IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925, Volume 16, Issue 3 Ser.1 (May - June 2025), PP 84-90
www.iosrjournals.org

Impact of Board Diversity and Corporate Sustainability Practices on Performance of Firms: Evidence from Malaysia

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ABSTRACT
Background: *Board diversity and corporate sustainability practices (CSP) have increasingly been recognized as key drivers of firm performance, yet empirical evidence from emerging markets remains limited. In Malaysia, the impact of these factors on financial performance has not been comprehensively studied.*
Aim of the study: *This study aims to examine the effects of board diversity and corporate sustainability practices on the financial performance of Malaysian listed firms.*
Methods: *A sample of 104 publicly listed firms on Bursa Malaysia was analyzed over the period 2015–2017, yielding 312 firm-year observations. Board diversity was measured using Blau's index across gender, age, ethnicity, education, and outside directors. Corporate sustainability practices were quantified through content analysis of audited financial statements, and financial performance was proxied by Return on Assets (ROA). Control variables included board size, firm size, and leverage. Panel corrected standard errors (PCSE) regression models were employed to test the hypothesized relationships.*
Result: *Ethnic and age diversity on boards, as well as corporate sustainability practices, were found to have a significant positive impact on ROA. Education diversity exhibited a negative effect, while gender diversity and outside director diversity were not statistically significant. Control variables, including board size and firm size, negatively affected financial performance, whereas leverage had a mixed effect. The combined model of board diversity and CSP explained 32.1% of the variance in ROA.*
Conclusion: *The findings suggest that firms can enhance financial performance by promoting ethnic and age diversity on boards and by strengthening corporate sustainability practices. These results have important implications for corporate governance policies and strategic decision-making in emerging markets.*
Keywords: *Board diversity, performance, corporate governance, CSP, Malaysia.*

I. INTRODUCTION

The financial scandals and shut down of many giant corporations globally has raised much attention for improving board effectiveness in the corporate sectors [1,2]. Among different mechanisms of corporate governance, diversified board is considered a better technique to enhance the effectiveness of board [3]. Moreover, the agency theory also proposes that board diversity increases the independence of the board that help to enhance performance [4]. Board diversity also enhance board monitoring and supportive for the decision making process of the board which ultimately reduces the agency costs and increases the firm's financial performance [5,6]. A mentionable number of researchers have investigated the relationship between board diversity and financial performance but the results are not conclusive yet [7,8]. Accordingly, this study aims to further examine the effects of board diversity on financial performance of firms. Along with board diversity, corporate sustainability practices (CSP) also beneficial for enhancing firms' value as the instrumental stakeholder theory [9-11]. CSP refers to the use of present resources for living and working that fulfil and incorporate present economic, environmental and social necessities by not spoiling the needs of future generations [12]. Policy makers can realize the benefits of using CSP in business. It is found from the past researches that firms that have CSP are able to attract the investors globally [13-15]. Molla, Ibrahim [16] found that CSP help to achieve higher profits in long run. Moreover, based on the United Nations Global Compact- Accenture- CEO Study 2013, 93 percent of CEOs stated that they consider sustainability as being more important than financial performance to the future success of their business [17]. Organizations are beginning to realize key advantages of using sustainability performance in business such as risk management, attracting new customers, enhancing productivity, brand value and reputation [18]. For reducing the corporate scandals, it is suggested to consider sustainability practices in addition to the profit maximization goal of the firm [19]. A good number of studies largely support the statement that a positive correlation between corporate sustainability practices and financial performance of firms [20,21]. The stakeholder theory [22] argues that companies should be more responsible to all of their stakeholders in addition to profit. The stakeholder theory

also postulates that a firm which maintains and manages good communications with all its stakeholders will enhance the financial performance of the firm after a certain period of time [23,24]. As such, companies attempt to achieve long-term advantages and benefits by making strategic decisions through the application of sustainability practices in their businesses [25,26]. Janakiraman and Jose [27] argued that investors prefer to invest their funds in organisations with more green activities and are more sustainability responsible. In addition, environment friendly companies achieve higher rates of return from their investment [28]. Thus, corporate sustainability practices are predicted to affect firm′s financial performance. As such, many academic researchers have examined the association between corporate sustainability practices and financial performance but the results are still inconclusive to date [29]. They also suggested to conduct further research in this regard to develop a richer understanding of the impact of corporate sustainability practices on financial performance. Thus, this study is intended to examine empirically the influence of board diversity and corporate sustainability practices on financial performance of firms in Malaysia.

II. METHODOLOGY & MATERIALS

From the 805 public listed firms on *Bursa Malaysia*, this study selected 104 firms on the basis of market capitalization for the year 2015, 2016 and 2017. Thus, the total number of firm-year observations was 312.
To investigate the effect of board diversity and corporate sustainability practice on financial performance, the following analytical models were specified.

$$ROA_{it} = \alpha + \beta_1 GENDIV_{it} + \beta_2 ETHDIV_{it} + \beta_3 AGEDIV_{it} + \beta_4 EDUDIV_{it} + \beta_5 OTDRDIV_{it} + \beta_6 BRDSIZE_{it} + \beta_7 FRMSIZE_{it} + \beta_8 LEVRGE_{it} + \varepsilon_{it} \text{ ----------(i)}$$

$$ROA_{it} = \alpha + \beta_1 CSP_{it} + \beta_2 BRDSIZE_{it} + \beta_3 FRMSIZE_{it} + \beta_4 LEVRGE_{it} + \varepsilon_{it} \text{ ----------(ii)}$$

III. RESULT

Table 1 presented the Descriptive Statistics of Variables. Multicollinearity Diagnostic Test is used to test for multicollinearity problems in the model. Multicollinearity is the issue of having high correlation between independent variables which could inflate the regression results. Hair, Black (50) note that multicollinearity problems exist when VIF values are above 10 (or Tolerance value is less than 0.10). The result of the multicollinearity test is shown in Table 2. As shown in Table 2, there appeared to be no evidence of multicollinearity problem in the model as all variables have VIF that are less than 10 and tolerance value is more than 0.10. However, Table 3 presents the correlation matrix to ensure further about multicollinearity problem in the model. Table 3 shows Pearson correlation matrix where the highest correlation between dependent variable ROA and FRMSIZE is 0.49. Since the highest values are less than 0.9, there is no evidence of multicollinearity problem among variables in the models. To detect heteroscedasticity, the formal statistical test Breusch-Pagan (1979) is used. From the Table 4 below, test reports the value of Chi^2 statistics is 205.55 and the corresponding p-value<.01 for the model. Since there is a rejection of the null hypothesis, it indicates that there is a presence of heteroscedasticity in the residuals from the regression model. Wooldridge test for autocorrelation in panel data is used to detect serial or first-order autocorrelation. The result of the test presented in Table 5 for ROA shows autocorrelation problem. The problem of autocorrelation has to be corrected to achieve accurate results. The Hausman test shows significance at the level of 5 % which meet the asymptotic assumption thus, the null hypothesis is rejected. Therefore, based on the test, this study adopted fixed effect model to analyze the panel data. Cross-Sectional dependence test is applied to the model and confirmed the there is no cross-sectional dependence in the model. The result of the multiple regressions of board diversity and financial performance (ROA) of firms for Malaysia is presented in the Table 8. The χ2--statistic that explains the overall significance of the model is found to be significant at 0.000 levels with R-squared of 0.3114. It shows that regression model consisting of GENDIV, ETHDIV, AGEDIV, EDUDIV, OTDRDIV, BRDSIZE, FRMSIZE and LEVRGE could explain 31.14 percent changes in ROA. There are only two predictors from board diversity variables which are significant, that is ethnic diversity (ETHDIV) and age diversity (AGEDIV). These results support the alternative hypothesis. Other predictors such as gender diversity (GDP), and outside directors' diversity (OTDRDIV) are found to be insignificant and education diversity (EDUDIV) are found to be negatively significant which are not supporting the hypotheses. Meanwhile, all the three control variables, board size (BRDSIZE), firm size (FRMSIZE) and leverage (LEVRGE) are negatively significant. The result of the multiple regressions of corporate sustainability practices and financial performance (ROA) of firms for Malaysia is presented in the table 9. The χ2--statistic that explains the overall significance of the model is found to be significant at 0.000 levels with R-squared of 0.2720. It shows that regression model consisting of CSP, BRDSIZE, FRMSIZE and LEVRGE could explain 27.20 percent changes in ROA. The predictors corporate sustainability practices (CSP) is found to be significant which is supporting the hypothesis. Meanwhile among the three control variables, board size (BRDSIZE) and firm size (FRMSIZE) are negatively significant whereas leverage (LEVRGE) is insignificant.

The result of the regression analysis indicates that there is a positive and significant impact of CSP on financial performance of firms measured by ROA in Malaysia. The board diversity variables comprising GENDIV ETHDIV, AGEDIV, EDUDIV, and OTDRDIV and the dependent variable, ROA are examined in this model. The result presented in Table 10 shows that this model is significant at 0.000 levels with R^2 of 0.3114 which indicate that the model has a good fit and could explain 31.14 percent in ROA. Further, there are two predictors which are significant ETHDIV (β=.0892905, p=0.000), AGEDIV (β=.1703838, p=0.000) and has positive impacts on ROA of listed firms in Malaysia. Other predictor, EDUDIV (β=-.0540867, p=0.004) also significant but negative impact on ROA. Meanwhile, GENDIV (β=.0468671, p=0.138), has positive relationship and OTDRDIV (β=-.0272069, p=0.461) has negative relationship with ROA but insignificant. The results in model- 1 indicate that among the different board diversity, ethnic and age diversity positively influence the financial performance whereas education diversity in board negatively impact on financial performance. Meanwhile, gender and outside director diversity has no impact on financial performance of firms in Malaysia measured by ROA. In this model, corporate sustainability practices (CSP) is included along with board diversity. The result presented in Table 10 shows that this model is significant at 0.000 level with R^2 of 0.3210 which is greater than R^2 = 0.3114 in model 1. The model therefore could explain better the variation in ROA with the inclusion of CSP. Further, there are three (3) predictors which are found to be significant ETHDIV (β=.0911401, p=0.000), AGEDIV (β=.1703596, p=0.000), CSP (β=.0000774, p=0.001) and have positive impact on ROA. Other predictor EDUDIV (β=-.0554444, p=0.003) is significant but negative impact on ROA. Meanwhile GENDIV (β=.0456523, p=0.132) has a positive and OTDRDIV (β=-.0287504, p=0.477) has negative impact on ROA but insignificant. The results in model- 2 indicate that among the different board diversity, ethnic diversity, age diversity and corporate sustainability practices positively influence the financial performance whereas education diversity in board negatively impact on financial performance. Meanwhile gender and outside director diversity have no impact on financial performance of firms in Malaysia measured by ROA.

Table 1: Descriptive Statistics of Variables

Variable	Number of observations	Mean	Standard Deviation	Minimum	Maximum
ROA	312	0.11	0.1267	-0.13	1.05
GENDIV	312	0.2358	0.1521	0	0.4938
ETHDIV	312	0.4341	0.1883	0	0.7160
AGEDIV	312	0.6214	0.1012	0.2449	0.7901
EDUDIV	312	0.5360	0.1471	0.1653	0.7812
OTDRDIV	312	0.4660	0.0440	0	0.5
BRDSIZE	312	9.0577	2.1164	5	17
FRMSIZE	312	6.7798	0.5612	5.2769	8.1590
LEVRGE	312	0.2538	0.1663	0	0.6851
CSP	312	164.9583	157.7669	0	1098

Note: ROA = Return on assets, GENDIV = gender diversity, ETHDIV = ethnic diversity, AGEDIV = age diversity, EDUDIV = educational diversity, OTDRDIV = outside director diversity, BRDSIZE = board size, FRMSIZE = firm size, LEVRGE = leverage, CSP = corporate sustainability practices

Table 2: Test of Multicollinearity

	ROA	
Variable	VIF	Tolerance value
GENDIV	1.21	0.828034
ETHDIV	1.11	0.89944
AGEDIV	1.07	0.932735
EDUDIV	1.11	0.901416
OTDRDIV	1.05	0.952615
CSP	1.11	0.903899
BRDSIZE	1.34	0.744766
FRMSIZE	1.46	0.686226
LEVRGE	1.42	0.705827
Mean VIF	1.21	

Table 3: Correlation Matrix (with ROA)

	ROA	GENDIV	ETHDIV	AGEDIV	EDUDIV	OTDRDIV	BRDSIZE	FRMSIZE	LEVRGE	CSP
ROA	1									
GENDIV	0.0755	1								
ETHDIV	0.1883***	0.1136**	1							
AGEDIV	0.1354**	0.0542	-0.1154**	1						
EDUDIV	-0.0929	-0.1967***	-0.1692***	0.1712***	1					

OTDRDIV	0.0185	0.0708	0.0692	-0.0853	-0.012	1				
BRDSIZE	-0.2809***	0.2730***	-0.1357**	0.1031*	0.0562	-0.1519***	1			
FRMSIZE	-0.4880***	-0.0498	-0.032	-0.0791	0.0139	-0.0018	0.3001***	1		
LEVRGE	-0.3022***	-0.0359	-0.1977***	0.0297	0.0066	-0.0253	0.2537***	0.4536***	1	
CSP	0.0018	0.0341	-0.0004	-0.0121	0.0263	-0.0057	0.1319**	0.1908***	-0.1058*	1

*** Correlation is significant at the 0.01 level, ** Correlation is significant at the 0.05 level, * Correlation is significant at the 0.1 level

Table 4: Results of Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Results of Breusch-Pagan / Cook-Weisberg test	ROA
$chi^2(1)$	205.55
Prob > chi^2	0.0000

Table 5: Results of Wooldridge test for autocorrelation in panel data

Results of Wooldridge test	ROA
F (1, 103)	22.613
Prob > F	0.0000

Table 6: Results of Hausman test for selecting fixed or random effects

Results of Hausman	ROA
chi^2	18.37
Prob>chi^2	0.0311

Table 7: Results of Pesaran's test of cross-sectional independence in panel data

Results of Pesaran's test	ROA
Pesaran's test of cross-sectional independence	0.505, P=0.6136
Average absolute value of the off-diagonal elements	0.678

Table 8: The Regression results of the relationship between Board Diversity and Financial performance of firms (ROA) in Malaysia

VARIABLES	Expected Signs	Beta Coefficient	*z*-statistics	*p*-value
GENDIV	+	0.0469	1.48	0.138
ETHDIV	+	0.0893	6.66	0.000***
AGEDIV	+	0.170	4.51	0.000***
EDUDIV	+	-0.0541	-2.86	0.004***
OTDRDIV	+	-0.0272	-0.74	0.461
BRDSIZE		-0.00882	-5.10	0.000***
FRMSIZE		-0.0831	-20.14	0.000***
LEVRGE		-0.0404	-1.67	0.095*
Constant		0.646	18.06	0.000***
R-squared	0.3114			
Wald χ2-Statistics	49597.38			
Sig χ2- Statistics	0.0000			
Observations	312			

Note: *** p<0.01, ** p<0.05, * p<0.1

Table 9: The Regression Results of the Relationship between CSP and Financial Performance (ROA) of Firms

VARIABLES	Expected Signs	Beta Coefficient	*z*-statistics	*p*-value
CSP	+	.000074	3.89	0.000***
BRDSIZE		-.008296	-10.70	0.000***
FRMSIZE		-.0919556	-17.57	0.000***
LEVRGE		-.0396584	-1.41	0.159
Constant		.803357	22.57	0.000***
R-squared	0.2720			
Wald χ2-Statistics	843.88			
Sig χ2- Statistics	0.0000			
Observations	312			

Note: *** p<0.01, ** p<0.05, * p<0.1

Table 10: The Combined Effects of board diversity and CSP on Financial Performance (ROA) of firms in Malaysia.

Variable	Model 1		Model 2	
	β	p-value	β	p-value
GENDIV	.04687	0.138	.0457	0.132
ETHDIV	.0893	0.000***	.0911	0.000***
AGEDIV	.1704	0.000***	.1704	0.000***
EDUDIV	-.0541	0.004***	-.0554	0.003***
OTDRDIV	-.0272	0.461	-.0288	0.477
BRDSIZE	-.0088	0.000***	-.0094	0.000***
FRMSIZE	-.0831	0.000***	-.0891	0.000***
LEVRGE	-.0404	0.095*	-.0211	0.434
CSP			.0001	0.001***
Constant	.6463	0.000***	.6762	0.000***
R^2	0.3114		0.3210	
R^2 Change			0.0096	
Sig χ2- Statistics	0.0000		0.0000	
Wald χ2-Statistics	49597.38		214000000	

Note: *p<0.10, **p<0.05, ***p<0.01.

IV. DISCUSSION

Among the demographic and cognitive diversity, this study has chosen the following dimensions of board diversity: Gender, Age, Ethnic, Education and Outside directors of the board on the basis of Harjoto, Laksmana [30] study. From previous literature it is found that the relationship between board diversity and financial performance of firms is ambiguity and mixed [31]. The reasons of mixed findings from the previous studies can be recognised to omitted variable biases, different measurement of performance across studies, different methodologies, time horizons, and other contextual issues [32]. Although the relationship between board diversity and financial performance of firms is inconclusive, a more number of research find positive relationship between the two [3, 33-35]. Both agency and resource dependence theory also argue that board diversity positively affects financial performance of firm [36]. Consequently, the following hypothesis was posited:

H_1: Board diversity positively influences financial performance.

The proper practices of corporate sustainability practices of a firm also enhances its financial performance over time [37,38]. Corporate sustainability practices enhance goodwill that eventually influences financial performance favorably. Usually, customers of corporate sustainability practices oriented firms are willing to pay the premium price for the product of that firm [39]. Firms which have corporate sustainability practices can attract and retain qualified and dedicated employees which in turn enhances its financial performance [40,41]. Furthermore, balanced economic, environmental and social engagements may help the firm in reducing its cost of capital and the high price of its products [42]. Consequently, it may make the firm more profitable as compare to the firms with less sustainability practices at the same pattern of systematic risks [43]. Therefore, the following hypothesis was posited:

H_2: Corporate sustainability practices positively influence financial performance.

This study applies multivariate analysis to examine the complex relationship between board diversity, corporate sustainability practices and financial performance as used in previous studies [44-46] which may be impossible to do by using univariate or bivariate analysis [47]. However, several diagnostic tests, namely, multicollinearity, heteroscedasticity, auto-correlation and cross sectional dependency, were conducted beforehand to verify that the regression model meets the Best Linear Unbiased Estimator (BLUE) assumptions [48]. A regression model can achieve the BLUE assumptions if it is linear, unbiased and its expected value is equal to the true value and it contains minimum variance [49]. Multicollinearity Diagnostic Test is used to test for multicollinearity problems in the model. Multicollinearity is the issue of having high correlation between

independent variables which could inflate the regression results. Hair, Black [50] note that multicollinearity problems exist when VIF values are above 10 (or Tolerance value is less than 0.10).

Limitations of the study: This study has some limitations. The sample covered only 104 Malaysian listed firms over three years, which may limit generalizability. Board diversity was assessed through Blau's index, overlooking qualitative factors such as tenure and experience. Corporate sustainability practices were measured from annual reports, which may involve disclosure bias. Financial performance was evaluated solely by ROA, excluding other indicators. Finally, unobserved factors such as ownership structure or industry-specific dynamics may still affect the results despite control variables.

V. CONCLUSION

This study found that board diversity in terms of gender diversity, ethnic diversity, age diversity, educational diversity, and outside director diversity as well as corporate sustainability practices significantly and positively affected financial performance. The findings have policy implications for the government and regulatory bodies to place more emphasis on diversifying the board of directors and following up on mandatory corporate sustainability practices to enhance financial performance among listed firms on *Bursa Malaysia*. This may help to ensure their long-term sustainability as well as to reduce the risk of financial distress, or bankruptcies in the future.

Funding: *No funding sources*
Conflict of interest: *None declared*
Ethical approval: *The study was approved by the Institutional Ethics Committee.*

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