

Corporate Board Structure and Firm Performance: The Context of Pharmaceutical Industry in Bangladesh

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Abstract

This study examines the influence of board structure on firm's financial performance in the pharmaceutical industry of Bangladesh. Based on existing empirical studies, four major board attributes (board composition, board size, board ownership and CEO duality) have been selected to identify their influence on firm's financial performance. Tobin's Q (a market based performance measure) and Return on Asset- ROA (an accounting based performance measure) are considered as financial performance measures. Findings from the study show that there is a significant negative relation between board size and firm's financial performance. However, association between other three variables- board composition, board ownership and CEO duality with financial performance is insignificant to draw a conclusion. The study recommends smaller but representative board size for pharmaceutical companies of Bangladesh. In addition, this paper argues that as the board of directors are supposed to ensure monitoring activities to increase firm performance; the composition of outside directors as board members should be increased to make it representative.

Keywords: board structure, corporate governance, firm performance, pharmaceutical industry, Bangladesh

1. Introduction

The United Kingdom Cadbury Report (Cadbury, 1992, p. 15) defines corporate governance as "the system by which companies are directed and controlled", including board practices and composition and their relationship to firm performance. Corporate governance covers the concepts, theories and practices of boards and their directors and the relationship between boards and shareholders, top management, regulators and auditors and other stakeholders (Huq & Bhuiyan, 2012). Some empirical investigations found that good corporate governance have a positive effect on firm's performance and market value (Sami, Wang, & Zhou, 2008). Thus, the recent worldwide corporate outrages raise the necessity for evaluating performance of the board in managing firm's activities.

Board performance of its monitoring duties usually is influenced by the effectiveness of the board, which in turn is influenced by factors such as board composition and quality, size of boards, duality of CEO/Chairman positions, board diversity and ownership, information asymmetries and board culture (Brennan, 2006). The board composition refers to the ratio of non-executive directors and executive directors on the board as a means of monitoring the management (Rashid, 2009) including diversity of board members, and CEO duality. The practices of corporate board structure vary from industry to industry within a country.

Following the large number of corporate collapses around the world, considerable research on corporate governance is conducted within the developed countries context, such as the United States, the United Kingdom, Australia, Germany and Japan but such studies are not adequately conducted to date for an emerging economy, such as Bangladesh (Rashid, 2009). All these studies generated mixed result whether board structure especially dominance of outside directors, CEO duality or even board size have an impact on firm performance (Rashid, Zoysa, Lodh, & Rudkin, 2010a).

Studies by Rashid et al. (2010a) on board composition and firm performance; Rashid (2009) on board composition, board leadership structure and firm performance in the context of Bangladesh are insufficient to

comment about a particular industry performance as these studies focused on overall secondary market, mixing different industries. Moreover, these studies did not include all representative variables of board structure for evaluating firm's financial performance. Along with this, so far concerned, none of the studies have focused on the impact of board structure on the firm performance for pharmaceutical Industry of Bangladesh.

Pharmaceutical sector of Bangladesh is the third largest industry in terms of contribution to government's revenue (Saad, 2012). There are about 250 registered small, medium, large and multinational pharmaceutical companies (a little over 100 are operating) in the country producing around 97% of the local demand and exporting the rest. It exported worth of 3813.50 thousand taka pharmaceutical products to 83 countries including Europe and America in 2010 (Bangladesh Bureau of Statistics). Globally, Bangladesh market has demonstrated the highest growth among all countries in 2010 (IMS Health). This market scenario indicates the need for increasing firms' performance through good governance practice.

Thus the aim of this research is to examine the influence of corporate board structure on firm's performance in the pharmaceutical industry of Bangladesh. To achieve this aim, research objectives for the study are to examine the pattern of board structure in pharmaceutical companies of Bangladesh, and to examine whether different variables of board structure have any influence on firm performance in pharmaceutical companies of Bangladesh. Therefore, the study extends and contributes to the body of research using data collected on pharmaceutical companies of Bangladesh and evaluating the impact of board structure on financial performance of the companies. The outcome will be further helpful to the decision makers of pharmaceutical companies as this sector was rarely explored earlier on this regard.

The reminder of this paper is organized as follows. Section 2 reviews the literature on board structure and firm's performance especially four main board attributes- board composition, board size, board ownership and CEO duality. The methodology of the study is proposed and described in section 3. Section 4 provides the results and discussion on statistical analysis from the collected data on different variables. Conclusions and decision implications are presented in section 5.

2. Literature Review

2.1 Board Composition and Firm's Financial Performance

Composition of the board of directors, as a corporate governance component had recognition a growing attention for the success of a firm and consequently, practitioners and academia had tried to find a proper construction of board structure by linking this with performance (Ranasinghe, 2010). While numbers of empirical study have already done in the context of developed countries, these are inadequate for developing countries (Rashid, 2009). However, the results have been diverse (Kumar & Singh, 2012). Postma, Ees, and Sterken, (1996) found negative relationship between the size and composition (number of outsiders) of the supervisory board and firm performance for listed Dutch firms.

Moreover, Rashid et al. (2010a) concluded that the outside (independent) directors cannot add potential value to the firm's economic performance in Bangladesh based on an observation of 274 Bangladeshi firm-years. Berkman, Cole, Lee, and Veeraraghavan (2005), Rashid and Lodh (2008) and Moscu (2013) also confirmed the negative association. However, when assessing the relationship between board composition and firm performance Rashid, Fairuz, and Husein (2010b), Awan (2012), and Liang and Li (1999) found significant positive relationship. Moreover, Callen, Klein and Tinkelman (2003), and Erhardt, Werbel and Shrader (2003), also found a positive correlation between board composition and financial performance.

However, Kumar and Singh (2012), Latif et al. (2013) and Ranasinghe (2010) found no statistically significant relationship between composition of a firm and its financial performance. Bermig and Frick (2010) and Ness, Miesing, and Kang (2010) were unable to find a consistent relationship between board size or board composition and firm performance. Moreover Chatterjee (2011), Darmadi (2010), and Shakir (2008) found inconclusive and mixed relation between board structure, specifically board composition and firm performance.

H₁: There is a negative relationship between board composition and corporate performance.

2.2 Board Size and Corporate Financial Performance

Board size is an important attribute of board structure. It is determined on the basis of how much it influences the communication & coordination and control management of a firm (Saha & Akter, 2013). While large board size is considered fruitful for firms to secure its valuable resources and to reduce uncertainties (Goodstein, Gautum, & Boeker, 1994; Pearce & Zahra, 1992; Pfeffer, 1983; Uadiale, 2010) some other found potential problems with it. As Yermack (1996) found that there is an impediment on firm performance when coordination, communication and decision-making are completed among large number of directors. However, larger board size

might initially facilitate key board functions of firm which successively creates coordination and communication problems (Jensen, 1993; Lipton & Lorsch, 1992). Thus many scholars preferred for a small board consist of eight to nine members (Jensen, 1993; Lipton & Lorsch, 1992) which might be industry specific (Adams & Mehran, 2003) or firm specific variables (Boone, Field, Karpoff, & Raheja, 2007; Coles, Daniel, & Naveen, 2008; Guest, 2008; Lehn, Sukesh, & Zhao, 2004; Linck, Netter, & Yang, 2008).

With some exceptions, the majority of existing empirical evidence relating to the impact of board size shows a negative result on firm's performance. Eisenberg, Sundgren, and Wells (1998) based on Yermack (1996) find negative relationship between board size and firm performance for small private firms in Finland. Moreover, Loderer and Peyer (2002), Mak and Kusnadi (2005), Haniffa and Hudaib (2006) found a significantly negative impact on Tobin's Q. Some other US empirical studies confirm the same results (Cheng, Evans, & Nagarajan, 2007; Coles et al., 2008; Hermalin & Weisbach, 2003; Huther, 1997). However, Dehaene, De Vuyst, and Ooghe (2001) found a positive relation between board size and company performance. Adams and Mehran (2005), Beiner, Drobetz, Schmid, and Zimmermann (2004 and 2006), Dalton, Daily, Johnson, and Ellstrand (1999) also confirm the positive effect of board size on firm performance. Connelly and Limpaphayom (2004) found no relation between board size and firm performance.

H₂: There is a negative relationship between board size and firm's financial performance.

2.3 Board Ownership and Firm's Financial Performance

Board ownership, the proportion of total equity owned by executive and non-executive directors, indicates the level of ownership of the directors along with their monitoring power within organization. To implement effective corporate governance, Board of directors is responsible for suggesting and implementing major strategies for the firm. However, because of agency conflict, directors often failed to represent the interest of shareholders (Saha & Arifuzzaman, 2011). Creating a sense of ownership through board ownership is one of several means that can lessen this agency conflicts (Eisenhardt, 1989; Fauzi & Locke, 2012; Roberts, McNulty, & Stiles, 2005; Shleifer & Vishny, 1997).

Several previous studies have addressed the relationship between ownership structure and firm performance and find mixed results regarding how ownership structure create impact on firms' performance. Morck, Shleifer and Vishny (1988), McConnell and Servaes (1990) found a significant relationship between managerial ownership and firm performance. However, Demsetz and Lehn (1985) found no link between ownership structure and firm performance. Moreover, from the perspective of corporate performance, Demsetz (1983) implies that increasing board ownership might reduce corporate performance. Confirming the same result, Morck et al. (1988) found that firm performance first rises as ownership increases up to 5%, then falls as ownership increases up to 25% and then rises slightly at higher ownership levels.

H₃: There is a negative relationship between board ownership and firm's financial performance.

2.4 CEO-Chairman Duality and Firm's Financial Performance

Chief Executive Officer (CEO) duality refers to the leadership nature of board structure in which the CEO plays the dual role of chairman of the board also. There are two basic schools of scholar who debate on the issue of CEO duality and its impact on firm performance. Based on the core concept of agency theory one school of scholar supports separation of the CEO-Chairman positions would maximize firm performance (Gillan, 2006; Harris & Helfat, 1998; Shleifer & Vishny, 1997), as the board has a neutral authority to supervise the CEO's tasks. However, the empirical evidence for this relationship is inconclusive and mixed.

Another school of scholar supports for same position of CEO-Chairman as it reflects the stewardship theory of management. When the two positions CEO-Chairman are performed by one person, it ensures the monitoring and implementing control throughout the firm (Adams, Almeida, & Ferreira, 2005; Davis, Schoorman, & Donaldson, 1997; Finkelstein & D'Aveni, 1994). Previous studies thus indicate both dual CEO and non-dual CEO firm can increase firm performance which is inconclusive to generate a single direction (Brickley, Coles, & Jarrell, 1997; Cannella & Lubatkin, 1993; Daily & Dalton, 1997; Donaldson & Davis, 1991).

H₄: There is a negative relationship between CEO duality and corporate performance.

3. Methodology

3.1 Sample Selection

Using a survey research design, this study adopts a quantitative research approach to get a complete understanding of the research problems. Research using this approach can provide reliability, causality and ability to generalize (Bryman, 2001). Since, this study is on board structure of pharmaceutical industry of

Bangladesh, population is made up of pharmaceutical companies listed in Dhaka Stock Exchange (DSE). However, pharmaceutical companies are listed here under the category of “Pharmaceutical and Chemical Company” (Table 1), thus only listed pharmaceutical companies are considered instead of all for sample selection.

Table 1. Pharmaceuticals and chemicals companies listed in dhaka stock exchange

Categories		Quantity	
Total Companies	Medical Support	4	25
Pharmaceuticals	Chemicals	4	12
Others	Others	5	13

Source: Dhaka Stock Exchange.

Among these 12 pharmaceutical companies in DSE (Saha & Bhuiyan, 2014), two firms have been listed recently in and after 2013 and hence. Besides, another leading pharmaceutical company prepares its annual report based on its all three main operational business units, where pharmaceutical is only one unit. So the annual report of this company does not reflect the sole effect of operational performance of pharmaceutical unit of the company. Therefore, only nine out of eleven companies are actually eligible for selecting samples. Name of the pharmaceutical companies listed in DSE are presented in Table 2.

Table 2. Listed pharmaceutical companies in DSE

ACI Limited
Ambee Pharma
Beacon Pharmaceuticals Limited
Beximco Pharma
Central Pharmaceuticals Limited
Glaxo SmithKline
The Ibn Sina
Orion Pharma Ltd.
Reckitt Benckiser (BD) Ltd.
Renata Ltd.
Square Pharmaceuticals Ltd

Source: Dhaka Stock Exchange.

Eligible 9 firms have been selected for a period of 10 years (2005-2014), generating a total observations of 90. Thus, this study considers 9 pharmaceutical companies listed on the Dhaka Stock Exchange (DSE) which represents 75% of the total listed pharmaceutical companies December, 2014.

3.2 Data Collection

Company’s accounting information, such as, total assets, total liabilities and equities, net sales, net income, operating income, operating expenses, executive’s pay, has been collected from these annual reports. Other issues like, total number of directors, number of outside independent directors and CEO duality are also collected from the same sources. Some market value of the closing share price was collected from Dhaka Stock Exchange web page (at www.dsebd.org) and from the DSE library resources.

3.3 Dependent and Independent Variable

In the study, two different dependent variables have been adopted to measure firm’s financial performance. One is Return on Assets (ROA) (an accounting based performance measure)-calculated as “Earnings before Interest and Taxes” (EBIT) scaled by the book value of total assets and another one is Tobin’s Q-the ratio of the market value of the firm to the replacement cost of their assets (a market based performance measure). Based on the existing relevant empirical studies, the independent variables for this study are-board composition, board size, board ownership and CEO duality. Board composition refers to the percentage of membership held by the outside independent directors. Board size represents the total number of directors on the board. Moreover, board ownership refers to the proportion of the total equity owned by executive and non-executive directors

respectively. CEO-duality is considered as a binary, which is equal to be one (1) if the CEO and chairperson positions are held by the same individual, otherwise zero (0), all of which has also been considered in prior studies (Rashid, 2009; Rashid et al., 2010a; Uadiale, 2010).

3.4 Statistical Analysis

In order to examine the relationship between board structure and firm performance, the following model is developed:

$$Y_{i,t} = \alpha + \beta_1 BDCOMP_{i,t} + \beta_2 BDSIZE_{i,t} + \beta_3 BDOSHIP_{i,t} + \beta_4 CEOD_{i,t} + \varepsilon$$

Where,

$Y_{i,t}$ is alternatively ROA_{*i,t*} and Tobin's Q_{*i,t*},

BDCOMP_{*i,t*} is the board composition for *i*th firm at time *t*,

BDSIZE_{*i,t*} is the board size for *i*th firm at time *t*,

BDOSHIP_{*i,t*} is the board ownership for *i*th firm at time *t*,

CEOD_{*i,t*} is the CEO duality for *i*th firm at time *t*,

α is the intercept, β_i is the regression coefficient and ε is the error term,

The subscript *i* represents the different firms and *t* represents the different years.

4. Empirical Result Analysis

Table 3. Descriptive statistics

Variables	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
Tobin's Q Ratio	0.693	6.145	2.870	1.456	0.670	-0.031
Return on Asset	0.044	0.285	0.150	0.067	-0.263	-0.851
Board Composition	0.091	0.250	0.151	0.054	0.993	-0.433
Board Size	7.000	11.000	8.300	1.264	0.705	-0.117
Board Ownership	0.000	0.345	0.137	0.142	0.433	-1.471
CEO Duality	0.000	1.000	0.200	0.407	1.580	0.527

To test the propositions made on this study, this section is devoted to present the result of the analysis conducted on collected data. Data has been analyzed using the Statistical Package for Social Sciences, (SPSS Version 16.0). The descriptive statistics of all the variables used in the study are shown in table 3. As shown in the table, average firm performance is 287% ranging from 69.30% to 614.50% under Tobin's Q performance measure and 15% ranging from 4.40% to 28.5% under the ROA performance measure. It indicates that for every BDT 100 invested as asset there is a return of BDT 15. The average board composition is found to be 15.10% ranging from 9.10% to 25%. The result indicates that, there is 15.10% outside directors sitting on the board for selected firms of the study. On the other hand, the average board size is 8.30 directors, ranging from a minimum of 7 directors to a maximum of 11 directors. The result also indicates that the proportion of total equity owned by executive and non-executive directors is 13.70% ranging from 0% to 34.50%. The categorization of the sample revealed that approximately 20% of the sample firms have the CEO duality. It indicates that 80% of the sampled firms have separate persons occupying the positions of the chief executive and the board chair and 20% of those have the same person occupying the both positions. The skewness and Kurtosis of the variables show that the data are linear and normally distributed.

Table 4. Correlation coefficient among variables

	TOBQ	ROA	BDCOMP	BDSIZE	BDOSHIP	CEODUAL
TOBQ	1					
ROA	0.777**	1				
BDCOMP	0.200	0.208	1			
BDSIZE	-0.628**	-0.749**	-0.338	1		
BDOSHIP	-0.279	-0.197	-0.511**	0.394*	1	
CEODUAL	0.149	0.363*	0.256	-0.389	-0.487**	1

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

To measure the degree of multicollinearity among the variables, Pearson correlation analysis is conducted on the variables. The results are shown in Table 4. Tobin's Q is positively related with ROA and is significant at the level of 0.01. Moreover, similar result is also come out for board composition and CEO duality though not significant. However, Tobin's Q is negatively related with board size (significant at the level of 0.01) and board ownership (not significant). On the other hand, beside a positive association with Tobin's Q, ROA is positively related with board composition and CEO duality though not significant. However, it is negatively associated with both board ownership (insignificant) and board size (significant at the level of 0.01). Moreover, a negative relation is observed between board size and board ownership and is significant at the level of 0.05. On the other hand, there is a negative association between board ownership and CEO duality (significant at the level of 0.01). A negative association is found between board ownership and board composition (significant at the level of 0.01). Thus, multicollinearity is not a problem in the distribution as the highest correlation amongst the explanatory variables found is -0.511, which is acceptable (Haniffa & Hudaib, 2006). VIF test confirms that there is no presence of unacceptable multicollinearity issue.

Table 5. Board structure and firm performance under different performance measures

	Dependent Variable	
	Tobin's Q	ROA
Intercept	9.584 (4.4743)*	0.464 (6.011)*
BDCOMP	-1.141 (-0.234)	0.004 (0.002)
BDSIZE	-0.755 (-3.750)*	-0.040 (-5.187)*
BDOSHIP	-1.205 (-0.586)	0.084 (1.066)
CEODUAL	-0.546 (-0.842)	0.025 (1.013)
Adjusted R Square	0.319*	0.523*
F Statistics	4.397*	8.959*

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

Table 5 shows the results of the coefficient estimates with both Tobin's Q and ROA as dependent variable. Besides, the table also shows the model summary of regression analysis with adjusted R square measure and F statistics value. The adjusted R square value, indicating the explanatory power of the independent variables, is 0.319 and 0.523 respectively for Tobin's Q and ROA. It indicates that 31.90% of the variation in Tobin's Q and 52.30% of the variation in ROA is explained by the variation in the independent variables. From the result of the analysis, the analysis of variance (ANOVA) generates a significant p-value of 0.008 and 0.000 for Tobin's Q and ROA respectively, indicating model is significant at level of 0.01. This shows that the explanatory variables are linearly related to both measures of firm's performance and the model seems to have some validity.

Table 5 also shows that only board size is significantly associated with both dependent variables and in both cases it is significant at the level of 0.01. It also indicates that, board size is negatively related with Tobin's Q. Moreover, a similar negative association is expressed between board size and ROA. Tobin's Q is negatively associated with others independent variables (e.g. board composition, board ownership and CEO duality) but it is not significant. On the other hand, ROA is positively associated with other independent variables (e.g. board composition, board ownership and CEO duality) but it is also not significant.

5. Conclusion

The aim of this study is to empirically examine the impact of board structure on financial performance in listed pharmaceuticals companies of Bangladesh. Based on previous empirical studies of this nature, a number of variables have been identified that to explain the financial performance of companies. Collected data on these variables including Tobin's Q, ROA, Board Composition, Board Size, Board Ownership, and CEO duality are thus analyzed to test the hypothesis proposed in the study.

Results generated from the data analysis show that there is a strong negative association between board size and firm's financial performance. The result is significantly consistent for both market based performance measure (Tobin's Q ratio) and accounting based performance measure (ROA). Though average board size of 8 members is consistent with the suggestion of Jensen (1993) and Lipton and Lorsch (1992), such a board is only responsible for a negative financial performance for listed pharmaceutical companies of Bangladesh.

Other than the board size, there is no significant relationship between selected independent variables and firm's financial performances. This finding indicates some similarity with Rashid (2009) and Rashid et al. (2010a). Besides, the proportion of outside independent directors in board is only 14.60% on average; indicating that they certainly have little influence in firm's performance. A board consist of majority inside directors have no significant relationship with firm's financial performance. Lack of monitoring, transparency and too concentrated of family ownership might be the reason. Moreover, confirming the situation, descriptive statistics also shows that for the sampled firm, financial performance is very poor under accounting performance measures, whereas it is surprisingly outstanding under the market based performance measures. This finding is similar with Rashid (2009) and Rashid et al. (2010a).

Therefore, this study recommends that a small but representative board size for pharmaceutical companies of Bangladesh. As board of directors are supposed to ensure monitoring the activities to increase firm performance, the composition of outside directors as members of the board should be increased so that it could be representative. Furthermore, this study may be improved by including more firms and some other variables that may affect corporate financial performance. This study could be further extended to other industry and a comparative analysis could be performed between Bangladesh and other developing countries.

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