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ISLAMIC BANKING PERFORMANCE, FINANCIAL INCLUSION, AND HUMAN DEVELOPMENT: EVIDENCE FROM PROVINCIAL ISLAMIC BANKING IN INDONESIA

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ABSTRACT

Islamic banking, grounded in its ethical foundations and Shariah-compliant principles, has emerged as a significant driver of sustainable development. This study investigates the relationship between Islamic banking performance, financial inclusion, and the Human Development Index (HDI) across Indonesian provinces. Using data from the Financial Services Authority (OJK) and the Central Statistics Agency (BPS) covering 33 provinces in 2016, 2019, and 2022, a quantitative design with mediation analysis was conducted using STATA 17. The findings reveal that Islamic banking performance—measured through bank size, total financing, and Third-Party Funds (TPF)—exerts a direct and positive impact on HDI. Moreover, this positive influence is further enhanced through the mediating role of financial inclusion. The results underscore that equitable access to financial services plays a critical role in advancing human development outcomes. These findings highlight the urgency of implementing inclusive strategies, particularly by expanding Shariah-compliant financial services to underserved populations and designing innovative financial products tailored to their socio-economic needs. By embedding financial inclusion within their operational frameworks, Islamic financial institutions can optimize their contribution to human development and support broader sustainable development objectives in Indonesia.

1 Introduction

The financial system plays a central role in channeling surplus funds to deficit units, facilitating capital accumulation, stimulating investment, and supporting long-term economic growth (Beck et al., 2013; Khattak & Khan, 2023a). As core institutions within this system, banks serve as trusted intermediaries that strengthen capital allocation and contribute to national development. Over recent decades, Islamic banking has expanded rapidly, establishing itself as a credible and resilient alternative to conventional finance. Operating under a Shariah-based framework grounded in justice, risk-sharing, and asset-backed financing, Islamic banks offer a model that promotes both ethical conduct and financial sustainability (Akhter et al., 2019; Kamalu & Ibrahim, 2021). The resilience of Islamic banks during the Covid-19 pandemic—demonstrated through stable performance and continued support for the real sector—mirrors their durability during the 1998 monetary crisis, highlighting the stabilizing function of Shariah principles in promoting inclusive and long-term economic growth (R. Hidayat et al., 2021; Fitria & Setiawan, 2025). Foundational features such as the prohibition of riba, asset-backing requirements, and risk-sharing mechanisms ensure that transactions remain tied to real economic activity, discourage speculative behavior, and foster a more equitable distribution of risks and returns (Ahmed, 2011; Chapra, 2008; Iqbal & Mirakhor, 2011). Collectively, these principles strengthen systemic resilience and underline the potential role of Islamic banking in advancing Sustainable Development Goals (SDGs), particularly in poverty alleviation, reducing inequality, and promoting inclusive economic development.

A growing body of research has examined the interconnected roles of Islamic banking, financial inclusion, and socioeconomic development. Studies show that Islamic banking expands access to finance for individuals and businesses traditionally excluded from the formal financial sector (Imam & Kpodar, 2013). Financial inclusion has also been empirically linked to human development outcomes: for instance, a strong correlation of 0.79 has been documented between financial inclusion and the Human Development Index (HDI) across 28 Muslim-majority countries (Talalweh & Samarah, 2021). Moreover, a 1% increase in financial inclusion is associated with a 0.09% rise in HDI, underscoring its critical role in enhancing well-being (Talalweh & Samarah, 2021). Other studies further confirm the role of financial inclusion in reducing poverty, promoting income equality, and improving human development (Abdelghaffar et al., 2023; Matekenya et al., 2021; Novreska & Arundina, 2024; Omar & Inaba, 2020; Park & Mercado, 2015). Additionally, the development of Sharia-based MSMEs has been identified as a vital driver of financial inclusion and sustainable development (Nasir & Rismaya, 2024). Beyond these outcomes, Islamic banking's emphasis on real-sector–linked transactions reduces volatility, enhances financial stability, and reinforces a supportive environment for inclusive growth (Khattak & Khan, 2023b).

Despite this growing literature, limited empirical evidence explains how Islamic banking performance influences human development, particularly through the mediating channel of financial inclusion. The Indonesian context remains understudied, even though Indonesia is the world's largest Muslim-majority nation with a rapidly expanding Islamic banking sector. Existing research rarely explores provincial-level disparities in Islamic banking performance, nor does it integrate financial intermediation theory with the Maqashid al-Shariah framework or the Islamic Human Development Index (I-HDI). This gap limits the understanding of how Islamic banking contributes to inclusive and sustainable development beyond conventional macroeconomic metrics.

This study addresses these gaps through three core contributions. First, it extends financial intermediation theory (Allen & Santomero, 1997) into a human development perspective by linking Islamic banking performance and financial inclusion to multidimensional well-being, measured through the Human Development Index (HDI). Second, it provides novel provincial-level empirical evidence from Indonesia, offering insights into intra-national disparities that are often overlooked in cross-country analyses. Third, it demonstrates the mediating role of financial inclusion in amplifying the impact of Islamic banking on human development, thereby informing strategies to align Islamic financial practices with the Sustainable Development Goals (SDGs). By focusing on provincial variation, the study offers a fresh analytical lens that moves beyond aggregate national growth indicators.

The remainder of this article is structured as follows. Section 2 reviews the relevant literature. Section 3 outlines the methodology and data sources. Section 4 presents the empirical findings. Section 5 concludes the study and offers policy recommendations.

2 Literature Review

2.1 Bank Size and HDI

Bank size, commonly measured through total assets (Wahyuni & Azmi, 2019), reflects a bank's financial capacity and its overall role within the economy. Larger banks typically benefit from economies of scale, allowing them to extend greater credit, channel resources into productive sectors, and expand financial inclusion—factors that positively influence human development dimensions such as education, health, and income (Akhmat et al., 2014; Sehrawat & Giri, 2014). A well-developed financial sector thereby facilitates strategic investment and supports sustainable economic progress, ultimately contributing to higher Human Development Index (HDI) outcomes.

However, growing empirical evidence suggests that larger bank size does not automatically translate into improved welfare. Nurdany (2016) notes that when Islamic banks focus excessively on asset accumulation rather than financing, credit distribution declines, potentially hindering economic activity and slowing gains in human development. Similarly, research on PT Bank Muamalat Indonesia indicates that although larger asset holdings enhance financial capacity, profitability constraints may reduce zakat contributions (Hayati et al., 2022)—one of the core mechanisms through which Islamic banks promote social welfare. These findings imply that unless asset growth is effectively channeled into financing, productive investment, and redistributive instruments such as zakat, the relationship between bank size and improvements in HDI may remain weak or inconsistent. Based on this theoretical and empirical foundation, the first hypothesis of this study is formulated as follows:

H_1: Islamic Bank Size has a positive effect on Indonesia's HDI

2.2 Total Financing and HDI

Total financing (TF) reflects a bank's ability to channel funds into the real economy. Prior studies highlight that Islamic bank financing plays a pivotal role in supporting sustainable development and advancing the Sustainable Development Goals (SDGs)

(Abduh & Chowdhury, 2012; Alam & Ullah, 2022). Financing directed toward strategic sectors—such as education, health, and micro, small, and medium enterprises (MSMEs)—strengthens human capital, increases life expectancy, generates employment opportunities, and alleviates poverty (Salsabila & Sekaringsih, 2023).

However, the developmental impact of financing critically depends on its sectoral allocation and management quality. Financing channeled into productive activities tends to generate more sustainable improvements in human development compared to financing geared toward consumption. Islamic banks thus play a strategic role in aligning financing portfolios with societal needs and long-term development objectives, consistent with the principles of Shariah that encourage socio-economic justice and real-sector growth. Based on these theoretical and empirical insights, the second hypothesis of this study is formulated as follows:

H_2: Total Financing of Islamic banks has a positive effect on Indonesia's HDI

2.3 Third-Party Funds and HDI

Third-party funds (TPF) in Islamic banking—consisting of deposits and investment-based funds mobilized from individuals, corporations, and institutions—play a critical role in promoting human development. When channeled effectively into financing activities that stimulate economic growth, raise living standards, and expand access to essential services such as healthcare, education, and infrastructure, TPF becomes an important driver of improvements in the Human Development Index (HDI) (Akhter et al., 2019; Akosile & Sharofiddin, 2021; Puspitaningrum, 2021b).

Beyond direct financing effects, increased financial resource mobilization can also influence governmental fiscal priorities. Higher deposit volumes and stronger financial intermediation may encourage greater public investment in health and education—two core components of HDI—thereby amplifying development outcomes (McGillivray & Noorbakhsh, 2004; Sattar et al., 2022). Furthermore, the deployment of TPF in Islamic banking is guided by Maqashid al-Shariah principles and Corporate Social Responsibility (CSR) practices, ensuring that funds are utilized ethically, productively, and sustainably (S. Hidayat & Irwansyah, 2021; Salsabila & Sekaringsih, 2023). This ethical framework strengthens the developmental impact of TPF by ensuring alignment with social welfare and long-term economic justice. Based on this theoretical and empirical foundation, the third hypothesis of this study is formulated as follows::

H_3: The Third-Party Funds of Islamic Banks has a positive effect on Indonesia's HDI

2.4 Financing to Deposit Ratio and HDI

As a key pillar of the Sharia-based financial system, Islamic banking supports economic activity and community welfare through equitable and compliant financing mechanisms. The Financing to Deposit Ratio (FDR) measures the extent to which Third-Party Funds (TPF) are transformed into financing activities. Higher FDR values indicate efficient fund utilization, which strengthens financial intermediation, enhances stability, and stimulates economic growth. Empirical studies confirm that FDR significantly influences Islamic banking performance (Hidayat et al., 2020) and is positively associated with improvements in the Human Development Index (HDI), especially in areas such as health, education, and overall living standards (Damanhur et al., 2018).

Moreover, Islamic bank financing has been shown to reduce poverty, promote economic development, and expand access to essential services—further reinforcing gains in human development indicators (Junaidi, 2024). Efficient and inclusive financing thus not only supports economic growth but also strengthens multidimensional welfare outcomes consistent with the objectives of sustainable development and the Maqashid al-Shariah. Based on these theoretical and empirical insights, the fourth hypothesis of this study is formulated as follows::

H_4: Financing to Deposit Ratio of Islamic banks has a positive effect on Indonesia's HDI

2.5 Financial Inclusion and HDI

Financial inclusion—defined as access to and effective use of affordable financial services—is widely recognized as a catalyst for economic growth and human development (Sarma, 2008). By expanding opportunities to finance education, healthcare, and social welfare, financial inclusion directly supports key dimensions of the Human Development Index (HDI). Empirical evidence shows that inclusive financial systems allow individuals to save, invest in health services, and afford essential treatments, thereby reducing mortality and improving life expectancy (Malak & Arshad, 2024; Sarma, 2008; Wiysonge et al., 2017).

Moreover, financial inclusion plays a critical role in alleviating poverty and fostering development, particularly among vulnerable groups such as women and the financially excluded in developing countries (Damiyano & Mago, 2023). Studies also indicate that low- and lower-middle-income countries gain significantly from policies that expand financial access through digital finance, fintech innovations, and technology-enabled services—mechanisms that improve credit availability and help households meet vital needs in education and healthcare (Abdelghaffar et al., 2023; Beck et al., 2004; Damiyano & Mago, 2023). Given its strong influence on well-being and capability expansion, financial inclusion is expected to enhance human development outcomes in Indonesia. Based on these theoretical and empirical insights, the fifth hypothesis of this study is formulated as follows:

H_5: Financial Inclusion has a positive effect on Indonesia's HDI

2.6 Bank Size on HDI through Financial Inclusion

Bank size, commonly measured through total assets, has long been examined in its contribution to economic and social development. Larger banks generally possess greater financial capacity to provide financing, enabling wider access to essential services such as education and healthcare—two primary components of the Human Development Index (HDI). Empirical studies demonstrate that financial inclusion plays a crucial role in improving access to health services, thereby increasing life expectancy and enhancing overall welfare outcomes (Malak & Arshad, 2024; Wiysonge et al., 2017).

Within this framework, financial inclusion functions as a mediating mechanism that connects bank size to human development. Countries with higher levels of financial inclusion tend to experience stronger improvements in education, health, and overall HDI performance (Abdelghaffar et al., 2023). In the context of Islamic banking, institutions with larger asset bases are better equipped to allocate resources toward productive and socially beneficial sectors. This strengthens financial access, widens the reach of Shariah-compliant financial products, and fosters multidimensional human development. Based on these theoretical and empirical foundations, the sixth hypothesis of this study is formulated as follows:

H_6: Financial Inclusion mediates the nexus between Islamic Bank Size on Indonesia's HDI

2.7 Total Financing and HDI through Financial Inclusion

Financial inclusion expands access to financial services and enables households to improve their social and economic well-being (Alam & Ullah, 2022; Kunt et al., 2021). In this regard, financial inclusion can amplify the developmental impact of financing by reaching individuals previously excluded from formal financial systems. Beck et al. (2004) highlight that countries with higher levels of financial inclusion tend to achieve stronger education outcomes and higher per capita income. When total financing increases alongside broader access to credit, more individuals are able to participate in productive economic activities, resulting in higher earnings and improved living standards.

From an educational perspective, improved access to financing allows households to afford higher education, thereby strengthening human capital formation and contributing directly to improvements in HDI. However, the effectiveness of financing in enhancing human development through financial inclusion depends not only on the availability of financial services but also on individuals' capacity to understand and use these services effectively. Dupas and Robinson (2013) emphasize that the benefits of financial inclusion are maximized only when complemented by financial literacy and policies that promote active engagement with financial institutions. Thus, while total financing can serve as a key driver of expanded financial access, its impact on HDI is most substantial when supported by inclusive financial systems and adequate financial education. Based on these insights, the seventh hypothesis of this research is formulated as follows:

H_7: Financial Inclusion mediates the nexus between Total Financing of Islamic banks on Indonesia's HDI

2.8 Third-Party Funds on HDI through Financial Inclusion

Third-party funds (TPF), or Dana Pihak Ketiga (DPK), represent deposits mobilized by Islamic banks from individuals, households, and businesses. These funds constitute a crucial resource for financing Shariah-compliant products and development-oriented projects. As public trust in ethical and transparent financial systems increases, the expansion of TPF strengthens Islamic banks' capacity to support financing activities that contribute to broader societal development (Kaban & Pohan, 2023). However, the direct contribution of TPF to improvements in the Human Development Index (HDI) may be limited if access to financial services remains uneven across communities.

Financial inclusion bridges this gap by ensuring equitable access to financial services, thereby enabling the effective distribution of mobilized funds. Empirical studies show that higher levels of TPF are associated with increased financing for Micro, Small, and Medium Enterprises (MSMEs)—a sector widely recognized as a key driver of economic growth, income generation, and human development (Ninglasari et al., 2023; Zainuri et al., 2023). Enhanced access to financing enables individuals and small businesses to invest in healthcare, education, and entrepreneurship, all of which contribute directly to improvements in HDI dimensions (Puspitaningrum, 2021a; Salsabila & Sekaringsih, 2023).

Thus, financial inclusion acts as a mediating mechanism that ensures funds mobilized through TPF are allocated more equitably and effectively, amplifying their developmental impact. When financial access is broadened, the socio-economic benefits of TPF become more widely distributed, ultimately advancing welfare and elevating HDI performance. Based on these theoretical and empirical insights, the eighth hypothesis of this research is formulated as follows:

H_8: Financial inclusion mediates the nexus between Third-Party Funds of Islamic Banks and Indonesia's HDI

2.9 Financing to Deposit Ratio and HDI through Financial Inclusion

Financial inclusion is a critical driver of human development, especially in developing countries such as Indonesia. Within the Islamic banking framework, the Financing to Deposit Ratio (FDR) serves not only as an indicator of fund utilization efficiency but also as a strategic channel through which financial inclusion can be expanded. Greater financing relative to deposits enables Islamic banks to extend financial services more widely, enabling individuals and households to invest in education, healthcare, and improved living standards—dimensions that directly contribute to higher Human Development Index (HDI) outcomes (Abdelghaffar et al., 2023).

Cross-country evidence illustrates that nations with high levels of financial inclusion—such as South Korea and Japan—tend to achieve stronger human development outcomes compared to countries with lower inclusion levels, such as Myanmar and Afghanistan (Ghosh & Sahu, 2020). In Indonesia, disparities in financial access remain a persistent challenge. Effective FDR management can help address these inequalities by expanding Shariah-compliant services to underserved communities, strengthening support for SMEs, and financing social development projects

However, empirical findings also show that high FDR values do not automatically lead to stronger financial performance, as some Islamic banks still rely heavily on investment returns and fee-based income (Fitria & Setiawan, 2025). This indicates that the developmental impact of FDR depends not only on higher financing ratios but also on policies that ensure financing quality, inclusiveness, and equitable distribution. Financial inclusion therefore plays a mediating role by ensuring that financing reaches the groups and sectors most capable of generating human development gains. Based on these theoretical and empirical insights, the ninth hypothesis of this research is formulated as follows:

H_9: Financial Inclusion mediates the nexus between Financing to Deposit Ratio of Islamic banks on Indonesia's HDI

3 Research Methods

This study employs a quantitative research design using secondary panel data from 33 Indonesian provinces for the years 2016, 2019, and 2022. These three observation periods correspond to the Financial Services Authority's (OJK) triennial publication of provincial Islamic financial inclusion data. Although the limited number of time points constrains temporal continuity, the substantial cross-sectional variation across provinces provides sufficient statistical power for mediation analysis. The dependent variable is the Human Development Index (HDI), sourced from the Central Statistics Agency (BPS), which captures multidimensional well-being through indicators of health, education, and income.

Islamic banking performance is measured using four indicators obtained from OJK: bank size (total assets), third-party funds (TPF), financing-to-deposit ratio (FDR), and total financing (TF). Bank size reflects institutional scalability and market presence; TPF captures public trust and fund mobilization capacity; FDR measures the efficiency of transforming deposits into financing; and total financing represents banks' contribution to economic productivity and development. Collectively, these indicators capture both the scale and operational efficiency of Islamic banking activities at the provincial level.

Financial inclusion is conceptualized as access to and use of Islamic financial services, particularly by underserved communities. It is operationalized through proxies such as the number of Islamic bank branches and ATMs, as well as digital banking adoption indicators, all sourced from OJK. HDI and socio-economic control variables—including regional economic growth, unemployment, and population density—are obtained from BPS. The integration of these datasets allows the study to examine how Islamic banking performance and financial inclusion jointly influence human development while accounting for provincial disparities.

The analysis is conducted using STATA 17 and is grounded in the mediation framework established by Baron and Kenny (1986). Mediation testing is carried out through sequential regression models: the first model estimates the effect of Islamic banking performance variables on financial inclusion, while the second model estimates the combined effects of Islamic banking performance and financial inclusion on HDI (Stage et al., 2004). This sequential approach provides a robust evaluation of mediating mechanisms and clarifies the pathways through which Islamic banking contributes to human development. The research framework is illustrated conceptually in Figure 1 and formalized using the following equations:

$$\mathrm{FI} = a + \beta_1 \mathrm{BS}_{it} + \beta_2\, \mathrm{TF}_{it} + \beta_3\, \mathrm{TPF}_{it} + \beta_4\, \mathrm{FDR}_{it} + et \quad (1)$$

$$\mathrm{HDI} = a + \beta_1 \mathrm{BS}_{it} + \beta_2 \mathrm{TF}_{it} + \beta_3 \mathrm{TPF}_{it} + \beta_4 \mathrm{FDR}_{it} + \beta_5 \mathrm{FI}_{it} + et \quad (2)$$

Model selection was conducted using the Chow, Hausman, and Lagrange Multiplier (LM) tests to determine the most appropriate panel-data specification among the common, fixed, and random effects models. After selecting the optimal model, the significance of individual predictors on HDI was assessed using *t*-tests.

To evaluate the mediation effects of financial inclusion, this study employed the Sobel test (Sobel, 1982), a widely accepted method for examining indirect effects in mediation models. The Sobel test computes the significance of the mediating pathway by calculating a *z*-statistic using the following formula:

$$z = (a * b) / \sqrt{((b^2 * SEa^2) + (a^2 * SEb^2))} \quad (3)$$

In this model, the coefficient **a** represents the effect of the independent variable on the mediator, while the coefficient **b** reflects the effect of the mediator on the dependent variable. The corresponding standard errors, $\mathbf{SE_a}$ and $\mathbf{SE_\beta}$, are used in the Sobel formula to compute the significance of the indirect effect. The coefficients **a** and **b** therefore indicate both the strength and the direction of the relationships linking the independent variable, the mediating variable, and the dependent variable.

In addition, classical assumption tests—including normality, multicollinearity, heteroscedasticity, and autocorrelation tests—are conducted to ensure the reliability, validity, and robustness of the regression estimates.

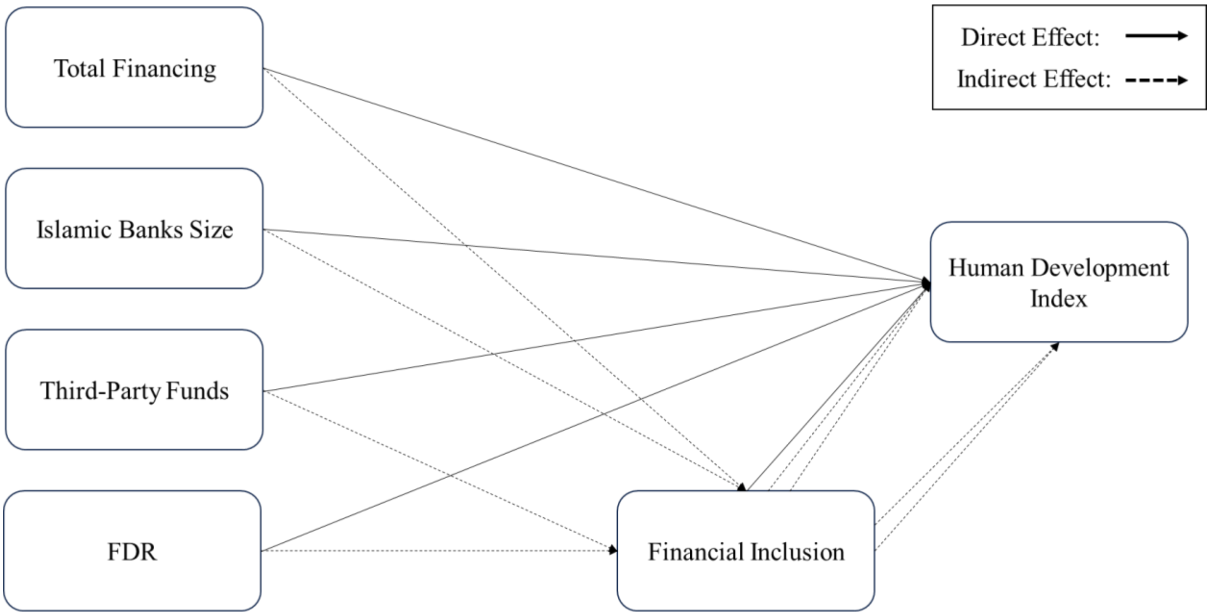

Figure 1. Research Framework

4 Results and Discussion

4.1. Result

4.1.1 Descriptive Statistics

Table 1 reports the descriptive statistics, including the mean, standard deviation, and minimum and maximum values of the variables. Standard deviations that substantially exceed the corresponding mean values suggest the presence of extreme outliers in several financial indicators. (Osborne & Overbay, 2004). Therefore, to address this issue, the variables Bank Size (BS), Total Financing (TF), and Third-Party Funds (TPF) were transformed using the natural logaritm, while Financing-to-Deposit Ratio (FDR), Financial Inclusion (FI) and Human Development Index (HDI) were maintained in their original form.

Table 1. Descriptive Statistics

	N obs.	Mean	Std. Dev.	Min.	Max.
BS	99	15187.856	45984.918	176.004	352770.515
TF	99	7307.780	15611.622	109.273	100791.310
TPF	99	9312.081	23749.159	116.973	172623.795
FDR	99	105.608	44.441	29.210	266.750
FI	99	76.529	10.687	58.500	96.620
HDI	99	70.723	4.179	58.050	81.650

Note: N obs. Number of observations; Std. dev. = Standard deviation; Min = Minimum values; Max. = Maximum values; BS = Bank Size; TF = Total Financing; TPF = Third-Party Fund; FDR = Financing-to-Deposit Ratio; FI = Financial Inclusion; HDI = Human Development Index.

source: STATA 17 output (authors' calculation, 2025)

4.1.2 Panel Model Selection

Table 2. Testing Model

Test	Prob > Chi2			Result
	Model 1	Model 2		
Chow	0.0003	0.0000	Fixed	Fixed Effect
Hausman	0.0000	0.0493	Fixed	

source: STATA 17 output (authors' calculation, 2025)

The Chow test was employed to compare the Common Effect Model (CEM) with the Fixed Effect Model (FEM). As shown in Table 2, the p-values are below the 0.05 threshold, leading to the rejection of the null hypothesis in favor of FEM. To further assess model suitability, the Hausman test was conducted to distinguish between FEM and the Random Effect Model (REM). The p-values, 0.0000 (Model 1) and 0.0493 (Model 2) are below 0.05, which then reject the null hypothesis and confirm FEM as the most appropriate model for this study. Thus, heterogeneity across provinces is effectively controlled through the use of Fixed Effects.

4.1.3 Classical Assumption Tests

The normality of residuals was evaluated using the Shapiro–Wilk test. Both Model 1 ($p = 0.4546$) and Model 2 ($p = 0.5565$) yielded p-values greater than 0.05, indicating that the residuals are approximately normally distributed. These results confirm that the assumption of normality is satisfied for both regression models, supporting the validity of subsequent inferential analyses.

Table 3 reports the multicollinearity diagnostics, presenting the correlation coefficients among the variables. Based on this result, Bank Size (BS), Total Financing (TF) and Third-Party Funds (TPF) are strongly correlated, with coefficients above 0.96. Following Gujarati & Porter, (2009), this indicates a serious multicollinearity problem. Therefore, the mediation models were estimated separately for each predictor to avoid biased results.

Table 3. Multicollinearity Diagnostics

Variables	BS	TF	TPF	FDR	FI
BS	1.000				
TF	0.981*	1.000			
TPF	0.989*	0.964*	1.000		
FDR	-0.247	-0.103	-0.356	1.000	
FI	0.532	0.533	0.518	-0.043	1.000

Note: BS = Bank Size; TF = Total Financing; TPF = Third-Party Fund; FDR = Financing-to-Deposit Ratio; FI = Financial Inclusion; HDI = Human Development Index.

source: STATA 17 output (authors' calculation, 2025)

4.1.4 Regression Results

Table 4 reports the fixed-effects regression results examining the impact of Islamic banking performance indicators on financial inclusion. Each predictor—Bank Size (BS), Total Financing (TF), Third-Party Funds (TPF), and Financing-to-Deposit Ratio (FDR)—was entered separately due to high multicollinearity among BS, TF, and TPF. The results show that BS ($\beta = 11.121$, $p < 0.01$), TF ($\beta = 13.635$, $p < 0.01$), and TPF ($\beta = 13.807$, $p < 0.01$) significantly and positively influence financial inclusion, while FDR has a non-significant effect ($\beta = -0.091$, $p > 0.10$).

Table 4. Regression Results – Model 1

	Fixed Effect estimators			
	(1)	(2)	(3)	(4)
BS	11.121*** (0.001)			
TF		13.635*** (0.000)		
TPF			13.807*** (0.000)	
FDR				-0.091 (0.197)
No. observations	99	99	99	99
No. groups	33	33	33	33
Within R2	0.3587	0.3902	0.4454	0.0317

Note: The values reported for each variable are coefficients and heteroskedasticity-robust standard errors clustered at the province level, *, **, and *** denotes significance at the 10, 5, and 1 percent level.

source: STATA 17 output (authors' calculation, 2025)

Table 5 reports the fixed-effect regression estimates of Islamic banking performance indicators and financial inclusion (FI) on the Human Development Index (HDI). To mitigate multicollinearity, each performance indicator was introduced separately alongside FI. The results indicate that bank size ($\beta = 2.003$, $p < 0.01$), total financing ($\beta = 2.383$, $p < 0.01$), and third-party funds ($\beta = 2.496$, $p < 0.01$) exert significant positive effects on HDI, highlighting the developmental role of resource mobilization. Conversely, the financing-to-deposit ratio (FDR) shows a weak but significant negative effect ($\beta = –0.021$, $p < 0.1$). This may be caused by credit misallocation; high ratios are often the consequence of aggressive or high-risk lending that does not support productive sectors related to human development. Liquidity pressure may also reduce the quality of financing. Nevertheless, this finding requires caution regarding causality, as reverse causality or unobserved factors may influence both FDR behaviour and HDI outcomes. FI consistently demonstrates a strong positive influence on HDI ($\beta = 0.120$, $p < 0.01$), reinforcing its mediating role in translating banking performance into human development outcomes.

Table 5. Regression Results – Model 2

	Fixed Effect estimators				
	(1)	(2)	(3)	(4)	(5)
BS	2.003*** (0.000)				
TF		2.383*** (0.000)			
TPF			2.496*** (0.000)		
FDR				-0.021* (0.051)	
FI					0.120*** (0.000)

No. observations	99	99	99	99	99
No. groups	33	33	33	33	33
Within R2	0.5442	0.5578	0.6810	0.0818	0.6725

Note: The reported values represent coefficients with heteroskedasticity-robust standard errors clustered at the provincial level, where *, , and *** indicate significance at the 10%, 5%, and 1% levels, respectively

source: STATA 17 output (authors' calculation, 2025)

4.1.5 Sobel Test

The Sobel test was applied to assess the mediating role of financial inclusion in the relationship between Islamic banking performance and HDI. Results (Table 6) indicate that financial inclusion significantly mediates the effects of Bank Size (BS), Total Financing (TF), and Third-Party Funds (TPF) on HDI ($p < 0.01$). In contrast, no mediation effect was observed for the Financing-to-Deposit Ratio (FDR) ($p > 0.10$).

Table 6. Sobel Test Result

Variable	**Output**			
		Test statistic	**Std. Error**	**p-value**
BS→FI→HDI	Sobel test:	3.76176584	0.35439627	0.00016872
TF→FI→HDI	Sobel test:	5.60775566	0.29149138	0.00000002
TPF→FI→HDI	Sobel test:	4.71411728	0.35110451	0.00000243
FDR→FI→HDI	Sobel test:	-1.31409907	0.00829763	0.18881287

source: STATA 17 output (authors' calculation, 2025)

4.2. Discussion

4.2.1 Bank Size and HDI

The findings indicate that Islamic bank size, proxied by total assets, has a significant positive effect on the Human Development Index (HDI). This result aligns with previous studies (Akhmat et al., 2014; Sehrawat & Giri, 2014) and reinforces the hypothesis that larger Islamic banks contribute more substantially to human development. The positive association is likely driven by enhanced financial inclusion and stronger economic intermediation, as larger banks possess greater capacity to extend outreach, diversify financial products, and serve wider populations (Sakinah et al., 2022). Consistent with their Shariah mandate, Islamic banks prioritize socio-economic justice and wealth redistribution, making financial inclusion a core objective of their operations (Nawaz, 2018). Broader accessibility to Shariah-compliant services empowers previously unbanked communities, promotes financial stability, and positively influences HDI components such as health, education, and income (Akhter et al., 2019; Sofilda et al., 2022). Furthermore, banks with larger asset bases tend to have stronger capabilities to finance micro, small, and medium enterprises, thereby stimulating job creation, entrepreneurship, and poverty reduction (Faisal & Sejati, 2023). Collectively, these mechanisms strengthen economic infrastructure and translate into tangible improvements in human development outcomes (Widiastuti et al., 2022).

However, the positive relationship between bank size and HDI should be interpreted with caution in light of the "paradox of size." Although larger banks demonstrate broader quantitative outreach—more branches, more customers, and larger financing portfolios—

this expansion does not always guarantee qualitative inclusion for marginalized groups. Evidence from Indonesia shows that asset growth can occur without parallel improvements in financing depth, microfinance penetration, or gender-inclusive access. Nurdany (2016) argues that Islamic banks may prioritize asset accumulation over financing distribution, resulting in limited real-sector impact despite rising total assets. Similarly, Hayati et al. (2022) highlight that even large Islamic banks may face profitability constraints that reduce their ability to contribute to zakat and other welfare-enhancing instruments.

From a Maqasid al-Shariah perspective, these limitations challenge the attainment of hifz al-nafs (protection of life and welfare through access to healthcare and basic needs) and hifz al-mal (protection and empowerment of wealth through equitable access to finance). Therefore, although bank size demonstrates a positive effect on HDI, its developmental impact depends critically on whether asset expansion is accompanied by deeper, more equitable, and welfare-oriented inclusion strategies consistent with Shariah objectives. Without such alignment, the benefits of size risk remaining structural rather than transformative.

4.2.2 Total Financing and HDI

The empirical finding that total financing has a positive and statistically significant effect on the Human Development Index (HDI) reinforces the view that Islamic banking activity contributes meaningfully to broader socio-economic development. This result is consistent with recent micro- and regional-level studies showing that increased Islamic bank financing is associated with improvements in the core dimensions of HDI—income, education, and health. For instance, an analysis of 15 cities in Java demonstrated that Islamic bank financing is significantly and positively related to HDI across city-level panels, highlighting a localized development channel through which Islamic finance enhances welfare outcomes in Indonesia (Salsabila & Sekaringsih, 2023).

Our findings also align with the broader international literature linking Islamic banking development to macroeconomic growth and socio-economic well-being. Time-series and panel studies across various countries show that expansions in Islamic financial intermediation—measured through total financing, asset growth, or depth of Islamic financial services—tend to accompany stronger economic activity and more inclusive development outcomes. These patterns suggest that Islamic finance stimulates productive sectors, encourages entrepreneurship, and broadens access to essential services, which collectively enhance human development metrics. Foundational empirical work (Chowdhury & Abduh, 2012; Alam & Ullah, 2022) similarly reports long-run positive relationships between Islamic banking development and key growth indicators. Such evidence supports the plausibility of the mechanism observed in this study, where increased financing appears to translate into improvements in well-being across Indonesian provinces (Daly & Frikha, 2016).

4.2.3 Third-Party Funds and HDI

The hypothesis testing results demonstrate that Third-Party Funds (TPF) of Islamic banks have a significant positive effect on the Human Development Index (HDI), thereby supporting the third hypothesis of this study. This finding is consistent with prior empirical evidence from Puspitaningrum (2021), McGillivray and Noorbakhsh (2004), Sattar et al.

(2022), and Salsabila and Sekaringsih (2023), all of whom highlight the developmental role of fund mobilization in improving socioeconomic outcomes.

The positive effect of TPF indicates that Islamic banks in Indonesia are effectively allocating mobilized funds to serve societal needs. Through Shariah-compliant financing instruments such as mudharabah and musharakah, Islamic banks channel TPF into productive sectors that support entrepreneurship, job creation, and income generation—activities that directly enhance HDI dimensions, particularly standard of living and income levels. Beyond commercial financing, Islamic banks also allocate parts of their resources toward social finance initiatives, including zakat, waqf, and qard al-hasan. These mechanisms address critical societal needs in education, healthcare, and housing, thereby improving literacy, expanding healthcare access, and raising life expectancy.

The multiplier effects generated from deploying TPF into productive and socially oriented activities further stimulate economic growth, strengthen community resilience, and elevate household incomes, enabling greater investment in human development. This reinforces the economic theory that sustained investment in human capital, innovation, and knowledge serves as a long-term driver of welfare improvements. By utilizing TPF to support education programs, training initiatives, and healthcare infrastructure, Islamic banks play a pivotal role in enhancing human capital—one of the core determinants of HDI advancement.

4.2.4 Financing to Deposit Ratio and HDI

The estimation results show that the Financing-to-Deposit Ratio (FDR) of Islamic banks has a small negative effect on the Human Development Index (HDI), suggesting a weakly significant inverse association between intermediation intensity and human development outcomes. Given its marginal significance, this finding should be interpreted with caution, as it may not reflect a robust causal linkage. The result stands in contrast to prior studies—such as Damanhur et al. (2018) and Junaidi (2024)—which found that effective utilization of FDR supports progress in sectors closely tied to human development.

Conceptually, FDR measures the extent to which deposits are transformed into financing, with higher values typically interpreted as greater intermediation activity. However, excessively high FDR levels may indicate rapid lending growth that prioritizes short-term or less productive uses—such as consumption financing or speculative activities—rather than long-term investments in income, health, and education (Vuong et al., 2023). Elevated FDR can also signal liquidity strain and heightened bank risk-taking, where financing expansion outpaces the stability of the deposit base. Such conditions increase the likelihood of non-performing financing, forcing banks to reduce new lending or redirect funds away from productive sectors such as MSMEs, healthcare, and education—thereby weakening their potential contribution to HDI.

Prior research supports this interpretation, noting that high FDR or LDR ratios may serve as indicators of liquidity pressure and systemic risk, particularly when banks face mismatches between deposits and financing commitments (Boďa & Zimková, 2021; Hidayat, 2024). These dynamics suggest that while financing intermediation is crucial, its developmental impact depends not merely on the volume of financing but on the quality, sectoral allocation, and sustainability of the financing portfolio.

4.2.5 Financial Inclusion and HDI

The results demonstrate that financial inclusion has a strong positive effect on the Human Development Index (HDI), thereby supporting the fifth hypothesis of this study. This finding is consistent with a broad body of literature showing that inclusive financial systems contribute significantly to human development outcomes (Abdelghaffar et al., 2023; Beck et al., 2004; Damiyano & Mago, 2023; Malak & Arshad, 2024; Sarma, 2008; Wiysonge et al., 2017). Access to financial services enables individuals and households to invest in education, healthcare, and income-generating activities, helping to promote inclusive economic growth and reduce inequality.

Sarma (2008) argues that financial inclusion leads to improved health outcomes by allowing individuals to accumulate savings for medical expenses, invest in preventive care, and access formal healthcare services—all of which contribute to increased life expectancy. Damiyano and Mago (2023) similarly highlight the importance of financial inclusion in alleviating poverty among vulnerable populations. These results resonate with Dupas and Robinson (2013), who show that access to formal financial institutions for savings, deposits, and withdrawals significantly enhances household welfare.

Furthermore, advancements in women's education and financial literacy are frequently identified as critical drivers of financial inclusion, as they expand households' capacity to engage with financial services productively and sustainably. Collectively, these findings underscore financial inclusion as a vital policy instrument for improving multidimensional welfare and strengthening HDI outcomes. However, the effectiveness of financial inclusion in raising HDI is contingent on complementary measures that ensure equitable and efficient resource allocation. Without supportive policies—such as financial literacy programs, consumer protection frameworks, and targeted outreach to marginalized groups—the developmental benefits of financial inclusion may not be fully realized.

4.2.6 Bank Size on HDI through Financial Inclusion

The findings of this study support the sixth hypothesis, demonstrating that financial inclusion mediates the relationship between Islamic bank size and the Human Development Index (HDI). This suggests that larger Islamic banks—characterized by stronger financial capacity and wider operational reach—are more capable of expanding access to financial services, which in turn enhances human development outcomes. Global and regional evidence shows that areas with higher levels of financial inclusion tend to experience greater improvements in education, health, and overall welfare (Abdelghaffar et al., 2023).

Within the Islamic banking framework, institutions with larger asset bases are better positioned to broaden their branch networks, invest in digital financial services, and widen the portfolio of Shariah-compliant financing instruments. These approaches ensure more equitable access to financial resources, enabling households and small businesses to invest in human capital, productive activities, and improved living standards. This transmission mechanism aligns with financial intermediation theory, which posits that larger financial institutions possess greater capabilities to reduce information asymmetry, lower transaction costs, and broaden financing access (Allen & Santomero, 1997). However, the welfare gains from such intermediary functions materialize only when financial access is expanded inclusively and reaches underserved populations.

These findings are consistent with prior research highlighting that financial inclusion serves as a critical conduit linking financial sector development to improvements in human capital and social welfare (Malak & Arshad, 2024; Wiysonge et al., 2017). Accordingly, larger Islamic banks are strategically positioned to contribute more substantially to sustainable development by integrating profitability with inclusive financing strategies. The results therefore underscore the importance of expanding Islamic banking operations while ensuring that the additional financial resources are allocated to sectors that directly foster human development.

4.2.7 Total Financing and HDI through Financial Inclusion

The results confirm that financial inclusion mediates the relationship between total financing and the Human Development Index (HDI), thereby supporting the seventh hypothesis. This finding is consistent with earlier studies (Alam & Ullah, 2022; Beck et al., 2013), which emphasize that the developmental impact of financing is significantly strengthened when delivered through inclusive financial systems. Financial inclusion broadens access to credit, savings, and investment opportunities, ensuring that financing reaches marginalized and liquidity-constrained groups. This expansion of access enables financing to translate into concrete improvements across the three core HDI dimensions—income, education, and health. Consequently, total financing contributes more effectively to human development when supported by inclusive mechanisms that enhance the equity and efficiency of resource allocation.

From a theoretical standpoint, financing promotes development when financial intermediaries allocate resources efficiently to groups facing liquidity shortages or informational barriers (Allen & Santomero, 1997). Financial inclusion operationalizes this principle by ensuring that credit and savings facilities become accessible to populations historically excluded from formal financial systems. This mechanism also aligns with the maqāṣid al-sharī'ah, particularly the objectives of empowering vulnerable groups and promoting fair economic participation. However, the effectiveness of this mediating mechanism may be hindered by limited financial literacy, which restricts the optimal use of financial services. Dupas and Robinson (2013) highlight that even when financial access improves, welfare gains remain limited if individuals lack the knowledge required to utilize financial products effectively. This underscores the importance of complementary strategies—particularly financial education programs—so that financing not only reaches underserved communities but also enhances long-term welfare and human development.

4.2.8 Third-Party Funds on HDI through Financial Inclusion

The results indicate that financial inclusion mediates the relationship between Third-Party Funds (TPF) and the Human Development Index (HDI), thereby supporting the eighth hypothesis and corroborating previous studies (Kaban & Pohan, 2023; Ninglasari et al., 2023; Puspitaningrum, 2021a; Salsabila & Sekaringsih, 2023; Zainuri et al., 2023). These findings highlight the pivotal role of financial inclusion in transforming the mobilization of TPF into tangible improvements in human development. While TPF reflects the resource strength and public trust in Islamic banks, its developmental impact materializes only when these resources are allocated through inclusive financial mechanisms that broaden access for underserved and marginalized populations.

The expansion of TPF enhances the capacity of Islamic banks to extend their outreach—such as through branch expansion, ATM deployment, digital banking adoption, and the provision of microfinance products—which directly support educational access, healthcare utilization, and entrepreneurial development (Ninglasari et al., 2023; Zulfa Sari & Falianty, 2021). In this way, financial inclusion serves as the conduit that converts resource mobilization into equitable and productive allocation, ensuring that mobilized funds reach communities that traditionally face barriers to formal finance. This mediating mechanism is consistent with the financial intermediation theory, which posits that deposit mobilisation strengthens a bank's ability to undertake value-creating activities (Scholtens & Wensveen, 2003). However, such benefits only emerge when intermediation processes are inclusive—meaning that mobilized resources are distributed in ways that broaden financial access rather than remaining concentrated within specific or more advantaged market segments.

From a *maqāṣid al-sharīʿah* perspective, this inclusive allocation supports ḥifẓ al-māl by ensuring fair distribution and protection of wealth, and ḥifẓ al-nafs by improving welfare, living standards, and access to essential services. The significant mediation effect found in this study suggests that financial inclusion should not be considered a supplementary policy agenda but rather a core strategic function within Islamic banking. Embedding financial inclusion within intermediation practices enables Islamic banks to align resource mobilization with long-term human development objectives..

4.2.9 Financing to Deposit Ratio and HDI through Financial Inclusion

The results show that financial inclusion does not mediate the relationship between the Financing-to-Deposit Ratio (FDR) and the Human Development Index (HDI), indicating that the ninth hypothesis is not supported. In theory, a higher FDR should enhance access to financing and promote human development, as greater intermediation activity is expected to facilitate credit availability and broaden financial outreach. This finding diverges from earlier literature emphasizing the developmental role of financial inclusion—particularly in low- and middle-income countries—where broad access to financial services is strongly associated with improvements in health, education, and living standards (Abdelghaffar et al., 2023; Ghosh & Sahu, 2020; Nguyen, 2020). Evidence from financially inclusive countries such as South Korea and Japan reinforces this idea, showing that higher financial access aligns closely with stronger human development outcomes.

However, the Indonesian context presents structural constraints that likely weaken the mediating effect of financial inclusion. Unequal access to financial services across provinces limits the ability of financing activities to translate into widespread welfare gains. Moreover, excessively high FDR values may indicate that financing expansion is driven more by risk exposure than by strategic, inclusive allocation (Allen & Santomero, 1997; Scholtens & Wensveen, 2003). While high FDR signals more intensive intermediation, it may also reflect aggressive financing that is not distributed equitably across productive sectors or underserved regions. This uneven distribution can restrict the developmental benefits of financing.

In addition, elevated FDR levels increase the likelihood of non-performing financing (NPF), which can reduce banks' ability to continue extending financing to sectors tied to human development—such as healthcare, education, and MSMEs. Consequently, although

FDR demonstrates the capacity of Islamic banks to mobilize deposits and extend financing, its translation into HDI improvements depends critically on whether such financing is inclusive, regionally balanced, and directed toward sectors with strong welfare implications.

From a *maqāṣid al-sharīʿah* perspective, this outcome suggests a disconnect between intermediation practices and the objectives of ḥifẓ al-māl (protection and empowerment of wealth) and ḥifẓ al-nafs (protection of life and welfare). When financing does not reach vulnerable groups or fails to support essential services, the ethical foundations of Islamic finance—justice, inclusivity, and welfare enhancement—are not fully realized. The absence of mediation thus reflects the need for Islamic banks to adopt more inclusive, welfare-oriented financing strategies to align intermediation with the broader goals of human development.

5 Conclusion

This study investigates the relationship between Islamic banking performance, financial inclusion, and human development in Indonesia. The findings demonstrate that Islamic banking plays a meaningful role in supporting human development, although its impact depends on how effectively resources are mobilized and aligned with development-oriented priorities. Bank size, total financing, and third-party funds exert significant positive effects on the Human Development Index (HDI), reflecting the capacity of Islamic banks to channel financial resources toward education, healthcare, and income-generating activities. Financial inclusion strengthens these effects by mediating the link between banking capacity and socio-economic outcomes, ensuring that financial services reach broader segments of society.

Despite these positive outcomes, persistent disparities remain—particularly in the unequal regional distribution of financial services and the limited allocation of financing to sectors with high developmental potential. These findings underscore the importance of policy interventions that promote equitable access through digital Shariah platforms, enhance financial literacy—especially among women and low-income communities—and direct financing toward development-enhancing sectors such as MSMEs, education, and healthcare.

This study has several limitations. The use of secondary data from only three discrete periods (2016, 2019, 2022) limits the ability to capture short-term fluctuations and dynamic changes in financial inclusion and human development. The Indonesian context also constrains external validity, as the findings may not fully generalize to countries with different socio-economic or cultural characteristics. Additionally, regional heterogeneity in infrastructure, financial ecosystems, and economic conditions could not be fully accounted for. Future research should adopt longitudinal, multi-country, or mixed-method designs to better explore the evolving interactions between Islamic banking, financial inclusion, and human development. Despite these constraints, the evidence affirms that when grounded in inclusive and development-oriented strategies, Islamic banking has considerable potential to serve as a catalyst for sustainable socio-economic progress.

References

Abdelghaffar, R. A., Emam, H. A., & Samak, N. A. (2023). Financial inclusion and human development: is there a nexus? *Journal of Humanities and Applied Social Sciences*, *5*(3), 163–177. https://doi.org/10.1108/jhass-11-2021-0178

Abduh, M., & Chowdhury, N. (2012). Does Islamic banking matter for economic growth in Bangladesh. *Journal of Islamic Economics, Banking and Finance*, *8*, 104–113.

Ahmed, H. (2011). *Product Development in Islamic Banks*. Edinburgh University Press. https://doi.org/10.1515/9780748644889

Akhmat, G., Zaman, K., & Shukui, T. (2014). Impact of financial development on SAARC'S human development. *Quality and Quantity*, *48*(5), 2801–2816. https://doi.org/10.1007/s11135-013-9926-1

Akhter, W., Majeed, M. U., & Roubaud, D. (2019). Islamic banking and financial inclusion: Evidence from Asian and African markets. *Journal of Islamic Business and Management (JIBM)*, *09*(02), 341–354. https://doi.org/10.26501/jibm/2019.0902-007

Akosile, T. O. I., & Sharofiddin, A. (2021). *Expanding the Financial Inclusion Frontiers: An Assessment of the Roles of Developing Eight (D-8) Countries Financial Regulators* (pp. 1521–1535). https://doi.org/10.1007/978-3-030-69221-6_112

Alam, M. K., & Ullah, M. H. (2022). Contributions of Islamic finance in the economic development of Turkey: A review. *Journal of Nusantara Studies (JONUS)*, *7*(2), 336–357. https://doi.org/10.24200/jonus.vol7iss2pp336-357

Allen, F., & Santomero, A. M. (1997). The theory of financial intermediation. *Journal of Banking & Finance*, *21*(11), 1461–1485. https://doi.org/https://doi.org/10.1016/S0378-4266(97)00032-0

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Beck, T., Demirgüç-Kunt, A., & Merrouche, O. (2013). Islamic vs. conventional banking: Business model, efficiency and stability. *Journal of Banking and Finance*, *37*(2), 433–447. https://doi.org/10.1016/j.jbankfin.2012.09.016

Beck, T., Kunt, A. D., & Levine, R. (2004). *Finance, Inequality, and Poverty: Cross-Country Evidence* (Vol. 16, Issue 1).

Boďa, M., & Zimková, E. (2021). Overcoming the loan-to-deposit ratio by a financial intermediation measure — A perspective instrument of financial stability policy. *Journal of Policy Modeling*, *43*(5), 1051–1069. https://doi.org/10.1016/j.jpolmod.2021.03.012

Chapra, M. U. (2008). The Islamic Vision of Development in the Light of of Maqāsid Al-Sharī'ah. In *Islamic Research and Training Institute*.

Chowdhury, N. T., & Abduh, M. (2012). Islamic finance-economic growth nexus in Bangladesh: An ARDL approach. *Al-Infaq, Jurnal Ekonomi Islam*, *3*(1), 1–14.

Daly, S., & Frikha, M. (2016). Banks and economic growth in developing countries: What about Islamic banks? *Cogent Economics & Finance*, *4*(1), 1168728. https://doi.org/10.1080/23322039.2016.1168728

Damanhur, Albra, W., Syamni, G., & Habibie, M. (2018). What is the determinant of non-performing financing in branch Sharia regional bank in Indonesia. *Emerald Reach Proceedings Series*, *1*, 265–271. https://doi.org/10.1108/978-1-78756-793-1-00081

Damiyano, D., & Mago, S. (2023). An analysis of the impact of financial inclusion on poverty and development: Case of SACU countries. *International Journal of Economics and Financial Issues*, *13*(6), 141–147. https://doi.org/10.32479/ijefi.14390

Dupas, B. P., & Robinson, J. (2013). American economic association savings constraints and microenterprise development: Evidence from a field experiment in Kenya. *American Economic Journal: Applied Economics*, *5*(1), 163–192.

Faisal, S., & Sejati, H. (2023). Contribution of banking finance to the development of micro, small, and medium enterprises. *Journal Research of Social Science, Economics, and Management*, *2*(10), 2561–2570. https://doi.org/10.59141/jrssem.v2i10.483

Fitria, C. W., & Setiawan, A. (2025). Profitability of Islamic commercial banks in Indonesia: Determinants and implications. *Finansha: Journal of Sharia Financial Management*, *6*(1), 1–18. https://doi.org/10.15575/fjsfm.v6i1.40499

Ghosh, S., & Sahu, T. N. (2020). How financially inclusive the Asian's are – an empirical analysis. *Rajagiri Management Journal*, *14*(1), 49–69. https://doi.org/10.1108/ramj-01-2020-0003

Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th Editio). McGraw-Hill Inc.

Hayati, N. H. K., Sobana, D. H., & Haris, I. A. (2022). Analisis zakat PT. Bank Muamalat Indonesia: Firm size, ROA, dengan laba operasional sebagai intervening. *Finansha: Journal of Sharia Financial Management*, *3*(2), 27–42. https://doi.org/10.15575/fjsfm.v3i2.20867

Hidayat, M. (2024). The effect of economic growth and inflation on liquidity in Bank Syariah Indonesia. *Economics Studies and Banking Journal (DEMAND)*, *1*(1), 17–25. https://doi.org/10.62207/4fx1yr50

Hidayat, M. M., Suherman, U. D., & Syafri, H. (2020). Analisis tingkat kesehatan PT. Bank Rakyat Indonesia (BRI) Syariah berdasarkan metode RGEC. *Finansha: Journal of Sharia Financial Management*, *1*(1), 21–29. https://doi.org/10.15575/fsfm.v1i1.10051

Hidayat, R., Umam, R., & Tripalupi, R. I. (2021). Kinerja keuangan perbankan syariah pada masa Covid-19. *Finansha: Journal of Sharia Financial Management*, *2*(2), 77–91.

Hidayat, S., & Irwansyah, R. (2021). Islamic banking third-party funds grouping uses the data mining clustering. *Journal of Physics: Conference Series*, *1899*(1), 6–12. https://doi.org/10.1088/1742-6596/1899/1/012095

Imam, P., & Kpodar, K. (2013). Islamic banking: How has it expanded? *Emerging Markets Finance and Trade*, *49*(6), 112–137. https://doi.org/10.2753/REE1540-496X490607

Iqbal, Z., & Mirakhor, A. (2011). *An Introduction to Islamic Finance*. Wiley. https://doi.org/10.1002/9781118390474

Junaidi, J. (2024). Islamic banks' contribution to Indonesia districts' economic growth and poverty alleviation. *Journal of Economics, Finance and Administrative Science*, *29*(58), 294–308. https://doi.org/10.1108/JEFAS-06-2021-0097

Kaban, P. R. W. B., & Pohan, S. (2023). Relationship of third party funds and financing on the profitability of Islamic banks in Indonesia for the 2017-2021 period. *Muhasabatuna : Jurnal Akuntansi Syariah*, *5*(1), 021–032. https://doi.org/10.54471/muhasabatuna.v5i1.2293

Kamalu, K., & Ibrahim, W. H. B. W. (2021). Islamic banking development and financial inclusion in OIC member countries: The moderating role of institutions. *Journal of Islamic Monetary Economics and Finance*, *7*(3), 527–544. https://doi.org/10.21098/jimf.v7i3.1364

Khattak, M. A., & Khan, N. A. (2023a). Islamic finance, growth, and volatility: A fesh evidence from 82 countries. *Journal of Islamic Monetary Economics and Finance*, *9*(1), 39–56. https://doi.org/10.21098/jimf.v9I1.1625

Khattak, M. A., & Khan, N. A. (2023b). Islamic Finance, Growth, and Volatility: a Fresh Evidence From 82 Countries. *Journal of Islamic Monetary Economics and Finance*, *9*(1), 39–56. https://doi.org/10.21098/jimf.v9I1.1625

Kunt, A. D., Klapper, L., Singer, D., & Ansar, S. (2021). The Global Findex Database 2021 ：Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19. In *The Global Findex Database 2021*.

Malak, N., & Arshad, A. (2024). Impact of financial inclusion on healthcare access: evidence from developing countries. *Journal of Economic and Administrative Sciences*. https://doi.org/10.1108/JEAS-02-2024-0057

Matekenya, W., Moyo, C., & Jeke, L. (2021). Financial inclusion and human development: Evidence from Sub-Saharan Africa. *Development Southern Africa*, *38*(5), 683–700. https://doi.org/10.1080/0376835X.2020.1799760

McGillivray, M., & Noorbakhsh, F. (2004). Aid , Conflict and Human Development. *Making Peace World*.

Nasir, A., & Rismaya, E. (2024). Exploring sharia-based MSME development strategies through the utilization of major point of sale technology. *Finansha: Journal of Sharia Financial Management*, *5*(2). https://doi.org/10.15575/fjsfm.v5i2.41732

Nawaz, T. (2018). Lifting the lid on financial inclusion: Evidence from emerging economies. *International Journal of Financial Studies*, *6*(2), 59. https://doi.org/10.3390/ijfs6020059

Nguyen, T. T. H. (2020). Measuring financial inclusion: a composite FI index for the developing countries. *Journal of Economics and Development*, *23*(1), 77–99. https://doi.org/10.1108/JED-03-2020-0027

Ninglasari, S. Y., Sulaeman, S., Supriani, I., & Himmawan, M. F. (2023). Nexus between financial inclusion and Islamic financing distribution: Evidence from Indonesian MSMEs. *Jurnal Ekonomi & Keuangan Islam*, *9*(2), 167–184. https://doi.org/10.20885/jeki.vol9.iss2.art2

Novreska, S., & Arundina, T. (2024). The role of Islamic financial inclusion in poverty, income inequality, and human development in Indonesia. *Journal of Islamic Monetary Economics and Finance*, *10*(1), 135–154. https://doi.org/10.21098/jimf.v10i1.1973

Nurdany, A. (2016). Pengaruh pembiayaan, aset, dan FDR perbankan syariah terhadap kesejahteraan masyarakat di Indonesia. *Jurnal Ekonomi & Keuangan Islam*, *2*(2), 1–9. https://doi.org/10.20885/jeki.vol2.iss2.art1

Omar, M. A., & Inaba, K. (2020). Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis. *Journal of Economic Structures*, *9*(1), 37. https://doi.org/10.1186/s40008-020-00214-4

Osborne, J. W., & Overbay, A. (2004). The power of outliers (and why researchers should ALWAYS check for them). *Practical Assessment, Research and Evaluation*, *9*(6).

Park, C.-Y., & Mercado, R. J. (2015). Financial inclusion, poverty, and income inequality in developing Asia. *SSRN Electronic Journal*, *426*. https://doi.org/10.2139/ssrn.2558936

Puspitaningrum, R. (2021a). Empirical evidence of the impact of Islamic financial inclusion on human welfare of maqashid sharia perspective in Indonesia. *Review of Islamic Economics and Finance*, *4*(1), 39–50. https://doi.org/10.17509/rief.v4i1.35601

Puspitaningrum, R. (2021b). Empirical Evidence of the Impact of Islamic Financial Inclusion on Human Welfare of Maqashid Sharia Perspective in Indonesia. *Review of Islamic Economics and Finance*, *4*(1), 39–50. https://doi.org/10.17509/rief.v4i1.35601

Sakinah, G., Kasri, R. A., & Nurkholis, N. (2022). Islamic finance and Indonesia's economy: An empirical analysis. *Jurnal Ekonomi & Keuangan Islam*, 47–59. https://doi.org/10.20885/jeki.vol8.iss1.art4

Salsabila, H., & Sekaringsih, R. B. (2023). The effect of Islamic bank financing on the Human Development Index: A case study of 15 cities on Java Island. *Bulletin of Islamic Economics*, *1*(2), 1–10. https://doi.org/10.14421/bie.2022.012-01

Sarma, M. (2008). Index of Financial Inclusion:Indian Council for Research on International Economic Relations. In *Indian Council for Research on International Economic Relations* (Issue 215).

Sattar, A., Hassan, A., Hussain, M. N., Sakhi, U., & Elahi, A. R. (2022). Impact of foreign direct investment on socio-economic development in belt and road countries. *Cogent Economics and Finance*, *10*(1). https://doi.org/10.1080/23322039.2022.2143772

Scholtens, B., & Wensveen, D. Van. (2003). *The Theory of Financial Intermediation: An Essay On What It Does (Not) Explain*. SUERF-The European Money and Finance Forum.

Sehrawat, M., & Giri, A. K. (2014). The relationship between financial development indicators and human development in India. *International Journal of Social Economics*, *41*(12), 1194–1208. https://doi.org/10.1108/IJSE-11-2013-0268

Sofilda, E., Zilal Hamzah, M., & Mulianta Ginting, A. (2022). Analysis of determining the financial inclusion index of composite, conventional and sharia banking in Indonesia. *Banks and Bank Systems*, *17*(1), 38–48. https://doi.org/10.21511/bbs.17(1).2022.04

Stage, F. K., Carter, H. C., & Nora, A. (2004). Path analysis: An introduction and analysis of a decade of research. *Journal of Educational Research*, *98*(1), 5–13. https://doi.org/10.3200/JOER.98.1.5-13

Talalweh, M. A., & Samarah, W. A. (2021). The effect of financial inclusion on economic growth and human development: A case study of the Islamic world. *TANMIYAT AL-RAFIDAIN*, *40*(129), 185–202. https://doi.org/10.33899/tanra.2021.167800

Vuong, G. T. H., Phan, P. T. T., Nguyen, C. X., Nguyen, D. M., & Duong, K. D. (2023). Liquidity creation and bank risk-taking: Evidence from a transition market. *Heliyon*, *9*(9), e19141. https://doi.org/10.1016/j.heliyon.2023.e19141

Wahyuni, M., & Azmi, F. (2019). *The Effect of Macroeconomic Variables on Non Performing Financing in Shariah Commercial Banks*. *1*(1), 250–257. https://doi.org/10.5220/0008439002500257

Widiastuti, T., Ningsih, S., Prasetyo, A., Mawardi, I., Herianingrum, S., Robani, A., Al Mustofa, M. U., & Hady, A. F. (2022). Developing an integrated model of Islamic social finance: toward an effective governance framework. *Heliyon*, *8*(9), e10383. https://doi.org/10.1016/j.heliyon.2022.e10383

Wiysonge, C. S., Paulsen, E., Lewin, S., Ciapponi, A., Herrera, C. A., Opiyo, N., Pantoja, T., Rada, G., & Oxman, A. D. (2017). Financial arrangements for health systems in low-income countries: an overview of systematic reviews. *Cochrane Database of Systematic Reviews*, *2017*(9). https://doi.org/10.1002/14651858.CD011084.pub2

Zainuri, Z., Mahardiyanto, A., Saleh, M., Arthasari, T., & Adeel, N. (2023). Nexus of financial inclusion and human development as an important role in economic growth: Evidence from ASEAN countries. *International Journal of Islamic Business and Economics (IJIBEC)*, *7*(1), 37–48. https://doi.org/10.28918/ijibec.v7i1.6921

Zulfa Sari, I., & Falianty, T. A. (2021). Financial inclusion and income inequality: Does financial structure matter? *Jurnal Ekonomi Dan Kebijakan Pembangunan*, *10*(1), 72–100. https://doi.org/10.29244/jekp.10.1.2021.72-100