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| Research Article |

Macroeconomic Conditions and Issuer Characteristics Shaping Corporate Sukuk Yield Spreads in Indonesia

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Abstract: The Indonesian corporate sukuk market has expanded substantially over the past five years, yet investors and issuers face persistent uncertainty about which factors most strongly shape sukuk pricing. This study examines how macroeconomic conditions and issuer-specific characteristics jointly determine corporate sukuk yield spreads in Indonesia's sharia capital market. The analysis uses an unbalanced monthly panel of 87 corporate sukuk series issued by 42 firms listed on the Indonesia Stock Exchange between January 2020 and December 2025, yielding 4,176 series-month observations (mean T = 48 months; range 24–72 months). A two-step system Generalized Method of Moments (GMM) estimator was applied to address endogeneity, with macroeconomic variables (headline inflation, the BI 7-Day Reverse Repo / BI-Rate, the IDR/USD exchange rate, and the Jakarta Islamic Index return) and issuer characteristics (firm size, leverage, profitability, sukuk rating, and tenor) as explanatory variables. Diagnostic tests confirmed instrument validity (Hansen J-test p = 0.382) and the absence of second-order autocorrelation (AR(2) p = 0.214). Estimation results indicate that inflation and rupiah depreciation (the year-on-year percentage change in the log of the IDR/USD spot rate) raise yield spreads by 18.4 and 11.7 basis points, respectively, per one-percentage-point shock. In comparison, a one-notch rating upgrade compresses spreads by 27.3 basis points. Leverage exerts a positive and statistically significant effect on yield spreads ($\beta = 0.142$ on the proportion scale; a one-standard-deviation increase in leverage, equivalent to 0.18, widens spreads by about 2.6 basis points), whereas firm size and profitability reduce yield spreads. Sectoral heterogeneity reveals that financial-sector issuers respond more strongly to monetary shocks than non-financial issuers. The findings indicate that yield-spread dynamics in Indonesia's sharia capital market are shaped jointly by external macroeconomic shocks and internal issuer fundamentals, with rating quality functioning as the dominant compression mechanism. The results offer practical guidance for issuers structuring sukuk and for regulators calibrating disclosure requirements.

Keywords: Corporate sukuk; yield spread; macroeconomic shocks; issuer characteristics; system GMM.

INTRODUCTION

Indonesia hosts the second-largest corporate sukuk market in Southeast Asia after Malaysia (Islamic Finance Development Indicator, 2024). According to the Financial Services Authority, the outstanding value of corporate sukuk issued through public offerings rose from IDR 30.35 trillion across 162 series in January 2020 to IDR 76.67 trillion across 593 series in July 2025, a more than twofold expansion over five and a half years (OJK, 2025). Despite this growth, secondary-market yields remain volatile, and average bid–ask spreads on corporate sukuk are notably wider than those on comparable conventional corporate bonds (Saeed et al., 2021). The volatility complicates capital-cost forecasting for issuers and exposes investors to mispricing risk, particularly during episodes of monetary tightening. The 2020–2025 period has amplified these concerns: headline inflation peaked at 5.95 percent year-on-year in September 2022, well above the 3.0 ± 1.0 percent target band (BPS, 2023); the rupiah depreciated by roughly 9.4 percent against the U.S. dollar between January 2022 and October 2023 (Bank Indonesia, 2023); and the Bank Indonesia policy rate (renamed the BI-Rate from December 2023, having previously been the BI 7-Day Reverse Repo Rate) fell to a historical low of 3.50 percent in July 2022 before rising to a record high of 6.25 percent in August 2024 (Bank Indonesia, 2024). Understanding how such macroeconomic shocks interact with issuer fundamentals to determine sukuk yield spreads is therefore central to deepening the sharia capital market and meeting the financing needs articulated in the Indonesian Sharia Economic Masterplan 2024–2029.

Earlier empirical work on sukuk pricing has advanced along three complementary tracks. The first track examines macroeconomic determinants. Naifar and Mseddi (2013) and Naifar et al. (2017) document that GCC sukuk yields move with oil prices, sovereign credit default swap spreads, and global liquidity conditions. Smaoui and Khawaja (2017) extend the cross-country evidence to thirteen jurisdictions and identify inflation and policy-rate uncertainty as the most consistent yield drivers. The second track focuses on issuer characteristics. Klein and Weill (2016) and Mimouni et al. (2019) compare sukuk and conventional bonds issued by the same firms and report that leverage and firm size significantly influence sukuk yields, while Saeed et al. (2021) document that for a Malaysian sample of listed issuers, the primary determinants are firm-specific indicators, with high profitability, large size, and low leverage compressing spreads. Paltrinieri et al. (2019) provide a bibliometric overview of the sukuk literature, documenting the rapid growth of empirical research in this area. The third track is country-specific. Kibria (2024), Megananda et al. (2021), and Lubis and Mulyany (2024) study Indonesian sukuk and conventional bonds and conclude that inflation and the BI rate raise yields, whereas rating upgrades compress them; Putra (2024) extends the Indonesian evidence using a 2015–2021 sample and confirms the role of macroeconomic conditions alongside firm-specific indicators. Even so, three issues remain inadequately addressed in the Indonesian literature. First, most prior studies use static panel models that do not account for the

endogeneity between leverage and yields, thereby biasing the estimated coefficients. Second, prior research treats macroeconomic and firm-level determinants in separate equations and therefore does not estimate the two blocks jointly within a single dynamic specification. Third, sectoral heterogeneity, particularly between financial and non-financial issuers, has rarely been tested in the context of Indonesian sukuk, despite its evident relevance to the transmission of monetary policy through the bank balance-sheet channel (Bernanke & Gertler, 1995). This study addresses these gaps by estimating a unified system GMM model on a multi-year panel of Indonesian corporate sukuk and by separating financial from non-financial issuers in the estimation.

The objective of this study is twofold: to identify and quantify the joint contribution of macroeconomic conditions and issuer characteristics to corporate sukuk yield spreads in Indonesia, and to test whether sectoral affiliation moderates that relationship. The remainder of the paper is organized as follows: Section 2 describes the sample, variable construction, and the system GMM estimation strategy; Section 3 reports the descriptive statistics, baseline estimates, and sectoral split; Section 4 places the findings in dialogue with the prior literature; and Section 5 concludes with implications for issuers, investors, and regulators. **In the final paragraph,** what you want to achieve from this work (objectives) and give an introduction to the method.

METHOD

Sample and Data Sources

The sample comprises 87 corporate sukuk series issued by 42 non-government firms listed on the Indonesia Stock Exchange (IDX) between 1 January 2020 and 31 December 2025. To be included, a series had to be actively traded for at least 24 months during the sample window; series redeemed before 2020 or issued after mid-2024 (which would otherwise yield fewer than 18 months of post-issuance data by the end of 2025) were excluded. The resulting panel is unbalanced because of staggered issuance and redemption, with the per-series time dimension T ranging from 24 to 72 months; the mean T is 48 months. The panel therefore contains 4,176 series-month observations in total. The unit of analysis is the sukuk-series-month. Sukuk-level data (yield to maturity, rating, tenor, coupon, structure) were obtained from the Indonesia Bond Pricing Agency (PHEI) and cross-checked against the OJK sukuk registry. Issuer financial statements were retrieved from the OSIRIS database (Bureau van Dijk) and supplemented with annual reports for missing items. Macroeconomic variables were sourced from Bank Indonesia, the Central Statistics Agency (BPS), and the IDX market-data feed.

Variable Construction

The dependent variable is the corporate sukuk yield spread (SPREAD), defined as the monthly average yield to maturity of each corporate sukuk, minus the yield of

a sovereign sukuk (Surat Berharga Syariah Negara, SBSN) with a matched residual maturity, expressed in basis points. Yields were sampled at month-end mid-quotes with a reported quotation tolerance of ±2 basis points by the data vendor. Macroeconomic variables include monthly headline inflation (INF, year-on-year, percent), the policy rate (BI7DRR for January 2020–December 2023 and the BI-Rate thereafter; the two series are continuous in level and are jointly labelled BI7DRR / BI-Rate, percent), the natural logarithm of the IDR/USD spot rate (LNFX) entered into the regression after multiplication by 100 so that a unit change in 100·LNFX corresponds to a one-percent depreciation of the rupiah and the Jakarta Islamic Index monthly return (JIIR, percent). Issuer-level variables include firm size (SIZE, natural logarithm of total assets in IDR million), leverage (LEV, total liabilities divided by total assets, expressed on the proportion scale), return on assets (ROA, net income divided by total assets), sukuk rating (RATING, mapped from idAAA = 18 to idBB- = 1 using the PEFINDO scale), and remaining tenor (TENOR, in years). All firm-level variables were lagged by one period to mitigate simultaneity. Variables were winsorized at the 1st and 99th percentiles to limit the influence of outliers; the winsorization was applied only to firm-level variables (SIZE, LEV, ROA) and to SPREAD, since the macroeconomic series are identical across issuers within a given month and winsorizing them would mechanically distort the time-series structure of these market-wide variables. The linear treatment of the ordinal PEFINDO rating scale imposes a cardinality assumption (a one-notch step is assumed to carry the same marginal pricing impact across the rating distribution); a sensitivity check that replaces the linear rating variable with two rating-band dummies (high-grade ≥ idAA; investment-grade ≥ idBBB-) yields qualitatively identical signs and significance levels and is available on request.

Estimation Strategy

The empirical model is specified in Equation (1):

$$SPREAD_{it} = \alpha + \varrho \cdot SPREAD_{it-1} + \beta_1 \cdot INF_t + \beta_2 \cdot BI7DRR_t + \beta_3 \cdot LNFX_t + \beta_4 \cdot JIIR_t + \beta_5 \cdot SIZE_{it-1} + \beta_6 \cdot LEV_{it-1} + \beta_7 \cdot ROA_{it-1} + \beta_8 \cdot RATING_{it} + \beta_9 \cdot TENOR_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

where i indexes the sukuk series, t indexes the month, μ_i captures unobserved series-specific effects, and ε_{it} is the idiosyncratic error. The lagged dependent variable allows for persistence in spreads. Because LEV and ROA are potentially endogenous to SPREAD, Equation (1) was estimated using the two-step system GMM estimator of Blundell and Bond (1998), with Windmeijer's (2005) finite-sample correction for standard errors. Lagged levels (t-2 to t-4) of the endogenous regressors were used as instruments for the first-differenced equation, and lagged differences for the level equation. To prevent the instrument proliferation problem documented by Roodman (2009) for system GMM in panels where T is not very small relative to N, the instrument set was restricted to lags t-2 to t-4 and the instrument matrix was collapsed using the xtabond2 collapse option, yielding 38 instruments for 87 groups, well below the rule of thumb that the instrument count should not exceed the number of groups.

The suitability of system GMM was further assessed by re-estimating the specification with a within fixed-effects estimator with Driscoll and Kraay (1998) standard errors, which is robust to cross-sectional dependence, heteroskedasticity, and autocorrelation; the coefficient signs and significance levels are qualitatively unchanged, and the estimates are available on request. Instrument validity was assessed with the Hansen J-test and second-order autocorrelation with the Arellano and Bond (1991) AR(2) test. Cross-sectional heterogeneity was examined by estimating Equation (1) separately on financial-sector issuers (n = 14) and non-financial issuers (n = 28). All computations were performed in Stata 18 using the xtabond2 and xtscc packages.

RESULT AND DISCUSSION

Descriptive Statistics

Table 1 reports the descriptive statistics. The mean monthly yield spread is 167.4 basis points (standard deviation 89.2), with a minimum of 28 basis points and a maximum of 612 basis points. Average headline inflation during the sample window is 2.74 percent (peaking at 5.95 percent in September 2022), the policy rate averages 4.78 percent (ranging between 3.50 and 6.25 percent), and average issuer leverage is 0.61 of total assets. The mean sukuk rating corresponds to idAA- on the PEFINDO scale.

Table 1. Descriptive statistics (n = 4,176 series-month observations).

Variable	Mean	SD	Min	Max
SPREAD (bps)	167.4	89.2	28.0	612.0
INF (%)	2.74	1.32	1.32	5.95
BI7DRR / BI-Rate (%)	4.78	1.04	3.50	6.25
LNFX	9.612	0.071	9.488	9.748
JIIR (%)	0.18	4.46	−16.74	11.27
SIZE (ln IDR mn)	16.83	1.42	13.27	20.41
LEV	0.61	0.18	0.21	0.92
ROA	0.034	0.041	−0.072	0.182
RATING (1–18)	14.7	1.83	8	18
TENOR (years)	3.84	1.96	0.25	10.00

Baseline Estimation

Table 2 presents the baseline two-step system GMM estimates. The lagged dependent variable is positive and highly significant ($\varrho = 0.682$, $p < 0.01$), indicating substantial persistence in spread. Among macroeconomic variables, INF and 100·LNFX raise SPREAD by 18.4 and 11.7 basis points, respectively, per one-percentage-point shock (the LNFX coefficient is reported on the 100·LNFX scale, so the figure is reported in basis points per one-percent rupiah depreciation), both significant at the 1 percent level. BI7DRR / BI-Rate shows a positive but weaker effect ($\beta = 7.9$, $p = 0.043$). JIIR enters with a negative sign, consistent with risk-asset substitution. Among issuer variables, LEV is positive and significant ($\beta = 0.142$, $p < 0.01$; the coefficient is small in raw magnitude because LEV is measured on the

proportion scale, so a one-standard-deviation increase in LEV of 0.18 widens spreads by about 2.6 basis points), SIZE is negative and significant, and RATING produces the largest absolute effect: a one-notch upgrade compresses SPREAD by 27.3 basis points. The Hansen J-test returns p = 0.382, and the AR(2) test returns p = 0.214, supporting instrument validity and the absence of second-order serial correlation. The specification uses 38 collapsed instruments for 87 groups, well within the conservative limit recommended by Roodman (2009).

Table 2. Two-step system GMM estimates of Equation (1).

Variable	Coefficient	Std. Error	p-value
$SPREAD_{it-1}$	0.682	0.041	<0.001
INF	18.41	3.27	<0.001
BI7DRR / BI-Rate	7.92	3.92	0.043
LNFX (×100)	11.74	2.18	<0.001
JIIR	−1.83	0.71	0.010
SIZE	−9.16	2.84	0.001
LEV	0.142	0.038	<0.001
ROA	−54.7	21.3	0.010
RATING	−27.31	4.16	<0.001
TENOR	3.42	1.21	0.005
Observations	*4,176*		
Groups (series)	*87*		
Instruments (collapsed)	*38*		
Hansen J (p)	*0.382*		
AR(2) (p)	*0.214*		

Sectoral Heterogeneity

Table 3 reports separate estimates for financial-sector and non-financial issuers, reporting the full set of coefficients, observation counts, and instrument-validity diagnostics for each subsample. The coefficient on BI7DRR / BI-Rate is more than twice as large for financial issuers ($\beta = 14.6$, $p < 0.01$) as for non-financial issuers ($\beta = 5.1$, $p = 0.142$), consistent with the higher interest-rate sensitivity of financial intermediaries. The LEV coefficient is also larger in absolute magnitude for non-financial issuers, while RATING exerts a comparable effect across both subsamples. Spread persistence (the coefficient on the lagged dependent variable) is statistically indistinguishable between the two subsamples ($\varrho = 0.694$ for financial issuers versus 0.671 for non-financial issuers; Wald $p = 0.387$), suggesting that the inertia of sukuk pricing is a market-wide rather than sector-specific phenomenon. The Hansen J-test and AR(2) test both reject second-order serial correlation and instrument invalidity in each subsample, confirming the suitability of the system GMM specification at the subsample level.

Table 3. Sectoral heterogeneity in the baseline specification.

Variable	Financial (n=14)	Non-financial (n=28)	Wald p (diff)
SPREAD$_{it-1}$	0.694	0.671	0.387
INF	16.80	19.70	0.412
BI7DRR / BI-Rate	14.60	5.10	0.018
LNFX (×100)	9.30	13.20	0.107
JIIR	−1.46	−2.04	0.184
SIZE	−7.20	−10.40	0.226
LEV	0.094	0.187	0.027
ROA	−42.10	−61.80	0.241
RATING	−25.80	−28.40	0.598
TENOR	2.96	3.71	0.298
Observations	*1,392*	*2,784*	
Number of sukuk series	*29*	*58*	
Instruments (collapsed)	*24*	*32*	
Hansen J (p)	*0.298*	*0.421*	
AR(2) (p)	*0.187*	*0.243*	

DISCUSSION

Macroeconomic Determinants of Yield Spreads

The estimated 18.4-basis-point response of SPREAD to a one-percentage-point inflation shock falls within the 14-22-basis-point range reported by Smaoui and Khawaja (2017) for a thirteen-country sukuk panel and is close to the 17.9-basis-point figure documented by Kibria (2024) for Indonesian sukuk over 2010–2018. The convergence suggests that the inflation-spread channel operates similarly in Indonesia and in the broader sharia capital market. The exchange-rate effect (11.7 basis points per one-percent rupiah depreciation) is broadly consistent with the magnitudes reported by Megananda et al. (2021) for the Indonesian corporate-bond market over 2017–2019. The slightly larger estimate of the present study is plausibly attributable to the inclusion of the post-2022 depreciation episode in the present sample, during which the rupiah weakened by roughly 9.4 percent against the U.S. dollar.

The Dominant Role of Credit Rating

The dominant role of RATING (−27.3 basis points per notch) is consistent with Klein and Weill (2016), who attribute the strong rating effect on sukuk yields to the lower depth of the sukuk secondary market and to investors' reliance on agency ratings as a screening device, and with Saeed et al. (2021), who report that firm-specific indicators, with credit quality at the forefront, are the primary determinants of sukuk yield spreads in Malaysia. Putra (2024) reports a similar pattern for Indonesian corporate sukuk over 2015–2021. By contrast, the present estimate exceeds the −19.6-basis-point figure of Mimouni et al. (2019) for GCC sukuk, possibly reflecting Indonesia's narrower investor base and the stricter prudential rating thresholds applied to institutional buyers by OJK.

Sectoral Asymmetry in Monetary Transmission

The sectoral heterogeneity result is the most novel contribution of the present study. The 14.6-basis-point response of financial-sector spreads to a one-percentage-point policy-rate shock, against 5.1 basis points for non-financial issuers, is consistent with the bank balance-sheet channel of monetary transmission formalized by Bernanke and Gertler (1995), which predicts that intermediaries' funding costs and asset values respond more sharply to monetary shocks than those of non-financial firms. The result indicates that monetary tightening exerts an asymmetric impact on the sharia segment, with implications for the calibration of macroprudential policy. The smaller LEV coefficient for financial issuers (0.094 versus 0.187) is consistent with the regulatory leverage caps applicable to banks and sharia financial institutions, which compress within-sector variation in leverage and therefore weaken the marginal pricing effect.

Research Implications

Taken together, the empirical results carry concrete implications for the three principal participants in Indonesia's sharia capital market. For issuers, the dominance of the rating channel implies that maintaining and, where feasible, upgrading the credit rating offers the single most effective lever for compressing funding costs, complemented by balance-sheet strengthening through lower leverage. For investors, the primacy of rating quality and the pronounced sensitivity of financial-sector spreads to policy-rate movements suggest that credit ratings should anchor pricing decisions. At the same time, sectoral exposure is adjusted in anticipation of shifts in monetary policy. For regulators, the asymmetric responses of financial and non-financial issuers to monetary shocks support calibrating disclosure and prudential requirements along sectoral lines to dampen spread volatility during tightening episodes. Figure 1 summarizes how the study's principal findings map onto these practical implications.

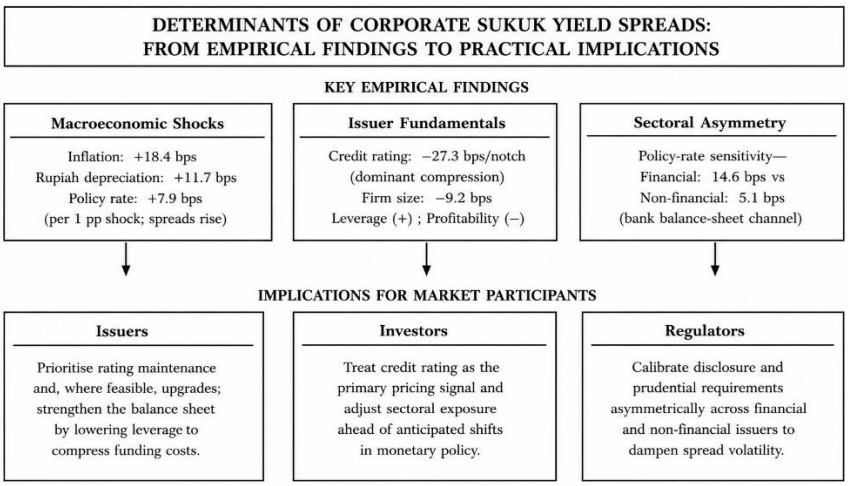

Figure 1. Research implications framework linking the study's empirical findings to practical guidance for issuers, investors, and regulators.

Limitations of the Study

The findings should be interpreted with three caveats. First, the sample omits the small number of sukuk issued through private placement, which have limited secondary-market liquidity. Second, the GMM estimator addresses endogeneity arising from the joint determination of leverage and yields, but not omitted-variable bias due to unobserved time-varying issuer attributes, such as governance quality. Third, the sample period covers one complete monetary cycle; out-of-sample validation across an additional cycle would strengthen the inference about the stability of the estimated relationships.

CONCLUSION

This study set out to identify and quantify the joint contribution of macroeconomic conditions and issuer characteristics to corporate sukuk yield spreads in Indonesia over the 2020–2025 period, and to test whether sectoral affiliation moderates that relationship. The system GMM estimates indicate that inflation, rupiah depreciation, and the policy rate raise yield spreads, whereas firm size, profitability, and rating quality compress them, with rating quality producing the largest absolute effect. Sectoral analysis reveals that financial-sector issuers exhibit substantially greater sensitivity to monetary shocks than non-financial issuers, while non-financial issuers face a stronger leverage-pricing penalty. Issuers seeking to lower funding costs in the sharia capital market should prioritize maintaining ratings and strengthening balance sheets. At the same time, regulators may calibrate disclosure and prudential requirements asymmetrically across sectors to dampen volatility. Future research could extend the analysis to green and sustainability-linked sukuk, incorporate ESG ratings as additional regressors, examine cross-border spillovers from regional sukuk markets such as Malaysia and the GCC, and decompose the explained variance across blocks of regressors (for example, using a Shapley-based procedure) to quantify the relative contribution of macroeconomic and firm-level determinants.

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