

Journal of University Studies for inclusive Research

Vol.3, Issue 2 (2019), 292-316

USRIJ Pvt. Ltd.

The impact of board composition on firm performance: case of minority and company employees' representative directors

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1. Abstract

This study aims to detect the type of the relationship between board composition and firm performance of the finance firms listed in Qatar. It examines the issues of other studies that lacked defining this relation completely. It also tries to close the gap in the related work as provided in literature review. Multivariate linear regression is conducted using SPSS 22 Software Tool to test the proposed hypotheses. The results showed there is a significance impact of board size on the firm performance, ROA, ROE, asset, and PE. Conversely, there is no significance impact of board size on the EPS.

Keywords: Return on assets (ROA), Return on equity (ROE), Multivariate linear regression, board composition, firm performance

2. Introduction

In the current increasingly competitive and dynamic market environment, the applied managerial practices are the central factors influencing firm's operational and financial performance.

2.1. Problem

The goal of any firm is to construct and tolerate greater performance, in other words, a higher than the average performance of firms in the same industry. On the other hand, the meaning of performance can differ broadly between firms, and also between researchers. Firm performance can be measured in different ways such as total assets, revenues, ROA, ROE, PE. Researchers have usually used financial data such as the ratios of the stock prices to earnings, and stock prices to book values. A lot of research is done using firm performance as dependent variable. Therefore, we can represent firm performance by Return on Equity (ROE) and Return on Assets (ROA). This study uses two financial ratios: return on asset (net income divided by total assets or ROA) and return on investment (net income divided by invested capital or ROI). These measures are reliable with other studies on organizational performance and are frequently used by market and financial analysts in assessing a company's performance (Fauzi and Locke, 2012).

The problem of this study is about the definition of the type of the relationship between board composition and firm performance of the finance firms listed in Qatar.

This study tries to resolve the issues of other studies that lacked defining this relation correctly. It also tries to close the gap in the related work as provided below in literature review section.

However, the existing literature has not yet reached a consensus of what are the exact elements of board composition that have a direct influence on firm' performance. The board characteristics this research focuses on can be divided into 2 parts: board size and board independence.

2.2. Objectives

This study aims to achieve the following objectives:

- To determine the effect of board composition on the financial performance of the Qatari firms.
- To determine the effect of board size on Return on Assets (ROA) of the Qatari firms.
- To determine the effect of board size on Return on Equity (ROE) of the Qatari firms.

2.3. Questions

One of the main topics under research is to study the relationship between board composition and firm performance. Moreover, the type of this relationship also forms an uncertainty to the researchers among other specified elements of study issues. Therefore, it received great interest as well as provided contradicting results which motivates us to put more effort to investigate this subject matter.

This study establishes a new contribution to the literature by investigating the relationship between board composition and firm performance under a new context. In other words, it studies the reports about 46 companies in Qatar by reviewing their annual financial data in the year of 2015. The goal of this research is to examine and validate the hypotheses about board characteristics whether they affect the firm performance either positively or negatively.

Therefore, this study aims to answer the following questions:

- What is the effect of board composition on the financial performance of the Qatari firms?
- What is the effect of board size on Return on Assets (ROA) of the Qatari firms?
- What is the effect of board size on Return on Equity (ROE) of the Qatari firms?

2.4. Contribution

This study is around the association between board composition and firm performance. As well, the impact of board size on the Return on Equity (ROE) and Return on Assets (ROA) will also be investigated. The research question is: “What is the effect of board composition, based on the ethnicity and board size in the board of directors, on firm performance?” This study contributes to the literature in different ways.

First, replying the demand for an improved perception of the association between board composition and firm performance, the effect of board composition on firm performance is investigated. A second purpose is satisfying the study open research about a probable effect of a board size on the firm performance. This study is valuable for officials and controllers. Thus, it is significant for the directive to know the effect of board composition on firm performance.

This study is organized as follows. Section 2 provides an outline of the previous literature. The main reason for this research will be explained and hypotheses are designed based on the current literature. Section 3 describes the usage of the methodology and approach used in this study. This section describes the way in which an answer to the study questions are attained. The outcomes are offered in section four. The findings will be provided by use of tables. The last section of this paper comprises the conclusion that involves answers to the research questions. The borders of this study and suggestions for future research are also included in this section. Finally, references and appendices are specified.

3. Literature review

The literature review is divided into several subsections to cover the diverse aspects of this study general purpose. It consists of multiple variables and factors including board size, firm performance, ethnicity or minority.

3.1. Board Size

(Cheng, 2008) studied the consequence of various board sizes on variation of firm performance. The study was systematically directed and exposed that better boards carry less dangerous decisions, and so have less variable performance. On the other hand, reduced boards are more likely to have dangerous rapid returns and loss. Whereas these boards either minor or huge have their boundaries, they hold limited worth not seem in the other. The change between them is more mutual risk likely for minor boards in contradiction of circumspection in greater boards, and this is not the significance of director's individual capacities. However, the internal state shaped by its construction. The average performance indexes might have the like value in the long run. Further, the inferences of huge boards are still well thought-out, but requests a crucial development in performance. Minor boards have a advanced chance to be practiced in losses, which could be satisfied by dangerous developments further on. The medium-sized boards might not have the similar efficiency, and rather than receiving the best rewards of the previously specified board compositions, agonize from the drawbacks, such as inability to make decisions quickly, measured adjustment to new situations and unreasoning risk bearing in mind.

3.2. Firm performance

In the study of (Abbasi et al., 2012), an examination of the relation between trade governance approaches and firm value for 82 companies listed in Tehran Stock Exchange, in the food sector in the duration of 2002-2011.

They documented a positive association between the number of independent board members and firm performance.

Similarly, the study of (Prabowo and Simpsons, 2012) examined the association between board construction and firm performance in Indonesian non-financial companies. They exposed an insignificant association between the portion of independent directors on boards and firm performance for family-controlled companies in Indonesia. They yielded that this conclusion is inspired by the nonappearance of official developments in qualified to the choice of independent executives in Indonesia.

(Cook, 2013) studied the relationship between four company governance characteristics and six influences of firm performance on a sample of 62 firms listed on Canada's TSX-Venture Stock Exchange for duration from December 2012 to March 2013. He computed Logistic regression, ANOVA and t-test approaches to attain the results. They showed a negative relationship between the board size and Tobin's Q. In the regard of board independence, he also found that there was slight negative influence of the popular individuality of the board of executives on firm performance. Indeed, independent directors has no important influence on firm performance which might revealed worst consequences in contradiction of the proportion of independent directors' developments to preserve a popular of external. Finally, the association between gender diversity of the boards and performance has some mixed results. It showed a negative relation with the firm performance in spite of the low gender variety proportion of the boards.

(Giraldez and Hurtado, 2014) have examined the economic crisis from 114 Spanish listed companies, from 2007 to 2010. The findings presented that considering a greatest number of effective independent directors carries a protection of shareholder interests. Moreover, large board is negatively associated with shareholders value, and this negative association can be concentrated with an improved proportion of independent directors. Moreover, it is important to underline the appreciated role that these directors can play in the construction of the board and on the correct structures of decision making.

The work of (Rouf, 2015) studied the role of CEO, board independent director on firm performance for the listed non-financial companies in Dhaka Stock Exchange (DSE) in 2008 with a sample size of 93 non-financial firms. Conferring to the results of the study, the division of Bangladeshi non-financial companies' of CEO and firm performance can definitely influence board independent director and important firm performance.

3.3. Board composition and firm performance

3.3.1. Ethnicity or minority

Some studies define ethnicity as “the number of minorities in the board of directors”. Minorities include Asian, African, Hispanic, and Native Americans (Erhardt et al., 2003). The called minorities because these oppositions are non-whites (Joecks et al., 2013). The ethnicity in the board of directors is little for both woman and men (Singh et al, 2008). Thus, cultural minorities in the board rises the board composition.

(Erhardt et al., 2003) have uncovered a respectable relative between the presence of ethnic minorities on board and firm performance. Additionally, (Biggins,1999) stated that companies increasingly appreciate that the presence of ethnic minorities in the board definitely influences firm performance due to that ethnic composition in the board progresses a better customer service. Hence, (Carter et al., 2003) have exhibited a positive connotation between ethnicity and firm performance. However, later study of (Carter et al., 2010) have not distinguish sign that ethnic minorities can develop the financial performance of the firm. Though, they discover that there is no sign that ethnic minorities can negatively move firm performance.

Cook and Glass (2015) have studied the impact of ethnic minority board members on firm performance, well-defined by corporate governance and product development /innovation procedures. They practice board data analysis with time and firm layer fixed impacts to know how varied board positively linked with operative governance and product development.

Gupta et al. (2015) considered the consequence of gender and ethnic diversity on firm financial performance (ROA and ROE) and on non-financial performance. They measured the effect by firms' corporate social responsibility score, and they study a sample of US firms between 2003 and 2012. The outcomes presented that a more gender and ethnically diverse board might expand firm performance on social, environment and governance dimensions. However, it is not essentially to result in better financial performances.

As seen in the literature, there are many open issues to be studied more and investigated. There are many studies that have put more effort to convey and compromise the main challenging topic in this area. Therefore, these studies have only focused on the decisions that are less risky and more shaped to adhere diverse views than those of smaller members. In addition, there are some gaps in these studies. For example, the study of (Abbasi et al., 2012) has only investigated the association between trade governance methods and firm value and the study of (Prabowo and Simpsons, 2012) that examined the relationship between board structure and firm performance. Other studies showed a minor negative impact of the majority independence of the board of directors on firm performance and large board is negatively related with shareholders value. On the other hand, a few studies have presented a positive association between ethnicity and firm performance. Therefore, this study comes to provide more investigation of the factors that affect gender firm performance in Qatar.

3.4. Theoretical framework

3.4.1. Hypothesis development

We develop the following main hypothesis:

“There is a positive relationship between board composition and firm performance of Qatari firms”.

This hypothesis is analyzed and divided into two sub-hypotheses:

H1: There is a positive relationship between board size and Return of Assets (ROA) of Qatari firms.

H2: There is a positive relationship between board size and Return of Equity (ROE) of Qatari firms.

4. Research method

This research aims to study how the composition of the board of directors affects firm performance for 46 companies listed in Qatar finance industry. In other words, in this study, effect of board size; number of females, independent and foreign directors; on firm performance will be investigated.

This study uses the quantitative method. This study depends on the quantitative approach and presents an analysis of Qatar country. Data is collected from Qatar listed firms in the finance industry. The level of board composition of each company is determined and will be entered in SPSS. SPSS performs a regression to define the relationship between board composition and firm performance, and its possible influence this relationship.

The regression analysis will be performed on data to find the relationship between variables and to achieve the objectives of this study and then answer the questions and validate the hypotheses. The equation of regression analysis (Khadafi et al., 2014) is shown below:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + \epsilon$$

Where,

Y = profit growth

a = Constanta

X1 = Return on assets

X2 = Return on Equity

X3= Board size

X4 = Assets

X5 = EPS

X6 = PE

b₂b₃b₄b₅b₆b₁ = regression coefficient

€ = standard error

Khadafi, M., Heikal, M., & Ummah, A. (2014). Influence analysis of return on assets (ROA), return on equity (ROE), net profit margin (NPM), debt to equity ratio (DER), and current ratio (CR), against corporate profit growth in automotive in Indonesia Stock Exchange. *International Journal of Academic Research in Business and Social Sciences*, 4(12).

4.1. Sample selection

Firms included in the analysis are 46 company listed in Qatar and data about their performance were taken for 2015.

Table 1 shows the sample dataset obtained from www.asmainfo.com/qatar/en/list/companylist.aspx

Co id	Company Name	Ticker	ROA	ROE	board size	total assets	EPS QR	PE
101	Qatar National Bank	QNBK	2.09%	18.43%	99	538,607.14	16.1	10.87
102	Qatar Islamic Bank	QIBK	1.54%	14.56%	31	127,030.50	8.27	12.9
103	Commercial Bank of Qatar	CBQK	1.15%	9.65%	31	123,449.08	4.36	10.52
104	Doha Bank	DHBK	1.63%	10.21%	34	83,304.46	5.24	8.49
105	Al-Ahli Bank	ABQK	2.01%	14.27%	16	32,298.96	3.56	12.92
106	Qatar International Islamic Bank	QIIK	1.93%	14.18%	18	40,540.05	5.18	12.41
107	Masraf Al - Rayan	MARK	2.50%	17.22 %	9	83,026.23	2.76	13.6
109	Al Khalij Commercial Bank	KCBK	1.10%	10.45%	10	56,634.03	1.74	10.34
110	Qatar First Bank	QFBQ					5.65	14.51
201	Qatar Insurance	QATI	4.33%	17.96%	17	24,107.99	2.81	7.47
202	Doha Insurance	DOHI	7.22%	10.32 %	2	1,536.92	11.64	4.39
203	Qatar General Insurance & Reinsurance	QGRI	9.84%	14.72%	10	9,409.52	1.7	17.94
204	Al Khaleej Takaful Group	AKHI	4.06%	7.61%	4	1,068.74	5.47	13.17
205	Qatar Islamic	QISI	10.06%	24.24%	2	814.89	3.55	11.22

	Insurance							
301	Qatar Industrial Manufacturing	QIMD	9.13%	11.34%	0	1,848.26	8.58	11.88
302	National Cement Co.	QNCD	13.98%	16.29%	0	3,315.78	7.35	15.12
303	Industries Qatar	IQCD	12.43%	13.22%	0	35,758.45	7.44	11.4
304	Zad Holding Co.	ZHCD	7.67%	11.93%	0	2,091.14	1.95	10.65
305	United Development Co	UDCD	3.60%	6.32%	0	19,138.32	-0.99	- 13.87
306	Qatari German For Medical Devices	QGMD	-5.38%	- 11.05%	0	212.37	2.03	18.6
307	Qatari Investors Group	QIGD	5.78%	10.41%	0	4,357.36	6.61	11.34
308	Qatar Aluminium Manufacturing Company	QAMC					13.6 4	15.86
401	Ooredoo	ORDS	2.25%	2.25%	19	2.25%	14.8 4	9.94
402	Qatar Electricity & Watar Co	QEWS	11.16%	20.43%	0	13,450.11	0.99	11.94
404	Qatar Fuel Company	QFLS	13.02	18.07%	0	9,621.60	9.63	9.86
406	Salam International	SIIS	2.33%	6.72%	0	4,864.89	-1.78	-7.91
407	Qatar Navigation	QNNS	4.95%	8.00%	2	22,132.13	2.28	14.9
410	National Leasing Holding	NLCS	-6.79%	-6.79%	1	1,298.47	3.84	13.75
411	Qatar Cinema & Film Distribution	QCFS	8.55%	8.55%	8	167.65	3.89	14.62
412	Widam Food Company	WDA M	12.76%	25.88%	8	541.85	1.77	13.17
413	Gulf Warehousing Co	GWCS	6.21%	13.12%	0	2,980.54	-1.48	- 12.52
414	Qatar Gas Transport - Nakilat	QGTS	3.20%	22.11%	0	30,740.44	7.86	5.09
415	Dlala Holding	DBIS	- 4.99%	-4.99%	0	841.41	6.41	18.61
416	Barwa Real Estate Company	BRES	10.75%	10.75%	0	10.75%	11.6 8	8.16
417	Medicare Group	MCGS	13.96%	16.46%	0	1,292.01	0.95	14.66

418	Mannai Corporation	MCCS	7.77%	22.12%	7	6,859.66	0.58	21.12
419	Aamal Holding Company	AHCS	6.37%	8.07%	10	9,437.66	0.63	25.38
420	Qatar Oman Investment Company	QOIS	5.33%	5.33%	1	343.96	1.53	51.51
421	Ezdan Holding Group	ERES	3.54%	5.54%	2	46,938.76	4.31	11.94
422	Islamic Holding Group	IHGS	2.45%	9.86%	0	249.18	8.1	27.14
423	Gulf International Services	GISS	7.14%	20.40%	4	11,228.75	1.07	13.23
424	Vodafone Qatar	VFQS	-2.90%	-3.88%	47	7,443.99	0.87	22.42
425	Almeera Consumer Goods Company	MERS	8.24%	11.70%	0	1,966.37		
426	Mazaya Qatar Real Estate Development	MRDS	5.40%	8.17%	0	2,089.15		
427	Mesaieed Investment Holding	MPHC	7.60%	7.66%	1	14,312.75		
428		IGRD						

4.2. Data collection

For the analysis reasons, all data regarding firm's board properties and financial performance was collected from the annual reports of these firms that have been retrieved from firms' websites. The information about the board size could not be found in other datasets and was therefore collected manually with a use of annual reports. Data on other variables such as ROA and ROE was exported from the website.

4.3. Variables measurement

Board size can be defined as the total number of employers on the board including inclusive CEO, Chairman, Outside, executive, non- executive (Luckerath-Rovers, 2013). The board size per company during the year of 2015 of was later calculated.

4.4. Independent Variables

The presence of the independent variables is to provide a realization of the effect of factors influencing the performance of firms in a given period of time. Board size was taken as an independent variable. Firm's size can be interpreted as a measure of number of employees. It is significant to recognize that size of a firm cannot be perfectly predicted by the number of employees. For example, some large firms do not have many employees and they use machines that achieves extensive operations.

4.5. Dependent Variables

There is not only a single measure of performance, this study collects data on two profitability ratios, each with provision of finance and accounting literature, as well as earlier studies on this issue. These measures used to estimate firms' performance in this research are: Return on assets (ROA) and Return on equity (ROE). ROA comprises all available assets that contribute to earnings which equal to the division of net income over total assets). While, ROE is a suitable measure that relates to firm's earnings to assets invested by shareholders.

This profitability ratio displays the capacity of a firm to produce net profit with the available investments. While ROE only takes the assets provided by shareholders into account (Liu et al., 2013).

Various performance measures might yield multiple outcomes due to different other influences that may also have an effect of each of them. Financial measures can be classified into two categories: accounting measures and market-based measures. In accounting measures, like those included in this study ROA and ROE, focus on historical backward evaluation, whereas financial measures are associated with forward looking market value pointers and probable future earnings. ROA and ROE higher levels, the performance is higher (Wang et al., 2013).

4.6. Statistical analysis

In this section, we provide an explanation of how the data is analyzed and the results generated. Statistical analysis is a very essential approach for data analysis. It involves an application of different statistical methods to prove or defend the hypotheses. Moreover. It is a commonly used technique in many fields such as economic, management, mathematics, etc. Therefore, we apply statistical analysis measure, which is regression analysis.

5. Analysis and results

For data analysis, descriptive statistics will be developed to examine and compare firms involved in the sample. Multivariate linear regression is the appropriate technique for forecasting one variable from one or several other variables and to understand the relationship among them. Indeed, the purpose of this paper is to discover the influence of board size on firm performance indicators. Multivariate linear regression is conducted using SPSS 22 Software Tool to test the proposed hypotheses.

Table 1 presents descriptive statistics of the variables in the collected sample. The average board size ranges from 0 to 99. ROA ranges from -0.068 to 13.02. ROE values fall into -0.111 and 0.259.

Table 1: descriptive statistics

	Min	Max	MEAN	Std. Dev.	Skewness	Kurtosis
ROA	-.06800	13.02000	.3521186	1.97843145	6.551	42.944
ROE	-.11100	.25900	.1089912	.08088104	-.637-	.652
Board Size	.00000	99.00000	9.1395349	17.81863844	3.538	15.375
Asset	.02300	538,607.14000	31,864.1125800	85,122.18518000	5.318	31.370
EPS	-1.78000	16.10000	4.2632558	4.23683829	.987	.648
PE	-13.87000	51.51000	11.5900000	10.45461939	.652	5.108

Table 2 shows the correlation matrix between each pair of variables. It shows that there is a strong correlation between asset and board size.

Table 2: Correlation matrix

	ROA	ROE	Board Size	Asset	EPS	PE
ROA	1					
ROE	.155	1				
Board Size	-.087-	.067	1			
Asset	-.045-	.192	.861**	1		
EPS	.196	-.001-	.378*	.433**	1	
PE	-.028-	-.102-	.079	-.033-	.111	1

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

Table 3 shows the regression test result for the impact of board size on the firm performance. As shown, there is a significance impact of board size on the firm performance since the sig is higher than 0.05, and the f-value is 117.17. Also there is a positive relation between both variable since the r value equal 0.8606.

Table 3: Regression -test result for the impact of board size on the firm performance

Dependent variable: firm performance				
Independent Variable	R -Value	R ² Value	F value	sig
Board Size	0.860689	0.740785	117.170	0.000

Table 4 shows that there is a significance impact of board size on the ROA since the sig is higher than 0.05, and the f-value is 0.31. Further, there is a positive relation between both variable since the r value equal 0.087.

Table 4: Regression -test result for the impact of board size on ROA

Dependent variable : ROA				
Independent Variable	R -Value	R ² Value	F value	sig
Board Size	0.087275	0.007617	0.314691	0.577869

In Table 5, there is a significance impact of board size on the ROE since the sig is higher than 0.05, and the f-value is 0.18. Also there is a positive relation between both variable since the r value equal 0.066.

Table 5: Regression -test result for the impact of board size on ROE

Dependent variable: ROE				
Independent Variable	R -Value	R ² Value	F value	sig
Board Size	0.066660	0.00444	0.183	0.671

There is a significance impact of board size on the asset since the sig is higher than 0.05, and the f-value is 117.15. also there is a positive relation between both variable since the r value equal 0.861.

Table 6: Regression -test result for the impact of board size on Asset

Dependent variable : Asset				
Independent Variable	R -Value	R ² Value	F value	sig
Board Size	0.861	0.741	117.157	0.000

There is not significance impact of board size on the EPS since the sig is less than 0.05, also there is a positive relation between both variable since the r value equal 0.378.

Table 7: Regression -test result for the impact of board size on EPS

Dependent variable : EPS				
Independent Variable	R -Value	R ² Value	F value	sig
Board Size	0.378116	0.142971	6.839714	0.012420

Table 8 shows that there is a significance impact of board size on the PE since the sig is higher than 0.05, and the f-value is 0.259. Moreover, there is a positive relation between both variable since the r value equal 0.079.

Table 8: Regression -test result for the impact o

f board size on PE

Dependent Variable: PE				
Independent Variable	R -Value	R ² Value	F value	sig
Board Size	0.079313	0.006291	0.259546	0.613164

The results of this study are consistent with the study of Cook and Glass (2015) that have revealed positive impact of ethnic minority board members on firm performance. Moreover, it is agreed with Gupta et al. (2015) study that have shown that more gender and ethnically diverse board might improve firm performance. However, the results of (Cook, 2013) are proved by this study through showing the negative impact of gender diversity of the boards and performance. Lastly, the work of (Rouf, 2015) yielded similar results of the absence of the significant impact of independent directors on firm performance.

6. Conclusion

This study tried to determine the type of the relationship between board composition and firm performance of the finance firms listed in Qatar. It has covered and closed the issues of other studies that lacked defining this relation completely. It also tries to close the gap in the related work as provided in literature review. Board size was taken as an independent variable and dependent variables were Return on assets (ROA) and Return on equity (ROE). Multivariate linear regression was conducted using SPSS 22 Software Tool to test the proposed hypotheses.

The results showed there is a significance impact of board size on the firm performance, ROA, ROE, asset, and PE. In contrast, there is not significance impact of board size on the EPS. The key limitation of this study is the duration, sample and location conducted in which studied the companies listed in Qatar in 2015. Thus, future work could extend this study to later years and with larger sample size.

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