

Do the Board Characteristics influence the Firm Performance? An Experience with the Capital-Intensive Industries Listed in the Saudi Stock Exchange (TADAWUL)

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Abstract

The objective of the researchers in this article is to explore the relationship of board characteristics (board size, board meeting, number of board committees, board independence) on the firm performance (ROA & Tobin's Q) in Saudi Capital-Intensive Industries for the data period of 2017-2020. Many researchers have tried to measure this relationship in earlier research papers, but the Capital-Intensive Industries have not been exclusively tested so far. This paper aims at filling this gap and measure the relationship of exclusive board characteristics and firm performance Capital Intensive Industries listed in Saudi Stock Exchange (TADAWUL). We find board size influences the firm performance in an opposite direction. On the other hand, board meeting influences the firm performance in a positive direction and both the results are statistically significant. The other board characteristics are not influencing the firm performance in this study. Additionally, the firm size is influencing the firm performance (positively with ROA and negatively with Tobin's Q).

Keywords: corporate governance, board of directors, board committees, firm performance, Tobin's Q, ROE

JEL Classification: G 21, G 30, G 32, G 34, L 25, O16

1. Introduction

The principle of separation of ownership and management in the corporates, give rise to the agency conflict which in turn might lead to the misuse of managerial power and discretion (Tirole, 2006). In the recent past we have experienced such kind of agency conflict and poor corporate governance (Enron, Worldcom, Xerox, Lehman Brothers, Tyco, AIG, GM, the list goes on) all over the World. Corporate governance has been defined by Solomon & Solomon, (2010) as: "The system of checks and balances, both internal and external to companies, which ensures that companies discharge their accountability to all their stakeholders and act in a socially responsible way in all areas of their business activity". As per the OECD "Corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined". The researchers at academic and corporate world are continuously exploring the relationship of corporate governance with the corporate performance since last three decades (Jensen, 1993; Klein, 1998; Bhagat & Black 2001; Guest, 2009; Dalton & Dalton, 2011; Ujunwa, 2012; Pathan & Faff, 2013; Yeh & Trejos, 2015; Mustafa et al., 2017; Bajehar, 2019; Almoneef & Samontaray, 2019; Ganguli & Guha Deb, 2021; Fariha, Hossain & Ghosh, 2021).

Corporate governance in Saudi Arabia is as old as the Saudi Company law evolved in 1965. The latest Saudi Corporate Governance law is very elaborately being defined and the Saudi corporate governance code has been developed in the year 2006 by the Capital Market Authority (CMA) of Saudi Arabia (Resolution No. 1/212/2006, CMA, 2006). As per the new norm all the listed companies have to follow the guidelines and code strictly. Many researchers have tried to explore the relationship of corporate governance and firm performance in Saudi Arabia (Bajehar, 2019; Almoneef & Samontaray, 2019; Habbash & Bajaher, 2015; Osman & Samontaray, 2022).

The researchers in this current study tries to answer the question of whether the board characteristics influence the firm performance of Saudi listed companies, with a special reference to the capital-intensive industries. Though many researchers in their previous studies Examined this relationship (Bajeher, 2019; Almoneef & Samontaray, 2019; Habbash & Bajaher, 2015; Osman & Samontaray, 2022), but specific capital-intensive industries are unexplored till date. Under the capital-intensive industries we have considered four different industries viz the Capital Goods Industry, Transportation Industry, Energy Industry, and the Consumer Durables & Apparels Industry. This industry performance has not been tested in the Saudi market so far, which adds value through our research.

We have analyzed the descriptive statistics, conducted the correlation and multiple regression for testing whether the board characteristics influence the performance of Saudi capital-intensive industries. For measuring the firm performance (dependent variables) we have used ROA and Tobin's Q. Board characteristics (independent variables) are measured through board size, board independence, board meetings and number of board committees.

2. Literature Review and Hypotheses Development

Board size and Firm Performance:

Researchers in previous studies argued a larger board creates coordination problem (Jensen, 1993; Mustafa et al., 2017) and found a negative relationship between board size and firm performance (Amedi & Mustafa, 2020; Yeh & Trejos, 2015; Pathan & Faff, 2013; Ujunwa, 2012; Guest, 2009). On the contrary, there are research studies which conclude larger board size is more effective and there lies significant positive relationship between board size and firm performance (Neralla, 2022; Osman & Samontaray, 2022; Ganguli & Guha Deb, 2021; Bouteska, 2020; Almoneef & Samontaray, 2019). In contrast Bajeher, (2019) reveals that board size has no significant impact on firm performance.

H1A: Board size has a significant positive association with capital-intensive industries performance represented by ROA.

H1B: Board size has a significant positive association with capital-intensive industries performance represented by Tobin's Q.

Board Independence and Firm Performance: Here the researchers try to measure the relationship of number of independent directors on the firm performance. Studies show a negative and significance relationship of board independence with firm performance (return on assets and Tobin's Q) (Fariha, Hossain & Ghosh, 2021; Pathan & Faff, 2021). On the other hand, Osman & Samontaray (2022); Amedi & Mustafa, (2020); Bouteska (2020), in their respective studies accepted the hypothesis of positive significant relationship between board independence and firm performance. In other research studies, researchers could not find any significant association of board independence with the firm performance (Ganguli & Guha Deb, 2021; Bajeher, 2019; Dalton & Dalton, 2011; Bhagat & Black 2001).

H2A: Board independence has a significant positive association with capital-intensive industries performance represented by ROA.

H2B: Board independence has a significant positive association with capital-intensive industries performance represented by Tobin's Q.

Board Meeting and Firm Performance: This measure shows the relationship of financial performance with the number of board meetings held. Earlier Researchers experienced a positive significant relationship of number of board meetings held with ROA (Fariha, Hossain & Ghosh, 2021; Bouteska 2020). In contrast Almoneef & Samontaray (2019), proved a negative relationship between board meetings and ROA. Neralla, (2022), in his study has accepted the hypothesis of positive significant relationship of number of board meetings and firm performance (Tobin's Q). Few of other research studies, found an insignificant relationship between board meetings and financial performance (Bajeher, 2019; Naseem et al, 2017).

H3A: Board meeting has a significant positive association with capital-intensive industries performance represented by ROA.

H3B: Board meeting has a significant positive association with capital-intensive industries performance represented by Tobin's Q.

Number of Board Committees and Firm Performance: Here we studied the relationship of number of committees inside the board with the financial performance. Klein, (1998) found a positive relationship between the composition of board committees and firm performance. In another research study the authors revealed a

negative significant relationship between the number of board committees and firm performance (Almoneef & Samontaray, 2019) represented by Tobin's Q.

H4A: Number of board committees has a significant positive association with capital-intensive industries performance represented by ROA.

H4B: Number of board committees has a significant positive association with capital-intensive industries performance represented by Tobin's Q.

3. Methodology

3.1 Data Sample

As our study focuses on the capital-intensive industries, we have selected the four most capital-intensive industries viz. capital goods industry, transportation industries, energy industries and consumer durables & apparels industries. There are total thirty companies listed under these four industries. Out of total thirty companies we have considered those companies whose data is available for the whole sample period of 2017 – 2020. In this process it is further scaled down to 16 companies which became our final sample (Refer appendix A). The sample taken in our study is more than 50% of the population consisting capital-intensive industries of Saudi Arabia (listed in TADAWUL).

3.2 Data Source

The data used in this study are secondary in nature, collected from the sample companies' websites and the official website of Saudi Stock Exchange (TADAWUL).

3.3 Variables Selected

The dependent variables selected for the current study are return on asset and Tobin's Q (Fariha, Hossain & Ghosh, 2021; Bouteska 2020, Almoneef & Samontaray, 2019). The four independent variables selected are board size (Jensen, 1993; Mustafa et al., 2017; Amedi & Mustafa, 2020; Yeh & Trejos, 2015; Pathan & Faff, 2013; Ujunwa, 2012; Guest, 2009; Neralla, 2022; Osman & Samontaray, 2022; Ganguli & Guha Deb, 2021; Bouteska, 2020; Almoneef & Samontaray, 2019; Bajehar, 2019), board independence (Fariha, Hossain & Ghosh, 2021; Pathan & Faff, 2021, Ganguli & Guha Deb, 2021; Bajehar, 2019; Dalton & Dalton, 2011; Bhagat & Black 2001), board meeting (Fariha, Hossain & Ghosh, 2021; Bouteska 2020; Bajehar, 2019; Naseem et al, 2017; Almoneef & Samontaray, 2019) and number of board committees (Klein, 1998; Almoneef & Samontaray, 2019). Firm age and firm size are introduced as the control variables (Almoneef & Samontaray, 2019).

3.4 Models Proposed for the Study

We have used the Ordinary Least Square (OLS) regression analysis and proposed the following regression equation for our study:

$$ROA = \alpha + \beta_1 BSIZE + \beta_2 BMEET + \beta_3 NBCOM + \beta_4 BIND + \beta_5 SIZE + \beta_6 AGE + \epsilon$$

$$TQ = \alpha + \beta_1 BSIZE + \beta_2 BMEET + \beta_3 NBCOM + \beta_4 BIND + \beta_5 SIZE + \beta_6 AGE + \epsilon$$

Table 1. Variable definitions and measures

Summary of Methodology

Definition	Measurement
Dependent Variables	
ROA	EBIT/TA
Tobin's q	(Market Value of Equities + Book Value of Liabilities)/Book Value of Assets (Chung and Pruitt's 1994; Jiang et al. 2015; Pucheta-Martínez and Gallego-Álvarez 2020)
Independent Variables	
B. Size (Board Size)	No. of directors in the board
B. Meeting (Board Meeting)	No. of board meetings conducted during the year
N.B.Com (Number of BCs)	No. of Board committees available
BIND (Board Independence)	Percentage of independent directors on the board
Control Variables	
Firm Age	No. of years since inception
LNTA (Firm Size)	Natural Logarithm of Total Assets

4. Empirical Results and Discussion

4.1 Descriptive Statistics

As shown in table 2 the minimum number of board members are 5 where as the maximum goes to 12 with a standard deviation of 1.4. The number of independent directors is as low as 1 with a maximum of 7, give rise to a mean of 4 independent directors. There are 2 minimum numbers of meetings held whereas 9 meetings are held as maximum, with a mean of 5 meetings a year. The number of board committees are 2 minimum, 5 maximums with an average of 3 number of board committees. The age of the companies in the sample are 9 years minimum age and 67 years as the maximum age. The minimum size of the company is 13 million Saudi Riyals and maximum of 22 million with an average of 20 million. A large dispersion is seen in the Tobin's Q ratio of minimum 2.4 percent and maximum of 119318 percent, which shows a huge disparity of companies' market value to book value of the assets.

Table 2. Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
BSize	68	7	5	12	8.26	1.378	1.899
BInd	68	6	1	7	3.78	1.232	1.518
BMeet	68	7	2	9	5.18	1.516	2.297
NBCom	68	3	2	5	2.91	.768	.589
FAge	68	58	9	67	32.62	15.316	234.568
FSize	68	9.1251540	13.1451869	22.2703409	20.1430021	2.20762293	4.874
ROA	68	43.1%	-21.8%	21.3%	2.012%	7.5361%	56.792
TQ	66	119316%	2.4%	119318.4%	9359.4%	23169.7%	536839187.8
Valid N (listwise)	66						

4.2 Durbin Watson Test & Pearson Correlation Analysis

Table 3 shows the potential correlation among the variables taken for the study. This study will help us to understand that there is no major correlation between variables and the results of the regression analysis will be robust (Field, 2013). From the table 3, it is clear that there remains no high significant correlation between variables. To ensure there remains no auto correlation problem between the variables, we conducted the Durbin-Watson Test and made sure that the value remains between 1.5 – 2.5 (Kenton, 2021; Investopedia.com). We found there remains no serious auto-correlation problem between the variables (Value is within the range) when the dependent variable is Tobin's Q (Table 6). When it comes to dependent variable ROA, there remains slight positive auto-correlation as the Durbin-Watson value is slightly less than 1.5, at the same time it is more than 1, which is in the acceptable range.

4.3 Regression Analysis

We run the multiple regression analysis (Ordinary Least Square) technique (Fariha, Hossain & Ghosh, 2021) to test the relationship between the board characteristics and firm performance (ROA & Tobin's Q).

Analyzing table 5 we find that most of the board characteristics (except board size), are not statistically significant with the firm performance represented by ROA. The table 5 shows that board size has a significant negative association with firm performance represented by ROA. The result is in line with the previous findings of Amedi & Mustafa, 2020; Yeh & Trejos, 2015; Pathan & Faff, 2013; Ujunwa, 2012; Guest, 2009. Therefore, the hypothesis "1A", "2A", "3A" and "4A" are rejected. The findings here are supported by previous literature findings (Ganguli & Guha Deb, 2021; Bajehar, 2019; Dalton & Dalton, 2011; Bhagat & Black 2001, Bajehar, 2019; Naseem et al, 2017).

Referring to table 6 we find the adjusted R square is above the acceptable range of 0.4, which shows that the independent variables of board characteristics taken are well defining the dependent variable Tobin's Q. further the same table 6 shows the Durbin-Watson test score of 1.574, which shows the variables are neither positively nor negatively auto-correlated.

Table 3. Pearson Correlation Analysis

		BSize	BInd	BMeet	NBCom	FAge	FSize	ROA	TQ
BSize	P.Correlation	1	.536**	.213	.037	.026	-.178	-.355**	.265*
	Sig.		.000	.081	.767	.833	.147	.003	.032
BInd	P.Correlation	.536**	1	.133	.058	.200	-.284*	-.158	.220
	Sig.	.000		.279	.638	.103	.019	.197	.075
BMeet	P.Correlation	.213	.133	1	.001	.213	-.249*	-.214	.378**
	Sig.	.081	.279		.995	.082	.040	.080	.002
NBCom	P.Correlation	.037	.058	.001	1	-.188	.039	-.027	.033
	Sig.	.767	.638	.995		.124	.749	.828	.793
FAge	P.Correlation	.026	.200	.213	-.188	1	-.455**	-.274*	.364**
	Sig.	.833	.103	.082	.124		.000	.024	.003
FSize	P.Correlation	-.178	-.284*	-.249*	.039	-.455**	1	.361**	-.822**
	Sig.	.147	.019	.040	.749	.000		.003	.000
ROA	P.Correlation	-.355**	-.158	-.214	-.027	-.274*	.361**	1	-.238
	Sig.	.003	.197	.080	.828	.024	.003		.054
TQ	P.Correlation	.265*	.220	.378**	.033	.364**	-.822**	-.238	1
	Sig.	.032	.075	.002	.793	.003	.000	.054	

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

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

N = 68, P. Correlation is Pearson Correlation

Table 4. Model Summary (Dep Variable: ROA)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.511 ^a	.261	.189	6.7878%	1.248

a. Predictors: (Constant), FSize, NBCom, BSize, BMeet, FAge, BInd

Table 5. Coefficients (Dep Variable: ROA)

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	4.988	12.731			.392	.697
	BSize	-2.078	.731	-.380		-2.842	.006
	BInd	.996	.830	.163		1.200	.235
	BMeet	-.270	.580	-.054		-.465	.643
	NBCom	-.659	1.107	-.067		-.595	.554
	FAge	-.092	.063	-.187		-1.451	.152
	FSize	.831	.439	.244		1.895	.063

Table 6. Model Summary (Dep Variable: TQ)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.850 ^a	.722	.693	12828.2498%	1.574

a. Predictors: (Constant), FSize, NBCom, BSize, BMeet, FAge, BInd

Table 7. Coefficients (Dep Variable: TQ)

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	143206.078	25122.345			5.700	.000
	BSize	2127.118	1491.142	.117		1.427	.159
	BInd	-1816.444	1569.954	-.095		-1.157	.252
	BMeet	2504.658	1125.335	.164		2.226	.030
	NBCom	2148.458	2115.482	.071		1.016	.314
	FAge	2.330	120.489	.002		.019	.985
	FSize	-8140.885	833.582	-.787		-9.766	.000

Table 7 shows board meeting is positively associated with firm performance represented by Tobin's Q. The result is similar with previous studies conducted by Neralla, (2022). Whereas the results are in contrast with studies conducted by Bajehar, (2019); and Naseem et al, (2017). Therefore, hypothesis H3B is accepted. No other board characteristics are significantly associated with firm performance (Tobin's Q), neither positive nor negative as well. The results are supported by previous studies (Bajehar, 2019; Ganguli & Guha Deb, 2021; Bajehar, 2019; Dalton & Dalton, 2011; Bhagat & Black, 2001).

5. Conclusion

The current study examines the relationship between the board characteristics and firm performance (ROA & Tobin's Q) in Saudi Capital-Intensive Industries. 16 sample company's data have been analyzed for the sample period of 2017-20. We find board size influences the firm performance in an opposite direction. On the other hand, board meeting influences the firm performance in a positive direction and both the results are statistically significant.

As there is no specific study for these industries, we want to add value undertaking such study. We found Board of Directors play an important part in the corporate sectors (intermediate between the shareholders and the managers), therefore we wanted to test the relationship in the Saudi capital-intensive industries.

The outputs of this study will be helpful for the regulators and policy makers (CMA, TADAWUL etc.) to frame more specific guidelines as necessary. Based on the current findings more importance may be provided on true independence and freedom of opinion of the independent non-executive director.

As the sample of the study is the capital-intensive industries in Saudi Arabia, this study might be extended to other industries in future. Similarly, the period of the study might be extended to pre and post pandemic event study.

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Appendix A: List of Sample Companies Considered for the Analysis

1- Capital Goods Industry (4 out of 12 companies taken)

- 1- Astra Industrial Group (1212 ASTRA INDUSTRIAL)
- 2- Electrical Industries Company (1303 EIC)
- 3- Saudi Ceramic Company (2040 SAUDI CERAMICS)
- 4- Company Cables Company (2110 SAUDI CABLE)

2- Transportation Industries (5 out of 6 companies taken)

- 5- Saudi Industrial Services Company (2190 SISCO)
- 6- Saudi Ground Services (4031 SGS)
- 7- Saudi Public Transport Company (4040 SAPTCO)
- 8- Batic Investments and Logistics (4110 BATIC)
- 9- United International Transportation Company (4260 BUDGET SAUDI)

3- Energy Industries (3 out of 5 companies taken)

- 10- Saudi Arabia Refineries Company (2030 SARCO)
- 11- Rabigh Refining and Petrochemical Company (2380 PETRO RABIGH)
- 12- National Shipping Company of Saudi Arabia (4030 BAHRI)

4- Consumer Durables & Apparels Industries (4 out of 6 companies taken)

- 13- Naseej International Trading Company (1213 NASEEJ)
- 14- Saudi Industrial Development Company (2130 SIDC)

15- Lazurde Company for Jewelry (4011 LAZURDE)

16- Fitaihi Holding Group (4180 FITAIHI GROUP)

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