Jibar to Prime Lending Rate: Recommended fallback methodology

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SARB MPG TRANSITION PLANNING AND COORDINATION WORKSTREAM

CREDIT ADJUSTMENT SPREAD SUBWORKSTREAM

PROPOSAL FOR JIBAR TRANSITION AND FALLBACK CREDIT ADJUSTMENT SPREADS FOR THE SOUTH AFRICAN INTEREST RATE MARKET: PRIME RATE

DRAFT DOCUMENT

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1. Overview

As part of the broader Johannesburg Interbank Average Rate (Jibar) Reform Industry Programme, a key milestone was achieved with the adoption and implementation of the Jibar to the South African Rand Overnight Index Average (ZARONIA) credit adjustment spread (CAS), now fixed and published by Bloomberg following the announcement of Jibar's cessation on 3 December 2025. The accepted proposal in [1] outlines a fallback methodology for Jibar, applying a CAS to a compounded ZARONIA rate.

Work on the Jibar to compounded ZARONIA fallback methodology was conducted by the CAS Sub-workstream of the Market Practitioners Group (MPG) Transition Planning and Coordination Workstream. Subsequently, the mandate of this sub-workstream was expanded to include an assessment of a Jibar to Prime Lending Rate CAS, primarily to support use cases within the retail market. Recognising the need for consistency, transparency and operational feasibility, the sub-workstream conducted multiple rounds of analysis.

The sub-workstream adopted a similar approach to that outlined in proposal [1], presenting a fallback methodology for Jibar as a CAS to the Prime rate, specifically as a spread adjustment to an averaged and compounded Prime rate.

Two main rounds of analysis were conducted:

- Round 1 focused on assessing the applicability of the approved Jibar CAS methodology in the context of the Prime rate, using a five-year (5Y) lookback period.
- Round 2 explored alternative approaches, extending the lookback period to 20 years to ensure an appropriate and practical outcome for retail products.

The purpose of this paper is to present the outcome of this analysis and seek industry alignment on the approved Prime rate CAS methodology and its intended use, thereby providing clarity and guidance to market participants as part of the broader transition framework.

The analysis was based on a floating rate loan agreement where the interest rate for a three-month (3M) period is fixed and paid as follows:

- The 3M Jibar rate, fixed at the start of the 3M period, is converted into an equivalent nominal annual, compounded monthly (NACM) rate and rounded up to the nearest first decimal place when expressed as a percentage. For example, a rate of 6.49% would be rounded up to 6.5%, as would a rate of 6.41% (i.e. rounded up to 10 basis points [bps]).

- This equivalent NACM rate, plus a trade spread, is paid at the end of each one-month (1M) period within this 3M term.

This methodology aligns with the pricing of 3M Jibar-linked home loans with monthly repayment.
Key factors to consider:

- Work done as part of this analysis should not be applied indiscriminately to all 3M Jibar-linked contracts containing fallback language referencing the Prime rate.
- Caution is advised where the 3M Jibar rate is not converted to an NACM rate or where the rate is not rounded up, for example.

With the announcement of Jibar's cessation on 3 December 2025, a finalised fallback spread can be calculated, provided a fallback methodology is applied. In summary, Table 1 below shows both unrounded and rounded up median values for the fallback spread, using 5Y and 20-year (20Y) lookback periods:

Table 1: Unrounded and rounded up median values for the fallback spread

MEDIAN	UNROUNDED	ROUNDED
5Y	-345.0	-340.0
20Y	-338.9	-330.5

A 5Y lookback period aligns with the accepted methodology outlined in [1] for a CAS where historical data was not available beyond this timeframe. Extending the lookback period to 20 years in Round 2 of this analysis, now that historical data is available, allows for more stable results across the data set. However, extending the lookback period beyond five years incorporates the 2020 COVID period as well as earlier monetary and liquidity regimes, which may not accurately reflect current and expected future market conditions.

Section 2 summarises points for consideration by the MPG. From Section 3 onwards, technical details are provided.

2. Workstream considerations

a. Arguments for retaining a five-year lookback period

Several workstream participants emphasised the importance of consistency and fairness, particularly:

- Maintaining alignment with the existing Jibar CAS methodology to avoid divergent outcomes between related instruments.
- Concerns that using longer lookback periods could introduce cross-subsidisation effects, such as differences between institutional and retail outcomes.
- Acknowledgement that the most recent 5Y period reflects a materially different monetary and liquidity regime, which should not be diluted by including older data.

b. Arguments for considering a longer lookback period

Counterarguments were presented, mainly from a practical and lending economics perspective:

- The Prime rate CAS is applied to a bespoke Jibar variant (3M Jibar converted to NACM and rounded up), used primarily for home loans rather than across the broader market.
- Longer lookback periods align more closely with long-term home loan pricing benchmarks traditionally used by lenders.
- Technical adjustments (such as rounding effects) may reduce differences between outcomes based on 5Y and 20Y periods, although these would apply regardless of the window chosen.

c. Consensus and publication

Based on the arguments outlined above, the workstream reached consensus to align with the existing Jibar CAS methodology: using the median spread over a 5Y lookback period, with appropriate rounding applied where relevant.

It was agreed that Bloomberg publication is not essential for Prime rate CAS. Instead, a clear, authoritative publication point, such as the South Arican Reserve Bank (SARB) website, is required so investors and market participants can reference a single, stable document. The workstream supported publishing a single, fixed Prime rate CAS value for the already determined cessation announcement date.

3. Daily observations for a fallback spread

The problem statement cannot be solved at trade level, so we set aside the trade spread component. With this simplification and disregarding any funding considerations, the payment of the equivalent NACM rate at the end of each 1M period can be restructured. More specifically, we defer the first 1M payment by adding the interest to the principal amount for the second 1M period. Interest in the second month is then earned on this gross principal amount. At the end of the second month, the interest payment is again deferred and added to the gross principal amount. The same procedure is followed in the final month. The difference between the gross principal amount at the end of the 3M period and the initial principal amount is the total interest for the entire 3M period. In other words, each payment is deferred and compounded to the end of the 3M period. Since we started with an equivalent NACM rate for each 1M period, the interest rate for the entire 3M period will match the 3M Jibar fixing for that period.

Using this deferred and compounded method, for each 1M period within the 3M payment period, we now replace the equivalent NACM rate with the average of the daily Prime rates for that month, plus a spread. The effective interest rate for the full 3M period is then compared to the 3M Jibar fixing at the start of the period. Here, the spread serves as a CAS. To express this mathematically, we introduce the following notation for a fixing day t_0:

J_{t_0,t_0+3M} – 3M Jibar fixing for the period from day t_0 to $t_0 + 3M$
$J^{NACM}_{t_0,t_0+3M}$ – equivalent NACM rate for J_{t_0,t_0+3M}
P_t – Prime rate fixing for day t
τ^{1M} – day count fraction for a 1M period
τ^{3M}– day count fraction for a 3M period

Our starting point for t_0 is:

$$\left(1 + J^{NACM}_{t_0,t_0+3M}\,\tau_1^{1M}\right)\left(1 + J^{NACM}_{t_0,t_0+3M}\tau_2^{1M}\right)\left(1 + J^{NACM}_{t_0,t_0+3M}\tau_3^{1M}\right) = 1 + J_{t_0,t_0+3M}\,\tau^{3M} \qquad (1)$$

We calculate $J^{NACM}_{t_0,t_0+3M}$ from Eq(1). We now replace the monthly NACM rate $J^{NACM}_{t_0,t_0+3M}$ with the average of the daily Prime rates, plus a spread:

$$\prod_{i=1}^{3}\left[1 + \left(\frac{1}{n_i}\sum_{j=1}^{m_i} w_j P_{t_j} + s\right)\tau_i^{1M}\right] \qquad (2)$$

We use n_i to denote the number of calendar days within the i^{th} month while t_j is the j^{th} Prime rate observation date and w_j is the weighting. By way of example, a Prime rate observation on a business day where the following day is also a good business day would have a weighting equal to 1. A Prime rate observed on a Friday, with the following Monday being the next good business day, would have a weighting of 3. The variable m_i accounts for the number of Prime rate observations within the i^{th} month. We necessarily have that:

$$\sum_{j}^{m_i} w_j = n_i$$

We have also used Π to denote the product operator in Eq(2). To keep notation manageable, we introduce $\bar{P}$ to denote the arithmetic average of the daily Prime rates:

$$\bar{P}_i = \frac{1}{n_i}\sum_{j=1}^{m_i} w_j P_{t_j}$$

The left-hand side of our product formula in Eq(1) may now be expressed as:

$$(1 + (\bar{P}_1 + s)\tau_1^{1M})(1 + (\bar{P}_2 + s)\tau_2^{1M})(1 + (\bar{P}_3 + s)\tau_3^{1M})$$

Equating this expression with the right-hand side of Eq(1), we must solve:

$$(1 + (\bar{P}_1 + s)\tau_1^{1M})(1 + (\bar{P}_2 + s)\tau_2^{1M})(1 + (\bar{P}_3 + s)\tau_3^{1M}) = 1 + J_{t_0,t_0+3M}\,\tau^{3M}$$

Rearranging, so that we are dealing with effective rates, we have:

$$\frac{1}{\tau^{3M}}\Big((1 + (\bar{P}_1 + s)\tau_1^{1M})(1 + (\bar{P}_2 + s)\tau_2^{1M})(1 + (\bar{P}_3 + s)\tau_3^{1M}) - 1\Big) = J_{t_0,t_0+3M} \qquad (3)$$

Eq(3) serves as our objective function from which the spread s must be determined.

The CAS outlined in [1] computed the difference between Jibar and the effective rate derived from compounding daily ZARONIA rates over a 3M period. The spread did not feature as part of the compounding of the daily ZARONIA rates – a noteworthy difference when compared with Eq(3) where the spread is compounded, resulting in a non-linear adjustment for the Prime rate. Solving Eq(3) for the spread, as outlined in the Appendix, gives us the corresponding adjustment to be applied to a single flow over a 3M period.

4. Daily observations for a fallback spread given a rounding rule

We now consider a rounded variation of the fallback spread. Specifically, where the 3M Jibar rate, fixed at the start of the 3M period, is re-expressed as an NACM rate and rounded up to the first decimal point. We refer to this as an $\overline{\text{NACM}}$ rate.

Our starting point for a fixing day t_0 now becomes:

$$\left(1 + J^{\overline{\text{NACM}}}_{t_0,t_0+3M}\,\tau_1^{1M}\right)\left(1 + J^{\overline{\text{NACM}}}_{t_0,t_0+3M}\tau_2^{1M}\right)\left(1 + J^{\overline{\text{NACM}}}_{t_0,t_0+3M}\tau_3^{1M}\right) = 1 + \overline{J_{t_0,t_0+3M}}\,\tau^{3M} \qquad (4)$$

where $J^{\overline{\text{NACM}}}_{t_0,t_0+3M}$ is the equivalent NACM rate for J_{t_0,t_0+3M} rounded up to the first decimal point and $\overline{J_{t_0,t_0+3M}}$ is calculated from Eq(4). We can then solve for the spread s in Eq(3) replacing J_{t_0,t_0+3M} with $\overline{J_{t_0,t_0+3M}}$.

We will refer to this as the *direct approach* to account for the rounding component. If we assume the unrounded approach in the section above has captured an economic relationship between 3M Jibar and Prime, rounding up to one decimal point can potentially distort this relationship. For example, a rate of 7% would not require any rounding while a rate of 7.01% would be rounded up to 7.1%. So, while the rates are only one basis point (bp) apart, the rounded rates are now 10 bps apart. This effect could shift the median for the lookback period in an unanticipated manner.

To analysis this effect, we consider two variations of this rounding up effect:

- A *simple approach* to account for the rounding component, where the fallback spread S_f from the unrounded approach in the section above is rounded down to one decimal place. This method creates a more pronounced rounding effect for comparison purposes.
- A *clean approach* to account for the rounding component, where the fallback spread S_f from the unrounded approach in the section above is first calculated as before, and then a rounding adjustment is added. Specifically, the same method used to calculate S_f from the observed spread s is followed to calculate a fallback rounding adjustment R_f from the rounding difference r for each fixing day t_0:

  $$r = \overline{J_{t_0,t_0+3M}} - J_{t_0,t_0+3M} \qquad (5)$$

  Noting that S_f is a negative value while R_f is a positive value we now have $S_f + R_f$ as the rounded value.

5. Fallback spread for the unrounded case

We focus on a 5Y lookback period to calculate spread s and the median spread over this period, as endorsed in [1], to give us the fallback spread S_f while also presenting some results for a mean spread. Once the fallback spread has been fixed, interest payments for a 3M payment period, notional N and trade spread ts, can be calculated as:

$$N\left(\frac{1}{n_i}\sum_{j=1}^{m_i} w_j P_{t_j} + S_f + ts\right)\tau_i^{1M}$$

for each 1M period $i = 1, 2, 3$.

Extending the lookback period beyond five years was not considered in [1], where the fallback spread calculation was based on observations of the overnight ZARONIA rate, which has been officially published since 1 August 2022. Proxy data from the SARB covered the period from 1 April 2020 to 29 July 2022. Our analysis is not restricted in this way. We use data from 2 January 2002 to 3 December 2025 for the overnight repurchase (repo) rate and 3M Jibar, with the latter date marking the Jibar cessation announcement. The Prime rate is 350bps above the repo rate. We present results for an extended lookback period of 20 years as opposed to five years.

In Figure 1 below, we present the solution for the spread s in Eq(3), calculated daily from 2 January 2002 to 5 September 2025. Alongside this, we present the 5Y median and mean for this spread. While the daily spread s is bounded within the interval (-466bps, -155bps), the median is bounded within the interval (-359bps, -318bps) and the mean within the interval (-364bps, -313bps). With a 5Y lookback period and a cessation announcement date of 3 December 2025, the spike in daily spread s observed in 2020 does not feature in the data set, meaning it does not skew the mean away from the median.

In **Table 2** and Figure 2 below, we highlight the fallback spread on the cessation announcement date, 3 December 2025, across different lookback periods. This incorporates the 3M Jibar fixing for 5 September 2025, as per our methodology. The 5Y median fallback spread is -345bps, while the 20Y median value splits the difference between the 5Y and the 10Y median values.

Figure 1: Spread and fallback spread

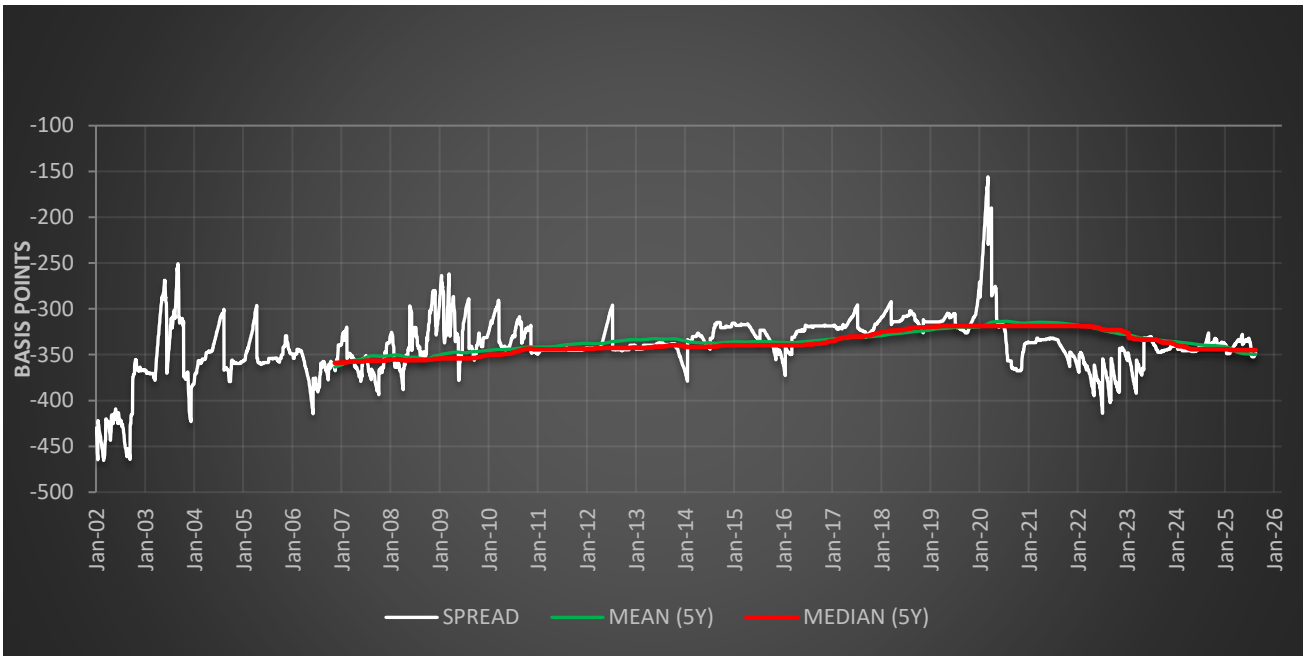


Figure 2: Fallback spread (3 December 2026)

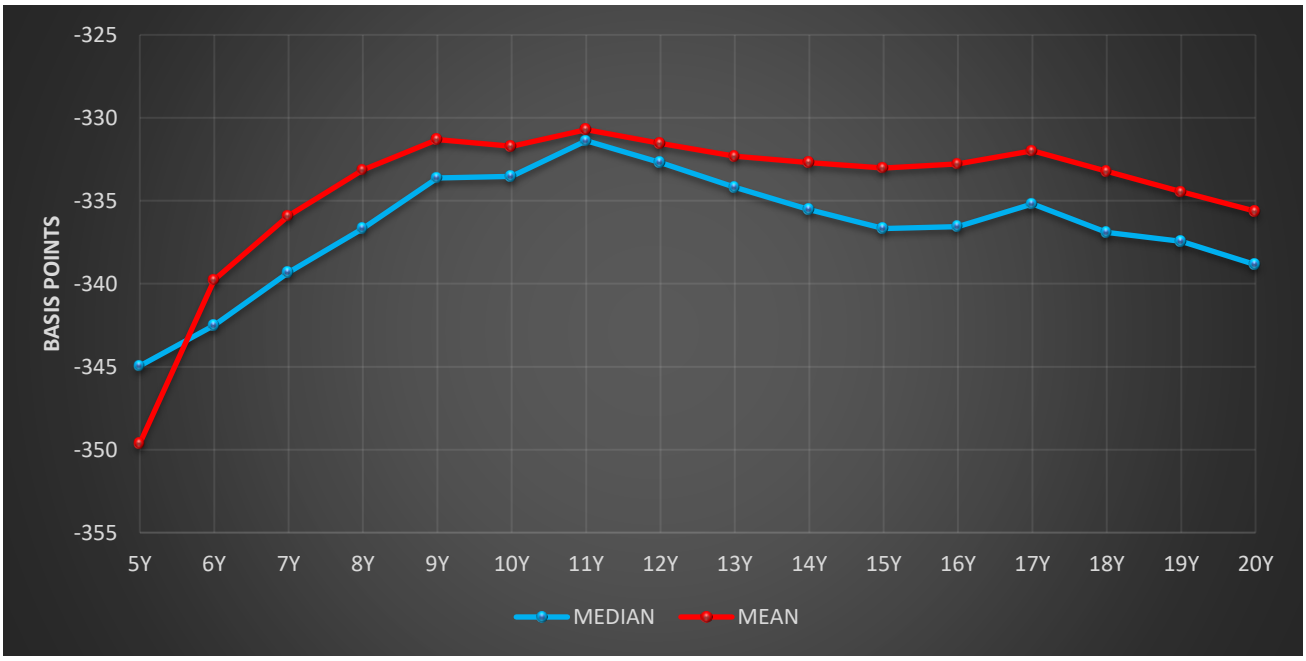


Table 2: Fallback spread on 3 December 2025 cessation announcement date

	MEDIAN	MEAN
5Y	-345.0	-349.6
10Y	-333.5	-331.7
15Y	-336.7	-333.0
20Y	-338.9	-335.6

Figure 3 below presents observations for spread s comprising the 5Y (blue), 10Y (blue and red), 15Y (blue, red and green) and 20Y (blue, red, green and white) outcomes detailed in **Table 2**.

Figure 3: Spread

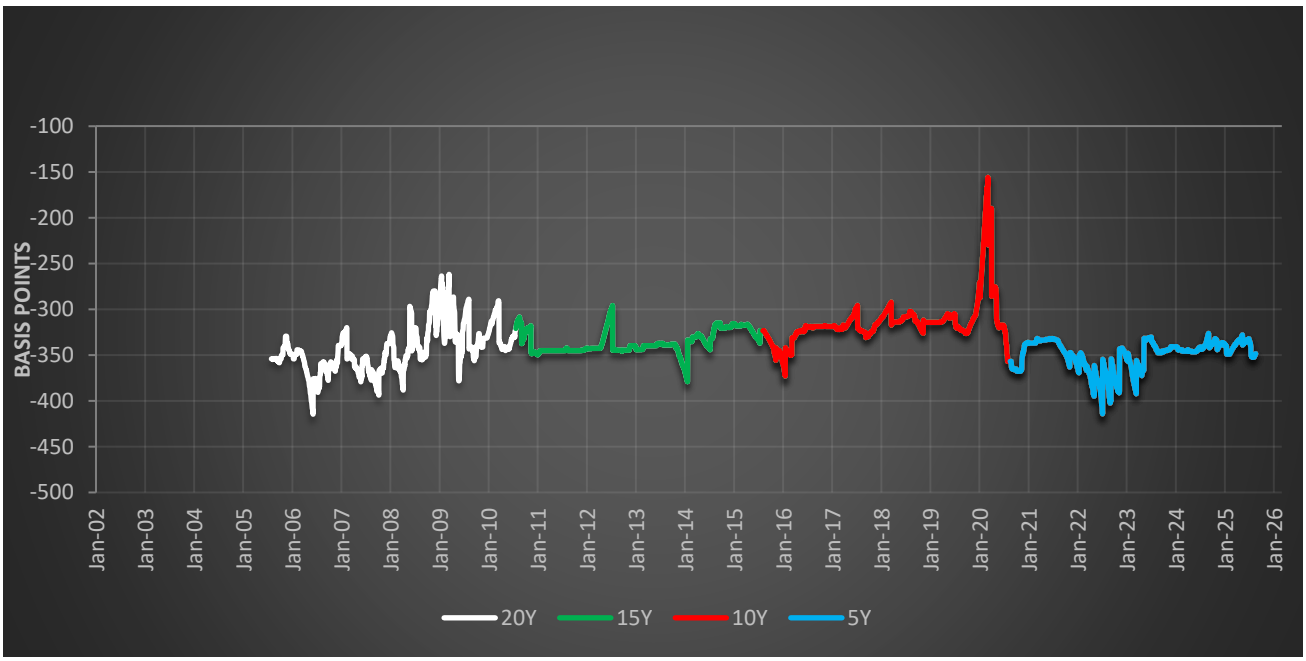
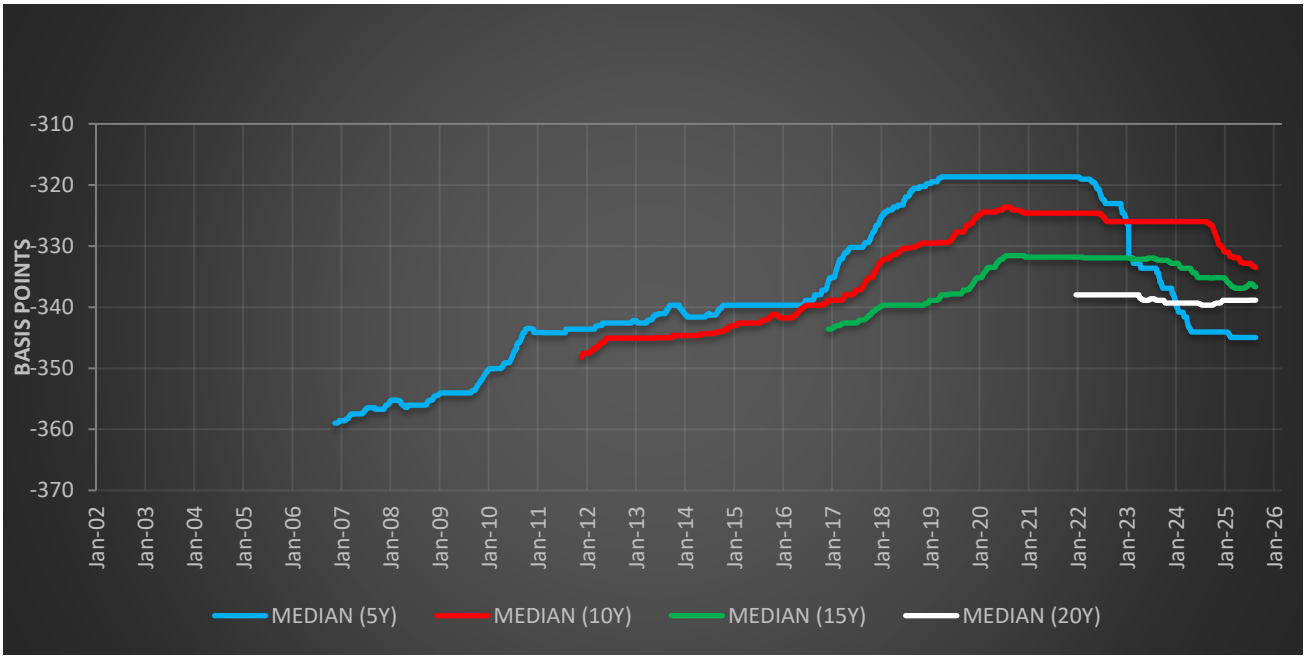


Figure 4 below illustrates the progression of the fallback spread for the 5Y, 10Y, 15Y and 20Y median approaches. While a 5Y lookback period is consistent with the industry standard for a CAS, the 20Y result demonstrates considerably greater stability over time.

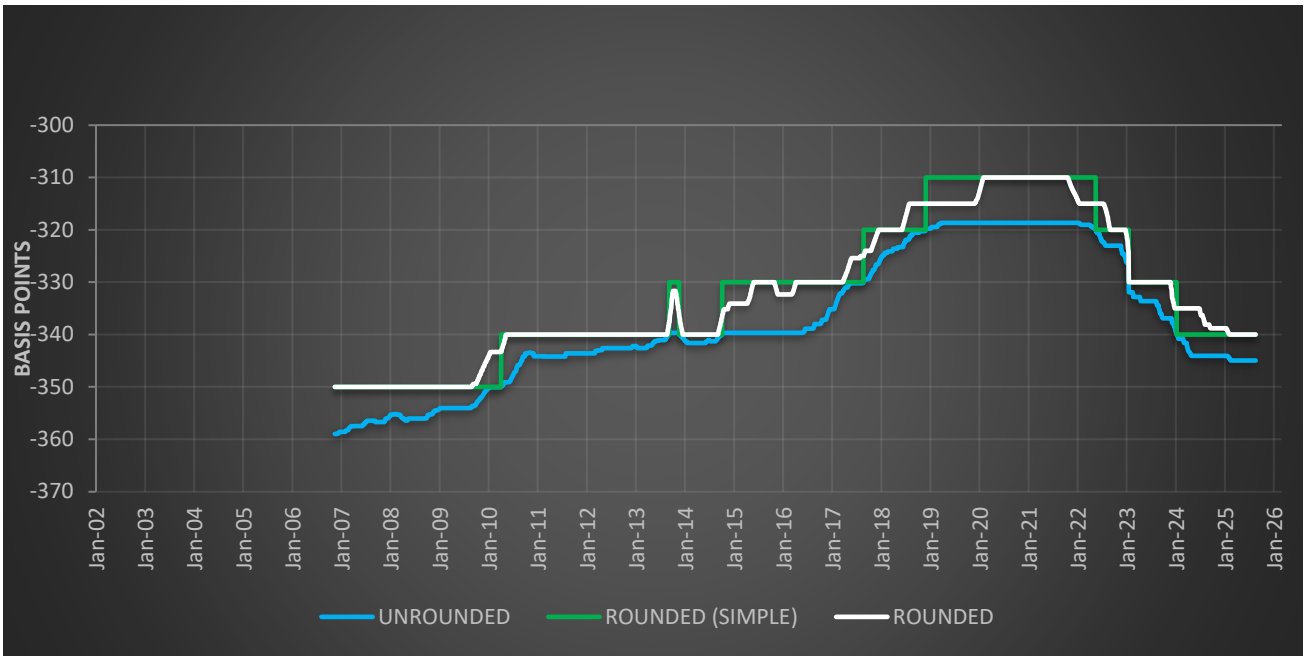
Figure 4: Median fallback spread



6. Fallback spread for the rounded case

Considering a 5Y lookback period and using the median value for the fallback spread, Figure 5 below illustrates the evolution of the fallback spread for the unrounded case from the previous section, together with the rounded approaches we refer to as the *direct approach* and the *simple approach*. Notably, during the 2013 and 2014 period, there is a noticeable jump in the fallback spread from -340bps up to -330bps and back over a short interval. The simple approach provides a more discrete view of this rounding effect.

Figure 5: 5Y median fallback spread



In Figure 6 below, we replace the *simple approach* with the *clean approach* to highlight the effect we would prefer to observe. While the daily rounding component r defined in Eq(5) is bounded within the interval (0bp, 10.2bps) the fallback rounding adjustment R_f is bounded within the interval (3.9bps, 6.0bps).Fortunately, for the period leading up to the cessation announcement date in 2025, the variations considered for rounding interest rates do not lead to a significant difference.

Referring to

Table 3 below, the 5Y median fallback spread shifts from -345bps to -340bps after rounding.

Figure 6: FY median fallback spread

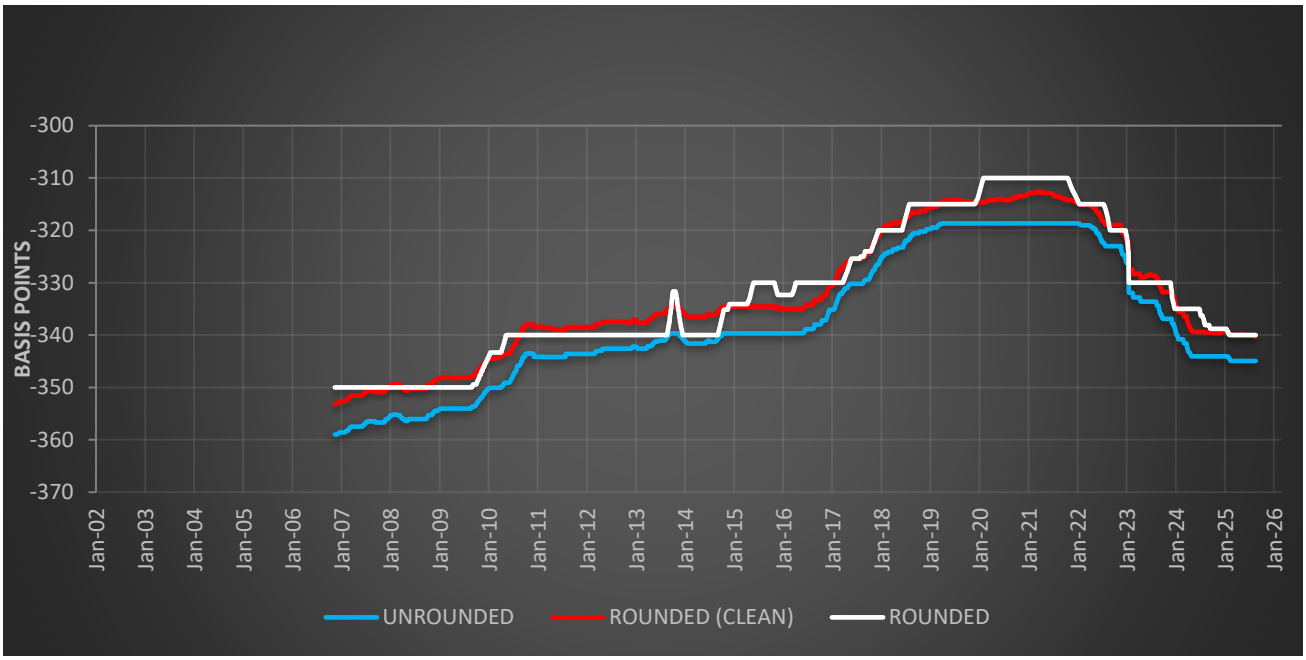


Table 3: Median fallback spread

MEDIAN	UNROUNDED	ROUNDED	ROUNDED SIMPLE	ROUNDED CLEAN
5Y	-345.0	-340.0	-340.0	-340.3
10Y	-333.5	-330.0	-330.0	-329.0
15Y	-336.7	-330.0	-330.0	-331.8
20Y	-338.9	-330.5	-330.0	-333.7

7. Appendix

We outline the process by which the spread s is determined so that Eq(3) is satisfied. To solve Eq(3) as a function of s, we expand the product to obtain a cubic polynomial. As the expansion can become rather unwieldy, we introduce auxiliary variables once more to keep the algebra straightforward. The resulting cubic polynomial can be expressed as follows:

$$\alpha_1 s^3 + \alpha_2 s^2 + \alpha_3 s + \alpha_4 = 0 \tag{4}$$

where

$$\alpha_1 = \tau_1^{1M}\tau_2^{1M}\tau_3^{1M}$$

$$\alpha_2 = \tau_1^{1M}\tau_2^{1M} + \tau_1^{1M}\tau_3^{1M} + \tau_2^{1M}\tau_3^{1M} + \tau_1^{1M}\tau_2^{1M}\tau_3^{1M}(\bar{P}_1 + \bar{P}_2 + \bar{P}_3)$$

$$\alpha_3 = \tau_1^{1M} + \tau_2^{1M} + \tau_3^{1M} + \tau_1^{1M}\tau_2^{1M}(\bar{P}_1 + \bar{P}_2) + \tau_1^{1M}\tau_3^{1M}(\bar{P}_1 + \bar{P}_3) + \tau_2^{1M}\tau_3^{1M}(\bar{P}_2 + \bar{P}_3) + \tau_1^{1M}\tau_2^{1M}\tau_3^{1M}(\bar{P}_1\bar{P}_2 + \bar{P}_1\bar{P}_3 + \bar{P}_2\bar{P}_3)$$

$$\alpha_4 = \bar{P}_1\tau_1^{1M} + \bar{P}_2\tau_2^{1M} + \bar{P}_3\tau_3^{1M} + \bar{P}_1\tau_1^{1M}\,\bar{P}_2\tau_2^{1M} + \bar{P}_1\tau_1^{1M}\,\bar{P}_3\tau_3^{1M} + \bar{P}_2\tau_2^{1M}\,\bar{P}_3\tau_3^{1M} + \bar{P}_1\tau_1^{1M}\,\bar{P}_2\tau_2^{1M}\,\bar{P}_3\tau_3^{1M} - \tau^{3M}J_{t_0,t_0+3M}$$

Since α_1 is close to zero ($\approx 4/12^3$) we may ignore its contribution to Eq(4), thereby simplifying the polynomial to a quadratic equation whose roots can be readily computed using the quadratic formula. As all the α_i are non-negative, we choose the root closest to zero for the following equation:

$$\alpha_2 s^2 + \alpha_3 s + \alpha_4 = 0,$$

to be the spread, i.e.

$$s = \frac{-\alpha_3 + \sqrt{\alpha_3^2 - 4\alpha_2\alpha_4}}{2\alpha_2} \tag{5}$$

To calculate monthly and quarterly rates, we assume any 1M period is made up of 21 business days and a 252-business-day type rule, so that we have the 1M accrual fractions $\tau_1^{1M} = \tau_2^{1M} = \tau_3^{1M} = \frac{1}{12}$ and the 3M accrual fraction $\tau^{3M} = \frac{1}{4}$.

Within this methodology and based on a cessation announcement date of 3 December 2025, the final relevant fixing date for the 3M Jibar is 5 September 2025. The 3M Jibar fixing rate for this date is 7.017% with the rate remaining flat at this level from 11 August 2025 to 9 September 2025, inclusive of these dates.

8. References

[1] SARB MPG, Transition Coordination and Planning Workstream, 'Proposal for Jibar transition and fallback credit adjustment spreads for the South African interest rate market', MPG Conference, 2024.