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The impact of bank's diversity and inclusion index on profitability: evidence from Indonesia and Malaysia

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Abstract

This study aims to investigate the effects of the Diversity and Inclusion Rating (DIR) score on profitability, comparing conventional and Islamic banks. Employing the available data on DIP and ESG (Environmental, Social, and Governance) scores from the Refinitiv database, this study took a dataset of 100 firm-year observations which consists of both conventional and Islamic banks in Indonesia and Malaysia. We conducted a random-effect regression model with the inclusion of some appropriate control variables as well as year and country dummies. The findings of this study prove that there is a positive and significant association between DIR and both profitability ratios of ROA and ROE. Meanwhile, for Islamic banks, DIR is negatively related to ROA and ROE for several reasons explained in this study, including the partial misalignment of conventional Diversity & Inclusion proxy with Sharia principles.

Introduction

Islamic banks have a different principle in banking activities that must comply with Islamic teaching. Consequently, Islamic banks have more restricted activities that limit Islamic banking operations, which is against the Shariah principle such as committing to interest-based transactions and gambling activities. However, such constraints do not discourage Islamic banks from having excellent development. According to ICD-Refinitiv (2022), up to date, Islamic banks have had significant development year-by-year. The report also reveals that the asset of Islamic banks in the world was USD 1,603 billion in 2015, and in the year 2021, became USD 2,765 billion; it has 17% growth in 2021, which is projected to be USD 4,025 billion in 2026 (ICD-Refinitiv, 2022).

With the current development of Islamic banks, the question then emerges of what the determinant of Islamic banking performance is. In this regard, two general aspects determine the performance, which are financial and non-financial determinants. For the first determinant, many studies have been conducted to examine the impact of financial aspects on banking performance. Previous studies including Zarrouk et al. (2016) reveal that the driving force of Islamic banks is the same as conventional banks in terms of financial performance, such as the level of capitalization, cost-effectiveness, and asset quality. Similar results are found by Khasawneh (2016), Saif-Alyousfi & Saha (2021), Ramlan & Adnan (2016), and Trad et al. (2017), who state that financial activities directly impact banking performance reflected by either return on asset (ROA) or return on equity

(ROE). The previous studies generally have the same and clear viewpoint that, empirically, financial performance matters for Islamic banking performance.

From non-financial performance, some studies argue that diversity and inclusion play a pivotal role in determining firms' performance (Cheong & Sinnakkannu, 2014; Bax, 2023). Focusing on Islamic banking sectors, Jabari & Muhamad (2020) highlight the diversity in the board of directors (BOD) and Shariah supervisory board (SSB), particularly the issue of women's representation in the board. The finding of the study finds that Islamic banks that have more diversity in BOD and SSB tend to have a better performance compared to Islamic banks that are less diverse. Additionally, the bank size also affects the level of diversity in which larger banks tend to have more diversity, which finally results in better Islamic banking performance.

However, the previous studies on diversity and inclusion of the firm only focus on BOD, including in the case of Islamic banks conducted by Jabari & Muhamad (2020). Therefore, the questions remain existed on how diversity and inclusion in Islamic banking, not limited only to BOD, affect Islamic banking performance. The question is important because, considering the fast and significant Islamic banking development, the size of the bank becomes larger and the business activity may expand to many sectors and regions, which finally require skilled human resources. In addition, Adams & Ferreira (2009) explain that diversity and inclusion have a positive impact on firm performance because it discloses potential talents to work in the firms regardless of their background.

The study aims to examine the impact of diversity and inclusion on Islamic banking performance in Indonesia and Malaysia while also observing its effect on Islamic banks in particular. The region is selected because of the reasons. Firstly, it is one of the leading regions that have significant development of Islamic banking especially (ICD-Refinitiv, 2022). Secondly, Islamic banks in Indonesia and Malaysia have robust regulation and governance (Ibrahim & Law, 2019; Fakhrunnas et al., 2023). Thirdly, Indonesia and Malaysia are two of the countries that have the largest Muslim population (Trinugroho et al., 2021), creating larger opportunities for Islamic banks to develop.

In more detail, the study intends to answer some research questions (RQ), which are:

RQ1: What is the influence of diversity and inclusion on bank's return on asset?

RQ2: What is the influence of diversity and inclusion on bank's return on equity?

RQ3: What are the differences between Islamic and conventional banks regarding the relationship between diversity and inclusion in financial performance?

Finally, after the introduction, the arrangement of the study consists of a literature review, followed by data and samples in the methodology section. The next section then presents the result and discussion, and ends with conclusion and recommendation.

Literature Review

Resource Dependence Theory

According to Pfeffer & Salancik (1978), the key to organizational survival is the ability to acquire and maintain resources. The principle of resource dependence asserts that enterprises rely on the resources in their surrounding environments to exist. Businesses are in danger as a result of these dependencies. Businesses can cultivate links with the external bodies that govern those resources to lessen reliance and their associated uncertainties. De Souza & Gama (2020) suggest that the concepts of diversity and inclusion as two sides of the same coin. This is because diversity is about the composition of a group or environment, while inclusion refers to the dynamics of the members of that group or environment. Some studies argue that diversity and inclusion play a pivotal role in determining firm performance (Bax, 2023; Cheong & Sinnakkannu, 2014). Understanding the influence of diversity and inclusion on the firm performance has important implications for stakeholders. The resource dependency theory appreciates the strategic importance of other

stakeholders beside the immediate shareholders in guaranteeing firms' access to resources through affiliation with various constituencies (Lawal, 2012).

In previous studies, resource dependence theory has been used to explain the influence of different types of diversity and inclusion on firm performance. However, these studies only focus on BOD. The diversity of board members is believed to lend support to resource dependence theory because diversity in terms of skills, nationality, and gender brings on board varied experiences and perspectives, which altogether enhances the effectiveness of the board (Hillman et al., 2007). Diversity in board membership helps companies realize diversity of expertise in understanding and dealing with complex and uncertain external environments. (Hillman et al., 2000). For example, gender diversity improves financial performance by gaining access to a broader talent pool and expanding the variety of expertise available to the BOD, which, in turn, increases a firm's competitive advantage compared to less diversified firms (Kim & Starks, 2016). As for cultural diversity, Cox et al. (1991) state that cultural diversity in workforces brings value to organizations and ultimately improves their performance.

The Effect of Diversity & Inclusion Rating (DIR) on Return on Asset (ROA)

Studying the importance of gender and cultural diversity, social inclusion, and both personal and professional development of the employees, Suci et al. (2020) found that the added value generated by the employees of companies with headquarters in Europe (employee turnover), salary incentives, flexible work programs, employee satisfaction, gender, and cultural diversity are key factors with a significant positive impact on the financial performance of companies. Regarding gender diversity among the Sharia Supervisory Board (SSB) members, Jabari & Muhamad (2020) found that women's presence and proportion on the SSB positively affect Islamic banks' ROAA (Return on Average Assets). The results of this study provide evidence that women on the BOD bring a unique set of attitudes, perspectives, and values, which enhance Islamic banks' financial performance (Jabari & Muhamad, 2020). These empirical evidence are in line with the view of resource dependence theory indicating that diversity enhances firm financial performance. According to these findings, higher DIR corresponds to increased ROA

H₁: Diversity and inclusion positively and significantly influence profitability as measured by ROA

The Effect of Diversity & Inclusion Rating (DIR) on Return on Equity (ROE)

Return on Equity (ROE) is a financial performance measure commonly used instead of Return on Asset (ROA). ROE describes how well a company uses the equity of its shareholders to maximize their earnings. Kabir et al. (2023) examined the relationship between gender diversity and firm performance covering firms from 19 European countries from 2010 to 2020. The results show that gender diversity exerts a positive effect on the firm's performance (ROA & ROE). Research on gender diversity in Islamic banks conducted by Jabari & Muhamad (2020) found that Islamic banks with a more gender-diverse BOD are expected to have better financial performance as measured by the ROAE (Return on Average Equity). The financial performance of corporations is generally improved by gender diversity on the board, according to theoretical considerations based on the perspective of resource dependence theory. According to these findings, higher DIR corresponds to increased ROE

H₂: Diversity and inclusion positively and significantly influence profitability as measured by ROE

Research Method

Data related to diversity, inclusion, and financial performance of banks are extracted from the Refinitiv Eikon database. As Diversity and Inclusion Rating (DIR) data was just recently released by Refinitiv, this study selects a sample covering all Islamic banks in Indonesia and Malaysia with available DIR scores. It is resulted in a total of 21 banks of which 19 of them are conventional

banks and the other 2 are Islamic full-fledged banks. However, we should note that among 19 conventional banks, 11 of them provide Islamic window services. The data period for this study spans over 8 years (2015-2022). The details of the sample selection process are depicted in Table 1. The sample of this data is initially 280 firm-year observations but then filters against some missing data on financial and DIR variables. From that process, it ultimately resulted in 100 final observations. This number is statistically acceptable as suggested by Harrel (2017), for which there should be at least 10 observations per variable. Here, we only use one independent variable which is Diversity and Inclusion Rating.

Table 1. Sample selection

Sample selection process	No. of observations
All firm-year observations at the initial search	280
Less: observations with missing financial data	19
Less: observations with missing DIR data	161
Final sample	100

Subsequently, to investigate the relationship between DIR and profitability, we conducted a panel regression based on the following research equations:

$$\text{PROFIT}_{it} = \beta_0 + \beta_1 \text{DIR}_{it} + \beta_i \text{CONTROLS} + \varepsilon_{it} \quad (1)$$

Additionally, we also estimate the interaction between DIR and Shariah banks using the equation as follows:

$$\text{PROFIT}_{it} = \beta_0 + \beta_1 \text{DIR}_{it} + \beta_2 \text{wshariah} + \beta_1 \text{DIR}_{it} * \text{wshariah} + \beta_i \text{CONTROLS} + \varepsilon_{it} \quad (2)$$

where PROFIT is the dependent variable as measured by Return on Asset (ROA) and Return on Equity (ROE), while the independent variable is represented by bank's Diversity and Inclusion Rating (DIR).

We selected ROA and ROE as the dependent variable of this study because they have been used as a reliable accounting measure of firm's financial performance and are widely used by many past studies (Jabari & Muhammad, 2020; Moudud-Ul-Huq et al., 2018; Pathan, 2009). On the other hand, some other studies (Abdullah et al., 2016; Papangkorn et al., 2019) used a market-based measurement of financial performance, which does not apply to this study as only 2 listed banks out of 21 banks captured in this study. Meanwhile, for the independent variable, we employ a newly released DIR score from the Refinitiv database because it depicts a broader and more comprehensive range of factors beyond gender, such as cultural diversity, disability, motherhood status, etc. This study employs some control variables to determine the influence of each independent variable on the study's interest. Following prior literature, we selected these control variables primarily because of their likelihood of affecting banks' financial performance. First, it controls for governance-specific characteristics, such as BOD size and BOD independence (Adams & Ferreira, 2009). Meanwhile, for the second ground, this study controls for firm-specific characteristics such as slack (Orazalin, et al., 2023), capital intensity (Haque & Ntim, 2022), and leverage ratio (Chadha & Sharma, 2015). Given the two countries' data, the third group of control variables comprises country-level variables which include GDP (Boudawara, et al., 2023), inflation (Jabari & Muhamad, 2020), and country's governance quality (Orazalin, et al., 2023). Detailed measurements and definitions of all variables can be found in Table 2.

In order to analyse the static panel data regression models of our research, we conducted both fixed and random effects models, including the appropriate control variables. After that, we test for the consistency of the random effects estimator in our analysis below by conducting the standard Hausman test statistics. We found an insignificant value for the Hausman test statistic which implies that the fixed effect estimator is not consistent and thus random effect is more appropriate.

Furthermore, to control for the heteroscedasticity, we measure t-statistics using the robust standard error as applied by previous studies (Alharasis, et al., 2024; Orazalin, et al., 2023). Moreover, our results are robust to alternative specifications of time- and geography-specific factors such as year and country dummies (Elsayed & Paton, 2005; Haque & Ntim, 2022).

Table 2. Variables Description and Sources

Variable Name	Symbol	Description	Source
Dependent Variable			
Return on Asset	roa	Net Income over Total Assets	Refinitiv Database
Return on Equity	roe	Net Income over Total Equity	Refinitiv Database
Independent Variable			
Diversity and Inclusion Rating	dir	Natural logarithm of Diversity and Inclusion Rating, which comprises of 20 indicators (see Appendix 1)	Refinitiv Database
Control Variable			
Board Size	bsize	The number of board directors	Refinitiv Database
Board Independence	bind	Percentage of the number of independent directors over the total number of directors	Refinitiv Database
Slack	slack	The ratio of cash and cash equivalents to total assets	Refinitiv Database
Capital intensity	capin	The ratio of Property, Plant, and Equipment to total assets	Refinitiv Database
Leverage	lev	The ratio of debt to total equity	Refinitiv Database
GDP growth	gdp	The annual growth of national gross domestic product	World Bank
Worldwide Governance Indicator	wgi	It consists of government effectiveness, regulatory quality, and rule of law. The score is expressed as a percentage and ranges between 0% and 100%.	Worldwide Governance Indicators
Inflation	inf	Annual percentage change in retail prices of goods and services that may be fixed or changed during the year.	World Bank

Results and Discussion

Table 2 displays the descriptive statistics of all the variables included in the analysis, such as Diversity and Inclusion Rating (DIR), Return on Assets (ROA), Return on Equity (ROE), Gross Domestic Product (GDP), Inflation, and Worldwide Governance Index (WGI). As shown in Table 2, the results of the descriptive statistics analysis show that the mean value of DIR is relatively low, with only 53.645 out of 100. This means that there is ample room for improvement in implementing Diversity and Inclusion values within the banking sector in Malaysia and Indonesia. Meanwhile, for the profitability of the banking sector, ROE is relatively higher than its ROA, with the mean values of 0.1231 (12.31%) and 0.0153 (1.53%) respectively. Further, there are some negative values in both ROA and ROE particularly in 2020, as an effect of the Covid-19 pandemic.

Table 3. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
lndir	100	3.969895	0.160554	3.518981	4.234107
roa	100	0.015345	0.011313	-0.04497	0.039654
roe	100	0.12314	0.063345	-0.22625	0.230774
bsize	100	8.81	2.611919	3	17
slack	100	0.583602	0.287133	0.070741	1.489823
mbv	100	1.854377	2.144402	0.343406	11.41683
gdp	100	3.796975	3.485137	-5.53444	8.694344
inflation	100	2.329722	1.559962	-1.1387	6.363121
wgi	100	70.86397	9.992382	42.85714	81.90476

Table 4 presents the pairwise correlation coefficient between the dependent, the independent, and the control variables. The correlation coefficients with * are significant at the 5% level. Moreover, the correlation coefficients show that the DIR is positively related to Return on Assets (ROA) and Return on Equity (ROE). Further, except for ROA & ROE, the absolute values of the coefficients range between 0.694 and 0.016, indicating no evidence of serious multicollinearity.

Table 4. Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) lndir	1.000								
(2) roa	0.106	1.000							
(3) roe	0.132	0.855*	1.000						
(4) bsize	0.368*	-0.070	-0.006	1.000					
(5) slack	0.248*	0.020	0.101	0.471*	1.000				
(6) mbv	0.036	0.263*	0.330*	-0.243*	-0.062	1.000			
(7) gdp	-0.072	0.216*	0.340*	-0.088	0.125	-0.016	1.000		
(8) inflation	-0.076	0.308*	0.348*	-0.139	0.110	-0.036	0.694*	1.000	
(9) wgi	0.167	-0.471*	-0.343*	0.261*	-0.054	-0.057	-0.152	-0.570*	1.000

To test the hypotheses, we run separate regressions for both types of bank's profitability (Table 4). Panel 1 & 2 shows the regression results with both the dependent variable of ROA, while Panel 3 & 4 shows the regression results with the dependent variable of ROE. In addition to that, we would like to figure out their effects specifically on Islamic banks. Hence, following Orazalin, et al. (2023), we put Shariah bank as a dummy variable where a value of 0 is assigned for conventional banks and 1 is assigned for Islamic banks. The result for Islamic banks is depicted in Panel 2 & 4.

Panel 1 & 2 show that there is a positive and significant association between DIR and both profitability ratios of ROA and ROE. The results are statistically significant for these two models at $p < 0.05$. These findings support Hypothesis 1 and aligned with previous studies (Jabari, et al., 2021; Cardillo, et al, 2021; Aggarwal, et al., 2019) which advocate that a greater level of diversity would lead to better performance of banks as they might bring a broader experience and expand the variety of expertise to the firms. On that basis of argument, we can also argue that the variable of inclusion added in this study could also strengthen this positive effect. As suggested by Resource Dependence Theory, gaining access to a larger talent pool including those with disabilities, mothers with children, etc. would improve the financial performance of the firms (Pfeffer and Salancik, 1978).

Meanwhile, for Islamic banks, DIR is negatively related to ROA and ROE (significant at 10% and 5% levels). This inconsistent result can be caused by low-performing attitude behaviour (Dankwano & Hassan, 2018) arising from potential improper management and initial culture of homogeneity in developing economies where Islamic banks are mainly operating. In this regard, group members who differ from the majority tend to have lower levels of psychological commitment and higher levels of turnover intent and absenteeism (Marimuthu & Kolandaisamy, 2009). Hence, several studies suggested that heterogeneity tends to lead to conflicts and reduces the effectiveness of communication within the firms (Pelled et al., 1999; Amason, 1996; Carpenter, 2002). Furthermore, based on the critical mass theory, the positive effect of diversity can only be realised if the number of women exceeds a certain number to dominate and lead the change (Arena et al., 2015; Joecks et al., 2013). Given a relatively low implementation of Diversity and Inclusion in the banking sector of Indonesia and Malaysia, we could argue that the benefit of diversity is yet to be transformed at this stage. Furthermore, there is a minor indicator of Diversity and Inclusion which is not in conformity with Islamic principles including the US LGBT Equality Index. Hence, this study suggests that further scholars could re-construct a novel Diversity and Inclusion index

which is fully aligned with Islamic principles, and hence could reflect the true image of Islamic banks and further investigate its effects on other observable variables.

Table 5. Regression Result

VARIABLES	(1) roa	(2) roa	(3) roe	(4) roe
Indir	0.0647* (0.0380)	0.121*** (0.0451)	0.00792* (0.00478)	0.0135** (0.00602)
wshariah		0.664* (0.340)		0.0641* (0.0389)
Indir_shw		-0.173** (0.0868)		-0.0169* (0.00998)
Control Variables	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Country Dummies	YES	YES	YES	YES
Constant	-0.102 (0.245)	-0.240 (0.264)	-0.00788 (0.0293)	-0.0356 (0.0348)
Wald-Chi2	1,737	754.42	232.20	934.78
Observations	100	100	100	100
R-squared	0.396	0.423	0.401	0.454

Notes: The robust standard errors are presented in parenthesis below their respective coefficient. ***, ** and * represents significance at 1%, 5% and 10% level respectively.

Conclusion

The study examines the impact of DIR on banking performance reflected by ROA and ROE. The findings reveal that DIR has a positive and significant relationship to banking performance, indicating that hypotheses H₁ and H₂ are accepted. Moreover, Islamic banks do not benefit from the DIR to increase banking performance. It confirms that diversity and inclusion are not essential in improving Islamic banks' financial performance, in which the current DIR measurement does not fully align with the Shariah principle. Thus, Islamic banks are suggested to not blindly follow DIR as currently structured.

As policy implications, it has twofold. Firstly, from the viewpoint of the regulator, financial authority is not necessary to regulate diversity and inclusion as structured above in the case of Indonesian and Malaysian banking sectors, considering the presence of Islamic banks. The presence of regulation of DIR potentially reduces Islamic banking performance. Secondly, from the perspective of the bank's practitioner, diversity and inclusion are inseparable from the development of Islamic banks. However, in the case of Islamic banks, it must align with the Shariah principle, and it is not counterproductive to banking performance.

Finally, we acknowledge that the study has a limitation in the form of the small sample size due to the limited availability of recently released data on DIR scores, potentially limiting the historical analysis and comprehensive understanding of long-term trends. However, despite its relatively small sample size, it has passed the minimum statistical requirements, and we believe there is a strong importance of having this timely observation as a basis for future studies to further develop this research model using a larger sample size and capturing a broader impact of DIR on the banking sector. By using a larger size, we believe that more advanced estimation can be used, especially implementing panel dynamic models which are able to fully address some econometrical issues in the model. Secondly, this study merely focuses on two regions which are Indonesia and Malaysia, and hence the findings of this study could not be generalisable to other countries/regions where data collection and reporting standards may vary. Lastly, further research is also needed to construct a completely novel DIR measurement which is fully in line with Sharia principles and/or

to investigate the specific mechanisms through which diversity and inclusion influence Islamic bank performance and how these factors can be aligned with Shariah principles.

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Appendix 1: DIR Indicator Assessment

No	DIR Indicator
Diversity	
1	Analytic Board Cultural Diversity
2	Policy Diversity Opportunity
3	Targets Diversity Opportunity
4	Women Employees
5	New Women Employees
6	Women Managers
7	Analytic Board Female
8	Analytic Executive Members Gender Diversity
Inclusion	
1	US LGBT Equality Index
2	Flexible Working Hours
3	Day Care Services
4	Employees With Disabilities
5	HIV/AIDS Program
People Development	
1	Policy Skills Training
2	Policy Career Development
3	Average Training Hours
4	Internal Promotion
5	Management Training
6	Analytic Training Costs
7	Employee Satisfaction