BOARD CHARACTERISTICS AND FINANCIAL INSTITUTIONS' PERFORMANCE: EVIDENCE FROM AN EMERGING MARKET

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Abstract

One of the main objectives of the present study is to investigate the relationship between the board variables (namely: board size, board meetings, board compositions, board diversity, and CEO duality), variables and Qatari financial institutions' performance measured by ROA, ROE, and EPS. Another objective of this paper is to compare the performance of conventional financial institution are more profitable than Islamic ones. The study uses 56 listed financial institutions in the Qatari exchange market. The panel data regression was used to analyse the data in this paper. The results found that the board meeting is positively associated with all performance measures. Moreover, board size has a positive relationship with EPS while board compositions are positively associated with ROA. However, board diversity has a negative relationship with all performance measures. Finally, the results failed to report any statistically significant and negative relationship between CEO duality and financial institutions' performance. In addition, the results indicate that Islamic institutions are of lower performance compared to non-Islamic institutions.

Keywords: Board Structure, Financial Performance, Emerging Markets, Financial Institutions, Banks

1. INTRODUCTION

Corporate governance is defined as an instrument utilized to safeguard the shareholders' privileges (Yermack, 1996). For financial institutions, the issue of corporate governance needs special care due to several reasons (Nam & Lum, 2006). First, banks are exposed to shocks due to their highly leveraged balance sheet structure and subject to global regulations. Second, the governmental regulations to avoid any negative impact on the economy may occur because of bank failure. Third, high

information asymmetry is involved in banks compared to non-financial firms. The efficiency of banks' corporate governance depends on regulations issued by different regulated bodies such as security commissions and central banks. Mullineux (2006) found that an active role by regulatory authorities directly contributes to the observance of good corporate governance practices of banks. According to Al-Hussain (2009), the regulations related to board structure are one of the very important tools used to enhance the efficiency of corporate governance and improve the value of firms accordingly. Therefore, the duty of banks' management is not to protect the rights of shareholders, who are looking for risky assets to invest only, but also its duty to depositors, who are looking for safe income (Mullineux, 2006).

Denis and McConnell (2003) classify corporate governance mechanisms into internal and external mechanisms. Internal governance mechanisms are determined by firms' internal factors and include the board structure. The board structure is a vital instrument utilized to enrich the corporate governance and lead to increase the value of firms accordingly (Al-Hussain, 2009). "Corporate boards of directors are charged with an oversight responsibility to maximize shareholders' wealth and accountability to stakeholders" (Antwi, Carvalho, & Carmo, 2021, p. 98). Khan and Zahid (2020) write "Corporate governance commences and stops with the board of directors. Their structures, quality and other strategic aspects determine firms' successful operations and performance" (p. 2). Therefore, the main objectives of the study are as follows:

1. To examine the relationship between the board factors and performance among listed financial firms on the Qatar stock market.

2. To compare the performance of Islamic and non-Islamic banks that adopted the same corporate governance guidelines issued by the Qatar Central Bank.

This study contributes to the existing studies on the influence of board structure on financial performance among financial firms listed in the Qatar Stock Exchange where such studies are sporadic. In fact, the financial sector, in general, and banks, in particular, perform a major part in society development precisely in developing countries like Qatar. It is expected that the banking sector could play a critical role in fuelling the Qatari Vision 2030 Agenda (Ibrahim, 2015). Qatar is considered a unique setting for this study because of several reasons: first, corporate governance among Qatari financial firms is still in the early stage since the launching of the Qatari Corporate Governance Code in 2008 and 2009, respectively. Second, the results found in the western studies could not be generalized to small Islamic country like Qatar. Third, Qatar has launched its 2030 Vision in order to reform the economy and convert it to a market-oriented economy. Finally, the study bridges the gap in the academic studies with respect to this issue in the Qatari context.

The major finding of the current study is that conventional financial institutions are more profitable than Islamic ones. In addition, the results of regression analysis show some board factors, such as board meetings and board size, as determinants of the performance among financial companies in the Qatar stock market.

The remainder of the present study is organized as follows. Section 2 presents the literature review and hypothesis development. Thereafter, research methodology is discussed in Section 3. Section 4 summarizes the findings followed by the conclusion in Section 5.

2. LITERTURE REVIEW AND HYPOTHESIS DEVELOPMENT

Based on the agency theory, Tirole (2001) defines corporate governance as the design of institutions that induce or force management to internalize the welfare of stakeholders. This definition proposes that in order to maximize the welfare of stakeholders, three key corporate governance structures of the corporation need to interact together, i.e., shareholders, board of directors, and executive management. In fact, researchers came out with agency theory that explains the conflicts of interests between owners and managers, and the relationship between these parties became one of the components of corporate governance structure (Fama & Jensen, 1983; Shleifer & Vishny, 1997). To enhance the efficiency of corporate governance structures, clear attention to the role of the board of directors as a tool of control is needed (Al-Hussain, 2009). Alsartawi (2019) writes, "A firm's board of directors is the main internal corporate governance mechanism and has a critical role in monitoring management and reducing the conflicts of interests between shareholders and managers, thus preventing agency problems" (p. 291). Since the rights of shareholders are measured by the performance of firms, many studies have been conducted to investigate the relationships between firm performance and board structure. For example, Al-Saidi (2021) in Kuwait, Kyereboah-Coleman and Biekpe (2006) in Ghana, Amran and Ahmad (2009) in Malaysia, and Belkhir (2009) in the US, investigated the relationship between firm performance and board structures. Hence, the aim of the current paper is to examine the influence of the board structure, namely board size, board meetings, board composition, board diversity, and CEO rule duality on financial performance among Qatari listed firms.

2.1. Performance and board size

According to the Qatar Corporate Governance Code issued in 2009, all listed firms must have not more than eleven (11) directors. This indicates that a firm has to maintain a board size of less than eleven in its board in order to achieve better performance. This suggestion is similar to the agency theory assumption and the findings of prior studies, such as Yermack (1996), who found better performance for those firms with board size between 4 and 10. However, the argument of resource dependence theory assumes that better performance is associated with a larger board; due to wide expertise and skills larger board enhances decision making (Kyereboah-Coleman & Biekpe, 2006). Extant literature demonstrates mixed results in terms of the impact of board size on performance. Dalton, Daily, Johnson, and Ellstrand (1999) conducted a meta-analysis of 27 studies and found that larger boards were associated with higher levels of firm performance. Beiner, Drobetz, Schmid, and Zimmermann (2006)

found similar results, as in a recent study by Zhou, Owusu-Ansah, and Maggina (2018) which reported that large-sized boards performed better in a study of Greek listed firms. Using a meta-analysis technique, Prashar and Gupa (2020) found a positive and significant impact of board size on performance measured by Tobin's Q and no significant on ROA. Bajaher (2019) and Habbash and Bajaher (2015) found that large board size has a positive but insignificant association with financial performance in Saudi firms. However, Pillai and Al-Malkawi (2018) report a negative and important association between the board size and the performance. Likewise, Naushad and Malik (2015) and Al-Matari, Al-Swidi, Fadzil, and Al-Matari (2012) come with the same findings. Consequently, the paper hypothesizes the following:

H1: There is a positive association between performance (measured by ROA, ROE, and EPS) and board size.

2.2. Performance and board meetings

According to the 2009 Corporate Governance Code issued by Qatar stock market authority and Corporate Governance Guidelines issued by Qatar Central Bank in 2008, the board should meet not less than six (6) times in a year and not less than once in a calendar quarter. Based on Ntim, Soobaroyen, and Broad's (2017) study, the frequency of board meetings helps board members to control the performance of the executive. Since there is a conflict of empirical evidence about the impact of board meetings on firm performance (e.g., Andreou, Louca, & Panayides, 2014; Chauhan, Lakshmi, & Dey, 2016; Aktan, Turen, Tvaronavičienė, Celik, & Alsadeh, 2018), this study tests this relationship based on the following hypothesis:

H2: There is an association between performance (measured by ROA, ROE, and EPS) and the board meetings.

2.3. Performance and board composition

In the Qatari context, Qatari Governance Code 2009 suggested that the board should have a third of its members as independent members and the majority of non-executive members. Empirically, there are conflicting results regarding the association between board independence and performance (Abdel-Azim & Soliman, 2020). Aktan et al. (2018) and Abdullah (2006) found a negative association between outside directors and performance. In contrast, Liu, Miletkov, Wei, and Yang (2015) and Krivogorsky (2006) reported that independent directors are an important tool in controlling agency problems and affecting firm performance positively. A meta-analysis study found that board independence has a significant and positive effect on performance (Binh Dao & Tra Nguyen, 2020). Al-Saidi (2021) and Prashar and Gupta (2020) showed a positive and significant association between the board independence and performance. Bajaher (2019) found that board independence has a negative but insignificant effect on the financial performance of Saudi firms. Hence, this study tests the following hypothesis:

H3: There is an association between performance (measured by ROA, ROE, and EPS) and the board composition.

2.4. Financial performance and board diversity

Qatari Governance Code 2009 and Qatar Central Bank's Guidelines 2008 were quiet about board diversity and they left it to the choice of firms. Many studies investigated the relationship between board diversity and performance and found mixed results. Rose (2004) and Darmadi (2011) found a negative relationship between women directors and performance. However, Ararat, Aksu, and Tansel Cetin (2010) found a significant positive association between board diversity and financial performance among Turkish listed companies. However, Sarhan, Ntim, and Al-Najjar (2019) and Al-Saidi (2021) found a positive association between board diversity and performance among Kuwaiti listed firms. The relationship between board diversity and financial performance is stronger in enhanced governed firms than their poorly governed counterparts (Sarhan et al., 2019). This study hypothesizes the following:

H4: There is a positive association between performance (measured by ROA, ROE, and EPS) and board diversity.

2.5. Performance and CEO duality

According to the stewardship theory, CEO rule duality is very important to the unity of the firm (Donaldson & Davis, 1991). Mishra and Kapil (2018) claimed that have two people occupied the position of chairperson and CEO makes the board of directors provide more effective supervision of the executive management. The previous studies found no agreement about the association between the conflict the CEO duality and performance. For example, Onyina and Gyanor (2019) and Aktan et al. (2018) reported no relationship between the CEO duality and performance. Prashar and Gupta (2020) and Belkhir (2009) found a positive relationship between performance and role duality. Nevertheless, Mollah and Zaman (2015) and Ehikioya (2009) reported an association but negative between these two variables. Similarly, Hsu, Lin, Chen, and Huang (2021) reported that CEO duality has statistically significant negative impacts on firm performance when information costs are high. Furthermore, Mishra and Kapil (2018) and Musallam (2020) documented a negative and significant association between CEO duality and corporate performance.

H5: There is a negative association between performance (measured by ROA, ROE, and EPS) and CEO duality.

3. RESEARCH METHODOLOGY

3.1. Sample and data collection

The population of this study consists of all listed financial institution in Qatar Stock Exchange. Mainly, the study selected nine (9*4 = 36) listed banks and five (5*4 years = 20) insurance companies for the period of 2007 to 2010 (http://www.banker.thomsonib.com/) and the sample becomes 56 financial institutions after excluding firms which have incomplete information. This study focuses on the financial firms since many prior studies exclude financial firms from their analysis due to the finance

industry is a highly regulated industry (Habbash & Bajaher, 2015). In terms of corporate governance regulations, Qatari-listed financial firms are subject to the regulations issued by the central bank and stock markets. Therefore, the aim of the present paper is to examine the impact of board structure on financial performance among Qatari-listed financial

firms where such studies are sporadic. Table 1 presents the composition of the sample. With respect to the board variables, the data were collected manually from the annual reports and performance variables (ROA, ROE, and EPS), and control variables are calculated based on data extracted from Thomson ONE Banker (http://www.banker.thomsonib.com/).

Table 1. The sample

Industry	Initial sample	Excluded sample	Final sample	Percentage of the final sample
Banking	52	16	36	64%
Insurance	20	-	20	36%
Total	72	16	56	77.7%

3.2. Measurement of variables

3.2.1. Dependent variables

This paper used three dependent variables, namely return on assets (*ROA*), return on equity (*ROE*), and earning per share (*EPS*). Following prior studies (see Chen, Lin, & Yi, 2006; Abdullah, 2006; Ehikioya, 2009; Habbash & Bajaher, 2015; Al-Saidi, 2021), *ROA* and *ROE* are measured as the ratio of profit before interest and tax to total assets respectively. *EPS* is defined as net income divided by outstanding common shares.

3.2.2. Independent and control variables

Board size, board meeting, board composition, board diversity, and role duality are used as predictor variables. The measure of these variables in this study is based on earlier studies (see Cheng, 2008; Belkhir, 2009; Vafeas, 1999; Chen, Chen, & Wei, 2009; Erhardt, Werbel, & Shrader, 2003; Habbash & Bajaher, 2015; Al-Saidi, 2021). Besides

the independent variables, some firm-specific characteristics such as firm size and leverage are used as control variables in this study. The use of these variables as control variables is due to their impact as firm-specific characteristics on firms' performance. Moreover, the use of these variables is consistent with prior studies on corporate governance. Al-Malkawi and Pillai (2018), Ehikioya (2009), and Haniffa and Hudaib (2006) used firm size and leverage as control variables and they found that the firm size and leverage have a positive impact on the firm's performance. On the other hand, some studies found that these variables have a negative impact on firms' performance (Kyereboah-Coleman & Biekpe, 2006). Other studies found a positive significant impact on the performance measured by ROA. The measure of firm size in this study is consistent with the study of Belkhir (2009) who defined firm size as a natural logarithm of total assets. Likewise, Henry (2008), in his study, defines leverage ratio as the book value of total debt to the book value of total assets. Table 2 below provides a summary of the variables examined in the study.

Table 2. Variables measurements

Variable	Measurement
ROA	Ratio of profit before interest and tax/total assets
ROE	Percentage of net income to equity
EPS	Net income divided by outstanding common shares
BRSIZE	Number of directors sitting on the board
BRMTG	Number of meetings held by the board in the year
BRCMP	Percentage of independent directors to total directors on the board
BRDIV	Dummy variable coded 1 if there is at least one woman on the board, and 0 otherwise
BTYPE	Dummy variable 1 for non-Islamic financial institutions and 0 for Islamic
CEODU	Dummy variable coded 1 if the CEO is also the chairman, and zero otherwise
SIZE	Natural logarithm of total assets
LVRG	Total debt over total assets

3.3. Data analysis

The present study used panel data models. Panel data limited the chance of biased results by controlling the individual firm's heterogeneity, which cannot be controlled with cross-sectional or time series data. Therefore, the pooled model and the fixed effects model are used to analyze the data of the study. The choosing of pooled data is based on the results of the Lagrange multiplier (LM) test which suggests that the use of the pooled model is preferred for *ROA* and *ROE* due to the absence of autocorrelation for these two models. However, the Lagrange multiplier and Hausman tests suggest that the fixed effects model is more appropriate for *EPS*.

Pooled model:

$$Y_{it} = a + B' X_{it} + e_{it} \qquad (1)$$

Fixed effect model:

$$Y_{it} = a_i + B' X_{it} + e_{it} \qquad (2)$$

where,
Y_{it} is firm performance (measures by *ROA, ROE,* and *EPS*) of firm *i* in year *t;*
a is an intercept in the pooled model;
a_i is an intercept coefficient of firm *i* in the fixed effects model;
B' is vector of slope coefficients of regressors;

X_{it} is a vector of independent and control variables (*BRSIZE, CEODU, BRMTG, BRCMP, BRDIV, SIZE, LVRG,* and *BTYPE*) of firm *i* in year *t*.

Both linear (pooled model) and mixed linear (fixed effects model) regressions are used to examine the relationship between independent variables and financial performance for all firms over the period of study. Moreover, Pearson correlation analysis is used to check the existence of multicollinearity among the explanatory independent variables. Pearson's correlation coefficient was used to measure linear association among independent variables in this study (Krivogorsky, 2006; Amran & Ahmad, 2009).

There are three measures of performance used in this study; namely, *ROA, ROE, EPS.* Therefore, there are three models of the study as follows.

Model 1 tests the relationship between *ROA* and corporate governance variables' performance after taking to account the control variables and the type of financial institution.

Model 2 tests the relationship between *ROE* and corporate governance variables' performance after taking to account the control variables and the type of financial institution.

Model 3 tests the relationship between *EPS* and corporate governance variables' performance after taking to account the control variables and the type of financial institution.

4. FINDINGS

4.1. Statistical descriptive

This subsection sets out and discusses the descriptive statistics (minimum, maximum, means, and standard deviation) for variables used in the study. For performance measures, Table 3

reports that the *ROA* ranges from a minimum of 0% to a maximum of 18% with an average of 6% for the overall sample period. For *ROE*, the ranges between 0% and 30% with average of 17%. Finally, the range of *EPS* is from a minimum of -5% to a maximum of 10.5 dollars with an average of 4.3 dollars. The standard deviations of 0.03, 0.06, and 2.6 for *ROA, ROE,* and *EPS* respectively, reveal that less variation in performance among Qatari financial institutions.

In addition, Table 3 shows the ranges of board size between 6 and 11 with average of 8.5 members. This result is in line with the recommendations of the Qatari Corporate Governance Code (QFMA, 2009). The average of board meeting is 5.5 times. The average of 33% of board composition indicates that one-third of members are independent. The role duality is 3.5%, which indicate less than 4% of sampled firms combined the roles of board chairperson and CEO, this result consistent with the Qatari Corporate Governance Code suggestions that prohibited the combination between the positions of chairperson and CEO. Besides, the average of firms have at least one woman sitting on the board is 14.2%.

Finally, Table 3 shows also descriptive statistics for type of financial institutions, firms size, and leverage variables. The average of 64% for type of financial institutions indicates that 63% of sampled firms are Islamic financial institutions. It shows that the average of firm size is 3.9. The standard deviation of 0.73% indicated that there is no significant variation in size among Qatari financial institutions. To finish, the average of 24% for leverage indicates that sampled firms used 24% of debt in their capital structure, while the remaining 76% are financed by equity.

Table 3. Descriptive statistics

	ROA	ROE	EPS	BRSIZE	BRMEET	BRCMP	BRDIV	BTYPE	SIZE	LVRG	CEODU
Mean	0.061	0.176	4.398	8.571	5.535	0.330	0.142	0.642	3.939	0.240	0.035
Maximum	0.180	0.300	10.500	11.00	12.00	0.850	1.000	1.000	5.350	0.731	1.000
Minimum	0.000	0.000	-0.050	6.000	4.000	0.000	0.000	0.000	2.610	0.001	0.000
Std. Dev.	0.037	0.061	2.602	1.291	1.264	0.292	0.353	0.483	0.735	0.178	0.187
Observations	56	56	56	56	56	56	56	56	56	56	56

Notes: This table reported statistical descriptive for dependent, independent, and control variables for a sample over the period of 2007-2010. ROA refers to the return of assets; ROE refers to the return on equity, and EPS refers to earnings per share. BRSIZE refers to board size; BRMEET refers to board frequency meetings; BRCMP refers to board composition; BRDIV refers to board diversity, and CEODU refers to role duality. Finally, SIZE refers to firm size; LVRG refers to firm leverage, and BTYPE refers to the type of financial institution.

4.2. Bivariate correlations

Table 4 reports Pearson product-moment correlations among all variables. The purpose of this test to see whether there is multicollinearity between independent variables, which represented by high correlation between any two variables. The presence of multicollinearity between independent variables will make it difficult to inference about the impact of these variables on a dependent variable (Lind, Marchal, & Wathen, 2008). Hair, Anderson, Tatham, and Black (1995) recommend 0.80 as the edge at which multicollinearity concerns may threaten the regression analysis. The table shows the correlation among variables is between -0.51 and 0.61. The highest-level correlation found is between firm sizes with dependent variables (*ROA* and *EPS*) which are -0.51 and 0.59 respectively, at significant

level of 5%. These findings are in line with Wang and Oliver (2009), who found 0.64 level of correlation between firm size as control variables and other variables in his model.

The higher level of correlation among independent variables is 0.47 between role duality and board diversity at significant level of 5%, followed by the correlation between board compositions with type of financial institutions, which is 0.41 at a level of 5%. This result is in line with Bozec (2005) who found the level of correlation among corporate governance variables was -0.41 at a significant level of 1%. By comparing the findings in Table 4 with a level 0.80 of multicollinearity suggested by Hair et al. (1995), it is plausible to claim that serious multicollinearity does not exist among regressed variables.

Table 4. Bivariate correlation

	ROA	*ROE*	*EPS*	*BRSIZE*	*BRMEET*	*BRCMP*	*BRDIV*	*CEODU*	*BTYPE*	*SIZE*	*LVRG*
ROA	1										
ROE	0.325*	1									
EPS	-0.195	0.612**	1								
BRSIZE	-0.207	0.082	0.258	1							
BRMEET	-0.032	0.356**	0.453**	0.121	1						
BRCMP	0.071	0.015	0.100	0.233	0.008	1					
BRDIV	0.130	-0.228	-0.281*	-0.342**	-0.134	-0.052	1				
CEODU	0.451**	-0.037	-0.201	-0.387**	-0.082	-0.087	0.471**	1			
BTYPE	-0.321*	-0.121	0.006	0.100	-0.008	0.418**	-0.122	-0.258	1		
SIZE	-0.510**	0.249	0.598**	-0.002	0.281*	-0.002	0.015	-0.049	-0.055	1	
LVRG	-0.110	-0.311*	-0.320*	0.186	-0.158	0.024	-0.364**	-0.060	0.261	-0.396**	1

*Note: *** significant level at 1%; ** significant level at 5%; * significant level at 10%.*

4.3. Regression analyses

The study investigates the effect of multi variables (dummy and continuous variables) on performance (*ROA*, *ROE,* and *EPS*) as dependent variables. The study adopts pooled and fixed effects model to investigate the relationships between these variables.

4.3.1. ROA and board characteristics

Table 5 represents the *ROA* regression analysis of the pooled model and panel models. The *adjusted R^2* of the pooled model is 59.3%. The fixed effects model has an *adjusted R^2* of 51%, and the random effects model has an *adjusted R^2* of 41% and *F-value* of model is statistically significant at the 1% level. The LM test is applied to test the null hypothesis of no serial autocorrelation for model. If the result of probability value is statistically significant, it means there is serial autocorrelation. Hence, the panel models are more appropriate for data than pooled model. The insignificant value of the LM test (0.15) supports the null hypothesis of no serial autocorrelation. Therefore, the pooled model is more appropriate for the data than the panel models.

Additionally, the Hausman test is used to test the fixed effects model and the random effects model. The Hausman test Chi-square is 5.53 with

statistical significance of 0.500 (at the 5% level, the random effects model would not be rejected). This indicates that the fixed effects model is the most appropriate model for the data used. In other words, the null hypothesis that assumes uncorrelated of individual effects with the other regressors in the model is rejected because the using of such hypothesis violating one of the Gauss-Markov assumptions due to the bias involved. Therefore, the fixed effect model is preferred. In sum, the results of the LM and Hausman tests suggest that the pooled and fixed effects models are appropriate for data, but the pooled model is more appropriate due to its highest *adjusted R^2* (59.3%).

Finally, before testing the correlation between dependent and independent variables, it is important to check the consistency of variances to make sure that the ordinary least square estimators are BLUE. However, if variances of the disturbance estimates (heteroskedastic) are not consistent or efficient, the OLS estimators will be linear and unbiased but they will not be the best estimators. The insignificant statistical signs for white heteroskedasticity test ($p = 0.32$) for the pooled model reveal that the null hypothesis of the disturbance variances' consistency does not rejected. Moreover, the insignificant value of white heteroskedasticity test (0.080) suggests that the fixed effects model does not suffer from heteroskedasticity.

Table 5. Pooled and panel models of ROA

Independent variables	*Pooled OLS t-value (sig.)*	*Fixed effects t-value (sig.)*	*Random effects t-value (sig.)*
(Constant)	6.507 (0.000)	5.331 (0.000)	4.665 (0.000)
BRSIZE	-0.997 (0.324)	-0.300 (0.766)	-0.761 (0.449)
BRMEET	1.297 (0.201)	1.398 (0.168)	1.098 (0.277)
BRCMP	2.260 (0.028)	1.062 (0.294)	1.320 (0.193)
BRDIV	-1.909 (0.062)		-0.980 (0.332)
CEODU	3.881 (0.000)	3.979 (0.000)	4.425 (0.000)
BTYPE	-2.664 (0.011)		-1.578 (0.121)
SIZE	-6.747 (0.000)	-6.151 (0.000)	-4.221 (0.000)
LVRG	-2.757 (0.008)	-2.972 (0.005)	-1.848 (0.070)
Adjusted R^2	59.3%	51%	41%
F-statistic	11.03 (0.000)	10.4 (0.000)	5.8 (0.000)
Lagrange multiplier test	2.06 (0.15)		
Hausman test	5.53 (0.500)		
Heteroscedasticity test: White	29.49 (0.32)	11.3 (0.080)	

Hypothesis testing

As it is mentioned above, the flowing test for hypothesis is based on the pooled and the fixed effects models. The first column of Table 5 reports the pooled model, where the assumption of no specific group effects is made. The second and the third columns show the panel models.

The models (pooled and fixed) show that there is a negative and insignificant relationship ($t = -0.87$ and $p = 0.32$) between *ROA* and board size. This finding is in line with the agency theory and previous findings of Yermack (1996), Haniffa and Hudaib (2006), and Cheng (2008) that performance is negatively associated with a board's size. However, it inconsistent with *H1* that assumes that

there is a positive relationship between firms' performance (*ROA*) and board size. Moreover, the result is different for some studies of Beiner et al. (2006), Belkhir (2009), and Amran and Ahmad (2009), where a significant relationship is found between performance and a board's size. The main reason of inverse relationships between performances in the Qatari context is that the majority of boards' members for selected sample are from royal and rich families regardless their qualifications. Therefore, the higher board size of such members is associated with low performance due to high financial costs required (Yermack, 1996).

The models show that there are insignificant positive relationships ($t = 1.29$ and $p = 0.87$) between *ROA* and board meetings. This finding is in line with the previous finding of El Mehdi (2007) that there is no significant positive relationship between performance and board meetings. However, this result is inconsistent with the *H2*, which assumes that there is a relationship between *ROA* and board meetings. Moreover, it contradicted the findings of Karamanou and Vafeas (2005) where there is a significant and positive relationship between these two variables.

The results show that there is a significant relationship ($t = 2.2$ and $p = 0.02$) between *ROA* and board independence. It is in line with the findings of Hossain, Prevost, and Rao (2001) and Krivogorsky (2006) where there is a positive and significant relationship between performance and boards' composition. Also, the result of fixed effects model supports the findings of Belkhir (2009) and Guest (2008). As for board diversity, *H4* assumes that the number of women directors on the board is positively associated with firm performance. The study finds that there are statistically negative but not significant relationships between board diversity and *ROA*. Finally, inconsistent with *H5*, which predicts a significant and negative relationship between role duality (*CEODU*) and performance, the models report a significant and positive relationship ($t = 3.8$ and $p = 0.00$) between *ROA* and role duality. However, this result is supported by prior findings of Belkhir (2009) who found a positive relationship between role duality and the performance of 174 US banks.

4.3.2. ROE and board characteristics variables

Table 6 shows the insignificant value of the LM test (0.56) supporting the null hypothesis of no serial autocorrelation. Therefore, the pooled model is more appropriate for the data than the panel models. In addition, the Hausman test is used to test the fixed effects model and the random effects model. The Hausman test Chi-square is 6.51 with a statistical significance of 0.368. This indicates that the fixed effects model is the most appropriate model for the data used. In other words, the null hypothesis that assumes uncorrelated of individual effects with the other repressors in the model is rejected because the use of such a hypothesis violates one of the Gauss-Markov assumptions due to the bias involved. Therefore, the fixed effect model is preferred. In sum, the results of the LM and Hausman tests suggest that the pooled and fixed effects models are appropriate for data.

Finally, the insignificant sign for white heteroskedasticity test for the pooled model ($p = 0.06$) in Table 6, reveals that the null hypothesis of the disturbance variances' consistency is not rejected. Therefore, the models do not suffer from heteroskedasticity.

Table 6. Pooled and panel models of ROE

Independent variables	Pooled OLS t-value (sig.)	Fixed effects t-value (sig.)	Random effects t-value (sig.)
(Constant)	1.561 (0.125)	0.741 (0.462)	1.551 (0.127)
BRSIZE	0.418 (0.678)	0.722 (0.474)	0.415 (0.679)
BRMEET	1.809 (0.077)	2.117 (0.039)	1.797 (0.078)
BRCMP	-0.060 (0.952)	-0.127 (0.899)	-0.059 (0.952)
BRDIV	-2.635 (0.011)		-2.618 (0.011)
CEODU	1.109 (0.273)	0.098 (0.922)	1.101 (0.276)
BTYPE	-0.137 (0.892)		-0.136 (0.892)
SIZE	0.275 (0.785)	0.475 (0.637)	0.272 0.786)
LVRG	-2.577 (0.013)	-1.810 (0.076)	-2.559 (0.013)
Adjusted R^2	19.4%	10.8%	19%
F-statistic	2.65 (0.017)		
Lagrange multiplier test	0.333 (0.560)		
Hausman test	6.51 (0.368)		
Heteroscedasticity test: White	13 (0.11)	20.2 (0.003)	

Hypothesis testing

Likewise *ROA*, both models (pooled and fixed) report that there is insignificant positive relationship between *ROE* and board size. This result is in line with the findings of Guest (2009) who found that there is no significant link between firm performance and board size. Hence, *H1* is rejected. In terms of board meetings, fixed effects model reports significant and positive relationship between *ROE* and board meetings. This result offer statistical support to *H2* that predicts statistical significant relationships between *ROE* and board meetings.

Moreover, it is supported by the findings of Karamanou and Vafeas (2005) and Mangena and Tauringana (2006). With respect to the board composition, all models show a negative and statistically insignificant relationship between *ROE* and board independence. Even though the result inconsistent with *H3*, which presumes that there is a significant relationship between *ROE* and board independence, it is in line with the prior findings of Ehikioya (2009) and Belkhir (2009) who found that there is a negative and statistically insignificant relationship between board compositions and bank's performance.

The current study also reports a statistically significant and negative relationship between board gender diversity and *ROE*. This indicates that the higher percentage of women sitting on the board of directors, the lower performance is generated. Moreover, this result supports the findings of Rose (2004) who found a significant negative relationship between these two variables. Finally, the statistically insignificant and positive relationship between *ROE* and role duality (*CEODU*) is found in all models which does not offer any statistical support of *H5*, which predicts a significant negative relationship between *ROA* and role duality. However, these results are consistent with the findings of Bozec (2005) who found insignificant relationship between role duality and firms' performance.

4.3.3. EPS and corporate governance variables

Table 7 represents the regression analysis of the *EPS* pooled model and panel models. The *adjusted R²* of the pooled model (50.5%) indicates that 50.5% of the variations in the *EPS* of sampled firms are explained by the quality of the independent variables of board structure. The fixed effect model has an *adjusted R²* of 46%, and the random effects model has an *adjusted R²* of 15%. Moreover, *F-value* of the model is statistically significant at the 1% level. This means that the coefficients on the corporate governance and the control variables can jointly explain significant variations in the sampled firms' *EPS*.

The insignificant value of the LM test (0.000) does not support the null hypothesis of no serial autocorrelation. Therefore, LM result indicates that the panel model is more appropriate for the data than the pooled models. Since the pooled model has the highest *adjusted R²* of 51%, it used in this study

to investigate the relationship of *EPS* with board diversity and the type of financial institutions, these variables do not change between years while they change between the groups. Therefore, they are excluded from the fixed effects model.

Additionally, the Hausman test is used to test the fixed effects model and the random effects model. The Hausman test Chi-square is 6.52 with insignificant statistical sign of 0.36 (at the 5% level, the random effects model would not be rejected). This indicates that the fixed effects model is the most appropriate model for the data used. In other words, the null hypothesis that assumes uncorrelated individual effects with the other regressors in the model is rejected because the use of such a hypothesis violates one of the Gauss-Markov assumptions due to the bias involved.

Finally, the insignificant sign for white heteroskedasticity test for the pooled model ($p = 0.247$) and the fixed effects models ($p = 0.161$) in Table 7, reveals that the null hypothesis of the disturbance variances' consistency is not rejected. Albeit of small sample size and dummy variables used (which may lead to insufficient number of degree of freedom of fixed model), the above result indicates that these models do not suffer from heteroskedasticity. This is one of the advantages of panel data which increases the degrees of freedom and reduces collinearity among variables due to the large number of data points involved. Moreover, it is in line with Gujarati (2003), who stated that the problem of heteroscedasticity is likely to be more common in cross-sectional than in time series and panel data, because variables tend to be of similar orders of magnitude whereas the data of cross-sectional tend to be of different orders of magnitude.

Table 7. Pooled and panel models of EPS

Independent variables	Pooled OLS t-value (sig.)	Fixed effects t-value (sig.)	Random effects t-value (sig.)
(Constant)	-2.552 (0.014)	-3.298 (0.002)	-1.063 (0.293)
BRSIZE	1.709 (0.094)	1.872 (0.067)	0.266 (0.791)
BRMEET	2.247 (0.029)	2.559 (0.014)	1.282 (0.205)
BRCMP	0.126 (0.900)	0.381 (0.705)	-0.325 (0.746)
BRDIV	-2.567 (0.013)		-1.626 (0.110)
CEODU	0.476 (0.636)	-0.739 (0.463)	0.788 (0.434)
BTYPE	0.474 (0.636)		0.372 (0.711)
SIZE	4.084 (0.000)	4.167 (0.000)	2.818 (0.007)
LVRG	-2.195 (0.033)	-1.235 (0.223)	-1.590 (0.118)
Adjusted R²	50.5%	46%	15%
F-statistic	8.02 (0.000)	8.8 (0.000)	2.2 (0.041)
Lagrange multiplier test	17.5 (0.000)		
Hausman test	6.52 (0.366)		
Heteroscedasticity test: White	10.4 (0.247)	9.22 (0.161)	

Hypothesis testing

This study finds a significant positive relationship between *EPS* and board size at a level 10 of significance. Thus, *H1* is accepted. The result is consistent with the findings of Belkhir (2009) and Amran and Ahmad (2009), among others, who found that board size is positively related to performance. Regarding board meeting, the finding of the present study reveals statistical support of *H2,* which assumes that there is a statistically significant relationship between *EPS* and board meetings.

Similarly to *ROA*, all models fail to provide statistical support of *H3* that predicts statistically significant relationship between *EPS* and board independence. Likewise, Guest (2008) found that there is no significant association between performance and board independence. The rational reason for this finding is that the outsider members of such boards appointed for political purposes to making it large and does not help performance (Kyereboah-Coleman & Biekpe, 2006).

In terms of board diversity, only the pooled model finds that the number of women directors on

the board is negatively associated with *EPS*. Finally, only the fixed effects model finds a negative but insignificant relationship between *EPS* and CEO duality. Therefore, an insignificant negative relationship between *EPS* and CEO duality does not support *H5*.

4.3.4. Dummy and control variables

Tables 5, 6, and 7 report the results of dummy and control variables. For dummy variables (Islamic and non-Islamic), only the pooled model of *ROA* shows evidence of a negative significant (0.01) relationship between Islamic financial institutions and performance, while this relationship is insignificant with *ROE* and *EPS*. The results indicate that Islamic institutions are of lower performance compared to non-Islamic institutions. The rational interpretation for this is that Islamic institutions do not have many instruments on the secondary market, which limits their ability to generate income equal to conventional institutions income. This is due to the prohibition imposed by Shariah on certain activities and instruments, such as *Riba* (interest), *Gharar* (uncertainty), and *Maysir* (gambling) (Ghayad, 2008). The result is consistent with the findings of Al-Tamimi (2010) who found that performance is associated negatively with Islamic banks than with conventional banks in the UAE.

Firm size is found to have a significant positive relationship with *EPS* and insignificant positive relationship with *ROE*. This result is in line with the findings of Yermack (1996) who found a significant positive relationship between firm size and its performance. In addition, insignificant positive relationship between firm size and *ROE* is consistent with the findings of Kyereboah-Coleman and Biekpe (2006). However, consistent with other prior studies' findings such as Henry (2008) and Amran and Ahmad (2009), firm size is negatively associated with *ROA*.

Finally, all models (except fixed and random models for *EPS*) show that all performance measures (*ROA, ROE,* and *EPS*) are found to have a significant negative relationship with leverage. These results indicate that the lower percentage of debt associated with higher performance. The result is in line with the findings of prior studies that found a significant negative relationship between performances of banks and leverage (e.g., Belkhir, 2009). In sum, regardless few outputs of random effects, there is no significant difference between the output of pooled and panel models in terms of the strength and directions of relationships. The difference is due to interaction between omitted variables (board diversity and the type of financial institutions) and the variables of models.

5. CONCLUSION

The study explores the effects of the corporate governance on Qatari financial institutions' performance. A review of the related literature identifies five variables of corporate governance, namely, board size, board frequency meetings, board composition, board diversity, and role duality. Three models are constructed and a set of hypotheses stated. These models are tested using a sample of 56 financial institutions listed in the Qatar exchange market. The study covers the period of four financial years from 2007 to 2010.

The results provide empirical evidences to reject the hypothesized negative relationship between firm performance and role duality. This finding supported the idea of stewardship theory that presumes that role duality associated with low managerial accountability that makes it hard to charge the blame for poor performance. In addition, instead of compensating one person, role duality needs extra compensation to the chairperson and CEO (Bozec, 2005). Another interesting finding is that board size has a significant and positive impact under *EPS* only. This result is in line with the findings of Haniffa and Hudaib (2006) who found that board size had positive and significant impact on some performance measures and insignificant with other performance measures. Moreover, the positive and significant relationships between board meetings with *ROE* and *EPS* are in line with Qatari Governance Code (2009), and the Corporate Governance Guidelines issued by Qatar Central Bank (QCB, 2008), the board should meet not less than six (6) times in a year. Furthermore, there is a positive and significant association between board independence and *ROA* and insignificant *ROE* and *EPS*. Furthermore, board diversity has a significant and negative impact on *ROE* and *EPS*. This finding is consistent with the findings of Rose (2004) who found negative and significant relationship between women sitting on the board of directors and firms' performance.

The result of this study should be interpreted in light of several limitations. First, the data was collected through publicly available data sources such as annual reports and other databases. Other data could be helpful to gain more of an insight. Second, the study used a small sample size from financial sector. Future studies could extend this study by including non-financial companies. Finally, the study focuses on the impact of board structure on financial performance. Other studied could examine the impact of ownership structure on performance.

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