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Islamic banks' contribution to Indonesia districts' economic growth and poverty alleviation

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Abstract

Purpose – This research investigates the Islamic banks' intermediation role (e.g. branches and deposits) in financing. It also examines how financing contributes to the regions' economic growth and poverty alleviation as a predictor and mediator variable.

Design/methodology/approach – A total of 297 observations were extracted from 33 Indonesian districts and 14 Islamic banks during the period 2012–2020. Fixed-effect regression analysis was used to examine variable's interactions.

Findings – The empirical results indicate that Islamic banks have adopted a channelling role towards redistributing capital from lender to borrower. Besides, there are crucial roles in developing economies and reducing poverty at the district level. This study also reinforces the critical role of financing in mediating the relationship between branches and deposits as predictor variables and GDP and poverty as outcome variables.

Research limitations/implications – The current study was limited to Indonesian Islamic banks and the district's perspective. Future research needs to cover sub-districts and other poverty measurements (e.g. human education and development perspectives), including conventional and Islamic banks. It can help practitioners, regulators and researchers observe the dynamic behaviour of the banking sector to understand its role in the economic and social fields.

Practical implications – Bank managers and regulators should promote branches, deposits and financing. It also enlightens people about the essential role of Islamic banks and their fundamental operations in business and economics.

Originality/value – This study contributes to economic literature, bank managers and local governments' decision-making processes by developing and testing an economic growth and poverty model.

Keywords Islamic bank branches, Deposits, Financing, Economic growth, Poverty reduction

Paper type Research paper

1. Introduction

Some regions, such as GCC countries, Malaysia, and Indonesia, have adopted a dual banking system, namely conventional and Islamic banks. Islamic, or sharia, banks are financial organisations that conduct financial and business operations in compliance with Islamic law. Islamic financial organisations use profit-loss sharing and must refrain from using prohibited items when conducting their various financial activities, such as interest. This is the main

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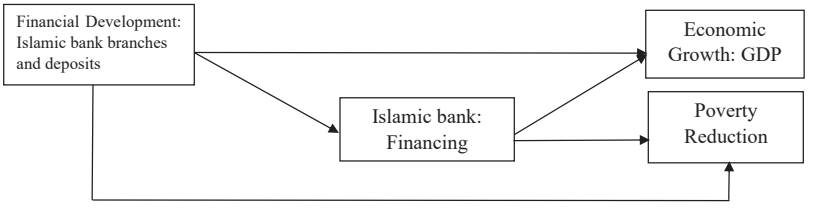
difference in the operational system between conventional and Islamic banks (Ben Salem and Ben Abdelkader, 2023; Junaidi, 2022). According to Islamic Financial Services Board (IFSB) (2020), Islamic banking assets reached $1.9bn by 2019 and have spread across the region and worldwide. It has become mainstream within the global financial system, whose main goal is social empowerment impacting the real economy, poverty reduction, and income inequality reduction (Nugraheni and Muhammad, 2023; Tamanni and Haji Besar, 2019). The existence of Islamic banking is not only to carry out financial functions through the practice of collecting and distributing funds based on sharia principles, but also has a certain socio-religious mission that focuses on improving the welfare of society (Abdul-Majeed Alaro and Alalubosa, 2019; Gani and Bahari, 2021).

The number of people whose income is around $1.9 daily is still high, at 9.2% worldwide in 2017, equalling 689 million people worldwide. Islamic banks have an intermediation role in moving capital to the productive sector and helping reduce poverty through social funds such as Zakat (Begum *et al.*, 2019; Selim and Farooq, 2020). Hence, Islamic banks may facilitate economic growth and provide capital and financing, which directly contribute to reducing the poverty rate. Fifty-seven developing countries have applied Islamic banking, where many people have a potential risk of poverty, hunger, and income inequality (World Bank, 2020). With this in mind, Indonesia still has a low gross domestic product (GDP), and 10% of its 270 million people are categorised as living in poverty (Figure 1). One of the solutions to combat this social problem is to transfer capital from lenders to borrowers through financing or soft loans (Anwar *et al.*, 2020; Verma *et al.*, 2023). Therefore, financial development, economic growth, and enhancing society's well-being are significant challenges for government and bank managers.

Islamic bank investments positively affected economic growth and enhanced the volume of exports in 83 countries during 1996–2016 (Dewi *et al.*, 2018; Hayat and Tahir, 2021), G-20 countries during 1970–2016 (Pradhan *et al.*, 2019, 2020), and BRIC countries (Guru and Yadav, 2019). Ullah *et al.* (2021) concluded that Islamic banks positively affect economic growth in the long run and negatively in the short run in Pakistan. Furthermore, Islamic bank development (e.g. branches and deposits) has a crucial role in facilitating financing and enhancing economic growth in Indonesia (Fianto *et al.*, 2018; Anwar *et al.*, 2020). Islamic banks also have an essential role in reducing poverty (Abdul-Majeed Alaro and Alalubosa, 2019; Bolarinwa *et al.*, 2021; Donou-Adonsou and Sylwester, 2016; Kheir, 2018). In contrast, Islamic bank development has not correlated with economic growth in 16 Islamic regions during the period 1994–2014 (Mensi *et al.*, 2020). However, the empirical research addressing the nexus between economic growth and poverty alleviation in the context of Indonesia and developing countries is scanty and focuses on examining the correlation between financial development and economic growth in developed countries rather than poverty reduction and income inequality in developing regions at different demography and district levels (Bolarinwa *et al.*, 2021; Breunig and Majeed, 2020; Dey and Tareque, 2020; Iqbal *et al.*, 2020; Khan *et al.*, 2022). Furthermore, prior studies have avoided



Source(s): Authors' elaboration

Figure 1.
Research framework

validating the mediating role of financial development in an economic context (Heo *et al.*, 2021; Rewilak, 2017).

This study aims to validate the role of financial development (Islamic banks) in economic growth and poverty alleviation in Indonesia and investigate the dynamic association between these variables. In their studies, Donou-Adonsou and Sylwester (2016), Gani and Bahari (2021), and Ullah *et al.* (2021) recommended investigating the effect of financial development. Hence, this study offers the following research questions:

RQ1. Does financial development have a positive intermediation role?

RQ2. Do the branches and deposits correlate with the poverty rate?

RQ3. Does the financing have a positive effect on enhancing GDP and reducing poverty?

This study provides some theoretical and practical contributions. First, this research mediates the relationship between Islamic banks' intermediations, financial development, GDP, and poverty reduction. Second, this result uncovers Islamic banks' crucial roles in economic growth and poverty-level-specific districts in developing countries based on the number of bank branches and deposits. Third, the Islamic banks' study context has significant practical implications for enhancing the quantity and quality of products and services. It makes investors and banks willing to offer Islamic banking products and services more focused on working in productive sectors. Finally, the study provides more insights into the existing local governments and Islamic banking in current practice.

2. Literature review

2.1 Financial development and economic growth

The financial institution has three primary functions: efficiency, level, and composition of financial development. Some studies examined the effect of financial development on economic growth after the emergence of the endogenous growth theory, which has five components: Financial development possibly makes resources (e.g. capital and skills) more productive, extends portfolios and liquidity, facilitates financial intermediation, and fosters the specialisation of innovation and talent to adopt current technologies (Verma *et al.*, 2023; Pradhan *et al.*, 2019). The connection between financial development and economic growth has been heavily validated in development economics towards financing and capital moving from inefficient to efficient sectors. Aryati *et al.* (2023) applied JJ and VECM approaches in some Islamic countries and found that Islamic bank deposits, financing, and branches positively affect economic growth. Similarly, Ullah *et al.* (2021) found the same result in Pakistan and Malaysia (Gani and Bahari, 2021).

Anwar *et al.* (2020) applied a more comprehensive method (e.g. co-integration analysis, autoregressive distributed lag (ARDL), vector error correction model (VECM), variance decompositions (VDCs), and impulse response functions (IRFs) of Islamic bank deposits, financing, and branches to economic growth during the period 2009–2019 and found that the Islamic bank significantly affects Indonesian economic growth (GDP) in the long run and less in the short run. Zarrouk *et al.* (2017) found that in the United Arab Emirates (UAE) during the period 1990–2012, Islamic bank development had bi-directional economic growth. It means that there was a causal relationship between Islamic bank development and GDP. Other scholars found the same pattern in the GCC (Ledhem and Mekidiche, 2020) and Bangladesh (Chowdhury *et al.*, 2018). In Indonesia and Malaysia, the governments' priority financial development goal is to realise economic well-being through poverty reduction, income redistribution, and overall financial stability (Mensi *et al.*, 2020; Pradhan *et al.*, 2020; Zulkhibri, 2018).

2.2 Financial sector development and poverty reduction

There are two channels for financial sector development for poverty reduction in some regions, including African countries (Beck *et al.*, 2007; Bolarinwa *et al.*, 2021; Kheir, 2018). One works indirectly through growth. Another works directly with the poor, who benefit from accessing financial services. Financial development could help reduce income inequality and poverty by facilitating financial services and investing in productive activities through a growth-stimulating effect (Bernini and Brighi, 2017; Junaidi, 2022). Kheir (2018) applied autoregressive distributed lag (ARDL) and concluded that financial development and financing had a solid correlation with reducing Egypt's poverty during the period 1980–2015. Islamic banks have an essential role in Bangladesh's poverty reduction (Abdul-Majeed Alaro and Alalubosa, 2019). Breunig and Majeed (2020) revealed that economic growth has a strong correlation with poverty rates in some regions. Islamic bank financing is also positively influencing poverty alleviation in Bangladesh's 544 sub-districts (Iqbal *et al.*, 2020). Meanwhile, financial development also has a significant effect on poverty alleviation in 71 developing countries (Donou-Adonsou and Sylwester, 2016; Rewilak, 2017).

3. Data and methodology

3.1 Data

The primary data sources are Bank Scope and the district economic databases provided by the Central Bureau of Statistics (BPS) and the Indonesian Financial Services Authority (OJK). The data were extracted from the consolidated annual report of 14 Islamic banks and 33 Indonesian districts during the period 2012–2020. Panel data are used due to several advantages such as greater degrees of freedom, lower collinearity levels, and improved efficiency of estimates. Also, panel data help overcome the inherent multicollinearity between the independent variables.

The indicators are run separately for each endogenous variable. Thus, some extra classifications are also considered. The Islamic bank financing levels correlate with GDP and income, as captured by the geographical coverage of bank branches and deposits. This specification makes it possible to specify the circumstances in which financial development affects economic growth and poverty reduction. Although this specification consumes data, it aims at assessing whether districts with high initial GDP and financing are likely to reduce poverty faster than districts with low levels of GDP and funding.

3.2 Methodology

This study applied panel data and the poverty level measured by the people per capita income and indicator, where the poverty indicator is less than $1 a day based on the 2012 purchasing power parity (PPP) exchange rate (World Bank, 2020). Furthermore, the database also provides information on poverty indicators, the poverty gap, and the impact of financial development on poverty reduction. This will strengthen the analysis of the variables examined. This study also validated the role of GDP in reducing the poverty rate. Financial development is measured by two indicators: the GDP ratio to liquid assets and the GDP ratio to the value of credits granted by financial intermediaries. These indicators capture different aspects of financial development.

Firstly, representing the ability of financial systems of banks to provide transaction services and saving opportunities is relevant for testing the McKinnon's conduit effect. Secondly, excluding credit to the private and public sectors makes measuring the role of financial intermediaries more accurate in channelling funds to productive agents and possibly the poor (Beck *et al.*, 2007). Therefore, excluding bank credit from the public sector may lead to a downward bias in the effect of financial development on the poor. To address this issue, the ratio of domestic credit to GDP is used by the banking sector as an alternative indicator that has

a crucial role for the poor. It is helpful to summarise the channels through which, theoretically, financial development is likely to affect the well-being of the poor and derive the equation from them. Moreover, Islamic banking development may have a crucial role in improving GDP and poverty alleviation. Therefore, this study adopted the potential Islamic bank factors as predictor variables to avoid bias. Thus, the general model has to be estimated within the framework of endogenous growth. Figure 1 illustrates those interactions.

This method assumes that the previous bank operation may influence the Indonesian districts' current economic growth and poverty rate. Therefore, the model for this study is specified below:

$$GDP_{i,t} = \alpha_0 + \alpha_1 * IBO_{i,T} + \alpha_2 * Dep_{i,T} + \mu_i + \varepsilon_{it} \quad (1)$$

$$Fin_{i,t} = \alpha_0 + \alpha_1 * IBO_{i,T} + \alpha_2 * Dep_{i,T} + \mu_i + \varepsilon_{it} \quad (2)$$

$$GDP_{i,t} = \alpha_0 + \alpha_1 * Fin_{i,T} + \mu_i + \varepsilon_{it} \quad (3)$$

$$Pov_{i,t} = \alpha_0 + \alpha_1 * Fin_{i,T} + \mu_i + \varepsilon_{it} \quad (4)$$

$$Pov_{i,t} = \alpha_0 + \alpha_1 * IBO_{i,T} + \alpha_2 * Dep_{i,T} + \mu_i + \varepsilon_{it} \quad (5)$$

This study uses two dependent variables: gross domestic product (GDP) and poverty rate in Indonesia, according to the Indonesian Statistics Agency (BPS), where i represents the Indonesian districts, t the year of poverty and Indonesian district GDP (economic growth), and T the measurement period of the other variables (average over five non-overlapping years—the year of the dependent variables [e.g. GDP and poverty] measurement and the four previous years). Three sets of Islamic banking variables are used in this study: IBO is an Islamic bank branch; Dep represents the consumers' deposits in an Islamic bank; Fin is the amount of Islamic bank financing to a third party, commonly in the investment and consumption sectors; μ is an unobserved district-specific effect, and ε is the error term.

Hayes's (2018) regression approach was applied to examine whether Islamic bank financing mediates the relationship between predictor variables (e.g. the number of bank branches and deposits) and outcome variables economic growth (GDP) and poverty rate. Weqar *et al.* (2021) revealed that financial performance plays an important role in mediating relationships between corporate social responsibility, financial performance, and investor decision-making in Egypt, ASEAN countries, and India. Investment efficiency also plays an important role in mediating the relationship between business sustainability and financial performance. It means that Hayes's mediating approach is valuable in a financial context (Heo *et al.*, 2021).

4. Results

4.1 Descriptive statistics

Table 1 shows that Islamic bank branches, deposits, and financing have minimum values of 1.00%, 4.45%, and 4.38% and maximum values of 41.60%, 12.20%, and 11.93%,

Variables	Mean	St. Dev.	Min	Max	Skewness	Kurtosis
Deposits	7.61	1.64	4.45	12.20	0.44	2.74
Financing	7.65	1.62	4.38	11.93	0.17	2.62
Branches	73.79	94.67	1.00	41.60	1.95	5.94
GDP	10.37	0.59	9.21	12.28	1.34	5.25
Poverty	4.83	1.30	2.11	7.91	1.33	5.25

Table 1.
Descriptive statistics

Source(s): Authors' computation

respectively. This implies a positively skewed and kurtosis-like distribution of bank financial development for the period considered (Wooldridge, 2020). Although the value of economic growth is positive, the poverty value ranges from a minimum of 2.11 to a maximum of 7.91, and the number of people who live on low-level income is still high. This value indicates the lesser role of Indonesia's Islamic banks (IIB) in economic growth and poverty reduction. This is confirmed by Table 2, which shows that GDP and poverty are associated with the other independent variables, including Islamic bank branches, the number of deposits, and financing. This implies that the Islamic bank's intermediation role may offer high responsiveness, and the intention and amount of financing have a positive correlation with the district's GDP and people's income. On the other hand, there is also a positive correlation between Islamic bank branches and deposits, which is positively associated with GDP, poverty, and financing. Commonly, the correlation coefficients between the independent variables are low. According to Mills (2019) and Pesaran (2015), a high correlation exists when the correlation coefficient exceeds 0.80. Hence, this means the absence of data from the multicollinearity issue.

4.2 Ordinary least squares analysis

Firstly, regressions using OLS estimation were used to examine the relationship between banking variables, GDP, and poverty. Secondly, fixed effect reversals took into account district-specific effects and addressed heterogeneity, measurement errors, and omitted variables. Thirdly, cross-sectional analysis was applied to exploit variations in branches, deposits, and financing for GDP and poverty levels across the Indonesian districts. This is motivated by two considerations to mitigate selection bias. First, all the Islamic banks have at least one branch for each district, which homogenises the observed variables. Second, within Islamic bank branches and deposits, there is less variation in economic growth and income, and thus, the profit motive of branch development is weaker in the district sample. Aggarwal *et al.* (2011), Bolarinwa *et al.* (2021), Iqbal *et al.* (2020), and Khan *et al.* (2022) use cross-district and sub-district data to show that remittances promote financial inclusion and reduce poverty. It avoids the bias of sample instruments. Therefore, this procedure aims to select the best panel empirical model. As is widely known, there are three approaches to panel data analysis: common, fixed-effects, and the random-effects model. However, it needs a precondition test before choosing the best model. To conclude, the choice of the best empirical model using panel data should be made after several steps of testing.

4.3 Panel regression

An analysis using panel data begins with the testing process of model selection amongst three models of common, fixed, and random effects. The fixed-effect model assumes that the constant term's differences can capture unobservable factors across units and observation periods. Hence, in fixed effects, the estimated model has different intercepts due to other observations and periods. The random-effect models have additional assumptions. Also, the

Variables	Branches	Deposits	Financing	GDP	Poverty
Branches	1.000				
Deposits	0.740	1.000			
Financing	0.716	0.768	1.000		
GDP	0.236	0.437	0.402	1.000	
Poverty	0.703	0.787	0.811	0.750	1.000

Source(s): Authors' own elaboration

Table 2.
Correlation matrix

random, unobserved impact is uncorrelated with the explanatory variables. This factor affects the intercepts through residuals as well as random effects. A random-effects model is widely preferred because it covers the data characteristics based on cross-unit and period through the random effects of its error. In this model, the estimation results do not lose degrees of freedom, as in common and fixed effects. Model selection amongst these three approaches will be conducted using the F test and the Hausman test. The F test is used to choose a better model between common and fixed effects based on the Hausman criterion. It is widely accepted to compare the fixed and random results to test this assumption (Pesaran, 2015; Wooldridge, 2020).

This study estimates three empirical models (see Table 3). The estimation results confirm that all independent variables are individually significant for the three empirical models. The models also result in high F statistics and coefficients of determination, which indicate a proper estimation method. Based on F and chi-square statistics, it can be concluded that the fixed-effects model is better than the common model (Pesaran, 2015; Wooldridge, 2020). The next step is to assess whether the panel data model follows fixed-effects or random-effects model. The result of the Hausman test based on the chi-square test shows that the corresponding effect is statistically significant. The test concludes that the fixed-effects model is an appropriate model for this analysis. The random-effects model often requires extensive data. With a limited number of data points, it eliminates a large portion of the total variation. Finally, the effects of Islamic bank branches, deposits, and financing on GDP and poverty are determined based on a fixed-effects model.

4.4 Fixed effects analysis

Variables control development in a district in Eq. (1), Eq. (2), Eq. (3), Eq. (4), and Eq. (5). However, using panel data there are time-invariant omitted variables in the error term (μ) that influence both the dependent variables (e.g. GDP and poverty) and the interest (Islamic banking role). Banking services, GDP, and poverty are strongly correlated with of unobserved omitted variables. Fixed effect analysis can mitigate the omitted variable bias.

GDP and poverty are sluggish variables that take time to change, and, as a result, the effect of financial development and intermediating banking roles is appropriately studied over time. The empirical results of fixed effects are presented in Table 4. This analysis also involves five models with two dependent variables (e.g. GDP and poverty) and three independent variables: the number of Islamic bank branches, deposits, and financing. The data of variables refers to a population for annual data in each district. The first and second models show the positive effect of the number of branches and deposits on the Indonesian

Variables	Common-effects model		Fixed-effects model		Random-effects model	
	Coefficient	*t*-statistic	Coefficient	*t*-statistic	Coefficient	*t*-statistic
Constant	−5.561	−0.241	314.90	16.984***	283.46	8.147
Branches	6.304	29.300***	0.102	0.892	0.642	5.931***
Financing	0.006	0.724	−0.008	−5.490***	−0.006	−4.369***
Deposits	−0.011	−1.985**	0.005	5.301***	0.004	4.563***
GDP	−0.002	−4.969***	0.000	0.377	−0.001	−0.510
R^2	0.823		0.996		0.078	
F-statistic	346.94		1878.37		7.303	
Chou test			1157.05***			
Hausman test					251.21***	

Note(s): Significant at *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$
Source(s): Authors' computation

Table 3.
Estimates results model

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Branches	−0.001 (7.40)***	0.001 (1.700)***			−0.001 (−1.301)
LnDeposit	0.190 (17.91)***	0.745 (24.36)***			0.093 (5.303)***
LnFinancing			2.001 (10.45)***	0.085 (4.530)***	
R^2	0.988	0.987	0.965	0.993	0.993
F-statistic	628.58	581.21	581.21	1145.07	1138.49

Note(s): Significant at *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$
Model 1: Islamic bank branches and deposits to GDP
Model 2: Islamic bank branches and deposits to Financing
Model 3: Islamic bank financing to GDP
Model 4: Islamic bank financing to reduce poverty
Model 5: Islamic bank branches and deposits to reduce poverty
Source(s): Authors' own elaboration

Table 4.
Panel regression results

communities' economic growth (e.g. GDP) and financing. These imply that Islamic banks effectively transfer resources to enhance Indonesian district income and have pro-actively invested in the productive sector, which directly affects poverty alleviation. Subsequently, in model 3, Islamic bank financing has a crucial effect on Indonesian districts' GDP. It also indicates that Islamic bank financing effectively enhances people's income (model 4). Surprisingly, Islamic bank deposits have a greater correlation with poverty than the number of branches in the Indonesian district. This result indicates that the ratio of people who have a chance to access bank products is still limited. Therefore, the stakeholders must facilitate people's access to financial products (model 5).

4.5 Cross-sectional effect

As a final point, concerning enhancing people's income and poverty elimination, this empirical model's financial development and fiscal capacity indicators can explain GDP and poverty rate determinants in Indonesian districts. The empirical estimation using the fixed-effect model exhibits the various effects of its intercept due to cross-section and time period. Table 5 presents empirical estimates that contain heterogeneity effects due to cross-section units. Based on these estimates, Islamic bank development (e.g. branches and deposits) has less significance to Indonesian districts' GDP than their contribution to financing and poverty alleviation. Meanwhile, Islamic bank financing has a significant role in poverty reduction in Indonesian districts. It proves that the real economy, as an Islamic bank's productivity basis, has been crucial to fighting poverty. However, as shown in Table 5, the greatest Islamic bank's critical role has concentrated on Java Island (the big island and central economy) rather than in fewer regions (e.g. Sumatera, Borneo, Sulawesi, and East Indonesia). This implies that the government needs more focus on developing financial development in districts with less population, but abundant natural resources. This sector sustains the Indonesian economy in the short and long term and possibly equalises local government and people's income.

4.6 Mediating effect analysis

This study analyses the role of financing in mediating the relationship between the number of Islamic bank branches and deposits as predictor variables and outcome variables, namely GDP and poverty. As shown in Table 6, there is a partial mediation effect between the number of branches and deposits on economic growth through financing. Furthermore, financing has a full mediating relationship between the number of branches and deposits. This means that the Islamic branches and deposits have a crucial role in GDP and poverty alleviation.

No.	Districts	Model 1	Model 2	Model 3	Model 4	Model 5
Java Island						
1	Jawa Barat	−0.18	0.27	3.01	2.78	2.89
2	Banten	−0.23	0.15	1.31	1.03	1.03
3	Jakarta	1.13	0.52	0.80	0.80	0.86
4	Yogyakarta	−0.46	−0.16	1.04	0.86	0.82
5	Jawa Tengah Central Java	−0.38	0.31	2.47	2.50	2.54
6	Jawa Timur	−0.01	0.26	2.12	2.31	2.38
Sumatera Island						
7	Bengkulu	−0.32	0.01	0.07	−0.18	−0.18
8	Jambi	0.16	0.46	−0.20	−0.10	−0.07
9	Nanggroe Aceh Darussalam	−0.49	0.07	1.92	0.15	0.15
10	Sumatera Utara	−0.19	0.26	1.45	1.57	1.57
11	Sumatera Barat	−0.26	0.23	0.90	−0.01	−0.01
12	Riau	0.62	−0.20	−1.13	0.25	0.20
13	Sumatera Selatan	−0.14	0.22	0.82	1.02	1.01
14	Bangka Belitung	0.10	−0.33	−1.10	−1.64	−1.69
15	Riau Kepulauan	0.83	0.40	−1.43	−0.29	−0.28
16	Lampung	−0.29	0.16	0.71	0.56	0.56
Borneo Island						
17	Kalimantan Selatan	−0.28	0.15	0.84	−0.70	−0.72
18	Kalimantan Barat	−0.34	0.47	1.02	−0.48	−0.46
19	Kalimantan Timur	1.65	0.11	−2.89	−0.20	−0.21
20	Kalimantan Tengah	0.12	−0.03	−0.91	−0.97	−0.97
Sulawesi Island						
21	Sulawesi Tengah	0.01	0.13	−0.46	−0.46	−0.45
22	Sulawesi Selatan	−0.16	0.50	1.08	0.14	0.17
23	Sulawesi Utara	0.22	0.17	−1.30	−0.57	−0.53
24	Gorontalo	−0.16	−0.29	−1.04	−1.60	−1.60
25	Sulawesi Barat	−0.10	−0.34	−1.33	−1.30	−1.30
26	Sulawesi Tenggara	0.04	−0.05	−0.73	−0.77	−0.77
East Indonesia						
27	Nusa Tenggara Barat	−0.69	0.34	1.70	1.06	1.074
28	Bali	0.07	0.34	−0.31	−0.20	−0.18
29	Nusa Tenggara Timur	−0.62	−0.23	−0.28	0.06	0.08
30	Maluku	−0.51	−1.33	−1.28	−0.69	−0.79
31	Papua	0.37	−0.54	−2.00	−1.02	−1.08
32	Maluku Utara	−0.37	−0.80	−0.93	−2.17	−2.24
33	Papua Parat	0.88	−1.20	−3.94	−1.71	−1.80

Note(s): Model 1: Islamic bank branches and deposits to GDP
Model 2: Islamic bank branches and deposits to Financing
Model 3: Islamic bank financing to GDP
Model 4: Islamic bank financing to reduce poverty
Model 5: Islamic bank branches and deposits to reduce poverty
Source(s): Authors' own elaboration

Table 5.
Cross-section effect results

However, financing is inevitable in this context. This finding is consistent with the results found by Heo *et al.* (2021), who revealed that financing or loans have a crucial role in the intermediate relationship between lender and borrower, as well as in economic growth in India and ASEAN. GDP also plays an important role in mediating the relationship between financing and poverty. This result is opposite to Méndez-Morales and Yanes-Guerra (2021), who found that financing has less effect on the financial system.

IV	M	DV	IV- > DV (c)	IV- > M (a)	IV + M- > DV IV (c')	IV + M- > DV M(b)	Bootstrapping 95% CI Percentile method	Bootstrapping 95% CI Bias-corrected
BR	Fin	GDP	0.230***	1.368***	0.427**	0.481***	[0.772, 0.841]	[0.772, 0.429]
Standard error			0.035	0.026	0.106	0.073		
BR	Fin	Pov	1.244***	1.368***	1.344***	−0.072	[0.301, 0.230]	[0.389, 0.297]
Standard error			0.041	0.026	0.133	0.092		
Dep	Fin	GDP	0.210***	0.918***	0.553***	0.373**	[0.871, 0.320]	[0.520, 0.180]
Standard error			0.021	0.012	0.093	0.099		
Dep	Fin	Pov	0.748***	0.918***	0.003	0.812***	[0.532, 0.058]	[0.379, 0.781]
Standard error			0.033	0.012	0.141	0.150		
Fin	GDP	Pov	0.815***	0.199***	0.971***	0.786***	[0.226, 0.096]	[0.167, 0.080]
Standard error			0.033	0.023	0.031	0.069		

Note(s): BR: Branches, Fin: Financing, GDP: Gross Domestic Product, Dep: Deposit, Pov: Poverty
Significant at *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$
Source(s): Authors' own elaboration

Table 6.
Mediation effects

5. Discussion

5.1 Key findings

This research uncovers specific factors determining economic growth and the poverty rate in developing countries. It is critical and significant to confirm the correlation between GDP and income in the financial sector. Financial development (e.g. branches and deposits) has an essential role in influencing financing. This finding is consistent with the prior studies by Bernini and Brighi (2017), Fianto *et al.* (2018), Ledhem and Mekidiche (2020), Anwar *et al.* (2020), Tabash (2019), Zarrouk *et al.* (2017), and poverty reduction by Abdul-Majeed Alaro and Alalubosa (2019), Iqbal *et al.* (2020), Kheir (2018), and Rewilak (2017). Besides, this finding contrasted with the results of Iqbal *et al.* (2020) and Donou-Adonsou and Sylwester (2016), which concluded that bank development (e.g. financing) had a less significant impact on poverty reduction. The recent results suggest that Islamic banks enhance the quality of funding for the productive sector, directly correlating with people's income. Therefore, improving the intermediation of Islamic banks will enable people to access consumption and the productive sector to enhance the economy and income.

It also means that Islamic banks' financial development can statistically increase the community's level of wealth and reduce community poverty due to their intermediation role in providing financing. It means that high poverty rates in Indonesian districts positively correlate with the people's chance to access capital and financing. Theoretically, financial development and financing positively correlate with GDP and the poverty rate, so this finding is not debatable (Anwar *et al.*, 2020; Tabash, 2019). People's income is one crucial fiscal variable in the district government, reflecting local budgetary capacity. It is expected that this variable will support the welfare rate of society. Contrarily, the number of Islamic bank branches has no significant effect on reducing the poverty rate, which indicates that increasing financial development in some Indonesian parts fails to alleviate the poverty rate. As a mediator variable, financing plays an important role in supporting government programmes about poverty alleviation and economic growth.

5.2 Theoretical implications

The present study contributes to the literature in several aspects. First, this study provides insight into the specific relationship between Islamic bank development (e.g. branches and deposits) and financing, economic growth, and poverty reduction. It means that Islamic

banks have a crucial role in enhancing GDP and reducing poverty by expanding banking operations and financing. This process describes the close relationship between financial development and the quality of economic growth. The bank that has committed to its intermediation role will more likely facilitate access to capital and financing. Second, Islamic bank financing plays a mediating role in mediating the relationship between Islamic bank development (e.g. branches and deposits) and economic growth and poverty alleviation. Few studies have identified this issue in both the roles of predictor and mediator variables. Hence, this result provides a fundamental source for future studies and government decision-making on how to combat poverty and enhance peoples well-being. It describes that Islamic banks have developed high awareness and commitment to unity due to their principal activities and roles dealing with economic and social fields. Furthermore, it also proves that Islamic bank operations through Islamic law are inevitable to support sustainable development goals (SDGs) locally and globally.

5.3 Managerial implications

The findings of this study provide several managerial implications. First, the Islamic bank principle and development show a strong foundation for developing and strengthening the district. The role of financing as a mediator between Islamic bank development and economic growth, which also reduces poverty levels, indicates that people are aware and agree that Islamic banks are wealthy, and have applied Islamic conduct to continue and maintain relationships with Islamic banks. In other words, the quality of products and services from Islamic banks may strengthen customers' confidence in their awareness and attitudes towards intimate relationships with these banks. More specifically, people's interaction with Islamic banks is influenced by Muslim views and attitudes. Bank managers and regulators also need to develop communication and establish memoranda of understanding to provide regulation and supervision to make sure that the Islamic banking system is compliant with Islamic law.

5.4 Limitations and future research directions

There are some limitations to this research. First, this study was conducted in the Islamic banking field; thus, the results cannot be generalised. Future studies need to expand to cover sub-districts. More sample sizes, regions, and geographical areas are encouraged to reach a comprehensive conclusion. Second, it only considered the situational factors of financing's role in economic growth and poverty reduction in Indonesian districts. Future research should also investigate internal factors (i.e. local government, economics, and particular financial risk) and external factors (i.e. Islamic bank operation, organisational comparability, and relationships between Islamic banks and society). Finally, although this research supported the proposed framework, it was restricted to financial development, financing, GDP, the amount of poverty in Indonesian districts, and their interrelationships from prior studies. Future research should focus more on the relationship between banks (e.g. conventional and Islamic), economic growth, and poverty.

5.5 Conclusion

The result has shown that Islamic bank intermediation is reflected in fiscal transfer, which plays an essential role in increasing GDP and poverty alleviation in the Indonesian district. Furthermore, Islamic banks provide financial access to individuals or small-medium enterprises (SMEs) through capital and partnership scheme products. Moreover, Islamic banks have a positive role in enhancing GDP and fighting poverty in Indonesian districts, specifically through financing in the real sector and investment as predictor and

mediator variables. The study results suggest that Islamic banking development and financing can help combat poverty at the district level. On the other hand, Islamic banks' local branches need to emphasise moving real-sector programmes and poverty alleviation to meet their goals. In other words, financing schemes in the private sector and investment are conducted more efficiently and effectively to facilitate people's access to financial services. In short, this study also reveals that local Islamic banks need to improve the amount of financing and strengthen their frameworks for offering financing in the private and public sectors.

References

Abdul-Majeed Alaro, A. and Alalubosa, A.H. (2019), "Potential of Shari'ah-compliant microfinance in alleviating poverty in Nigeria: a lesson from Bangladesh", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 12 No. 1, pp. 115-129, doi: 10.1108/imefm-01-2017-0021.

Aggarwal, R., Demirguc-Kunt, A. and Peria, S.M. (2011), "Do remittances promote financial development?", *Journal of Development Economics*, Vol. 96 No. 2, pp. 255-264, doi: 10.1016/j.jdeveco.2010.10.005.

Anwar, M.S., Junaidi, J., Salju, S., Wicaksono, R. and Mispiyanti, M. (2020), "Islamic bank contribution to Indonesian economic growth", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 13 No. 3, pp. 1-39.

Aryati, A., Junaidi, J. and Putra, R.A. (2023), "Financial Development and Economic Growth: Evidence from Indonesia Before and After the COVID-19 Pandemic", *Economy of Regions*, Vol. 19 No. 4, pp. 1263-1274.

Beck, T., Demirgüç-Kunt, A. and Levine, R. (2007), "Finance, inequality and the poor", *Journal of Economic Growth*, Vol. 12 No. 1, pp. 27-49, doi: 10.1007/s10887-007-9010-6.

Begum, H., Alam, A.S.A.F., Mia, M.A., Bhuiyan, F. and Ghani, A.B.A. (2019), "Development of Islamic microfinance: a sustainable poverty reduction approach", *Journal of Economic and Administrative Sciences*, Vol. 35 No. 3, pp. 143-157, doi: 10.1108/jeas-01-2018-0007.

Ben Salem, A. and Ben Abdelkader, I. (2023), "Diversification and performance of microfinance institutions: does Islamic microfinance model matter?", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 16 No. 5, pp. 975-995, doi: 10.1108/imefm-01-2022-0031.

Bernini, C. and Brighi, P. (2017), "Bank branches expansion, efficiency and local economic growth", *Regional Studies*, Vol. 52 No. 10, pp. 1332-1345, doi: 10.1080/00343404.2017.1380304.

Bolarinwa, S.T., Adegboye, A.A. and Vo, X.V. (2021), "Is there a nonlinear relationship between financial development and poverty in Africa?", *Journal of Economic Studies*, Vol. 48 No. 7, pp. 1245-1266, doi: 10.1108/jes-10-2019-0486.

Breunig, R. and Majeed, O. (2020), "Inequality, poverty and economic growth", *International Economics*, Vol. 161 No. 5, pp. 83-99, doi: 10.1016/j.inteco.2019.11.005.

Chowdhury, M.A.F., Akbar, C.S. and Shoyeb, M. (2018), "Nexus between risk sharing vs non-risk sharing financing and economic growth of Bangladesh: ARDL bound testing and continuous wavelet transform (CWT) approach", *Managerial Finance*, Vol. 44 No. 6, pp. 739-758, doi: 10.1108/mf-12-2016-0371.

Dewi, S., Abd Majid, M.S., Aliasuddin, A. and Kassim, S. (2018), "Dynamics of financial development, economic growth, and poverty alleviation: the Indonesian experience", *South East European Journal of Economic and Business*, Vol. 13 No. 1, pp. 17-30, doi: 10.2478/jeb-2018-0002.

Dey, S.R. and Tareque, M. (2020), "External debt and growth: role of stable macroeconomic policies", *Journal of Economics, Finance and Administrative Science*, Vol. 25 No. 50, pp. 185-204, doi: 10.1108/jefas-05-2019-0069.

Donou-Adonsou, F. and Sylwester, K. (2016), "Financial development and poverty reduction in developing countries: new evidence from banks and microfinance institutions", *Review of Development Finance*, Vol. 6 No. 1, pp. 82-90, doi: 10.1016/j.rdf.2016.06.002.

Fianto, B.A., Gan, C., Hu, B. and Roudaki, J. (2018), "Equity financing and debt-based financing: evidence from Islamic microfinance institutions in Indonesia", *Pacific-Basin Finance Journal*, Vol. 52, pp. 163-172, doi: 10.1016/j.pacfin.2017.09.010.

Gani, I.M. and Bahari, Z. (2021), "Islamic banking's contribution to the Malaysian real economy", *ISRA International Journal of Islamic Finance*, Vol. 13 No. 1, pp. 6-25, doi: 10.1108/ijif-01-2019-0004.

Guru, B.K. and Yadav, I.S. (2019), "Financial development and economic growth: panel evidence from BRICS", *Journal of Economics, Finance and Administrative Science*, Vol. 24 No. 47, pp. 113-126, doi: 10.1108/jefas-12-2017-0125.

Hayat, A. and Tahir, M. (2021), "Foreign direct investment, natural resources and economic growth: a threshold model approach", *Journal of Economic Studies*, Vol. 48 No. 5, pp. 929-944, doi: 10.1108/jes-03-2020-0127.

Hayes, A.F. (2018), *Introduction to Mediation, Moderation and Conditional Process Analysis: A Regression-Based Approach*, 2nd ed., Guilford Press, New York, NY.

Heo, W., Rabbani, A.G. and Lee, J.M. (2021), "Mediation between financial risk tolerance and equity ownership: assessing the role of financial knowledge underconfidence", *Journal of Financial Service Marketing*, Vol. 26 No. 3, pp. 169-180, doi: 10.1057/s41264-021-00088-y.

Iqbal, K., Roy, P.K. and Alam, S. (2020), "The impact of banking services on poverty: evidence from sub-district level for Bangladesh", *Journal of Asian Economics*, Vol. 66, pp. 1-16, doi: 10.1016/j.asieco.2019.101154.

Islamic Financial Services Board (IFSB) (2020), "Islamic financial services industry stability report".

Junaidi, J. (2022), "Religiosity versus profit-loss sharing: how Islamic banks brand fidelity influence the Muslim consumers' commitment", *Journal of Islamic Accounting and Business Research*, Vol. 13 No. 6, pp. 960-976, doi: 10.1108/jiabr-07-2021-0188.

Khan, I., Khan, I., Sayal, A.U. and Khan, M.Z. (2022), "Does financial inclusion induce poverty, income inequality, and financial stability: empirical evidence from the 54 African countries?", *Journal of Economic Studies*, Vol. 49 No. 2, pp. 303-314, doi: 10.1108/jes-07-2020-0317.

Kheir, V.B. (2018), "The nexus between financial development and poverty reduction in Egypt", *Review of Economics and Political Science*, Vol. 3 No. 2, pp. 40-55, doi: 10.1108/reps-07-2018-003.

Ledhem, M.A. and Mekidiche, M. (2020), "Economic growth and financial performance of Islamic banks: a CAMELS approach", *Islamic Economic Studies*, Vol. 28 No. 1, pp. 47-62, doi: 10.1108/ies-05-2020-0016.

Méndez-Morales, E.A. and Yanes-Guerra, C.A. (2021), "Financial system specialization and private research and development expenditure: research for OECD countries", *Journal of Economics, Finance and Administrative Science*, Vol. 26 No. 51, pp. 41-60, doi: 10.1108/jefas-10-2019-0256.

Mensi, W., Hammoudeh, S., Tiwari, A.K. and Al-Yahyaee, K.H. (2020), "Impact of Islamic banking development and major macroeconomic variables on economic growth: evidence from panel smooth transition models", *Economic Systems*, Vol. 44 No. 1, pp. 519-532.

Mills, T.C. (2019), *Applied Time Series Analysis: A Practical Guide to Modeling and Forecasting*, Academic Press, London.

Nugraheni, P. and Muhammad, R. (2023), "The optimisation of Qardhul Hasan management in Islamic banking: enhancing its role in empowering the community", *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. ahead-of-print No. ahead-of-print. doi: 10.1108/jec-08-2022-0113.

Pesaran, M.H. (2015), *Time Series and Panel Data Econometrics*, Oxford University Press, Oxford.

Pradhan, R., Arvin, M.B., Bahmani, S. and Hall, J.H. (2019), "Attaining economic growth through financial development and foreign direct investment", *Journal of Economic Studies*, Vol. 46 No. 6, pp. 1201-1223, doi: 10.1108/jes-04-2018-0136.

Pradhan, R.P., Arvin, M.B., Norman, N.R. and Bahmani, S. (2020), "The dynamics of bond market development, stock market development and economic growth: evidence from the G-20 countries", *Journal of Economics, Finance and Administrative Science*, Vol. 25 No. 49, pp. 119-147, doi: 10.1108/jefas-09-2018-0087.

Rewilak, J. (2017), "The role of financial development in poverty reduction", *Review of Development Finance*, Vol. 7 No. 2, pp. 169-176, doi: 10.1016/j.rdf.2017.10.001.

Selim, M. and Farooq, M.O. (2020), "Elimination of poverty by Islamic value based cooperative model", *Journal of Islamic Accounting and Business Research*, Vol. 11 No. 5, pp. 1121-1143, doi: 10.1108/jiabr-08-2018-0125.

Tabash, M.I. (2019), "Islamic finance, investment and economic growth evidence from UAE", *International Journal of Economics and Business Research*, Vol. 16 No. 1, pp. 136-145.

Tamanni, L. and Haji Besar, M.H.A. (2019), "Profitability vs Poverty alleviation: has banking logic influences Islamic microfinance institutions?", *Asian Journal of Accounting Research*, Vol. 4 No. 2, pp. 260-279, doi: 10.1108/ajar-05-2019-0039.

Ullah, A., Zhao, X., Kamal, M.A., Riaz, A. and Zheng, B. (2021), "Exploring asymmetric relationship between Islamic banking development and economic growth in Pakistan: fresh evidence from a non-linear ARDL approach", *International Journal of Finance and Economics*, Vol. 26 No. 4, pp. 6168-6187, doi: 10.1002/ijfe.2115.

Verma, A., Dandgawhal, P.S. and Giri, A.K. (2023), "Impact of ICT diffusion and financial development on economic growth in developing countries", *Journal of Economics, Finance and Administrative Science*, Vol. 28 No. 55, pp. 27-43, doi: 10.1108/jefas-09-2021-0185.

Weqar, F., Sofi, Z.A. and Haque, S.M.I. (2021), "Nexus between intellectual capital and business performance: evidence from India", *Asian Journal of Accounting Research*, Vol. 6 No. 2, pp. 180-195, doi: 10.1108/ajar-07-2020-0064.

Wooldridge, J.M. (2020), *Introduction Econometrics: A Modern Approach*, 7th ed., Cengage Learning, Boston, MA.

World Bank (2020), available at: https://www.worldbank.org/en/topic/poverty/overview#1 (accessed 4 March 2021).

Zarrouk, H., El Ghak, T. and Abu Al Haija, E. (2017), "Financial development, Islamic finance and economic growth: evidence from the UAE", *Journal of Islamic Accounting and Business Research*, Vol. 8 No. 1, pp. 2-22, doi: 10.1108/jiabr-05-2015-0020.

Zulkhibri, M. (2018), "The impact of monetary policy on Islamic bank financing: bank-level evidence from Malaysia", *Journal of Economics, Finance and Administrative Science*, Vol. 23 No. 46, pp. 306-322, doi: 10.1108/jefas-01-2018-0011.

Further reading

de Haan, J., Pleninger, R. and Sturm, J.E. (2021), "Does financial development reduce the poverty gap?", *Social Indicators Research*, Vol. 161, pp. 1-27, doi: 10.1007/s11205-021-02705-8.

Gazdar, K., Hassan, M.K., Safa, M.F. and Grassa, R. (2019), "Oil price volatility, Islamic financial development and economic growth in Gulf cooperation council (GCC) countries", *Borsa Istanbul Review*, Vol. 19 No. 3, pp. 197-206, doi: 10.1016/j.bir.2018.07.005.

King, R.G. and Levine, R. (1993), "Finance, entrepreneurship, and growth", *Journal of Monetary Economics*, Vol. 32 No. 3, pp. 513-542, doi: 10.1016/0304-3932(93)90028-e.

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