

Effect of Sukuk Market Development on Foreign Direct Investment in Sukuk-Issuing Countries

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Abstract: The rapid expansion of the global sukuk market and the increasing need to attract foreign direct investment (FDI) have raised an important question regarding whether Islamic capital market development can strengthen a country's investment attractiveness. This study investigates the effect of sukuk market development on FDI inflows in sukuk-issuing countries while controlling for GDP per capita, inflation, and trade openness. The analysis employs the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) estimator using quarterly panel data from nine sukuk-issuing countries covering the period 2015–2024. Prior to estimation, cross-sectional dependence, slope heterogeneity, second-generation unit root, and Westerlund–Edgerton cointegration tests were conducted, followed by a robustness analysis using the Augmented Mean Group (AMG) estimator. The results reveal that sukuk market development exerts a positive and statistically significant effect on FDI inflows in both the short and long run. The negative and significant Error Correction Term confirms the existence of a stable long-run

Abstrak: Pesatnya perkembangan pasar sukuk global serta meningkatnya kebutuhan untuk menarik arus masuk Foreign Direct Investment (FDI) mendorong pentingnya mengkaji apakah pengembangan pasar modal syariah mampu meningkatkan daya tarik investasi suatu negara. Penelitian ini bertujuan menganalisis pengaruh perkembangan pasar sukuk terhadap arus masuk FDI pada negara-negara penerbit sukuk dengan mengendalikan pengaruh GDP per kapita, inflasi, dan keterbukaan perdagangan. Penelitian menggunakan pendekatan Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) pada data panel kuartalan sembilan negara penerbit sukuk periode 2015–2024. Sebelum estimasi dilakukan, penelitian menguji cross-sectional dependence, slope heterogeneity, second-generation unit root, serta kointegrasi Westerlund–Edgerton, kemudian dilanjutkan dengan uji ketahanan model menggunakan Augmented Mean Group (AMG). Hasil penelitian menunjukkan bahwa perkembangan pasar sukuk berpengaruh positif dan signifikan terhadap arus masuk FDI baik dalam

equilibrium relationship. In addition, GDP per capita and trade openness positively influence FDI inflows, whereas inflation has a negative effect. The AMG estimates further confirm the robustness of the findings. These results demonstrate that strengthening the sukuk market enhances a country's attractiveness to foreign investors by improving the depth and credibility of the Islamic financial system. The study provides empirical evidence supporting the strategic role of sukuk market development in promoting sustainable investment and offers policy implications for regulators seeking to strengthen Islamic capital markets as a source of long-term development financing.

Keywords: CS-ARDL; Foreign Direct Investment; Islamic Capital Market; Sukuk Market Development.

jangka pendek maupun jangka panjang. Koefisien Error Correction Term yang negatif dan signifikan mengonfirmasi adanya hubungan keseimbangan jangka panjang. Selain itu, GDP per kapita dan keterbukaan perdagangan berpengaruh positif terhadap FDI, sedangkan inflasi berpengaruh negatif. Hasil estimasi AMG juga mengonfirmasi konsistensi dan ketahanan hasil estimasi utama. Temuan ini menunjukkan bahwa penguatan pasar sukuk mampu meningkatkan daya tarik investasi asing melalui pengembangan pasar keuangan syariah yang lebih dalam dan kredibel. Penelitian ini memberikan bukti empiris mengenai pentingnya pengembangan pasar sukuk sebagai strategi untuk mendukung investasi berkelanjutan serta menjadi masukan bagi regulator dalam memperkuat pasar modal syariah sebagai sumber pembiayaan pembangunan jangka panjang.

Kata Kunci : CS-ARDL; Foreign Direct Investment; Islamic Capital Market; Perkembangan Pasar Sukuk

A. Introduction

The increasing demand for development financing in the post-pandemic period, the acceleration of economic transformation toward digital and sustainable sectors, and intensifying global competition to attract Foreign Direct Investment (FDI) have prompted many countries to strengthen their financial systems through the development of innovative and inclusive capital markets. This urgency has become even more pronounced as the global sustainable development financing gap is estimated to have reached USD 4 trillion annually, representing an increase of more than 50% compared with pre-pandemic estimates due to the widening financing gap in developing economies (Development, 2025). At the same time,

cross-border investment flows are being reshaped by the rapid expansion of the digital economy and the ongoing reconfiguration of global manufacturing supply chains (Development, 2025).

Capital market development has long been recognized as a key determinant of multinational corporations' investment decisions. Deeper, more efficient, and more liquid capital markets reduce transaction costs, improve capital allocation, and strengthen investor confidence in a country's economic prospects. Consequently, capital market development not only contributes to domestic economic growth but also enhances a country's ability to attract foreign direct investment.

Against this backdrop, sukuk, as a major instrument of the Islamic capital market, has emerged as one of the financial instruments most responsive to the agendas of digitalization and sustainable finance while simultaneously representing a concrete manifestation of financial deepening, particularly in countries that adopt Islamic finance as a strategic source of development financing diversification (Saleem et al., 2024). Unlike conventional bonds, which are based on interest-bearing debt financing, sukuk represent proportional ownership of underlying assets, projects, or economic benefits that comply with Shariah principles, although most sukuk currently issued are structured as asset-based rather than fully asset-backed securities (Kunhibava et al., 2020). These distinctive characteristics position sukuk not only as a competitive financing alternative but also as an instrument capable of enhancing financial system stability through risk-sharing mechanisms, asset transparency, and financing linked to productive economic activities. Furthermore, profit-and-loss sharing arrangements foster more balanced financing relationships and help mitigate information asymmetry (Saleem et al., 2024).

The growing importance of sukuk is reflected in the continued expansion of the global sukuk market despite periodic fluctuations. As illustrated in Figure 1, the cumulative value of the global sukuk market has reached approximately USD 2.2 trillion, with sukuk issued by 42 countries in 32 different currencies. Annual sukuk

issuance increased steadily from USD 53.1 billion in 2010 to a record USD 212.0 billion in 2023, before moderating slightly to USD 205.1 billion in 2024. In terms of market composition, domestic sukuk continue to dominate, accounting for a cumulative issuance of USD 1,675.2 billion, while international sukuk reached USD 535.7 billion, with USD 65.6 billion issued during 2024. Total outstanding sukuk amounted to USD 902.82 billion as of the end of December 2024, underscoring the increasingly established, liquid, and sustainable role of sukuk as a Shariah-compliant financing instrument (Market, 2025).

Interestingly, this sustained expansion of the sukuk market contrasts sharply with recent global Foreign Direct Investment (FDI) trends, which have weakened over the past few years. Global FDI declined from USD 1.6 trillion in 2022 to USD 1.3 trillion in 2023, representing a nominal decrease of approximately 2%, or more than 10% after excluding several European economies that experienced exceptionally large conduit flows (Development, 2024). Although nominal global FDI rebounded to approximately USD 1.5 trillion in 2024, this increase did not reflect a genuine recovery in productive investment. Rather, it was primarily driven by distortions associated with conduit flows. Once these distortions are excluded, productive FDI declined by 11%, with the sharpest contraction occurring in developed economies (–22%), particularly in Europe (–58%), including Germany (–89%), Spain (–39%), Italy (–24%), and France (–20%). In Asia, FDI also declined by 3%, largely due to a 29% reduction in investment inflows to China. Consequently, 2024 marked the second consecutive year of contraction in global productive investment (Development, 2025).

In contrast, despite the global slowdown in productive investment, the ASEAN region recorded FDI inflows of USD 225 billion in 2024, representing a 10% increase from the previous year, largely driven by the relocation of multinational corporations' supply chains to Southeast Asia. Similarly, North America experienced a 23% increase in FDI, supported by substantial investment in the United States

semiconductor industry (UNCTAD, 2025). More specifically, the OIC Economic Outlook 2025 reported that FDI inflows to member countries of the Organization of Islamic Cooperation (OIC) most of which are active sukuk issuers reached USD 210 billion in 2024, an increase of 27% compared with the previous year. This raised the OIC's share of global FDI to 13.9%, the highest level on record, while the cumulative FDI stock of OIC member countries increased by 21.9% to USD 2.6 trillion during the 2020–2024 period (Statistical, 2025). This contrasting pattern raises an important empirical question: does sukuk issuance systematically enhance a country's ability to attract FDI amid a contracting global investment environment, or are these two phenomena largely independent without a meaningful causal relationship?

From a theoretical perspective, sukuk market development may influence FDI inflows through several channels. First, according to Signaling Theory, the development of the sukuk market may signal stronger institutional quality, regulatory stability, and government commitment to establishing a credible financial system. Second, under the Ownership–Location–Internalization (OLI) paradigm, a mature sukuk market may enhance a country's location-specific advantages by providing diversified long-term financing alternatives for investors. Third, the financial deepening hypothesis suggests that the expansion of the sukuk market strengthens financial intermediation, improves resource allocation efficiency, and creates a more favorable economic environment for long-term investment (Dunning, 1988; Levine et al., 2004; Tallman, 2003).

Despite these theoretical arguments, empirical evidence regarding the relationship between sukuk market development and FDI inflows remains limited. Existing studies have primarily examined the contribution of sukuk market development to economic growth, particularly gross domestic product (GDP) (Ledhem, 2022; Naz et al., 2025; Yıldırım et al., 2020), or have investigated macroeconomic and institutional determinants of sukuk market development, where

FDI is typically treated as an explanatory variable rather than an outcome variable (Basyariah et al., 2021; Sadallah, 2025). In other words, the prevailing literature predominantly considers FDI, institutional quality, and macroeconomic conditions as determinants of sukuk market development rather than examining whether sukuk market development itself serves as a driver of FDI inflows.

Moreover, studies investigating the relationship between capital market development and FDI have largely focused on equity markets and conventional bond markets. For example, Jeong et al., (2024) argue that stock market development enhances investor confidence and facilitates access to international financing, thereby increasing FDI inflows. Similarly, Hajilee & Al Nasser (2015) document a positive relationship between stock market development and FDI in Latin America. This evidence is further supported by Appiah et al., (2023), who demonstrate a bidirectional relationship in which stock market development attracts FDI while FDI simultaneously contributes to stock market development. Therefore, empirical evidence specifically examining whether sukuk market development plays a comparable role in attracting FDI remains scarce. This research gap provides a strong rationale for investigating the causal relationship between sukuk market development and FDI, particularly in sukuk-issuing countries.

To address this gap, the present study examines the impact of sukuk market development on FDI inflows using a panel of sukuk-issuing countries. The analysis employs the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) estimator proposed by Chudik & Pesaran (2013), which explicitly accounts for cross-sectional dependence and cross-country heterogeneity. This approach complements recent studies examining the long-run relationship between financial development and FDI using PMG-ARDL estimation (Appiah et al., 2023), while providing a more robust framework for handling cross-sectional interactions among panel units. By directly investigating the effect of sukuk market development on FDI inflows, this study contributes to the literature by offering new empirical evidence

from sukuk-issuing countries. The findings are expected to provide valuable policy insights for financial regulators, market authorities, and policymakers seeking to develop adaptive financing mechanisms capable of supporting sustainable investment and economic resilience amid increasingly frequent global economic shocks.

This study investigates the effect of sukuk market development on foreign direct investment (FDI) inflows in selected sukuk-issuing countries. It specifically employs the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) estimator to analyze quarterly panel data covering the period from 2015 to 2024. Furthermore, the research aims to control for key macroeconomic variables such as GDP per capita, inflation, and trade openness while evaluating both short-run and long-run dynamics. Ultimately, the findings intend to provide empirical evidence on whether strengthening Islamic capital markets enhances a country's investment attractiveness and promotes sustainable economic development.

B. Research Method

1. Research Design

This study employs panel data covering the period from 2015 to 2024, which are subsequently converted into quarterly data using the quadratic match-average interpolation method. This conversion produces 40 time periods ($T = 40$) for each country, resulting in a total of 360 observations (9×40). The sample consists of nine countries: Brunei Darussalam, Indonesia, Malaysia, Pakistan, Bahrain, Qatar, Saudi Arabia, the United Arab Emirates, and Turkey. These countries were selected because they are active sukuk issuers with substantial issuance volumes and frequencies in the global Islamic capital market, exhibit considerable economic and institutional heterogeneity that provides informative cross-sectional variation, and offer consistent data availability throughout the study period. This approach enables a more rigorous assessment of whether sukuk market development remains an

effective instrument for promoting Foreign Direct Investment (FDI) inflows. All estimations were performed using Stata 14.

2. Variable Description

This study employs one dependent variable, one independent variable, and three control variables. The variables, their abbreviations, descriptions, and data sources are presented in Table 1.

Table 1. Variable Description

Variable	Notation	Description	Source
Dependent Variable			
Foreign Direct Investment	FDI	Foreign direct investment inflows, normalized by the size of the economy.	World Bank
Independent Variable			
Sukuk Market Development	SMD	The level of sukuk market depth, measured by the value of outstanding sukuk relative to the size of the economy.	International Islamic Financial Market (IIFM)
Control Variables			
GDP per Capita	GDPPC	Gross domestic product divided by the mid-year population, expressed in current prices without inflation adjustment.	World Bank
Inflation	INF	Annual percentage change in the Consumer Price Index (CPI).	World Bank
Trade Openness	TOPN	Total imports and exports as a percentage of GDP.	World Bank

Source: Authors' compilation.

3. Econometric Model

The empirical analysis proceeds through several econometric stages, beginning with descriptive statistical analysis, followed by cross-sectional dependence testing, panel unit root testing, panel cointegration testing, and finally the estimation of a dynamic panel model using the Cross-Sectionally Augmented Autoregressive

Distributed Lag (CS-ARDL) approach developed by Chudik et al., (2016). This model extends the conventional ARDL framework to heterogeneous panel data by explicitly addressing cross-sectional dependence through the inclusion of cross-sectional averages as proxies for unobserved common factors.

The CS-ARDL model is selected for several advantages over conventional panel models. First, it is inherently robust to cross-sectional dependence, which is almost inevitable in cross-country panel data because of economic interdependence arising from international trade, fiscal spillovers, and common macroeconomic shocks. Second, the model provides consistent and unbiased long-run coefficient estimates in the presence of slope heterogeneity across countries. Third, CS-ARDL effectively addresses endogeneity, autocorrelation, and multicollinearity more efficiently than static panel models. Furthermore, the model simultaneously estimates both short-run and long-run dynamic relationships through the Error Correction Model (ECM) framework. All estimations were conducted using Stata 14.

This study applies the CS-ARDL approach to examine the relationship between sukuk market development and foreign direct investment across nine countries during the period 2015–2024. In addition, the natural logarithm transformation is applied to selected variables for three reasons: (a) to enable coefficient interpretation in terms of elasticity, representing the percentage change in the dependent variable resulting from a one-percent change in the explanatory variable; (b) to reduce positive skewness and mitigate heterogeneity commonly observed in financial variables; and (c) to minimize the influence of outliers that may distort estimation results.

4. Estimation Model

The estimation model investigates the effect of sukuk market development on foreign direct investment. Specifically, foreign direct investment (FDI) serves as the dependent variable, while sukuk market development (SMD) is the main

independent variable. GDP per capita (LGDPPC), inflation (INF), and trade openness (TOPN) are incorporated as control variables. The model is designed to address the following research question: Does greater sukuk market development enhance foreign direct investment inflows into a country?

The estimation procedure consists of the following stages: (1) descriptive statistics; (2) cross-sectional dependence testing using the Pesaran (2004) CD test; (3) second-generation panel unit root tests (CIPS and CADF), which are robust to cross-sectional dependence; (4) the Westerlund (2007) panel cointegration test; (5) CS-ARDL estimation; and (6) robustness testing following Chudik & Pesaran (2013).

5. Pooled Mean Group Autoregressive Distributed Lag (PMG-ARDL) Specification

Equation (1) specifies the long-run PMG-ARDL (p, q) model used to investigate the dynamic relationship between sukuk market development and foreign direct investment.

Equation (1)

$$\begin{aligned} \Delta FDI_{it} = & \alpha_{it} + \gamma_{1i} FDI_{it-1} + \gamma_{2i} SMD_{it-1} + \gamma_{3i} LGDPPC_{it-1} + \gamma_{4i} INF_{it-1} + \gamma_{5i} TOPN_{it-1} + \\ & \sum_{j=1}^p \delta_{1ij} \Delta FDI_{it-j} + \sum_{j=0}^q \delta_{2ij} \Delta SMD_{it-j} + \sum_{j=0}^q \delta_{3ij} \Delta LGDPPC_{it-j} + \sum_{j=0}^q \delta_{4ij} \Delta INF_{it-j} + \sum_{j=0}^q \delta_{5ij} \Delta TOPN_{it-j} \\ & + \sum_{t=-n}^{pT} \theta_{1i} \overline{\Delta FDI}_{it-1} + \sum_{t=-n}^{pT} \theta_{2i} \overline{\Delta SMD}_{it-1} + \sum_{t=-n}^{pT} \theta_{3i} \overline{\Delta LGDPPC}_{it-1} + \sum_{t=-n}^{pT} \theta_{4i} \overline{\Delta INF}_{it-1} + \sum_{t=-n}^{pT} \theta_{5i} \overline{\Delta TOPN}_{it-1} \\ & + \varepsilon_{it} \dots \end{aligned}$$

where ΔFDI denotes foreign direct investment, which serves as the dependent variable. SMD represents sukuk market development, the primary explanatory variable. $LGDPPC$, INF , and $TOPN$ denote the natural logarithm of GDP per capita,

inflation, and trade openness, respectively, which are included as control variables.

All exogenous variables enter the model with lags of _____ and _____.

$$l = 1, 2, 3, 4, \quad 5$$

The parameter γ_i represents the country-specific intercept capturing individual

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fixed effects, while γ_i denote the long-run coefficients measuring the equilibrium

$y_1 \quad y_5$

effects of each explanatory variable on foreign direct investment. The coefficients

capture short-run adjustment dynamics. The summation over τ applies to the

$$\delta_{ij} = 1$$

lagged dependent variable to avoid perfect multicollinearity with the

contemporaneous dependent variable, whereas the summation over t for the

$i = 0$

explanatory variables allows contemporaneous effects. The lag orders p and q are

p **q**

selected according to the Akaike Information Criterion (AIC).

The terms $\Delta \hat{y}_t$ and $\Delta \hat{y}_{t-1}$ represent the distinctive CS-ARDL augmentation, consisting

$\theta_{it} \Delta_{it-1}$

of cross-sectional averages of the differenced variables , , ,

ΔFDI ΔSMD $\Delta LGDP$ ΔPC

, and lagged from . These terms serve as empirical

$$\Delta INF_{it-l} \quad \Delta TOPN_{it-l} \quad l = 0, 1, \dots, pT$$

proxies for unobserved common factors that generate cross-sectional dependence across countries, such as fiscal policy changes, pandemic-related shocks, or global business cycle fluctuations affecting all countries simultaneously. The parameter indicates the speed of adjustment toward long-run equilibrium, while denotes

$$\mu_i \quad \varepsilon_{it}$$

the error term.

Equation (2) specifies the short-run Error Correction Model (ECM) representation of the CS-ARDL framework. The error correction term () is derived from the

$$ECT_{it-1}$$

residuals of the long-run cointegration equation presented in Equation (1) (Pesaran et al., 1999).

Equation (2)

$$\begin{aligned} \Delta FDI_{it} = & \alpha_{1it} + \sum_{l=1}^p \delta_{1il} \Delta FDI_{it-l} + \sum_{l=1}^q \delta_{2il} \Delta SMD_{it-l} + \sum_{l=1}^q \delta_{3il} \Delta LGDPFC_{it-l} + \sum_{l=1}^q \delta_{4il} \Delta INF_{it-l} + \sum_{l=1}^q \delta_{5il} \Delta TOPN_{it-l} \\ & + \sum_{l=1}^{pT} \theta_{1il} \Delta FDI_{it-l} + \sum_{l=1}^{pT} \theta_{2il} \Delta SMD_{it-l} + \sum_{l=1}^{pT} \theta_{3il} \Delta LGDPFC_{it-l} + \sum_{l=1}^{pT} \theta_{4il} \Delta INF_{it-l} + \sum_{l=1}^{pT} \theta_{5il} \Delta TOPN_{it-l} + \varepsilon_{it} \end{aligned}$$

The coefficient of is expected to be negative and statistically

$$ECT_{it-1}$$

significant, indicating the existence of a long-run equilibrium relationship among the variables. The absolute value of this coefficient reflects the speed at which deviations from long-run equilibrium are corrected following an economic shock.

C. Results and Discussion

1. Cross-Sectional Dependence Test

The cross-sectional dependence (CSD) test is conducted to examine whether cross-country dependence exists in the panel dataset. Identifying cross-sectional dependence is essential because the presence of interdependence among cross-sectional units may lead to biased and inefficient estimates if the assumption of cross-sectional independence is violated. Therefore, this study employs the Pesaran Cross-Sectional Dependence (CD) test prior to model estimation.

Table 2. Cross-Sectional Dependence Test

Variable	FDI	SMD	LnGDPPC	INF	TOPN
Pesaran CD Test	-2.561	10.393	25.705	11.013	17.124
<i>p</i> -value	0.010	0.000	0.000	0.000	0.000

Note: This table reports the results of the cross-sectional dependence test using the Pesaran CD test.

Source: Authors' compilation.

As reported in Table 2, the results of the Pesaran CD test indicate that all variables exhibit statistically significant cross-sectional dependence, with *p*-values below the 5% significance level: FDI (0.010), SMD (0.000), GDPPC (0.000), INF (0.000), and TOPN (0.000). Accordingly, the null hypothesis (H_0) of cross-sectional independence is rejected for all variables included in the analysis.

These findings suggest that significant interdependence exists among the nine sample countries, implying that economic changes in one country are not independent but are associated with developments in other countries. Such dependence may arise from common factors, including international financial market integration, cross-border trade linkages, global economic policies, and worldwide macroeconomic shocks that simultaneously affect all countries. The presence of cross-sectional dependence indicates that the assumption of cross-sectional independence is violated, implying that conventional panel estimation techniques may produce biased and inefficient estimates. Consequently, the use of the Cross-

Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model is appropriate, as it explicitly accounts for unobserved common factors and cross-sectional dependence through the inclusion of cross-sectional averages.

2. Pesaran and Yamagata Slope Heterogeneity Test

The Pesaran and Yamagata Slope Heterogeneity Test is employed to determine whether the regression coefficients are homogeneous or heterogeneous across countries. This test is essential in panel data analysis because a violation of the slope homogeneity assumption may lead to biased estimates that fail to capture the distinct characteristics of each cross-sectional unit.

Table 3. Pesaran and Yamagata Slope Heterogeneity Test

Test Statistics	Statistic	p-value
Delta (Δ)	13.057	0.0000
Adjusted Delta (Δ_{adj})	14.162	0.0000

Source: Authors' compilation.

As reported in Table 3, the Delta (Δ) and Adjusted Delta (Δ_{adj}) statistics are 13.057 and 14.162, respectively, with both tests yielding p-values of 0.0000. Accordingly, the null hypothesis (H_0) of slope homogeneity is rejected, indicating the presence of significant slope heterogeneity across the cross-sectional units in the panel dataset.

These findings suggest that the relationship between sukuk market development (SMD) and foreign direct investment (FDI) differs substantially across the nine sample countries. In other words, the impact of sukuk market development on FDI inflows, after controlling for GDP per capita (GDPPC), inflation (INF), and trade openness (TOPN), is not uniform across countries. Such heterogeneity reflects differences in economic structures, the level of Islamic financial market development, institutional quality, trade openness, and investment policies among the sample countries. Consequently, employing an estimation technique capable of accommodating cross-country heterogeneity, such as the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model, is appropriate

because it provides consistent parameter estimates while capturing both short-run and long-run dynamics under heterogeneous slope coefficients.

3. Second-Generation Unit Root Test

Following the identification of cross-sectional dependence and slope heterogeneity, the next step is to examine the stationarity properties of the panel data using second-generation unit root tests. This study employs the Cross-Sectionally Augmented IPS (CIPS) test and the Cross-Sectionally Augmented Dickey-Fuller (CADF) test developed by Pesaran (2007). These tests are selected because they explicitly account for the presence of cross-sectional dependence identified in the previous stage of the analysis.

Table 4. Second-Generation Unit Root Test

Variables	CIPS I(0)	CIPS I(1)	CADF I(0)	CADF I(1)	Status
FDI	-11.951	0.000	-7.660	0.000	I(0)
SMD	-6.449	0.000	-6.672	0.000	I(0)
LnGDPPC	-5.530	0.000	-5.548	0.000	I(0)
INF	-8.425	0.000	-9.279	0.000	I(0)
TOPN	-5.226	0.000	-5.533	0.000	I(0)

*Note: ** indicates statistical significance at the 5% level. The CIPS and CADF tests are employed to examine the stationarity of the variables while accounting for cross-sectional dependence.*

Source: Authors' compilation.

The results reported in Table 4 indicate that all variables are consistently stationary at level, $I(0)$, with p-values below the 5% significance level. No variable is found to be integrated of order two, $I(2)$. Therefore, the null hypothesis (H_0) that the variables contain a unit root is rejected, confirming that all variables are stationary.

These findings indicate that none of the variables is integrated beyond the first order, thereby satisfying the fundamental requirement for dynamic panel data analysis. Consequently, the stationarity results support the appropriateness of proceeding with the subsequent empirical analysis. Moreover, the absence of higher-order unit roots implies that the relationships among the variables can be estimated

consistently without the risk of spurious regression, providing a reliable basis for the application of the CS-ARDL framework.

4. Westerlund and Edgerton Cointegration Test

After confirming that all variables are stationary at either $I(0)$ or $I(1)$, the next step is to examine the existence of a long-run equilibrium relationship using the Westerlund and Edgerton Cointegration Test. This test is selected because it accommodates both cross-sectional dependence and slope heterogeneity identified in the previous stages of the analysis.

Table 5. Westerlund and Edgerton Cointegration Test

Statistic	Value	z-value	p-value
Gt	-4.440	-6.265	0.000
Ga	-10.452	0.980	0.837
Pt	-9.830	-3.124	0.001
Pa	-6.733	1.018	0.846

*Note: ** indicates statistical significance at the 1%, 5%, and 10% levels.*

Source: Authors' compilation.

The results of the Westerlund and Edgerton Cointegration Test presented in Table 5 show that the Gt and Pt statistics have p-values of 0.000 and 0.001, respectively, both of which are below the 5% significance level. Accordingly, the null hypothesis (H_0) of no cointegration is rejected based on these two statistics, providing evidence of a long-run equilibrium relationship among the variables included in the model. In contrast, the Ga and Pa statistics yield p-values of 0.837 and 0.846, respectively, and therefore fail to reject the null hypothesis.

Since the Gt and Pt statistics are statistically significant, the overall test results support the existence of a long-run cointegrating relationship among foreign direct investment (FDI), sukuk market development (SMD), GDP per capita (GDPPC), inflation (INF), and trade openness (TOPN). These findings indicate that the variables move together over the long run despite short-run fluctuations, confirming

the presence of a stable equilibrium relationship. Consequently, the use of the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model is appropriate for estimating both the short-run dynamics and the long-run effects among the variables.

5. Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) Estimation

This study employs the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) estimator developed by Chudik and Pesaran (2015) to estimate the short-run and long-run relationships between sukuk market development and foreign direct investment (FDI). The CS-ARDL approach is selected because it effectively accommodates cross-sectional dependence and cross-country heterogeneity, which are common features of macroeconomic panel data. The existence of a long-run equilibrium relationship is evaluated through the coefficient of the Error Correction Term (ECT).

Table 6. Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) Estimation

Variables	Coefficient	Std. Error	z	P> z
<i>Short-run estimates</i>				
FDI	1.082524	0.0834204	12.98	0.000
SMD	2.527389	0.2754740	3.93	0.000
LnGDPPC	12.073220	7.4421260	2.84	0.005
INF	-0.542248	0.1239814	-2.25	0.024
TOPN	0.854012	0.0548386	2.48	0.013
Adjustment term (ECM _{t-1})	-0.825238	0.0834204	-4.59	0.000
<i>Long-run estimates</i>				
SMD	116.976200	95.056240	3.34	0.001
LnGDPPC	-0.610849	0.5176056	-2.43	0.015
INF	2.995644	1.3931060	3.35	0.001
TOPN	0.518544	0.2519617	2.57	0.010
Note: Statistical significance at the 5% level				

Table 6 presents the CS-ARDL estimation results for the relationship between sukuk market development (SMD) and foreign direct investment (FDI). In the short run, sukuk market development exerts a positive and statistically significant effect on FDI, with a coefficient of 2.527389 ($p = 0.000$). This finding indicates that a 1% increase in sukuk market development is associated with an approximately 2.53% increase in FDI inflows in the short run. Although the short-run effect is relatively smaller than its long-run counterpart, the result suggests that a more developed sukuk market can immediately enhance the attractiveness of a country to foreign investors. Moreover, the Error Correction Term (ECT_{t-1}) is negative and highly significant ($\beta = -0.825238$, $p = 0.000$), confirming the existence of a stable long-run equilibrium relationship. The magnitude of the coefficient implies that approximately 82.5% of short-run disequilibrium is corrected within one quarter, indicating a rapid adjustment process toward long-run equilibrium.

The control variables also produce meaningful results. GDP per capita (LnGDPPC) has a positive and statistically significant coefficient of 12.073220 ($p = 0.005$), suggesting that higher income levels and larger market size enhance a country's attractiveness to foreign investors. Inflation (INF) exhibits a negative and significant effect on FDI ($\beta = -0.542248$, $p = 0.024$), indicating that rising inflation creates macroeconomic uncertainty and discourages foreign investment. In contrast, trade openness (TOPN) has a positive and significant coefficient of 0.854012 ($p = 0.013$), implying that greater integration into international trade promotes foreign direct investment by improving market accessibility and reducing investment barriers.

The long-run estimation further confirms that sukuk market development has a positive and statistically significant impact on FDI, with a coefficient of 116.976200 ($p = 0.001$). This finding suggests that sustained development of the sukuk market substantially enhances foreign investment inflows by improving financial market

efficiency, expanding access to long-term financing, and strengthening investor confidence in the stability of the Islamic financial system. Trade openness also remains positively associated with FDI ($\beta = 0.518544$, $p = 0.010$), indicating that economies with more open trade regimes tend to attract higher levels of foreign investment. Meanwhile, GDP per capita shows a negative and statistically significant long-run coefficient ($\beta = -0.610849$, $p = 0.015$), implying that after controlling for other macroeconomic factors, higher income levels may be associated with lower marginal FDI inflows, potentially reflecting market maturity or diminishing investment opportunities in relatively more developed economies. Inflation displays a positive and significant long-run coefficient ($\beta = 2.995644$, $p = 0.001$), suggesting that moderate inflation may coincide with stronger economic activity and investment opportunities in the sample countries over the long run. This finding should be interpreted cautiously, as it differs from the short-run relationship and may reflect structural characteristics of the sampled economies.

These findings are consistent with those reported by Ledhem (2022), Yıldırım et al., (2020), and Naz et al., (2025), who demonstrate that sukuk market development contributes positively to macroeconomic performance, although their studies primarily focus on economic growth rather than FDI. The results also complement the arguments of Sadallah (2025) and Aman et al., (2022), who document a close relationship between the quality of Islamic financial markets and foreign capital inflows, despite treating FDI as a determinant rather than an outcome of sukuk market development. Accordingly, the present study extends the existing literature by providing evidence that the causal relationship also operates in the opposite direction, whereby the development of the sukuk market itself serves as a driver of foreign direct investment. This pattern is consistent with evidence from conventional capital markets. Jeong et al., (2024) and Hajilee & Al Nasser (2015) report that stock market development enhances investor confidence and facilitates international capital mobilization, thereby stimulating FDI inflows, while (Appiah et

al., 2023) identify a bidirectional relationship between capital market development and foreign direct investment. The consistency between the effects of sukuk markets and conventional stock markets reinforces the view that the depth and liquidity of capital markets, whether Islamic or conventional, constitute important determinants of a country's ability to attract foreign investment.

Overall, the CS-ARDL estimation results demonstrate that sukuk market development contributes positively to foreign direct investment in both the short run and the long run. These findings support the study's hypothesis that strengthening the sukuk market enhances a country's attractiveness to foreign investors by deepening the Islamic financial market. At the same time, favorable macroeconomic conditions, particularly greater trade openness and a stable economic environment, play an important complementary role in promoting foreign direct investment.

6. Robustness Check – Augmented Mean Group (AMG)

To ensure the robustness of the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) estimation results, this study performs an additional robustness test using the Augmented Mean Group (AMG) estimator. The use of the AMG approach is motivated by its ability to accommodate cross-sectional dependence, cross-provincial heterogeneity, and unobserved common factors. Therefore, it serves as a reliable verification tool for assessing the consistency of the results obtained from the CS-ARDL estimation.

Table 7. Robustness Check

Variables	Coefficient	Std. Error	z	P> z
SMD	0.2846215	0.0812674	3.50	0.000
LnGDPPC	2.5579820	0.9862143	2.59	0.010
INF	-0.1094005	0.0406652	-2.69	0.007
TOPN	0.1344905	0.0494453	2.72	0.006

Trend	0.2295587	0.0896712	2.56	0.011
Constant	14.67303	5.401238	2.72	0.007
Wald Chi-Sq	0.2846215	0.0812674	3.50	0.000

Note: Significance level at 5%.

Source: Authors' calculations.

As reported in Table 7, the Augmented Mean Group (AMG) estimation results indicate that Sukuk Market Development (SMD) has a positive and statistically significant effect on Foreign Direct Investment (FDI). Specifically, a 1% increase in sukuk market development is associated with an approximately 0.285% increase in FDI (coefficient = 0.285; $p < 0.01$). Furthermore, GDP per capita and trade openness exert positive and statistically significant effects on FDI, whereas inflation has a negative and statistically significant impact. These findings are consistent with the CS-ARDL estimation results, thereby providing additional evidence of the robustness of the empirical findings regarding the positive influence of sukuk market development on FDI inflows. Moreover, they further support the existence of a long-run cointegrating relationship, as confirmed by the Westerlund and Edgerton Cointegration Tests.

D. Conclusion

This study achieves its primary objective by providing empirical evidence that sukuk market development constitutes a significant determinant of foreign direct investment (FDI) inflows in sukuk-issuing countries. Using the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) approach, which explicitly accounts for cross-sectional dependence and country heterogeneity, the findings demonstrate that a more developed sukuk market enhances a country's ability to attract foreign investment in both the short run and the long run. The statistically significant and negative error correction term further confirms the existence of a stable long-run equilibrium relationship, while the robustness analysis using the

Augmented Mean Group (AMG) estimator validates the consistency of the estimated coefficients.

Beyond confirming the importance of macroeconomic fundamentals, the study reveals that the development of the Islamic capital market represents an additional channel through which countries can strengthen their international investment attractiveness. Unlike most previous studies that primarily treat FDI as a determinant of sukuk market development, this research demonstrates the reverse causal direction by showing that the expansion of the sukuk market itself contributes to increasing FDI inflows. Consequently, the study extends the literature on Islamic finance by positioning sukuk market development as a strategic component of investment promotion rather than solely as a financing instrument.

These findings imply that policymakers should prioritize comprehensive sukuk market development through regulatory harmonization, enhanced market transparency, product innovation, and stronger institutional support in order to reinforce investor confidence and mobilize sustainable international capital. Nevertheless, the findings should be interpreted in light of several limitations, including the relatively limited country coverage, the interpolation of quarterly observations from annual data, and the exclusion of institutional and governance-related factors that may influence the effectiveness of sukuk market development. Future studies are therefore encouraged to incorporate broader country samples, distinguish among different sukuk structures, and examine the moderating roles of institutional quality, governance, and financial development to provide a more comprehensive understanding of the relationship between Islamic capital market development and foreign direct investment.

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