

7 Complaints

7.1 Complaints Policy

7.1.1 Parameta Solutions has a publicly available Complaints Policy. All complaints are investigated by a person not directly involved with the index 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

8 Part two – Overview of the Indices

8.1 Methodology Overview

8.1.1 This section provides an overview of the methodology for the Parameta Solutions AUD Interest Rate Swap Volatility Index Family (the "AUD IRSV") set out in section 9 below.

8.1.2 The AUD IRSV provides an indicative measure of the "forward looking" or "expected" volatility of AUD swap rates at various tenors and time horizons derived from the interest rate swaptions market. The indices are calculated and published for days where both;

a) the ICAP Interest Rate Option Desk ('ICAP IRO Desk') publish swaption prices, and
b) Australian. banks are open for business.

8.1.3 Interest rate swaptions are defined as options that grant the owner the right to enter into an interest rate swap on an agreed future date, this swap can be a fixed rate receiver or a fixed rate payer. Each swaption is characterised by:

a) an expiry date, being the date on which the option expires;
b) a swap tenor, being the length or period of the interest swap;
c) an option type, receiver, payer or straddle (a straddle is combination of a payer and receiver swap with the same strike rate and expiry); and
d) the strike rate, being the fixed interest rate of the swap.

8.1.4 Each index is derived from readily available indicative mid-market interest rate swaption pricing data comprising for each expiry and tenor combination;

a) At-the-money ("ATM") prices (ATM is where the option strike rate is the prevailing forward swap rate for the option expiry date);
b) ATM implied volatility (the market expected volatility); and
c) Out-of-the-money ("OTM", or "skew") prices (OTM is where the option strike rate is higher or lower than the prevailing forward swap rate).

8.1.5 Further details of the input data are set out in Section 10.

8.1.6 An index is calculated for each expiry and tenor of the input data resulting in a single consolidated implied volatility value per day. The AUD IRSV is therefore an indicative measure of expected volatility and does not necessarily represent the level at which any trade has or could be executed in the future.

8.1.7 A detailed list of the index names and the economic reality they represent, is provided in section 9.

9 Indices

9.1 Option Expiry and Swap Tenors

9.1.1 At launch the AUD IRSV will consist of an index for each of the following option expiry, swap tenor combinations:

AUD IRSV Indices		Swap Tenor (T in years)					
		01Y	02Y	05Y	10Y	20Y	30Y
Option Expiry (E)	01M	01M01Y	01M02Y	01M05Y	01M10Y	01M20Y	01M30Y
	03M	03M01Y	03M02Y	03M05Y	03M10Y	03M20Y	03M30Y
	06M	06M01Y	06M02Y	06M05Y	06M10Y	06M20Y	06M30Y
	01Y	01Y01Y	01Y02Y	01Y05Y	01Y10Y	01Y20Y	01Y30Y
	02Y	02Y01Y	02Y02Y	02Y05Y	02Y10Y	02Y20Y	02Y30Y
	05Y	05Y01Y	05Y02Y	05Y05Y	05Y10Y	05Y20Y	05Y30Y
	10Y	10Y01Y	10Y02Y	10Y05Y	10Y10Y	10Y20Y	10Y30Y

9.1.2 Each index is intended to represent “the expected volatility of <T> year AUD swap rates over the next <E> months(s)/year(s) derived from the Input Data” where T and E are taken from the table above as indicated in the column headings. For example, the intended “economic reality” for the Parameta 01Y05Y AUD IRS Volatility Index is “An indication of the expected volatility of 5 year AUD swap rates over the next 1 years’ time derived from the Input Data.

9.1.3 The Calculation time for these indices is 16:30pm (local time)

9.1.4 The daily index level is published approximately 30 minutes later.

10 Input Data

10.1 Input Data Overview

10.1.1 For input data, the AUD IRSV uses the available indicative mid-market levels of interest rate swaption premiums from the ICAP AUD IRO desk (“Input Data’)

10.1.2 The Input Data is created by the ICAP AUD IRO Desk that provides broking services in interest rate options products denominated in the Australian Dollar currency. This data comprises indicative mid-market swaption premium levels that reflect the desk’s expert judgement of prevailing market conditions. These levels are informed by a combination of observable market activity including firm and indicative orders, executed trades, and expressions of client interest as well as the desk’s internal pricing models and historical context.

10.1.3 The ICAP AUD IRO Desk follows screen principles which govern how it updates the mid-markets levels for interest rate swaption premiums and includes chronology of priority of input data and exclusions.[1] The screens are based on the principle that each market displays sufficient underlying liquidity that relationships between prices need only be updated when observable changes have occurred, as evidenced through new prices or trades. Where there are no new trades or orders, the ICAP AUD IRO Desk maintains volatilities in line with recent history and will refresh prices based on changes in other pricing parameters. Skews are calibrated separately based on market observations.

10.1.4 The following input data is sourced from the ICAP AUD IRO desk:

- Swaption at-the-money (ATM) mid-price premium
- Swaption ATM Normal Volatility
- Swaption skew mid-price premia data across the following payer and receiver strikes 200, 150, 100, 50, 25[2]

10.1.5 The Input Data is readily available through Bloomberg, Refinitiv and other data providers.

10.1.6 The Input Data is subject to a number of validation and tolerance checks by Parameta Solutions, as well as checks to flag spurious data where possible. Input Data is also corroborated systematically against other data sources.

[1] Further details of the screen principles which determine the construction of the mid-market levels which form the Input Data are available on request

[2] Prior to 2nd Jan 2025 the indices are based on levels at 16:30 pm local time.

11 Index Calculation & Determinations

11.1 Calculations Overview

11.1.1 Parameta Solutions will perform all calculations, determinations and adjustments ("Calculations") in relation to the indices. Parameta Solutions will not have any responsibility for errors made in good faith or omissions in Calculations or other actions provided in this methodology. No discretion is exercised in the calculation of the indices.

11.1.2 The Calculations of the indices shall be in accordance with this methodology.

11.1.3 The AUD IRSV indices are calculated on days where both

a) the ICAP AUD IRO Desk publish swaption prices, and
b) Australian. banks are open for business.

11.1.4 An index is calculated for each combination of option expiry (e_p) and underlying swap tenor (u_p):

- Option expiries (e_p): 1M, 3M, 6M, 1Y, 2Y 5Y, and 10Y
- Underlying Swap Tenor points (u_p): 1Y, 2Y, 5Y, 10Y, 20Y and 30Y.

11.1.5 We first define the intra-day indicative basis point volatility for each combination of option expiry e_p and underlying swap tenor u_p IVL^{bp}. Each of these is calculated intra-day from a set of at-the-money (ATM) and specified out-of-the-money (OTM) strikes for this combination of option expiry and tenor. The IVL^{bp} is calculated intra-day during the period when the ICAP AID IRO Desk is publishing prices.

11.1.6 The calculation of the IVL^{bp} is based on the research of Mele & Obayashi (2015)[3] which provides a theoretical foundation for measuring interest rate swap volatility based on the model-free fair value of variance swap contracts for forward swap rates.

11.1.7 The index of basis point swap-rate volatility IVL^{bp} for an option expiry tenor ep, underlying swap tenor up combination is calculated as the square root of the annualised variance swap price (P^{bp}).

$$IVL^{bp}(i,t,u_p,e_p) = 100^2 x \sqrt{\frac{P^{bp}(i,t,u_p,e_p)}{e_p - t}}$$

11.1.8 The fair price of a variance swap at time I on day t is approximated from the ATM swaption straddle price and a discrete set of OTM receiver and payer swaption prices (input data from the ICAP AUD IRO desk):

$$P^{bp}(i,t,u_p,e_p) \approx \frac{2}{PVBP_t(u_p,e_p)} \left(\sum_{n=0}^{N} Premium(K_n,u_p,e_p).w_n \right)$$

Where:

$Premium(K_n,u_p,e_p)$ is the call or put premium (or the ATM straddle premium divided by 2)K is the strike price
$PVBP_t(u_p,e_p)$ is the price value of a basis point at time I on day t of swap tenor u_p starting at e_p
N is the count of discrete OTM receiver and payer swaptions used in the approximation + 1 for the ATM Straddle
w_n is the average distance between neighbouring strikes (except for the smallest and largest strikes where this is the distance from the adjacent strike):

$$w_n = \begin{cases} K_1 - K_0 & n = 0 \\ \dfrac{K_{n+1} - K_{-n}}{2} + \dfrac{K_n - K_{n-1}}{2} & n > 0 \; or \; n < N \\ K_n - K_{n-1} & n = N \end{cases}$$

and the swaption premia $Premium(Kn, up, ep)$ are ordered by relative strike such that $K_i < K_j$ for $i < j$.

11.1.9 The AUD IRSV indices are calculated after market close each index business day as a time weighted average of the intra-day indicative basis point volatility levels IVL^{bp} during a two hour window prior to the close. The close time is taken to be 16:30pm local time, except for local bank holidays.

$$IRSV^{bp}(t,u_p,e_p) = \sum_i \frac{elapsed\_time_i * IVL^{bp}(i,t,u_p,e_p)}{window\_length}$$

Where:

$IVL^{bp}(i,t,u_p,e_p)$ is the intra-day indicative basis-point volatility level at time i, on day t of swap tenor u_p starting at e_p.

$elapsed\_time_i$ is the number of seconds during the close window that the IVL^{bp} stayed at level $IVL^{bp}(i,t,u_p,e_p)$

[3] Mele, Antonio & Obayashi, Yoshiki. (2015). Interest Rate Swaps. 10.1007/978-3-319-26523-0_3

$window\_length$ is the length of the close window in seconds.

11.1.10 If for any reason it is not possible to calculate a time weighted average of the intra-day indicative basis point volatility levels, the AUD IRSV will be set to the last available intra-day indicative basis point volatility level prior to the close time.

11.1.11 Historical levels of the AUD IRSV from April 2021 are calculated using TPICAP group inputs.

12 ESG Disclosures

12.1 Explanation of How ESG Factors are reflected in the methodology

ITEM 1. Name of the benchmark administrator.	ICAP Information Services Limited
ITEM 2. Type of benchmark or family of benchmarks. *Choose the relevant underlying asset from the list provided in Annex II to Commission Delegated Regulation(EU)2020/1816.*	Other
ITEM 3. Name of the benchmark or family of benchmarks.	Parameta Solutions Interest Rate Swap Volatility Indices
ITEM 4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	No

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.

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.

(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:

ITEM 6. Where the response to Item 4 is positive, please list below, for each benchmark, those ESG factors that are taken intoaccount 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.

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 aggregatedweighted average value of the benchmark.

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.

(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 eachbenchmark:	
ITEM 7. Data and standards used	
(a) Data input *(i) Describe whether the data reported, modelled orsourced internally or externally* *(ii) Where the data are reported, modelled or sourcedexternally, please name third party data provider.*	
(b) Verification and quality of data. Describe how data are verified and how the quality of thosedata is ensured.	
(c) Reference standards *Describe the international standards used in the benchmarkmethodology.*	
Date on which information has been last updated andreason for the update:	

13 Part three - Disclaimer

14 Contact Us

For further information please email: benchmarkqueries@parametasolutions.com

Sales:	findoutmore@parametasolutions.com
Support:	operations@parametasolutions.com