IFG PROGRESS
FINANCIAL RESEARCH

8 August 2025

IFG
INDONESIA FINANCIAL GROUP

Economic Bulletin – Issue 70

Reforming JIBOR: Is IndONIA the Right Benchmark?

- The shift from JIBOR to INDONIA addresses the need for a more transparent and transaction-based benchmark. JIBOR relied on bank estimates, while INDONIA reflects actual market rates. The reform involves related parties such as Bank Indonesia, OJK, the Ministry of Finance, and industry associations to strengthen market credibility and align with global standards.
- Empirical analysis demonstrates that IndONIA exhibits the highest consistency with JIBOR's historical trends compared to both domestic and global overnight rates, making it the most statistically aligned benchmark for fallback purposes.
- Among the 2-, 3-, 4-, and 5-year median spreads, the 5-year option consistently shows the lowest and most stable spread values. Regression analyses further support its superiority in minimizing intercepts and enhancing convergence across different tenors.
- Across all tenors (1M, 3M, 6M), the 5-year median spread offers the best compromise between long-term trend stability and estimation accuracy (MAE and RMSE). This consistency confirms its robustness as the primary fallback spread adjustment paired with IndONIA.
- This study finds that INDONIA, when paired with a 5-year median spread adjustment, provides the most statistically stable and economically justifiable fallback for JIBOR. The evidence supports its use across multiple tenors, enhancing consistency, pricing accuracy, and risk management across financial contracts in Indonesia.
- To ensure a smooth transition, related authorities should coordinate to promote clarity in fallback contracts, support development of term structure instruments, and assist institutions in aligning benchmarks with risk management and reporting standards such as IFRS 17.

Ibrahim Kholilul Rohman
Ibrahim.kholilul@ifg.id
Senior Research Associate / Universitas Indonesia

Afif Narawangsa Luviyanto
Afif.narawangsa@ifg.id
Research Associate

Background

The evolution of global financial markets over the past decade has underscored the critical importance of robust, transparent, and transaction-based benchmark interest rates. This global reform initiative was principally triggered by the manipulation scandals surrounding the London Interbank Offered Rate (LIBOR), which exposed vulnerabilities in quotation-based benchmark systems. These manipulations, widely reported in 2008 and beyond, revealed that several major banks had colluded to submit false rate estimates to profit from trading positions and bolster perceptions of financial stability (Duffie & Stein, 2015; Hou & Skeie, 2014). The scandal not only damaged the credibility of global financial institutions but also prompted intense regulatory scrutiny and legal action across jurisdictions (Yeoh, 2016; Batten et al., 2022). Moreover, investigations emphasized the need to transition away from rate-setting mechanisms susceptible to discretionary input, favoring methodologies grounded in observable market transactions (Jordanoska & Lord, 2020).

In alignment with this global movement, Indonesia has undertaken its own domestic benchmark reform agenda. The reform has been coordinated by the Indonesia National Working Group on Benchmark Reform (NWGBR), which includes Bank Indonesia, the Ministry of Finance, the Financial Services Authority (OJK), and industry associations such as APUVINDO. The country has committed to replacing the Jakarta Interbank Offered Rate (JIBOR) with the Indonesia Overnight Index Average (INDONIA). This transition marks a paradigm shift from a forward-looking, quotation-based rate that incorporates term and credit risk premia to a backward-looking, transaction-based overnight rate that is considered near risk-free.

The transition from JIBOR to INDONIA is a structural reform to improve transparency and reduce manipulation risks in Indonesia’s financial system. JIBOR was a forward-looking rate based on bank estimates, which made it vulnerable to manipulation like the LIBOR scandal. INDONIA, by contrast, is a backward-looking rate based on actual overnight interbank transactions in the Rupiah market. It has minimal credit and liquidity risk, and its adoption reflects both global standards and Indonesia’s need for a more reliable benchmark. Thousands of contracts still reference JIBOR, making this transition urgent and impactful (Nwogugu, 2013).

However, JIBOR and INDONIA are structurally different. JIBOR includes expectations about future credit and liquidity risk. INDONIA does not. To replace JIBOR fairly, Indonesia uses a spread adjustment based on the median difference between the two rates over the past five years. This approach is similar to what ISDA used in the LIBOR transition.

If the spread is wrong, the effects are serious. Borrowers may overpay if the spread is too high. Banks may lose income if it's too low. Poor pricing can distort funding costs, reduce net interest margins, and weaken capital buffers. This is especially risky for smaller or state-owned banks. These issues were also seen in LIBOR's global transition (Bos, 2019).

Leverage to macro impact beyond calculation. When mispricing occurs at scale, it can amplify monetary transmission distortions, destabilize financial markets, and trigger broader systemic stress (Tuckman, 2023; Malovaná & Bajzík, 2023).

At a macroeconomic level, inaccurate benchmark pricing can impair the effectiveness of monetary policy transmission. When reference rates no longer reflect market fundamentals, the central bank's policy signals may fail to reach the broader financial system. This can undermine inflation targeting, distort credit allocation, and reduce the responsiveness of borrowing costs to policy rate adjustments. In extreme cases, widespread misalignment between benchmarks and real economy conditions may contribute to capital misallocation and procyclical financial cycles (Medlin, 2024; Fletcher, 2020).

Beyond banking, the insurance sector also faces unique challenges in the transition to a new benchmark. Insurers use benchmarks to price both assets and liabilities. If the spread is wrong, it may cause under- or over-estimation of liabilities. This could affect solvency, especially in life insurance. Many insurance assets are also floating-rate bonds linked to JIBOR. Mispricing may affect coupon resets and swap payments. As a result, income becomes volatile or drops below expectations.

Some insurance products promise returns tied to JIBOR. If fallback benchmarks are not justified or transparent, policyholders may challenge them legally. This could damage reputations and force payouts. Actuarial and ALM models also rely on forward-looking rates. If the replacement doesn't reflect term or credit risk, model accuracy declines, capital charges increase, and profitability falls.

Despite these benefits and adjustments, several concerns remain about INDONIA's broader applicability. Although INDONIA benefits from a transparent methodology based on actual overnight interbank lending transactions in the Rupiah market, its applicability across broader financial instruments, particularly those with longer tenors, remains a subject of analytical and practical debate. JIBOR, by contrast, historically served as a reference rate for maturities of up to 12 months and incorporated expectations regarding future credit and liquidity risks. The conceptual and structural differences between the two benchmarks necessitate calibrated adjustments to ensure economic equivalence, especially for legacy contracts that continue to reference JIBOR.

To address this challenge, NWGBR has recommended the application of a

spread adjustment mechanism. This is calculated as the median of historical differences between JIBOR and adjusted INDONIA-based rates over a five-year period. This approach mirrors the global standard adopted by the International Swaps and Derivatives Association (ISDA) in the context of the LIBOR transition. The five-year look-back window was selected to capture a range of market conditions, including pre-pandemic, pandemic, and post-pandemic periods. Nevertheless, the empirical robustness of this methodological choice warrants further investigation, particularly in comparison with shorter historical windows.

Additionally, concerns have been raised regarding the effectiveness of INDONIA as a proxy for broader interbank funding dynamics. Its overnight tenor and minimal credit risk exposure may limit its suitability for pricing instruments that previously relied on JIBOR's forward-looking structure. As a result, alternative reference rates have been proposed. These include forward-looking term rates derived from INDONIA-linked derivatives, such as Overnight Index Swaps. However, these instruments remain underdeveloped in Indonesia and lack the liquidity and institutional depth observed in more mature financial markets.

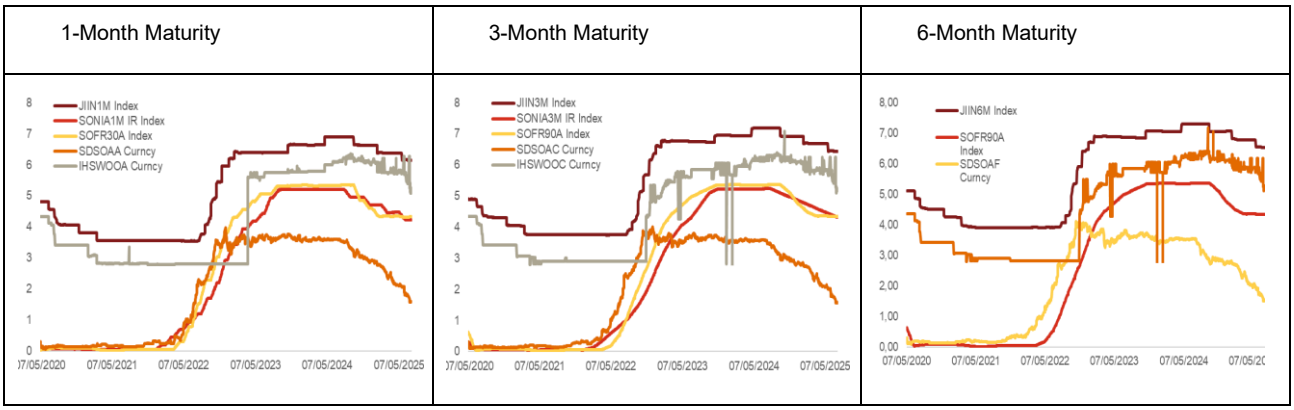
This study addresses two critical gaps in the current transition framework. First, it evaluates whether INDONIA adequately reflects the underlying rate dynamics previously captured by JIBOR and explores the feasibility of alternative benchmarks. Second, it examines the statistical justification and policy implications of the five-year median spread adjustment methodology, comparing it with alternative time windows for potential refinement. By critically analyzing these dimensions, this research contributes to the ongoing discourse on benchmark rate reform and provides actionable insights for regulators and market participants seeking to implement credible, market-aligned interest rate benchmarks in emerging economies.

Data and Methodology

Data

This study utilizes daily data spanning the period from 2019 to 2025, sourced from Bloomberg. The dataset comprises JIBOR rates for 1-month, 3-month, and 6-month tenors, which are compared against a selection of global and domestic alternative reference rates. These include SOFR (United States), SONIA (United Kingdom), SORA (Singapore), and INDONIA (Indonesia). The use of high-frequency data enables a granular analysis of interest rate dynamics, allowing for the detection of both short-term volatility and longer-term trends. By focusing on adjusted tenors across all rates, the study ensures comparability in assessing convergence, divergence, or persistence in benchmark differentials over time.

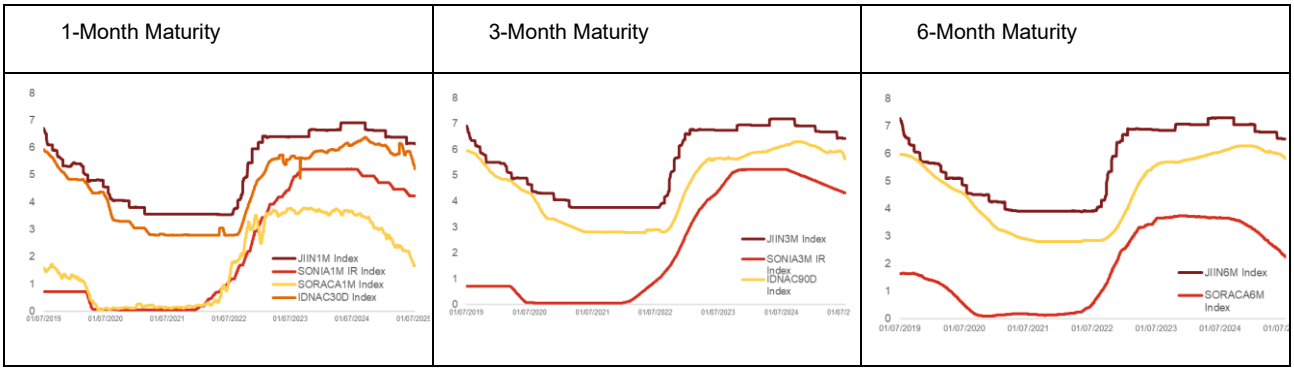
Exhibit 1 . References Rate across tenor (non-Compound)



Source: Bloomberg, processed with Excel.

Exhibit 1 presents the comparative movement of benchmark reference rates across three tenors: 1-month, 3-month, and 6-month maturities, over the period from July 2020 to July 2025. The plotted rates include domestic (JIBOR: JIIN1M, JIIN3M, JIIN6M) and international alternatives (SONIA, SOFR, and other RFR-based indices), all shown in their non-compounded forms. The visual comparison highlights key structural differences in volatility, level, and responsiveness to monetary tightening cycles. Notably, JIBOR consistently remains higher than risk-free benchmarks, especially during periods of rising policy rates after 2022, reflecting its embedded credit and term risk. In contrast, SOFR and SONIA track closely with each other and exhibit smoother profiles, underscoring their transaction-based and overnight nature. The divergence among curves provides an intuitive basis for assessing the stability and suitability of applying median spreads to INDONIA as a fallback mechanism.

Exhibit 2 . References Rate across tenor (Compound)



Source: Bloomberg, processed with Excel.

Exhibit 2 illustrates the movement of compound benchmark interest rates across 1-month, 3-month, and 6-month maturities from July 2019 to mid-2025. The chart compares JIBOR (JIIN Index series) with international compounded reference rates, including SONIA, SOFR, and the compounded INDONIA (IDNAC series). The figure shows that compounded INDONIA closely tracks global risk-free benchmarks such as SONIA and SOFR, particularly post-

2022 when monetary policy tightening began. In contrast, JIBOR consistently remains elevated, reflecting its embedded term and credit risk components. Across all tenors, the gap between JIBOR and compounded alternatives is visible, reinforcing the rationale for applying a spread adjustment when transitioning to INDONIA as a fallback benchmark.

Exhibit 1. Statistical Summary

Variable	Obs	Mean	Std. dev.	Min	Max
SONIA1MIRIndex	1351	2,573892	2,218267	0,0459	5,2118
SONIA3MIRIndex	1351	2,518723	2,232456	0,0482	5,2335
SOFR30AIndex	1351	2,704549	2,318177	0,01	5,35353
SOFR90AIndex	1351	2,652787	2,331441	0,01	5,37097
SOFR180AIndex	1351	2,594541	2,321528	0,02445	5,39812
SDSOACurrency	1351	1,965605	1,524276	0,04	3,975
SDSOACcurrency	1351	2,005209	1,517293	1	4,005
SDSOAFcurrency	1351	2,028815	1,494056	0,1	4,105
IHSWOOACurrency	1351	4,269909	1,455291	2,79	6,36
IHSWOOCurrency	1351	4,502463	1,401375	2,805	7,075
IHSWOOFCurrency	1351	4,497632	1,429788	2,81	7,18
JI1IN1MIndex	1574	5,254759	1,293123	3,53875	6,90546
JI1IN3MIndex	1574	5,49635	1,342765	3,7475	7,18286
JI1IN6MIndex	1574	5,652591	1,322362	3,9	7,3
SONIA1MIRIndexC	1574	2,298272	2,165434	0,0459	5,2118
SONIA3MIRIndexC	1574	2,257721	2,165955	0,0482	5,2335
SORACA1MIndexC	1574	1,823515	1,456883	0,0484	3,7814
SORACA6MIndexC	1574	1,819884	1,440228	0,0945	3,748
IDNAC30DIndex	1574	4,544667	1,326953	2,78826	6,3847
IDNAC90DIndex	1574	4,570308	1,333641	2,79582	6,3072
IDNAC180Index	1574	4,600074	1,331328	2,80717	6,2913

Source: Bloomberg, processed with STATA

**the first table is non-compound Overnight rate, the second table is JIBOR, The third table is compound overnight rate*

The dataset comprises a diverse array of interest rate benchmarks from both global and domestic sources, reflecting the short-term monetary environment across jurisdictions. Variables such as SONIA1MIRIndex and SONIA3MIRIndex represent compounded 1-month and 3-month Sterling Overnight Index Average (SONIA) rates based on UK transactions, widely recognized as risk-free benchmarks post-LIBOR transition. Complementing these are SOFR30AIndex, SOFR90AIndex, and SOFR180AIndex, which are 30-, 90-, and 180-day compounded variants of the Secured Overnight Financing Rate (SOFR) used in USD markets. These indices collectively capture the time-structured evolution of transaction-based rates in the UK and US.

To proxy market-implied expectations from derivative markets, the dataset includes SDSOACurrency, SDSOACcurrency, and SDSOAFcurrency, which are SGD-denominated Overnight Indexed Swaps (OIS) with SORA as the floating leg. These contracts, varying slightly by structure or data provider, represent real-market swap rates and are used to infer forward-looking SORA dynamics. Similarly, IHSWOOACurrency, IHSWOOCurrency, and IHSWOOFCurrency reflect IDR OIS contracts indexed to INDONIA, constructed using methodologies

attributed to IHS Markit. These OIS-based variables serve as forward indicators and enhance comparability between derived and actual reference rate movements.

Legacy domestic rates are captured by JI1IN1MIndex, JI1IN3MIndex, and JI1IN6MIndex, referring to 1-month, 3-month, and 6-month tenors of the Jakarta Interbank Offered Rate (JIBOR), which had been Indonesia's principal reference rate prior to reform. Post-transition comparators are provided by SONIA1MIRIndexC and SONIA3MIRIndexC, representing compounded SONIA rates matched to JIBOR's term structures. Further, SORACA1MIndexC and SORACA6MIndexC denote adjusted SORA-based term structures developed for cross-comparative analysis.

The reformed domestic reference rate series include IDNAC30DIndex, IDNAC90DIndex, and IDNAC180Index, which are 30-, 90-, and 180-day compounded backward-looking INDONIA rates. These reflect Indonesia's efforts to adopt transaction-based risk-free rates aligned with international reform agendas. By integrating a wide range of term structures, geographies, and instrument types, the dataset supports robust analysis of benchmark convergence, spread dynamics, and systemic adjustment throughout the reform period.

Methodology

This study utilizes daily data spanning the period from 2019 to 2025, covering JIBOR interest rates with 1-month (1M), 3-month (3M), and 6-month (6M) tenors. These rates are compared against several alternative reference benchmarks, including the Secured Overnight Financing Rate (SOFR) from the United States, the Sterling Overnight Index Average (SONIA) from the United Kingdom, the Singapore Overnight Rate Average (SORA), and Indonesia's own IndONIA as the domestic risk-free rate. To ensure comparability, each benchmark rate is adjusted to match the maturity profile of the respective JIBOR tenor. Time series data is sourced from Bloomberg, which provides consistent and comprehensive access to real-time and historical benchmark rates.

The analysis employs a simple linear regression framework specified as:

$$Diff_t = \alpha + \beta . time_t + \varepsilon_t$$

Where the coefficient β captures the directional and temporal evolution of the spread between JIBOR and the alternative benchmarks. A statistically insignificant β suggests that the spread remains stable over time, indicating strong co-movement and potentially robust transmission between instruments. Conversely, a significantly negative β indicates a gradual convergence of rates, implying that adjustment dynamics are present. All regressions are estimated using STATA.

The empirical strategy is conducted in two stages. First, the analysis focuses on non-compounded overnight rates, which form the underlying basis for constructing compounded benchmarks. This allows us to assess the core behavior of the raw reference rate inputs before transformation. In the second stage, we analyze the compounded rates, which reflect the realized interest cost over

specified tenors and are commonly used in financial contracts and benchmark replacements. Comparing the two allows us to observe whether convergence dynamics are primarily driven by the rate's underlying behavior or by the compounding methodology applied.

Result and Discussion

This section presents the empirical findings from the comparative analysis between JIBOR and selected alternative reference rates, followed by a discussion of their implications for benchmark reform in Indonesia. The results are organized by tenor and calculation methods, beginning with the evaluation of non-compounded overnight rates as foundational instruments. These are subsequently compared with their compounded counterparts to capture differences in trend behavior and transmission dynamics over time. The estimated coefficients from the time-trend regressions provide insight into stability, convergence, or divergence of rate differentials.

Table 2. Regression Result of 1-Month Tenon Non-Compound

VARIABLES	diffJ 1	diffJSO1	diffJSD1	diffJSI1
time	-0.002***	-0.002***	-0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	4.064***	4.151***	3.326***	0.936***
	(0.029)	(0.022)	(0.036)	(0.041)
Observations	1,351	1,351	1,351	1,351
R-squared	0.739	0.823	0.004	0.000

Source: Bloomberg, processed with STATA , diffJS1: JIBOR1M – SOFR 30 days, diffJSO1: JIBOR1M – SONIA1M, diffJSD1: JIBOR1M – SORA1M, diffJSI1: JIBOR1M – Indonia1M

The regression results for the 1-month (Table 1) tenor reveal distinct patterns across benchmark comparisons. JIBOR 1M shows a statistically significant downward trend when compared with SOFR and SONIA ($\beta = -0.002$, $p < 0.01$), indicating a converging spread and suggesting an ongoing adjustment process toward global reference rates. In contrast, the spread between JIBOR 1M and IndONIA is statistically insignificant, implying long-term structural stability and efficient domestic rate transmission. Meanwhile, the result with SORA yields a marginal yet statistically significant negative trend, though with a much lower R-squared, indicating limited explanatory power and weaker transmission. Collectively, these findings indicate that while JIBOR 1M remains anchored in domestic market conditions, particularly in alignment with IndONIA.

Table 3. Regression Result of 3-Month Tenon Non-Compound

VARIABLES	diffJS3	diffJSO3	diffJSD3	diffJSI3
Time	-0.002***	-0.002***	0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	4.339***	4.428***	3.415***	0.904***
	(0.024)	(0.021)	(0.040)	(0.019)
Observations	1,351	1,351	1,351	1,351
R-squared	0.799	0.827	0.002	0.012

Source: Bloomberg, processed with STATA , diffJS3: JIBOR3M – SOFR 90 days, diffJSO3: JIBOR3M – SONIA3M, diffJSD3: JIBOR3M – SORA3M, diffJSI3: JIBOR3M – Indonia3M

For the 3-month tenor (table 3), the regression analysis reveals a divergence in transmission dynamics between domestic and global benchmark rates. JIBOR 3M exhibits a statistically significant negative trend in its spread with SOFR and SONIA ($\beta = -0.002$, $p < 0.01$), indicating a process of convergence toward global reference rates. This suggests an ongoing adjustment aligning JIBOR with internationally accepted benchmarks. However, the spread with IndONIA shows a significant positive trend ($\beta = 0.000$, $p < 0.01$), suggesting that the differential is widening over time. This divergence implies that the JIBOR 3M rate is gradually decoupling from domestic reference rates, raising concerns about weakened transmission from local monetary conditions. Meanwhile, the relationship with SORA appears statistically insignificant and economically marginal, reinforcing the view that regional benchmarks may exhibit more limited transmission. Overall, JIBOR 3M appears more responsive to global rate movements, especially SOFR and SONIA, than to Indonesia's own policy reference rate, suggesting that medium-term pricing in the Indonesian money market is increasingly influenced by global dynamics.

Table 4. Regression Result of 6-Month Tenor Non-Compound

VARIABLES	diffJS6	diffJSD6	diffJSI6
time	-0.002***	0.000**	-0.000
	(0.000)	(0.000)	(0.000)
Constant	4.584***	3.504***	1.132***
	(0.024)	(0.045)	(0.020)
Observations	1,351	1,351	1,351
R-squared	0.812	0.004	0.000

Source: Bloomberg, processed with STATA , diffJS6: JIBOR6M – SOFR 180 days, diffJSO6: JIBOR6M – SONIA6M, diffJSD6: JIBOR6M – SORA6M, diffJSI1: JIBOR6M – Indonia6M

The 6-month tenor results reveal a differentiated pattern of rate transmission between JIBOR and its reference benchmarks. The spread between JIBOR 6M and SOFR shows a statistically significant negative trend ($\beta = -0.002$, $p < 0.01$), indicating a gradual convergence toward the global rate benchmark. In contrast, the spread with IndONIA remains statistically insignificant, suggesting a stable long-term relationship, which reinforces the notion that domestic monetary transmission remains strong at the longer tenor. Interestingly, the spread with SONIA shows a positive and significant trend, implying that the divergence between JIBOR 6M and SONIA is widening over time, possibly due to structural differences or weaker cross-market transmission.

In summary, the findings show clear distinctions in trend alignment. JIBOR exhibits the most stable and consistent trend with IndONIA, especially at the 1-month and 6-month tenors, indicating strong domestic monetary policy transmission. In contrast, convergence trends are evident with SOFR and SONIA, suggesting an ongoing alignment process with global benchmarks, particularly in the short-to-medium term. However, the relationship with SORA remains relatively weak and inconsistent, pointing to limited integration with Singapore's benchmark across tenors. These findings highlight that while JIBOR is domestically anchored, it is gradually adjusting to global interest rate standards.

Compound Overnight Rate

After analyzing the trends based on non-compounded interest rate differences, this section aims to examine the results using compounded rate differentials. The compounded version captures cumulative effects over time and is often seen as more reflective of actual financial instrument pricing. By comparing these results with the earlier non-compound findings, we aim to assess whether the patterns of convergence or divergence remain consistent or whether compounding reveals additional dynamics in the transmission and alignment of JIBOR with global and domestic benchmarks.

Table 5. Regression Result of 1-Month Tenor Compounded

VARIABLES	diffJSI1M	ddiffJIO1M	diffJII1M
time	-0.002***	-0.001***	0.000***
	(0.000)	(0.000)	(0.000)
Constant	4.885***	3.923***	0.636***
	(0.021)	(0.029)	(0.012)
Observations	1,574	1,574	1,574
R-squared	0.881	0.192	0.031

Source: Bloomberg, processed with STATA , diffJSI1M: JIBOR1M – SONIA 1M, diffJIO1M: JIBOR1M – SORA1M, diffJII1: JIBOR1M – Indonia1M

The regression analysis (Table 5) of 1-month JIBOR against compounded reference rates (SONIA, SORA, and IndONIA) reveals distinct patterns in trend alignment. The insignificant coefficient for the JIBOR–IndONIA pair suggests that the spread remains relatively unchanged over time, indicating strong structural alignment and efficient short-term transmission within domestic money markets. This stability underscores the dominant role of IndONIA in shaping short-term JIBOR dynamics. Conversely, the JIBOR–SONIA and JIBOR–SORA pairs show statistically significant negative coefficients, reflecting a narrowing spread over time. This suggests an ongoing convergence process between JIBOR and global benchmarks, particularly with SONIA, which demonstrates stronger explanatory power as reflected by a higher R-squared value. The lower R-squared for SORA indicates a weaker yet still significant alignment, implying regional adjustment processes are in motion but less robust than global convergence.

Table 6. Regression Result of 3-Month Tenor Compounded

VARIABLES	diffJSI3M	diffJII3M
time	-0.002***	0.000***
	(0.000)	(0.000)

Constant	5.072***	0.522***
	(0.020)	(0.019)
Observations	1,574	1,574
R-squared	0.878	0.060

Source: Bloomberg, processed with STATA , diffJIS3M: JIBOR3M – SONIA 3M, diffJII3M: JIBOR3M – Indonia3M

The regression results for the compounded 3-month JIBOR (table 6) reveal that its relationship with IndONIA remains more stable compared to global benchmarks. Although the coefficient of the time variable for the JIBOR–IndONIA spread is positive and statistically significant, the magnitude is extremely small, indicating only a slight increase in the spread over time. This suggests a relatively consistent and strong alignment with the domestic benchmark. In contrast, the spread with SONIA shows a significant negative trend, implying convergence but with less stability. These findings imply that JIBOR 3M maintains a better and more reliable linkage with IndONIA, supporting the view that domestic transmission at this tenor remains structurally intact, while adjustments toward global benchmarks like SONIA are still underway.

Table 7. Regression Result of 6-Month Tenor Compounded

VARIABLES	ddiffJIO6M	diffJII6M
Time	-0.001***	0.000***
	(0.000)	(0.000)
Constant	4.292***	0.712***
	(0.017)	(0.028)
Observations	1,574	1,574
R-squared	0.384	0.112

Source: Bloomberg, processed with STATA , diffJIO6M: JIBOR6M – SORA6M, diffJII3M: JIBOR6M – Indonia6M

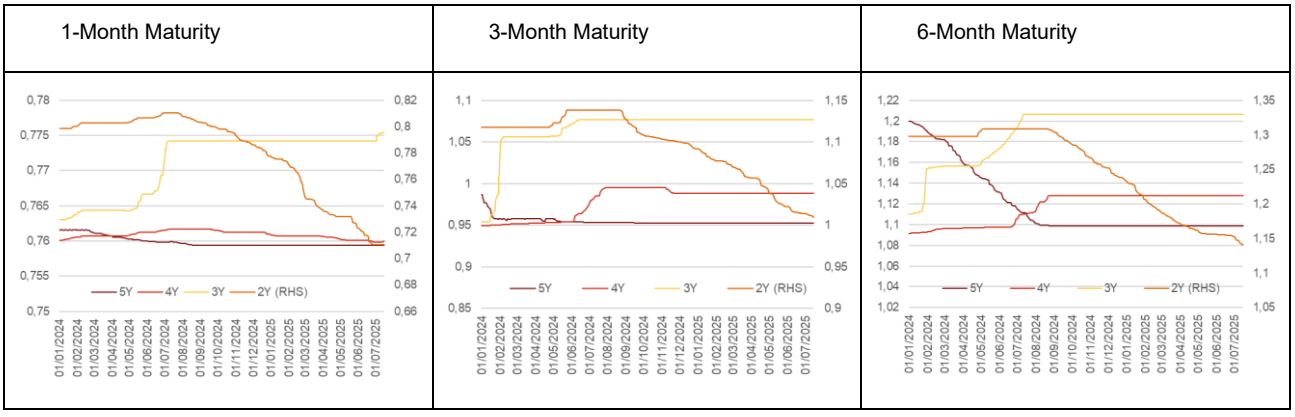
The 6-month compounded analysis reveals that JIBOR maintains a structurally consistent relationship with IndONIA, as evidenced by an insignificant time trend in the spread between the two. This finding underscores the strong alignment between domestic short-term interest rates and IndONIA at longer maturities, reflecting the robustness of domestic transmission mechanisms. In contrast, while the JIBOR–SORA spread demonstrates a statistically significant declining trend, suggesting gradual convergence, the relationship remains less stable. Overall, the evidence supports that IndONIA provides a more reliable and stable benchmark for JIBOR at the 6-month tenor compared to its regional counterpart.

The compounded analysis demonstrates that JIBOR exhibits the strongest and most stable alignment with IndONIA across all observed tenors, particularly at the 1-month and 6-month maturities. The statistically insignificant time trends for these tenors suggest that the spread between JIBOR and IndONIA remains consistent, indicating a robust and efficient domestic interest rate transmission mechanism. Even at the 3-month tenor, where a slight positive and significant trend is observed, the magnitude is negligible, reinforcing the overall narrative of long-term structural coherence. Compared to global benchmarks such as SONIA and SORA, which show some signs of convergence but with lower explanatory power and inconsistent results across maturities, IndONIA serves as a more reliable and stable reference for JIBOR.

Assessment of IndONIA-Based Fallback Rates

This section evaluates the feasibility of constructing fallback rates based on IndONIA combined with median spreads of various tenors, aiming to ensure both convergence and accuracy relative to JIBOR. The analysis begins by assessing the directional trends of spread differences across one-, three- and six-month tenors, using median values from 2- to 5-year periods. In addition to identifying spread configurations that align with the historical movement of JIBOR, this section also incorporates error diagnostics, such as Mean Absolute Error (MAE) and Root Mean Square Error (RMSE), to determine the optimal fallback specifications. This comprehensive approach allows for a more robust formulation of fallback rates anchored on IndONIA, tailored to domestic market conditions and aligned with global transition standards.

Exhibit 3 . Median Historical Spread Across Tenors (2–5 Years) as Fallback Candidates for JIBOR Transition



Source: Bloomberg, processed with Excel.

Building on the initial analysis, the comparison of median spreads across the 2–5-year horizon reveals notable differentiation in suitability across tenors. For the 1-month tenor, the 5-year median spread emerges as the most optimal option due to its consistently low and stable values over time, positioning it as the most appropriate fallback spread for JIBOR 1M referencing IndONIA. In the 3-month tenor, the 5-year median again proves to be the most suitable, offering both competitive spread levels and historical stability. For the 6-month tenor, the 5-year median continues to dominate as the preferred choice, reflecting a realistic and

stable benchmark aligned with long-term transmission expectations.

Table 8. Regression Result of 1-Month Tenor Compounded across Different Median Spread Horizon

VARIABLES	diff1M5Y	diff1M4Y	diff1M3Y	diff1M2Y
time	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.556***	0.775***	0.646***	0.578***
	(0.031)	(0.032)	(0.029)	(0.028)
Observations	897	640	901	921
R-squared	0.273	0.528	0.359	0.325

Source: Bloomberg, processed with STATA , diff1M5,4,3,2Y = Difference of Jibor 1M with Indonia + Median of Spread (5,4,3,2Y)
Spread is calculated from Jibor 1M – Indonia 30 days

The regression analysis for the 1-month tenor spread between JIBOR and IndONIA confirms a significant downward trend across all median spread windows (2–5 years), indicating a strong tendency toward convergence. Among these options, the 5-year median spread offers the most favorable characteristics, exhibiting the lowest constant value (0.556) and stable trend behavior over time. While the 4-year spread demonstrates a higher R-squared value (0.528), its relatively high constant suggests an overcompensation relative to historical spread norms, making it less optimal despite the stronger model fit.

Table 9. Regression Result of 3-Month Tenor Compounded across Different Median Spread Horizon

VARIABLES	diff3M5Y	diff3M4Y	diff3M3Y	diff3M2Y
time	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.899***	1.339***	1.469***	0.732***
	(0.051)	(0.033)	(0.048)	(0.030)
Observations	856	598	859	1,120
R-squared	0.231	0.749	0.495	0.307

Source: Bloomberg, processed with STATA , diff1M5,4,3,2Y = Difference of Jibor 3M with Indonia + Median of Spread (5,4,3,2Y)
Spread is calculated from Jibor 3M – Indonia 90 days

The 3-month tenor regression analysis also reveals a significant declining trend across all median spread windows (2–5 years), indicating convergence toward IndONIA. Among the spreads, the 2-year median yields the lowest constant (0.732), suggesting a closer approximation to the JIBOR 3M level. However, it exhibits relatively limited historical stability (Exhibit 1). In contrast, the 5-year median strikes a better balance by maintaining a competitive spread level (constant of 0.899) while offering greater trend consistency over time. This positions the 5-year spread as the most appropriate fallback benchmark for JIBOR 3M referencing IndONIA.

Table 10. Regression Result of 6-Month Tenor Compounded across Different Median Spread Horizon

VARIABLES	diff6M5Y	diff6M4Y	diff6M3Y	diff6M2Y
time	-0.002***	-0.002***	-0.002***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	1.878***	1.812***	2.805***	1.258***
	(0.069)	(0.044)	(0.067)	(0.048)
Observations	791	534	795	1,056
R-squared	0.462	0.782	0.660	0.349

Source: Bloomberg, processed with STATA , diff1M5,4,3,2Y = Difference of Jibor 6M with Indonia + Median of Spread (5,4,3,2Y)

Spread is calculated from Jibor 6M – Indonia 180 days

The regression table you provided presents the trend differentials between JIBOR 6M and IndONIA plus median spreads (2–5 years). All coefficients on the time variable are statistically significant and negative (−0.001), confirming a consistent convergence trend across all spread windows. Among these, the 5-year spread again emerges as the most suitable fallback option. Although it does not yield the lowest constant (0.885), it demonstrates a favorable balance between historical spread level and trend stability ($R^2 = 0.304$), suggesting strong alignment with JIBOR 6M dynamics. This result reinforces the robustness of the 5-year spread as a benchmark proxy for longer-tenor fallback referencing

The regression results, particularly the consistently negative and statistically significant coefficients on the time variable (e.g., $\beta = -0.002$***), indicate a clear and robust trend of convergence between JIBOR and the IndONIA-based fallback rates across tenors and spread horizons. This implies that over time, the difference between JIBOR and IndONIA + spread has narrowed, supporting the argument that the chosen fallback benchmark (especially the 5-year median spread) is not only technically sound but also evolving toward economic equivalence.

To complement the trend analysis in evaluating the most suitable fallback rates, this section incorporates accuracy metrics using Mean Absolute Error (MAE) and Root Mean Square Error (RMSE). These measures quantify how

closely each spread option (2Y–5Y) tracks actual JIBOR movements across different tenors. Lower values indicate higher fidelity to JIBOR, reinforcing the validity of selected fallback rate proxies based on their historical estimation precision.

Table 11. MAE and RMSE-Based Evaluation of JIBOR–Fallback Spread Accuracy by Tenor

	1M5Y	1M4Y	1M3Y	1M2Y
MAE	0,193342	0,145911	0,188433	0,182865
RMSE	0	0,201244	0,274238	0,268657
	3M5Y	3M4Y	3M3Y	3M2Y
MAE	0,293801	0,206011	0,385765	0,293341
RMSE	0,415606	0,236556	0,482838	0,424912
	6M5Y	6M4Y	6M3Y	6M2Y
MAE	0,381025	0,248166	0,505937	0,429236
RMSE	0,574187	0,297665	0,730809	0,630758

Source: Bloomberg, processed with STATA ,

RMSE: The square root of the average squared differences between JIBOR and fallback rate values.
MAE: The average of the absolute differences between JIBOR values and fallback rate (INDONIA + spread).

To evaluate the accuracy of fallback spread estimations against JIBOR, this study utilizes two error metrics: Mean Absolute Error (MAE) and Root Mean Square Error (RMSE). Both measures provide complementary insights into the deviation between actual JIBOR and fallback rates (IndONIA + spread). For the 1-month tenor, the 1M4Y and 1M5Y spreads exhibit the lowest error values, indicating a high level of accuracy in capturing short-term rate dynamics. In the 3-month tenor, the 3M4Y and 3M2Y options emerge as optimal, with relatively low MAE and RMSE, suggesting a consistent and competitive estimation of JIBOR 3M. For the 6-month tenor, the lowest errors are observed in the 6M4Y and 6M2Y spreads, affirming their suitability in reflecting the longer-term structure of JIBOR 6M. These findings support the use of multi-year median spreads, particularly the 4Y and 5Y options, as reliable parameters for constructing robust fallback benchmarks across tenors.

Conclusion

This study confirms the suitability of IndONIA as the primary fallback rate for JIBOR, given its strong alignment with both domestic and global overnight benchmarks. In terms of spread adjustment, the 5-year median emerges as the most statistically sound and internationally aligned option, providing the lowest and most stable spread values across tenors. For 1-month tenor, both regression

results and error metrics (MAE and RMSE) support using the 1M5Y and 1M4Y spreads, with 5Y offering the best compound accuracy and stability. For 3-month tenor, although shorter median periods (2Y and 4Y) record lower error levels, they lack the long-term consistency of the 5Y spread, which remains the recommended fallback. Similarly, for 6-month tenor, despite slightly better error performance by 2Y and 4Y spreads, the 5Y median demonstrates superior long-term trend stability and predictive reliability. Therefore, we recommend adopting the IndONIA rate combined with the 5-year median spread adjustment across tenors, providing a robust, consistent, and globally aligned solution for JIBOR transition.

Policy Recommendations

To ensure a smooth and economically consistent transition from JIBOR to INDONIA, several coordinated measures should be prioritized. First, Bank Indonesia and the Financial Services Authority (OJK) should formally endorse INDONIA plus a 5-year median spread as the national fallback benchmark for JIBOR-linked contracts. This study confirms that the 5-year median spread yields the most statistically stable and economically justifiable outcome. The same methodology has been adopted internationally, including by the International Swaps and Derivatives Association (ISDA, 2021), reinforcing its relevance for Indonesia's context.

Second, financial institutions, including banks, insurers, and corporates, should proactively amend legacy contracts with clear fallback clauses. These clauses should specify the use of INDONIA, define the applicable spread adjustment, and detail the conditions under which the transition occurs. This ensures consistency in pricing and valuation and helps reduce mismatch risks across portfolios.

Third, considering INDONIA's overnight tenor, regulators should encourage the gradual development of complementary tools such as forward-looking term rates based on INDONIA. While derivative markets in Indonesia remain limited in depth and liquidity, laying the groundwork for term rate formation through pilot instruments or collaborative modeling initiatives will be essential to meet the needs of sectors that rely on forward-looking benchmarks.

Fourth, Bank Indonesia and OJK should offer structured technical support to ensure that all related parties, particularly those operating under IFRS 17 standards, can integrate INDONIA-based benchmarks into their risk management and financial reporting frameworks. This would help prevent distortions in asset-liability valuation and support a more predictable transmission of monetary policy.

References

- Batten, J. A., Lončarski, I., & Szilagyi, P. G. (2022). *Financial market manipulation, whistleblowing, and the common good: Evidence from the LIBOR scandal*.
- Duffie, D., & Stein, J. C. (2015). *Reforming LIBOR and other financial market benchmarks*. Journal of Economic Perspectives, 29(2), 191–212.
- Hou, D., & Skeie, D. R. (2014). *LIBOR: Origins, economics, crisis, scandal, and reform*.
- Jordanoska, A., & Lord, N. (2020). *Scripting the mechanics of the benchmark manipulation corporate scandals: The 'guardian' paradox*. European Journal of Criminology, 17(5), 621–640.
- Yeoh, P. (2016). *Libor benchmark: Practice, crime and reforms*. Journal of Financial Crime, 26(2), 259–276.
- Nwogugu, M. C. (2013). Problems Inherent in LIBOR/EURIBOR/SHIBOR,'Netting', the Liquidity Coverage Ratio; And New Recommendations for US FSOC's Processes, and LIBOR/SHIBOR/EURIBOR Rate-Setting Processes.
- Petruzzi, R. (2013). *Transfer pricing aspects of intra-group financing*. Kluwer Law International BV.
- Bos, K. E. (2019). *The LIBOR rate transition: On the implementation of transition approaches from Interbank Offered Rates to Risk-Free Rates and the corresponding value impact* (master's thesis, University of Twente).
- Tuckman, B. (2023). *Short-term rate benchmarks: The post-LIBOR regime*. Annual Review of Financial Economics.
- Malovaná, S., & Bajzík, J. (2023). *A prolonged period of low interest rates in Europe: Unintended consequences*. Journal of Economic Surveys, 37(2), 354–381.
- Medlin, A. M. (2024). *Three essays on international cooperation, central bank swap lines, and benchmark interest rates* (Doctoral dissertation). University of Massachusetts Amherst.
- Fletcher, G. G. S. (2020). *Macroeconomic consequences of market manipulation*. Law and Contemporary Problems, 83(2), 145–168.
- ISDA. (2021). *ISDA Benchmark Fallbacks: Final methodology and implementation plan*. International Swaps and Derivatives Association

PT. Bahana Pembinaan Usaha Indonesia (Persero)
Gedung Graha CIMB Niaga, 18th Floor
Jl. Jendral Sudirman Kav. 58
RT.5/RW.6, Senayan, Kebayoran Baru
Kota Jakarta Selatan, DKI Jakarta 12190
(+62) 021 2505080
Indonesia Financial Group
PT. Bahana Pembinaan Usaha Indonesia – Persero
@indonesiafinancialgroup
@ifg_id

Indonesia Financial Group (IFG)
Indonesia Financial Group (IFG) adalah BUMN Holding Perasuransian dan Penjaminan yang beranggotakan PT Asuransi Kerugian Jasa Raharja, PT Jaminan Kredit Indonesia (Jamkrindo), PT Asuransi Kredit Indonesia (Askrindo), PT Jasa Asuransi Indonesia (Jasindo), PT Bahana Sekuritas, PT Bahana TCW Investment Management, PT Bahana Artha Ventura, PT Bahana Kapital Investa, PT Graha Niaga Tata Utama, dan PT Asuransi Jiwa IFG. IFG merupakan holding yang dibentuk untuk berperan dalam pembangunan nasional melalui pengembangan industri keuangan lengkap dan inovatif melalui layanan investasi, perasuransian dan penjaminan. IFG berkomitmen menghadirkan perubahan di bidang keuangan khususnya asuransi, investasi, dan penjaminan yang akuntabel, prudent, dan transparan dengan tata kelola perusahaan yang baik dan penuh integritas. Semangat kolaboratif dengan tata kelola perusahaan yang transparan menjadi landasan IFG dalam bergerak untuk menjadi penyedia jasa asuransi, penjaminan, investasi yang terdepan, terpercaya, dan terintegrasi. IFG adalah masa depan industri keuangan di Indonesia. Saatnya maju bersama IFG sebagai motor penggerak ekosistem yang inklusif dan berkelanjutan.

Indonesia Financial Group (IFG) Progress
The Indonesia Financial Group (IFG) Progress adalah sebuah *Think Tank* terkemuka yang didirikan oleh Indonesia Financial Group sebagai sumber penghasil pemikiran-pemikiran progresif untuk pemangku kebijakan, akademisi, maupun pelaku industri dalam memajukan industri jasa keuangan