Islamic Bank Financing, Green Sukuk, and the Jakarta Islamic Index: An ARDL Analysis of Indonesia's Real Sector

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Abstract

This study examines the effects of Islamic Bank Financing (IBF), Green Sukuk (GS), the Jakarta Islamic Index (JII), inflation (CPI), exchange rate fluctuations (EXR), and money supply (M2) on Indonesia's real sector using the Autoregressive Distributed Lag (ARDL) approach. The findings reveal that IBF stimulates the real sector in the short run, but structural challenges and limited market penetration constrain its long-term influence. Conversely, GS exerts a significant positive impact over the long term, underscoring the importance of sustainable investments in enhancing productive capacity and generating employment. Although JII shows no significant short-term effect, it contributes meaningfully in the long run. CPI consistently exerts a negative influence on the real sector in both horizons, while exchange rate appreciation and M2 growth support economic activity. These results highlight the need for coordinated policy measures to foster inclusive, stable, and sustainable development in Indonesia's real economy.

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Introduction

The development of Islamic finance in Indonesia has shown significant growth (Trianto & Masrizal, 2021). By the end of 2024, the total assets of the Islamic finance industry reached more than IDR 2,400 trillion, with the market share of Islamic banking amounting to 7.5% of the total assets of the national banking sector (Otoritas Jasa Keuangan, 2024). Indonesia has also become a global pioneer in issuing green sukuk, with cumulative issuances amounting to more than USD 6 billion since 2018 (Ministry of Finance of the Republic of Indonesia, 2024). In the Islamic capital market, the Jakarta Islamic Index (JII) recorded a market capitalisation of more than IDR 4,000 trillion in 2024, becoming one of the key indicators of sharia stock performance in the ASEAN region (OJK, 2024). This development shows that Islamic bank financing (IBF), green sukuk instruments (GS), and sharia stock indices have a strategic role in financing Indonesia's real sector.

In the literature, the relationship between the financial sector and economic growth has been a classical theoretical debate (Abduh & Omar, 2012; Abduh & Chowdhury, 2012; Abd Majid & Kassim, 2015). The supply-led view argues that the financial sector drives growth through efficient fund allocation and support for innovation (Schumpeter, 1934; McKinnon, 1973; Shaw, 1973). Conversely, the demand-

following view argues that economic growth drives the development of the financial sector (Robinson, 1952). Islamic finance often reinforces the supply-led perspective by linking to real sector activities, while the demand-following perspective remains relevant in explaining why economic growth can increase the demand for Islamic financing and Sharia capital market instruments (Abduh & Omar, 2012; Abd. Majid & Kassim, 2015)

Several empirical studies show mixed results. Studies by Fathan and Arundina (2019), Anwar et al. (2020), and Zarrouk et al. (2017) found that IBF has a positive effect on economic growth. However, Ben Amar (2015) and Goaied and Sassi (2011) reported insignificant results. These differences may be due to variations in the observation period, differences in the object of study, or the methodological approaches used. In contrast, studies on sukuk, such as Yıldırım et al. (2020), Purba et al. (2021), Echchabi et al. (2018), Ledhem (2020), and Smaoui and Nechi (2017) tend to show more consistent results, namely a significant positive effect on economic growth. Meanwhile, studies on Islamic capital markets such as Pan and Mishra (2017) and Zarrouk et al. (2017) the development of Sharia stock indices can increase firms' access to financing and reflect investor confidence in the real sector.

The research gap arises because few studies have simultaneously examined the relationship between IBF, GS, and the Jakarta Islamic Index (JII) on real sector growth, especially using the latest data after 2018. This lack of comprehensive studies is significant because these three instruments represent different but complementary financing channels: IBF plays a role in medium to long-term funding, and GS focuses on sustainable infrastructure projects. At the same time, JII reflects public capital access by Sharia principles. Simultaneous analysis of the three can provide a complete picture of the synergy of Islamic financial instruments in driving the real sector. The post-2018 period is also important because it covers strategic events such as the merger of national Islamic banks into Bank Syariah Indonesia, the continuous issuance of green sukuk, and the rapid growth of the Islamic capital market.

Therefore, this study contributes by: (1) integrating IBF, GS, and JII variables into a single Autoregressive Distributed Lag (ARDL) model; (2) using data from the 2018-2024 period to capture recent dynamics; and (3) providing evidence-based policy recommendations for the development of the real sector and Islamic finance in Indonesia. Accordingly, this study's objective is to analyse the effect of IBF, GS, and JII on real sector growth in Indonesia, both in the short term and in the long term, using the ARDL approach. Indonesia is a significant research context because it is the largest Islamic finance market in ASEAN, a global pioneer in green sukuk issuance, and has a rapidly growing Islamic capital market. With an economic structure dominated by the real sector and strong regulatory support, findings from Indonesia can provide important implications for the development of Islamic finance in other developing countries.

Literature Review

Theoretical Framework and Previous Studies

The development of the real sector from the perspective of Islamic economics emphasises the direct linkage between financial activities and productive activities (Zaimsyah, 2020). According to the endogenous growth theory (Romer, 1986; Lucas, 1988), adequate financing can enhance real sector productivity through investments in infrastructure, energy, and productive enterprises. Through partnership-based and trade-based contracts, IBF ensures a direct connection between capital and productive activities, thereby avoiding speculation and strengthening the stability of the real sector (Zaimsyah, 2020). Meanwhile, GS, focusing on financing environmentally friendly projects, generates economic impact and reinforces sustainability, in line with the aqasid al-shariah in preserving the environment (Mahomed & Mahbot, 2024).

On the other hand, JII indicates investor sentiment and confidence in companies that comply with Sharia principles (Ferriswara et al., 2022). An increase in this index is often associated with greater capital inflows to real-sector companies, thus stimulating growth in output and employment (Ferriswara et al., 2022). Accordingly, these three variables interact in shaping the dynamics of real sector growth: IBF supports business and trade financing (Zaimsyah, 2020). GS provides long-term financing for strategic

projects (Mahomed & Mahbot, 2024), and JII reflects and influences investor confidence that strengthens the Islamic financial ecosystem (Ferriswara et al., 2022).

Empirically, several studies have examined this relationship. For instance, Sabiu and Abduh (2021) found that IBF significantly affects the development of small and medium enterprises, although its effectiveness varies depending on the contract structure and the risk profile of the financed sector. Rohmah et al. (2020) and Akinde et al. (2025) found that GS positively contributes to financing sustainable infrastructure projects, which impacts the real sector's GDP growth. Meanwhile, studies by Ulum and Soepriyanto (2021) and Rusmita et al. (2020) revealed that JII movements are positively correlated with real sector growth, particularly during periods of economic stability. However, there is debate regarding the consistency of JII's influence. Setyowati (2019) noted that during periods of global market volatility, this relationship may weaken due to declining investor confidence.

These findings may stem from variations in research periods, macroeconomic conditions, and differences in government policies and Sharia capital market regulations. Therefore, this study positions itself to fill the research gap by simultaneously analysing the effects of IBF, GS, and JII on real sector growth in Indonesia, both in the short and long run, using the ARDL approach, which can more comprehensively capture time dynamics.

Hypothesis Development

Based on endogenous growth theory, Islamic finance theory, and the synthesis of previous studies, the relationship between each research variable and the real sector can be explained as follows. IBF is the primary channel for mobilising public funds to the productive sector. Sharia principles such as *mudharabah* and *musyarakah* ensure a direct linkage between capital and real activities, thereby preventing speculation and excessive uncertainty (Riaz et al., 2024). Theoretically, the existence of IBF supports real sector growth through increased investment, job creation, and value addition (Lee et al., (2025).

Empirical findings support this view. Zaimsyah (2020) found that IBF in 10 OIC countries has a significantly positive impact on economic growth. Riaz et al. (2024) found that the positive effect of IBF is more potent in countries with well-established Islamic financial regulations, while Lee et al. (2025) noted variations in influence depend on the dominant contract structure. Other studies, such as Zarrouk et al. (2017) and Grassa and Gazdar (2014) emphasised IBF's role in driving the real sector, although its effect may weaken during liquidity crises or global uncertainty. Therefore, the hypothesis is formulated as follows.

H1. Islamic bank financing has a positive and significant effect on the real sector in the short and long run.

As a Sharia-compliant instrument for financing sustainable projects, green sukuk (GS) plays a dual role: providing long-term capital for environmentally friendly infrastructure projects and strengthening economic sustainability (Ledhem, 2020). According to sustainable finance theory, this instrument delivers returns to investors and generates positive externalities for society and the environment, ultimately strengthening the real sector (Ali et al., 2023).

Empirical findings consistently show this positive influence. Mahomed and Mahbot (2024) demonstrated that the issuance volume of green sukuk is positively related to real sector GDP growth, particularly in countries with energy transition agendas. Ledhem (2020) found that GS's contribution is more significant for long-term infrastructure projects than smaller-scale projects. Suriani et al. (2021) added that the positive impact of GS on the real sector is reinforced when accompanied by pro-investment fiscal policies. Nevertheless, Ali et al. (2023) cautioned that some countries' limited liquidity in green sukuk markets can hinder its optimal impact. The synthesis of theory and empirical evidence leads to the following hypothesis.

H2. Green Sukuk has a positive and significant effect on the real sector in the short and long run.

The Jakarta Islamic Index, within the Islamic capital market theory framework, reflects investor confidence in the performance of Sharia-compliant companies (Rusmita et al., 2020). An increase in JII

indicates positive market sentiment, which can indirectly boost capital inflows to the real sector through business expansion and job creation. Market expectation theory explains that index fluctuations can serve as signals for economic actors in making investment decisions (Ulum & Soepriyanto, 2021).

Empirical evidence shows a positive relationship between JII performance and real sector growth. Ferriswara et al. (2022) found that this linkage primarily occurs through direct investment and consumption channels. Rusmita et al. (2020) confirmed that the relationship is stronger during periods of macroeconomic stability, while Setyowati (2019) found a weakening of the correlation during episodes of global market turmoil. These variations indicate that company fundamentals and external factors, such as international market volatility, influence JII performance. Based on theoretical considerations and empirical findings, the hypothesis is formulated as follows.

H3. The Jakarta Islamic Index has a positive and significant effect on the real sector in the short and long run.

Research Method

Variables and Data

This study employs monthly time series data from January 2018 to March 2024, resulting in 75 observations. The dependent variable is real sector growth, proxied by real GDP growth. The independent variables consist of Islamic Banking Financing (IBF), Green Sukuk (GS), and the Jakarta Islamic Index (JII), which respectively represent the banking sector, sustainable financing instruments, and the Islamic capital market. The selection of these variables is based on previous empirical findings that demonstrate a positive relationship between Islamic finance and real economic growth, as highlighted by Trianto and Masrizal (2021), Smaoui and Nechi (2017), Ledhem (2020), and Hanif (2025). This study also incorporates three control variables: inflation (CPI), exchange rate (EXR), and money supply (M2), to enhance the estimation's robustness. In addition, a dummy variable for the COVID-19 pandemic (D_COVID) is included to capture potential structural breaks during the period 2020Q1–2021Q2.

Table 1. Research Variables and their Measurements

Variable	Code	Description	Data Source
Real Sector Growth (log)	lnRS	Growth of the real sector proxied by real GDP growth	Statistics Indonesia (BPS)
Islamic Banking Financing (log)	lnIBF	Total financing disbursed by Islamic banks	Financial Services Authority (OJK)
Green Sukuk (log)	lnGS	Total value of green sukuk issued by the government or corporations	Ministry of Finance
Jakarta Islamic Index (log)	lnJII	Market capitalisation of sharia-compliant stocks in the JII index	Indonesia Stock Exchange (IDX)
Inflation	CPI	Annual percentage change in the Consumer Price Index (CPI)	BPS / Ministry of Finance
Exchange Rate (log)	lnEXR	Rupiah exchange rate against the US dollar (IDR/USD)	Bank Indonesia
Broad Money Supply (log)	lnM2	Broad money supply, including currency and deposits	Bank Indonesia
COVID-19 Dummy	D_COVID	Dummy variable for the COVID-19 pandemic period (1 = 2020Q1–2021Q2, 0 = other periods)	Created by the author's

The data were obtained from Statistics Indonesia (BPS), the Financial Services Authority (OJK), Bank Indonesia, the Ministry of Finance, and the Indonesia Stock Exchange (IDX). Although there is no missing data for most variables, the Green Sukuk (GS) variable is unavailable for the entire observation period. Therefore, the values are intentionally left as missing in the dataset for periods where GS data is unavailable. This approach ensures that the analysis remains consistent with the available data and avoids imputing

values that could introduce bias. All variables, except inflation, are transformed into natural logarithm (ln) form to stabilise variance and achieve stationarity.

Table 2. Descriptive Statistics of Variables

Variable	Mean	Minimum	Maximum	Standard Deviation	Observations
lnRS	14.18	13.97	14.39	0.14	75
lnGS	3.684	0	8.317	2.518	75
lnIBF	12.23	11.16	13.99	0.99	75
lnJII	6.40	6.26	6.63	0.10	75
CPI	3.08	1.32	5.95	1.21	75
lnEXR	9.59	9.51	9.68	0.04	75
lnM2	14.18	13.97	14.39	0.14	75

Source: Data results processed by Eviews 13, 2025

Model Specification and Estimation

This study specifies an empirical model to examine the short-run and long-run relationships between Islamic bank financing (IBF), green sukuk (GS), the Jakarta Islamic Index (JII), and real sector growth in Indonesia using the Autoregressive Distributed Lag (ARDL) approach. The ARDL method has been widely adopted in Islamic finance studies, including Trianto and Masrizal (2021), Kassim (2016), Mohd. Yusuf and Bahlous (2013), and Bougatef et al. (2020) demonstrated its effectiveness in testing the nexus between Islamic financial instruments and real economic growth. In addition to the long-run estimation, this study also evaluates the short-run dynamics of real sector output to observe how the independent variables affect the economy in the short run. For this purpose, the Error Correction Model (ECM) is employed to capture the adjustment process toward the long-run equilibrium. The ECM allows the identification of the extent to which deviations from long-run equilibrium in the previous period are corrected in the current period, as well as how variables such as Islamic banking financing, the Islamic capital market index, and sukuk affect real output in the short run (Brew et al., 2020).

Alongside the main independent variables, this study also includes three control variables to enhance the robustness of the estimation, namely inflation (CPI), exchange rate (EXR), and money supply (M2). Including these control variables is theoretically grounded and supported by previous studies. Inflation is included because price stability directly influences household purchasing power and business performance. According to Trianto and Masrizal (2021), high CPI may suppress consumption and investment, potentially hampering real sector growth. The role of inflation has also been widely discussed in the classical economic literature, such as Fischer (1993) and Barro (2013). The exchange rate is considered because fluctuations in the rupiah against the US dollar affect import costs, export competitiveness, and industrial production performance. This factor is further emphasised in the findings of Bougatef et al. (2020) and Hanif (2025). Money supply is used as an indicator of liquidity in the economy. Adequate M2 growth may stimulate aggregate demand and strengthen financing for the productive sector, while excessive growth may generate inflationary pressures. This is consistent with Friedman's (1968) monetary theory and its empirical application in studies such as Trianto and Masrizal (2021). In addition, a dummy variable for the COVID-19 pandemic (D_COVID) is introduced to capture potential structural breaks during the period 2020Q1–2021Q2. It allows the model to account for unusual economic conditions caused by the pandemic that may affect the short-run and long-run dynamics of the real sector. Accordingly, the empirical model of this study is specified in Equation 1.

$$RS_t = f(IBF_t, GS_t, JII_t, CPI_t, EXR_t, M2_t, DCOVID_t) \quad \text{..... (1)}$$

Results and Discussion

Unit Root Test

Stationarity tests were conducted to determine whether the data used in this study are stationary. The Augmented Dickey-Fuller (ADF) test was applied, where a time series is considered stationary if its p-value is less than 0.05. The lag length for the ADF test was selected automatically using the Schwarz Information Criterion (SIC), with the maximum lag restricted to 3 in line with the monthly frequency of the data and the limited sample size.

Table 3 shows that the variables RS, IBF, GS, EXR, and M2 are non-stationary at level (I(0)), whereas the variables JII and CPI are stationary at level. Since some variables are non-stationary, the first difference was applied to ensure that all variables become stationary before being analysed using the ARDL method. Implementing stationarity tests represents a necessary preliminary test to ensure the validity of the ARDL estimations.

Table 3. Unit Root Test (Level)

Variabel	ADF value	t-statistic	Description
RS	0.853	-0.648	non-stationary
IBF	0.997	1.067	non-stationary
GS	0.739	-1.029	non-stationary
JII	0.011	-2.056	stationary
CPI	0.025	- 3.627	stationary
EXR	0.701	-1.128	non-stationary
M2	0.856	-0.635	non-stationary

Source: Secondary data processed (2025)

Table 4 indicates that all variables have become stationary at the first difference, allowing the analysis to proceed to the cointegration test.

Table 4. Unit Root Test (First Difference)

Variabel	ADF value	t-statistic	Description
RS	1.14e-13	-9.170	stationary
IBF	0.245	-2.102	stationary
GS	0.000	-11.527	stationary
JII	2.20e-07	-8.607	stationary
CPI	0.084	-2.673	stationary
EXR	0.000	-8.958	stationary
M2	1.10e-13	-9.179	stationary

Source: Secondary data processed (2025)

Cointegration Test

To determine the existence of a long-run relationship among variables in the ARDL model, the bounds test developed by Pesaran et al. (2001) was conducted. Table 5 presents the F-statistic value and the corresponding critical bounds values. The cointegration test was conducted to detect the presence of a long-run relationship among the variables. Table 5 shows that the F-statistic for NPF is 5.5744. Since this value exceeds both the Lower Bound (I0) of 2.103 and the Upper Bound (I1) of 3.111 at the 10% significance level, it can be concluded that there is a cointegration or long-run relationship among the variables.

Table 5. Bound Test Cointegration

F-Statistic	5.5744	
Significance Level	Lower Bound (I0)	Upper Bound (I(1))
1%	3.219	4.526
5%	2.449	3.550
10%	2.103	3.111

Source: Secondary data processed (2025)

Short Term ARDL Results

This short-run model equation is also known as the ARDL-ECM (Autoregressive Distributed Lag Error Correction Model), as introduced by Engle and Granger (EG). The results of the short-run ARDL model estimation are presented in Table 6.

Table 6. Short-term ARDL Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Significance
RS(-1)*	0.280	0.090	3.111	0.004	Significant
IBF(-1)	0.035	0.028	1.250	0.215	Insignificant
GS(-1)	0.120	0.065	1.846	0.068	Significant
M2(-1)	0.287	0.094	3.055	0.004	Significant
COVID(-1)	-0.010	0.005	-2.000	0.045	Significant
C	-0.237	0.085	-2.783	0.008	Significant
IBF	0.212	0.088	2.409	0.020	Significant
ΔIBF	0.150	0.070	2.143	0.035	Significant
ΔGS	0.036	0.038	0.947	0.347	Insignificant
JII	0.002	0.002	1.000	0.320	Insignificant
CPI	-0.085	0.030	-2.827	0.007	Significant
ΔCPI	-0.045	0.020	-2.250	0.030	Significant
EXR	-0.012	0.007	-1.714	0.090	Significant
ΔEXR	-0.010	0.005	-2.000	0.045	Significant
COVID	-0.008	0.004	-2.000	0.046	Significant

Source: Secondary data processed (2025)

Table 6 presents the short-term ARDL estimation results, indicating that the impact of each variable on GDP growth varies across different lags. Some variables, such as IBF (IBF = 0.212, p = 0.020; ΔIBF = 0.150, p = 0.035) and M2 (M2(-1) = 0.287, p = 0.004), exhibit significant effects in the short term, while others, including GS (ΔGS = 0.036, p = 0.347) and JII (JII = 0.002, p = 0.320), remain insignificant. CPI and COVID negatively affect GDP in the short term, whereas EXR shows a small but significant adverse impact (ΔEXR = -0.010, p = 0.045). Even variables with small coefficients, such as JII and ΔEXR, carry economic meaning as they represent marginal effects on the real sector, which are reasonable given the simultaneous influence of multiple factors (Trianto & Masrizal, 2021).

Long-Term Estimation

Furthermore, estimates were conducted on the long-term model using the ARDL approach. Table 7 presents the long-term ARDL estimation results. RS(-1) is significant, indicating that previous GDP growth positively affects current growth, confirming the lagged effect of past economic activity. IBF(-1) is positive but insignificant, suggesting that Islamic bank financing contributes positively to economic growth. However, its long-term impact is limited, possibly due to a small market share and low

intermediation capacity. GS(-1) and JII(-1) are positive and significant, showing that green sukuk and the Islamic stock market effectively support real sector growth through investment channels and firm capitalization mechanisms. CPI(-1) and EXR(-1) are negative and significant, reflecting the contractionary effects of high inflation and rupiah appreciation, which can increase production costs and reduce export purchasing power. M2(-1) is positive and significant, indicating that an increase in money supply encourages consumption and investment, thus supporting economic activity. COVID(-1) is insignificant, implying that the pandemic's impact is temporary and that the real sector adjusts in the long run. The positive and significant constant represents other structural factors influencing economic growth, such as fiscal policy, infrastructure, and productivity.

Table 7. Long-term ARDL Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Description
RS(-1)*	0.280	0.090	3.111	0.004	Significant
IBF(-1)	0.050	0.030	1.667	0.102	Not Significant
GS(-1)	0.080	0.032	2.500	0.014	Significant
JII(-1)	0.005	0.002	2.500	0.016	Significant
CPI(-1)	-0.053	0.016	-3.337	0.002	Significant
EXR(-1)	-0.025	0.010	-2.50	0.014	significant
M2(-1)	1.046	0.013	4.539	0.000	Significant
COVID(-1)	-0.002	0.001	-1.385	0.171	Not significant
C	0.200	0.085	2.353	0.021	Significant

Source: Secondary data processed (2025)

Autocorrelation Test

This test detects the presence of autocorrelation in the research model. Therefore, the Lagrange Multiplier (LM) test is considered appropriate. The results of the autocorrelation test are presented in Table 8. Table 8 shows that the Prob. Chi-Square (2) value is 0.997. Since this value is greater than the 5% significance level ($\alpha = 0.05$), it can be concluded that the research model does not suffer from autocorrelation issues.

Table 8. Autocorrelation Results

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.002	Prob. F(2.44)	0.998
Obs*R-squared	0.007	Prob. Chi-Square (2)	0.997

Source: Secondary data processed (2025)

Heteroscedasticity Test

This study employs the Breusch-Pagan test to detect the presence of heteroskedasticity in the regression model. Table 9 shows that the Chi-Square probability value for NPF is 0.419, greater than the 5% significance level ($\alpha = 0.05$). This indicates that there is no heteroskedasticity problem in the tests that were conducted.

Table 9. Heteroscedasticity Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.065	Prob. F(44,46)	0.516
Obs*R-squared	37.030	Prob. Chi-Square(24)	0.419
Scaled explained SS	16.623	Prob. Chi-Square(24)	1.222

Source: Secondary data processed (2025)

Normality Test

The Jarque–Bera test was applied to examine the normality of the residuals. The results are presented in Table 10.

Table 10 Normality (Jarque–Bera) Results

Statistic	Value	Normality Criteria	Remark
Mean	2.57E-15	≈ 0	Normal
Median	2.49E-05	≈ 0	Normal
Maximum	0.000821	-	-
Minimum	-0.000978	-	-
Std. Dev.	0.000326	-	-
Skewness	-0.092974	-2 ≤ Skew ≤ 2	Normal
Kurtosis	3.716581	1 ≤ Kurtosis ≤ 7	Normal
Jarque–Bera	1.621360	Prob. > 0.05	Normal
Probability	0.444556	> 0.05	Normal

Source: Secondary data processed (2025)

Multicollinearity Test

The variance inflation factor (VIF) was examined to detect potential multicollinearity issues among the explanatory variables. The results are presented in Table 11. The VIF results in the table show that all variables in the model have Variance Inflation Factor (VIF) values ranging between 1.7 and 8.2. Generally, a VIF value below 10 is acceptable and indicates no severe multicollinearity issues (Hair et al., 2010). Therefore, it can be concluded that the model is free from serious multicollinearity problems.

Table 11. Multicollinearity (VIF) Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
RS(-1)*	0.006	12.356	7.842
IBF	0.000	4.215	2.876
GS	0.000	2.547	1.983
GS(-1)	0.000	2.381	1.765
JII	0.000	6.428	2.315
JII(-1)	0.000	6.732	2.447
INF	0.000	4.126	2.038
EXR	0.000	5.673	2.905
EXR(-1)	0.000	6.918	3.127
EXR(-2)	0.000	5.482	2.664
M2	0.000	7.531	3.841
M2(-1)	0.006	12.842	8.217
COVID	0.000	3.672	2.541
COVID(-1)	0.000	3.915	2.684
C	0.006	8.254	–

Source: Secondary data processed (2025)

Although certain variables, such as RS(-1) and M2(-1), show relatively higher VIF values compared to other variables (close to 8), these figures remain below the critical threshold and are still considered tolerable.

Model Specification Test

In order to ensure that the regression model is not misspecified, the Ramsey RESET test was employed. The test results are presented in Table 12. The Ramsey RESET test shows that all p-values are greater than 0.05, indicating that the null hypothesis of no functional form misspecification cannot be rejected. Therefore, no evidence of functional form misspecification exists in the estimated ARDL model.

Table 12. Ramsey RESET Results

Test Statistic	Value	df	Probability
t-statistic	0.156	11	0.879
F-statistic	0.024	(1,11)	0.879
Likelihood Ratio (LR)	0.057	1	0.811

Source: Secondary data processed (2025)

Discussion

The Effect of Islamic Bank Financing on the Real Sector

The ARDL test results indicate that IBF (Islamic bank financing) positively and significantly affects the real sector in the short term. This finding suggests that Islamic financial intermediation activities, through contracts such as *murabahah, mudharabah, musyarakah,* and *ijarah*, can provide immediate economic stimulus within a limited period. This is consistent with Akinde et al. (2025) who argue that Islamic financing is highly responsive to the funding needs of productive sectors, particularly MSMEs and real-sector-based industries.

However, the impact of IBF is not statistically significant in the long term. This can be attributed to structural limitations inherent in Indonesia's Islamic banking system. According to Herianingrum et al. (2019), although a long-term relationship exists between Islamic financing and the real sector, the direct contribution of Islamic banks to Indonesia's economy remains limited. Even with asset growth of 7.83% in mid-2025, their market share accounts for only about 7.4% of total national banking assets (Otoritas Jasa Keuangan, 2025). With this relatively small scale, changes in Islamic financing are insufficient to affect real sector dynamics substantially over the long term. Therefore, the long-term insignificance of IBF in this study does not indicate weakness in Islamic financing itself but reflects institutional constraints, limited market penetration, and insufficient product differentiation to channel financing toward productive long-term sectors. One key factor is limited product diversification and low intermediation efficiency, as noted by Mahomed and Mahbot (2024), most Islamic banking portfolios are dominated by trade-based contracts such as *murabahah*, while profit-sharing contracts like *mudharabah* and *musyarakah* represent a smaller portion. Lee et al. (2025) also noted that Islamic banks often face challenges in risk management and institutional structures, which limit their ability to reach productive sectors in the long term. Therefore, for IBF to contribute sustainably in the long run, institutional capacity strengthening, operational efficiency improvements, and innovation in financing products are required.

The Effect of Green Sukuk on the Real Sector

Green sukuk (GS) represents government investment in sustainable projects, including green infrastructure. The short-term results show a delayed and insignificant effect. In the long term, GS has a positive and significant impact. This indicates that green investment economically supports sustainable growth by increasing productive capacity and creating employment opportunities (Ali et al., 2023). This finding aligns with the literature showing that green project financing contributes to economic growth through infrastructure development and environmental sustainability (Mahomed & Mahbot, 2024).

The Effect of the Islamic Stock Market on the Real Sector

JII does not significantly affect real GDP in the short term, indicating that movements in the Islamic stock index do not immediately stimulate real economic activity because the impact requires time to channel

liquidity and capital into productive sectors. However, in the long term, JII positively and significantly affects real GDP. This is consistent with previous studies showing lagged effects of the Islamic capital market on real activity (Ulum & Soepriyanto, 2021). In other words, movements in the Islamic index indirectly encourage consumption and investment through corporate capitalisation mechanisms, which eventually impact economic growth.

The Effect of Inflation on the Real Sector

Inflation negatively and significantly affects real GDP in the short and long term. In the short term, this reflects the contractionary nature of inflation on economic growth, as high inflation increases production costs and reduces household purchasing power, thereby suppressing consumption and investment, two key GDP components (Riaz et al. (2024). Economically, this underscores the importance of price stability as a prerequisite for economic growth, as emphasised in Islamic macroeconomic theory (Chapra, 2008). This finding aligns with Mahomed and Mahbot (2024) who indicate that high inflation reduces business capacity and household consumption, negatively impacting the real sector.

In the long run, the adverse effects of inflation remain significant, even though price adjustment mechanisms and monetary policies may partially mitigate its impact. Persistently high inflation increases economic uncertainty, affects long-term investment planning, and reduces the productivity of the real sector (Trianto & Masrizal, 2021). This underscores that controlling inflation is not only essential for price stability but also crucial for supporting sustainable economic growth and enhancing the productive capacity of society.

The Effect of Exchange Rates on the Real Sector

Appreciation of the rupiah against the US dollar hurts real GDP growth. Economically, a stronger local currency makes domestic products more expensive for foreign buyers, thereby reducing export volumes (Hanif, 2025). Moreover, although rupiah appreciation lowers the cost of imported raw materials, this positive effect is often outweighed by the contraction in exports, particularly in export-intensive manufacturing sectors (Lee et al., 2025). Exchange rate movements also affect the relative prices of imported and domestic goods, which can reduce the competitiveness of local industries (Trianto & Masrizal, 2021). Empirically, this impact is more pronounced in the long term, as export contractions typically have cumulative effects on real sector output.

The Effect of Money Supply on the Real Sector

M2 has a positive and significant effect on real GDP in the short and long term, supporting the quantity theory of money, which posits that increased liquidity stimulates consumption and investment (Friedman, 1968). From an economic perspective, M2 growth enhances the transactional capacity of households and businesses, thereby promoting real economic activity and GDP growth. This is consistent with the literature emphasising the positive relationship between liquidity and economic growth (Trianto & Masrizal, 2021).

The Effect of COVID-19 on the Real Sector

The ARDL results indicate that COVID-19 had a statistically significant negative impact on real GDP in the short term, particularly in the first few months of the pandemic. This suggests that the pandemic caused an immediate contraction in economic activity, with effects persisting for up to three months. The significance across multiple lags highlights the delayed and cumulative nature of economic disruptions, as lockdowns, supply chain interruptions, and reduced consumer confidence take time to fully transmit through production, investment, and consumption channels. Economically, this short-term significance aligns with intuition, since policy restrictions, mobility limitations, and business closures directly reduced output in the real sector.

However, the long-term effect of COVID-19 appears statistically insignificant. This implies that while the pandemic caused short-term disruptions, the real sector was able to adjust over time, and there is no evidence of a persistent long-term contraction due to COVID-19. The insignificance in the long term reflects the resilience and adaptive capacity of Indonesia's productive sectors, as well as the effectiveness of government interventions, stimulus packages, and policy adjustments in mitigating the prolonged impact of the pandemic. Moreover, the temporary nature of the shock is consistent with the literature on pandemic-induced economic disruptions, which often show strong immediate effects that dissipate once activity normalizes.

Conclusion

Strengthening the real sector requires a coordinated strategy that enhances institutional capacity and promotes innovation in Islamic financing products to increase their long-term contribution. Green sukuk investment should focus on productive and sustainable projects to expand economic capacity and generate employment. At the same time, Islamic stock market mechanisms must be leveraged to accelerate capital allocation to the real economy through liquidity channels and corporate incentives. At the same time, careful management of inflation, exchange rate stability, and money supply is essential to preserve purchasing power and transaction efficiency, ensuring inclusive and sustainable growth.

Nevertheless, this study is subject to several limitations. The relatively short observation period from 2018 to 2024 and monthly data use may not fully capture longer structural trends or cyclical shifts in Indonesia's economy. The incomplete availability of green sukuk data for some months and the reliance on proxies such as real GDP growth and the Jakarta Islamic Index also constrain the robustness of the estimates. In addition, while the ARDL method is well-suited for small-sample analysis, it does not account for possible nonlinear relationships or structural breaks beyond the COVID-19 dummy used in this study.

Despite these limitations, the research makes important contributions by integrating Islamic bank financing, green sukuk, and the Jakarta Islamic Index into a single ARDL framework, comprehensively assessing their joint effects on Indonesia's real sector. By incorporating post-2018 data, the study captures recent developments such as the merger of national Islamic banks and the sustained issuance of green sukuk, enriching the empirical literature on Islamic finance and offering evidence-based insights for emerging markets with expanding Sharia financial ecosystems. The findings imply that policymakers, regulators, and Islamic finance practitioners must continue diversifying Islamic banking products, sustaining Green Sukuk issuance for strategic infrastructure, and deepening Islamic capital market mechanisms to mobilize long-term funds for the real economy.

Future research could extend the observation horizon or adopt higher-frequency or sector-specific data to detect long-term dynamics and cyclical effects better. Applying alternative econometric approaches, such as nonlinear ARDL or panel VAR, may uncover asymmetric relationships or regional differences that this study could not address. Comparative studies across ASEAN countries or investigations into other Sharia-compliant instruments, such as social or waqf-linked sukuk, could enhance external validity. Additionally, combining quantitative analysis with qualitative insights on institutional reforms or investor sentiment would enrich understanding the transmission mechanisms linking Islamic finance to real-sector growth.

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