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The Effect of Corporate Governance Practice on Firms' Profitability in the Manufacturing Industry of Bangladesh

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ABSTRACT

Purpose: The main purpose of this study is to find the extent of corporate governance practice impacting profitability of the manufacturing companies in Bangladesh.
Methodology: To investigate the impact, 103 firm-years have been used as a sample from the manufacturing sector of Bangladesh. Besides, Pooled OLS robust regression models have been used here to analyze.
Findings: The regression result shows that there is a significant positive relationship between female directors in the board and ROE of the company, and a significant negative relationship between family dominance in the board and ROE of the company. But the result does not show any significant relationship between corporate governance practices and ROA. However, there is a significant positive relationship between female directors in a board and EPS, and audit firm quality and EPS of the firm. There is also a significant negative relationship between family dominance in the board and EPS.
Limitations: The study is limited to some fixed industry data and time period and the results can vary if time period and industries are changed.
Practical Implications: In the paper, empirical evidence suggests that corporate governance mechanisms can be used as effective tools to improve performance of the firms, and it can help the policy makers and regulators to set regulations in the developing countries like Bangladesh.
Originality/Value: The uniqueness of the paper is the industry setting, as most of the researches use the banking sector, a very highly regularized sector, to show the effect. The study has used information from manufacturing industry and it also has used more variables than the variables used in previous studies to define corporate governance.

1. Introduction

Generally, corporate governance is defined as a set of rules and regulations as well as laws and policies that affect the administration, direction, and control of an organization. The importance of corporate governance, at first, came into focus after the corporate

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failure of different reputed organizations around the world during the early 2000s. After that incidence, many years have passed and Bangladesh has improved a lot in the corporate sector. As a developing country, Bangladesh has to be very careful about the matter. To do so, the fairness, transparency, and accountability of operating companies have to be ensured. On the other hand, corporate governance is a very important tool for maintaining the sustainable economic development of a firm. Bangladesh is also being pressurized by the international communities to follow an international, comparable corporate governance framework (Hossain, 2017). As a response to these issues, Bangladesh first introduced corporate governance guideline in 2006 which was on "Comply or Explain" basis. But it was replaced by a new corporate governance guideline in 2012, and the corporate governance guideline was based on "Comply" basis. In the process of development, a new corporate governance code has been issued in 2018 with some new rules and some changes in the old rules. The code and guidelines have been issued to reflect the country-specific rules and to address international expectations regarding the OECD codes. The new corporate governance code-2018 issued by BSEC requires a fixed number of board of directors ranging from 5 to 20 with at least 20% of independent directors, an audit committee, a nomination and remuneration committee as two sub committees of board of directors, separation of the chairman of the board and the CEO, avoidance of conflict of interest in selecting external auditor, maintaining an functional website, reporting of compliance etc. Moreover, Regulations of Bangladesh Bank (BB) also requires a board of directors with independent directors, separation of chairman, and CEO. Besides, regulation of Bangladesh Bank also requires a risk management committee, an audit committee and an executive committee as sub-committee of the board of directors. But there is a conflict between the guideline of BSEC and the guideline of BB as, according to the regulation of Bangladesh bank, a board cannot form any other temporary or permanent committees from the board of directors except the above mentioned three sub-committees. However, BSEC requires the formation of NRC (nomination and remuneration committee). It is expected that the conflicting issue will be solved in near future.

The main purpose of the study is to give a deep insight into the relationship between the corporate governance practice and the profitability of the companies. In this way, the study shows the corporate governance mechanisms that are most effective and the areas of development for future consideration are also shown here. Therefore, the main research question is that -

Is there any relationship between corporate governance practices on profitability in manufacturing sector of Bangladesh?

To answer the research question, pooled OLS has been used based on 103 firm-years from the manufacturing sector of Bangladesh.

The study will contribute to the literature in many ways. There are few studies found on the effects of corporate governance on the profitability of the Bangladeshi firms. On the other hand, most of those researches have used the banking sector for the study. But, as the banking sector is highly regularized sector, it is expected that it will show better results but will not be reflective of all sectors. Therefore, this study has used the manufacturing industry for the study which will contribute to the literature of corporate governance. Finally, the previous studies have considered few variables to show the effect of corporate governance practice, but this study has considered a comprehensive model with 7 independent variables and 7 control variables. As a result, it is expected that the regression result will show more reflective results than the other studies, and the study will also add value to the literature as it has considered much more corporate governance mechanisms than the previous studies used.

The study has been organized as follows: section 2 shows previous literature regarding this study and the development of hypothesis, section 3 shows the methods used for this study, section 4 discusses the impact of corporate governance practice on the profitability of the company with detailed analysis, section 5 shows the discussion of findings linking different theories, and the final section shows the conclusion of the study with a summary of the findings.

2. Literature Review and Hypotheses Development

In this chapter, the previous studies will be focused and this section will show the relationship between our study of the previous and the present literature. The review has been classified into different sections.

2.1 Theoretical Considerations

Different theories define the necessity of different types of corporate governance mechanisms. Some of the theories have been discussed here.

2.1.1 Agency Theory

Agency theory is one of the most important theories that define the essential role of the board of directors. As firm grows big, it is very common that owners of the firm will lose control over the firm, and the firm is operated by the management having professional knowledge and experience about the business. But from the perspective of agency theory, there will be a conflicting interest between the owner of the firm and the management of the firm. The management will maximize their benefit, not the long-term interest of the owners. In this case, the board of directors acts as the representative of the owners and the owner will have indirect control over the firm through the board of directors. As the managers of the firm are not trusted, they are controlled by the board (Muth & Donaldson, 1998). The board of directors, therefore, helps to improve the performance of the firm by reducing the agency cost. So, an effective board of directors will contribute positively to the performance of the firms (Zahra & Pearce, 1989).

2.1.2 Stewardship Theory

The stewardship theory is the opposite of agency theory that focuses on the characteristics of the board. According to the stewardship theory, management is steward rather than self-interested rational economic person. According to the theory, the management will try to obtain high performance of the firm for the interest of owners as that is not a contradictory objective. According to Zahra & Pearce (1989), "The interest of managers will be maximized if they consider the benefit of the owners." Therefore, the theory considers the board of directors as a way of getting the professional expertise and knowledge rather than control mechanisms. Therefore, experts in the board, independent directors of the board, and female directors of the board can act positively to improve the performance of the firm.

Moreover, the stakeholder theory that defines the need to consider a wide range of interest of related party of the firm, also considers the need of independent directors and quality of external audit firms. Finally, those mechanisms help to increase the confidence of the investors and have positive impact on the performance of the firm.

2.2 Empirical Studies on the Impact of Corporate Governance Mechanism on a Firm's Performance

According to different theories of corporate governance, there is a positive relationship between the corporate governance mechanisms and the performance of the firms (Azim, 2012). However, different results can be shown from different empirical studies and the results also vary from country to country, study to study and time to time.

2.2.1 Size and Composition of the Board

Dalton (1999) and Nguyen et al. (2014) claimed that board size is a very important corporate governance mechanism for an organization. But in this respect, different studies have suggested different findings. It is argued by different studies that a small board size can ensure effectiveness of the board whereas other studies argue that there is no impact of board size at all. Deb et al. (2017), Alagathurai (2013) showed in their studies that there is a positive relationship between the board size and the performance of the firm. But Alam & Akhter (2017), Pham (2016) have shown that there is a negative relationship between the size of the board and the performance of the firm. However, Vo & Nguyen (2014) have shown that there is no relationship between size of the board and the performance of the firm. Based on these studies, it can be predicted that the board of directors can perform positively to a certain limit, and for this reason, according to corporate governance code 2018, the board size cannot be less than five and more than twenty. Therefore, all the board size is within this limit in Bangladesh, and the problem of a large board size is expected to be mitigated. So, the hypothesis can be developed as –

H1: *There is a relationship between the board size and the performance of the firm.*

Robinson & Dechant (1997) showed that most of the female directors are very hard working and generally they also have very good communication skills. They also have very good decision making and problem-solving ability in a board. Another study by Eagly & Carli (2003) showed that females are very proficient and sincere in their directorship and they generally take much more preparation before board meetings. As a result, female directors can increase the efficiency of the board. But Das (2017) could not find any significant relationship between the female directors in the board and the performance of the firms. Based on the above findings, the next hypothesis can be developed as –

H2: *There is a relationship between the female director in a board and the performance of the firm.*

On the other hand, board independence refers to the number of independent directors in a board. The independent directors in a board help to operate a firm unbiasedly and neutrally, and thus they help in effective decision making. Previous studies showed a mixed result here. Al-Baidhani (2013) basically investigated the effect of internal corporate governance mechanism on the financial performance in seven countries from Arabian Peninsula and showed a significant positive relationship between the board independence and ROA of the firm (pp. 18-22). Deb et al. (2017), Pham (2016) showed similar types of result. On the other hand, Yilmaz & Buyuklu (2016) investigated the effect of corporate governance on the financial performance of firms in Turkey and showed a negative relationship between the independent director in a board and firm's performance (pp. 63-67). Alam & Akhter (2017), Vo & Nguyen (2014) showed similar result too. So, the next hypothesis can be developed as -

H3: *There is a relationship between the independent director in a board and the performance of the firm.*

2.2.2 Family Domination

In developing countries like Bangladesh, family domination is very common and a rising issue. High family concentration gives the power to a family to select a major portion of the directors in the board. As a result, high family ownership generally leads to family dominance in the board. In some studies, it has been shown that family-dominated firms possess some characteristics that can help the firm to operate better and they also lead to better performance. Whyte (1996) showed that family domination is an effective corporate governance control that helps reduce supervision cost (pp. 24-28). Martin-Reyna & Duran-Encalada (2015) considered impact of the family concentration on the performance of the Mexican firm and finally they showed a positive relationship between the family domination and the performance of the firm. But other studies have shown that family domination is responsible for type two agency problem that leads to high agency cost. Kweh at al. (2015) and Whyte (1996) suggested that family domination influenced the performance of the firm negatively.

So, the hypothesis can be developed as –

H4: *There is a relationship between the family dominance in the board and the firm's performance.*

2.2.3 Audit Committee

The role of the audit committee is very significant in an organization. It ensures the transparency of information. As a result, it reduces the information asymmetry and thus adds value to the organization. Therefore, audit committee contributes positively to ensure the corporate governance of an organization. But, Das (2017) and Alam & Akhter (2017) showed a negative relationship between the audit committee size and performance of the firm. On the other hand, Deb et al. (2017) aimed at finding the relationship between four corporate governance mechanisms and the performance of banking companies of Bangladesh and found a positive relationship between the audit committee size and performance. So, the hypothesis can be developed as –

H5: *There is a relationship between the number of members of the audit committee and the performance of the firm.*

On the other hand, independent directors can ensure the unbiasedness and neutrality of audit committee. As a result, it ensures the effectiveness of audit committee and so it also contributes positively to the performance of the organization. But, Basuony & Al-Baidhani (2015) had not found any significant relationship between the audit committee independence and performance of the firm. On the other hand, Aldamen et al. (2013) showed that there is a positive association between the audit committee independence and performance of the firm. So, our next hypothesis to test is:

H6: *There is a positive relationship between the number of independent directors in the audit committee and the performance of the firm.*

2.2.4 External Audit Firm Quality

To solve the problem of information asymmetry, external audit plays a very significant role and it also ensures the quality and reliability of the information. The audit profession is a very important factor here. As a result, the external audit quality plays a very significant role for investors' decision-making. Oluwagbemiga (2010) argued that external auditors have the duties to recognize and report fraud, errors and illegal activities (pp. 2). However, Elewa (2019) tried to find out the impact of big audit firms on the performance of Egyptian companies and could not find any significant relationship. In the study of Chikwemma & Nwadialor (2019), it has been seen that the presence of big four affiliated audit firm could ensure the higher reporting quality of the firms and the investors could be confident about the future earnings. Based on above discussion, the hypothesis can be developed as -

H7: *There is a positive relationship between the external audit firm quality and firm performance.*

In the context of Bangladesh, Alam & Akhter (2017) tried to show the effect of corporate governance on the performance of commercial banks in Bangladesh. The findings showed that the size of the board, independence of the board and internal audit committee were negatively associated with the performance of the firms. Besides, Deb et al. (2017) aimed at finding the relationship between four corporate governance mechanisms and the performance of banking companies of Bangladesh, and found that all the variables are significantly related to the performance of banks except CEO duality. However, Das (2017) investigated the effect of corporate governance mechanism on the performance of conventional banks of Bangladesh and found a negative and significant relationship between Tobin’s Q and institutional share ownership. It showed a positive but insignificant relationship between ROA and institutional share ownership. Very few studies are found regarding corporate governance practice by the non-financial industries in the context of Bangladesh, and there exists a research gap. To bridge this gap, in our study we have focused on manufacturing sectors such as pharmaceutical and chemical sector, cement sector and textile sector. The study will add value to the literature as it has considered more corporate governance mechanisms than that of previous studies.

3. Methodology

3.1 Sample Selection

The target population of our study is a total of 94 listed companies in DES from three different sectors. We have considered two years from textile sector, cement sector, and pharmaceutical and chemical sectors for the study. So, our population for the study is 188 firm-years. The three sectors have been selected as there are very few studies found based on these sectors.

Table 1. Sampling Frame

Serial No.	Name of Industry	No. of Listed Companies in DSE	Total Firm-Years	Data Available for Sample	Sample Selected	% of Population
1	Textile	55	110	80	44	40%
2	Pharmaceuticals & Chemicals	32	64	50	46	72%
3	Cement	7	14	13	13	93%
Total		94	188	143	103	55%

Source. Authors' Calculated

The sample of the study has been selected based on the convenience sampling that is under non-probability sampling. Besides, sample has been selected from the listed companies of the Dhaka Stock Exchange (DSE). For our study, we have considered 103 firm years of different manufacturing companies as a sample from a population of 194 firm-years. Only data from 2017 and 2018 have been considered for the analysis.

The study has been conducted based on secondary data. Financial statements of the firms collected from the websites of the firms have been used for the analysis. Besides, some data like market beta have been collected from Lanka Bangla portal and investing.com. Collected data are cross-sectional in nature, and so Pooled OLS has been used in this study. MS word, MS Excel and Strata are some common tools that have been used for our analysis.

3.2 Research Model

Based on previous studies, a comprehensive research model has been developed for our study. The study has tried to find the impact of corporate governance on the performance of a firm. The theoretical framework has been shown in (Figure 1).

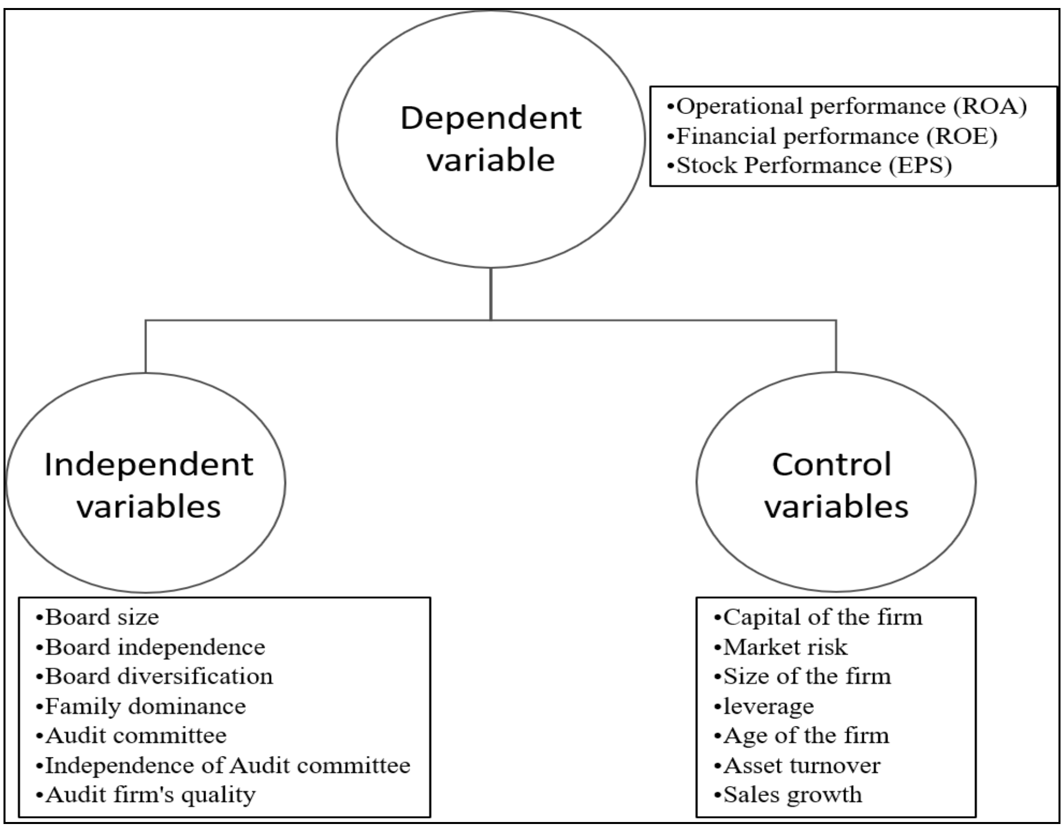

Figure 1. Theoretical framework of the model Source: Authors Generated

Based on the theoretical model the estimated regression equation is –

Model 1 (Stock performance)

$$ROE = \beta0 + \beta1\, BDSZ + \beta2\, BIND + \beta3\, FEMD + \beta4\, FAMD + \beta5\, AUDC + \beta6\, AUDCIND + \beta7\, AUDQUAL + \beta8\, TCE + \beta9\, SIZE + \beta10\, BETA + \beta11\, LEV + \beta12\, AGE + \beta13\, AT + \beta14\, SALESG + \beta14\, INDDUMMY + \varepsilon \tag{1}$$

Model 2 (Financial performance)

$$ROA = \beta0 + \beta1\, BDSZ + \beta2\, BIND + \beta3\, FEMD + \beta4\, FAMD + \beta5\, AUDC + \beta6\, AUDCIND + \beta7\, AUDQUAL + \beta8\, TCE + \beta9\, SIZE + \beta10\, BETA + \beta11\, LEV + \beta12\, AGE + \beta13\, AT + \beta14\, SALESG + \beta14\, INDDUMMY + \varepsilon \tag{2}$$

Model 3 (Operational performance)

$$EPS = \beta0 + \beta1\, BDSZ + \beta2\, BIND + \beta3\, FEMD + \beta4\, FAMD + \beta5\, AUDC + \beta6\, AUDCIND + \beta7\, AUDQUAL + \beta8\, TCE + \beta9\, SIZE + \beta10\, BETA + \beta11\, LEV + \beta12\, AGE + \beta13\, AT + \beta14\, SALESG + \beta14\, INDDUMMY + \varepsilon \tag{3}$$

Where:

EPS - Earnings per share;

ROA- Return on Assets;

ROE - Return on Equity;

BDSZ - Board Size;

BIND - Board Independence;

FEMD - Female directors in the board;

FAMD - Family dominance in the board;

AUDC - Members of the audit committee;

AUDCIND - Independent member(s) in audit committee;

AUDQUAL -External Auditor quality;

TCE - Capital employed;

SIZE - Size of the firm;

BETA - Market risk measure;

LEV- Leverage;

AGE - Age of the firm;

AT - Asset Turnover;

SALESG - Sales growth;

INDDUMMY- Industry dummy.

The concepts and the measure of those variables are summarized below –

Table 2: Definition of Variables

Name of Variables	Label Used	Definition of the Variable	Expected Relationship	Source
Earnings per Share	EPS	Net Earnings/Outstanding Shares	Dependent variable	Ahmed & Hamdan (2015); Alam & Akhter (2017)
Return on Assets	ROA	The net profit after tax divided by total assets	Dependent variable	Ahmed & Hamdan (2015); Alam & Akhter (2017)
Return on Equity	ROE	The net profit after tax divided by total equity	Dependent variable	Ahmed & Hamdan (2015); Alam & Akhter (2017)
Board Size	BDSZ	Board size measured as the number of directors on the board.	Positive Or Negative	Alam & Akhter (2017); Al-Baidhani (2015)
Board Independence	BIND	The proportion of independent directors on the board	Positive Or Negative	Alam & Akhter (2017); Al-Baidhani (2015)
Female Directors in the Board	FEMD	The proportion of female directors on the board	Positive Or Negative	Das (2017); Pham (2016)
Family Dominance in the Board	FAMD	The proportion of family members on the board	Positive Or Negative	Akhtaruddin at al. (2009)
Members of the Audit Committee	AUDC	The number of members in audit committee.	Positive Or Negative	Alam & Akhter, (2017)
Independent Member(s) in Audit Committee	AUDCIND	The proportion of independent directors on the audit committee.	Positive	Al-Baidhani, (2015)
External Auditor Quality	AUDQUAL	Dummy variable, Coded “1” if the external auditor has an affiliation with the big four audit firms and “0” for other cases. In Bangladesh three big-four-affiliated audit firms are Rahman	Positive	Al-Baidhani, (2015); Akhtaruddin at al. (2009)

		Rahman Huq (KPMG in Bangladesh), Nurul Faruk Hasan & Co (Deloitte Bangladesh) and A. Qasem & Co. (EY Bangladesh).		
Total Capital Employed	TCE	Capital employed= Total assets – Current liabilities.	Positive	Akhtaruddin at al. (2009)
Size of the Firm	SIZE	Size measured using the natural logarithm of total sales.	Positive	Ahmed & Hamdan (2015)
Market Risk Measure	BETA	The measure of market risk. Beta=Covariance (Ri, Rm)/ Variance (Rm)	Negative	Aaker & Jacobson, (1987)
Leverage	LEV	Debt to equity ratio	Positive	Ahmed & Hamdan (2015); Mohan & Chandramohan (2018)
Age of the Firm	AGE	Age from the incorporation of the company.	Positive	Al-Baidhani (2015)
Asset Turnover	AT	Sales/Total Assets	Positive	Mohan & Chandramohan (2018)
Sales Growth	SALESG	(Prior period net sales - current period)/Prior period net sales	Positive	Mohan & Chandramohan (2018)

Source. Self-created based on literature review.

4. Results

In this section, the relationship between the corporate governance practice and profitability has been shown using the data of manufacturing sector.

4.1 Descriptive Statistics

The descriptive statistics table shows mean value, minimum value, and the maximum value of dependent, independent and control variables. In our sample companies, mean ROA is 6.13%, mean ROE is 10.22 % and mean EPS is 6.85 taka. In our study, maximum ROA and ROE is found in Marico Bangladesh Limited. Reckitt Benckiser

(Bangladesh) Limited showed the maximum EPS. Alltex Industries Limited showed the minimum ROA, ROE and EPS in our sample.

Table 3. Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
ROA	103	0.0619417	0.093882	-0.21	0.38
ROE	103	0.102233	0.187303	-0.36	1.06
EPS	103	6.846505	14.5404	-7.97	80.63
Board Size	103	7.475728	1.877862	5	12
Board Independence	103	0.2664078	0.085862	0.14	0.6
Female Directors in the Board	103	0.2170874	0.167599	0	0.63
Family Dominance in the Board	103	0.3464078	0.275723	0	0.8
Members of the Audit Committee	103	4.31068	0.62668	3	6
Proportion of Independent Member(s) in Audit Committee	103	0.3071845	0.117293	0.17	0.67
External Auditor Quality	103	0.0582524	0.235366	0	1
Total Capital Employed	103	6007.605	9002.287	-175.94	50169.61
Size of the Firm	103	7.71816	1.434312	3.867653	10.77202
Market Risk Measure	103	1.064078	0.696184	-0.96	2.55
Leverage	103	0.1998058	0.343369	-0.29	1.85
Age of the Firm	103	27.6699	13.94414	4	64
Asset Turnover	103	0.735534	0.525856	0.11	2.49
Sales Growth	103	0.0731068	0.308087	-0.7	2.02

Source: Self-created using STATA

On the other hand, the average board size is 7.47 members and the minimum number of the board of directors is 5, and the maximum number is 12 which is within the limit of corporate governance guidelines (5 persons to 20 persons). Two companies in our sample have boards with 12 members such as in LafargeHolcim Bangladesh Limited and in Indo-Bangla Pharmaceuticals Limited. However, in the board, on an average, 26.64 % members are independent directors and 21.70 % of the members are female directors. Furthermore, in the board of directors, on an average, 34.64% of the directors are from one family. The highest proportion of female directors in a board was in Silva Pharmaceuticals Ltd. However, the highest level of board independency has been found in Salvo Chemical Industry Limited, Familytex (BD) Limited, Marico Bangladesh Limited. Moreover, 80% members of the board is occupied by the family members in Orion Infusion Limited, Anlimayarn Deying Limited, Apex Spinning & Knitting Mills Limited, Envoy Textiles Limited, which is the highest level of family dominance in our sample.

Apart from this, our sample companies have, on an average, 4.31 members in audit committees, and 30.71 % members of our audit committees are independent directors. The highest audit committee member in an audit committee was 6 which existed in 4 different companies. However, the highest proportion of independent director in audit committee was 67% seen in Beximco Pharmaceuticals Ltd. Finally, it can be seen that there were very few companies in our sample that used top four affiliated audit firms for their external audit and only 4 companies in 6 firm-years used the top four affiliated audit firms.

4.2 Correlation Matrix

The correlation matrix shows the relationship between both dependent and independent variables. It is shown that there is a positive relationship between ROA and female directors in a board, board independence, audit committee independence, and external auditor's quality. There is a negative relationship between ROA and board size, family dominance, an audit committee.

Table 4. Correlation Matrix

	ROA	ROE	EPS	BDSZ	FEMD	BIND	FAMD	AUDC	AUDCIND	AUDQUAL
ROA	1									
ROE	0.6923	1								
EPS	0.543	0.8105	1							
BDSZ	-0.0298	0.068	0.1696	1						
FEMD	0.0156	-0.0431	-0.0145	-0.1837	1					
BIND	0.1879	0.1542	-0.0024	-0.3657	-0.0332	1				
FAMD	-0.2273	-0.3352	-0.2947	-0.182	0.4151	-0.2526	1			
AUDC	-0.1003	-0.0444	0.002	0.2814	-0.093	-0.1266	0.019	1		
AUDCIND	0.0586	0.1518	0.1822	0.0182	-0.1475	0.1912	-0.2397	-0.3241	1	
AUDQUAL	0.0924	0.2906	0.3991	0.3581	-0.0702	-0.1011	-0.1735	0.2084	-0.0118	1

Source: Self-created using STATA

However, there is a positive relationship between ROE and board size, board independence, audit committee independence and external auditor's quality. There is a negative relationship between ROE and female directors, audit committee and family dominance.

But in case of EPS, there is a positive relationship between EPS and board size, audit committee size, audit committee independence and external auditor's quality. There is a negative relationship between EPS and female directors, board independence and family dominance.

However, it shows that there is a negative correlation between the size of the board and board independence and a positive relationship between the size of the board of directors and size of audit committees. On the other hand, there is a significant negative relationship between board independence and family dominance in the board, and between audit committee independence and family dominance in the board. Moreover, there is a positive relationship between family dominance in the board and female directors, and audit committee size and external auditor's quality.

4.3 Regression Result and Hypothesis Testing

To test the hypothesis three models have been developed. The first model shows the relationship between financial performance and corporate governance practices. The second model shows the relationship between the operational performance and corporate governance practices. Finally, the third model shows the relationship between stock performance and corporate governance practices.

Table 5: Multiple Regression Result

Model		Model 1 ROE		Model 2 ROA		Model 3 EPS	
Variables	Label	Coefficient	p value	Coefficient	p value	Coefficient	p value
Board Size	BDSZ	0.0046	0.6310	0.0006	0.9160	-0.2006	0.7520
Board Independence	BIND	0.2462	0.2610	0.1639	0.2620	-0.1706	0.9870
Female Directors in the Board	FEMD	0.1640	0.062*	0.0630	0.3550	12.2037	0.02**
Family Dominance in the Board	FAMD	-0.1835	0.006***	-0.0469	0.3620	-15.3563	0.002***
Members of the Audit Committee	AUDC	-0.0097	0.8080	-0.0054	0.6570	0.3831	0.8690
Independent Member(s) in Audit Committee	AUDCIND	0.0122	0.9310	-0.1463	0.1460	0.0579	0.9960
External Auditor Quality	AUDQUAL	0.1141	0.2080	-0.0128	0.6410	13.5414	0.099*
Total Capital Employed	TCE	0.0000	0.038**	0.0000	0.2900	-0.0009	0.002***
Size of the Firm	SIZE	0.0488	0.014**	0.0300	0.026**	6.5647	0***
Market Risk Measure	BETA	-0.0063	0.7250	-0.0017	0.9080	-1.2654	0.3050
Leverage	LEV	-0.0956	0.037**	-0.0550	0.01**	-7.4464	0.027**
Age of the Firm	AGE	-0.0004	0.7460	-0.0010	0.2290	0.2827	0.008***
Asset Turnover	AT	0.1480	0.005***	0.0428	0.096*	4.2163	0.1580
Sales Growth	SALESG	0.0021	0.9570	0.0082	0.8400	-1.9882	0.2640
Industry Dummy		Yes		Yes		Yes	
R square		0.58		0.44		0.63	
F- statistics		2.57		4.36		3.95	
Number of Observations		103		103		103	

Source: Authors' Calculation using STATA

Note: ****significant at 1% significance level, ** significant at 5% significance level, *significant at 10% significance level.*

Model 1:

The (Model 1) shows a significant positive relationship between the proportion of female directors in the board and profitability. The variable is significant at 10%. It shows that if the proportion of female directors increases by 1% ROE will increase by 0.164%, while other variables remain constant. On the other hand, the model shows a significant negative relationship between family dominance and profitability. It is at significant 1% level. The model shows that if family dominance increases by 1% the ROE will decrease by 0.183%, while other variables remain constant. Other independent variables have shown an insignificant result. In the control variables, total capital employed, size of the firm, leverage of the firm and asset turnover are significantly related to the ROE. The R square of the model is 58 % which indicates that 58 % variation of ROE is described by the independent and control variables.

Model 2:

The (Model 2) shows no significant relationship between independent variables and ROA that indicates no impact of corporate governance practices on ROA. It shows that some control variables are significantly related to ROA. The R square of the model is 58 % which indicates that 58% variation of ROA is described by the independent and control variables.

Model 3:

The (Model 3) shows a significant positive relationship between the proportion of female directors in firms and EPS, and the external auditor quality and EPS. It indicates that if the proportion of female directors in the board increases by 1% EPS will increase by 12.2035 taka, while the other variables remain constant. If the external auditor of the firm is any of the affiliated four big firms EPS will increase by 13.5414 taka, while the other variables remain constant. Besides, there is a significant negative relationship between family dominance in a board and EPS. It indicates that if family dominance in a board increases by 1% EPS will decrease by 15.3563 taka while other variables are constant. Here, Family dominance is at significant 1%, the proportion of the female members in board is at significant 5%, and the external auditor's quality is at significant 10%. The R square of the model is 63% which indicates that 63% variation of EPS is described by the independent and control variables.

4.4 Additional Analysis:

Breusch-Pagan test has been used to test the presence of heteroscedasticity, and the presence of heteroscedasticity was detected in all the three models. To solve the problem robust regression has been used for our study.

On the other hand, based on the VIF (Variance inflation factor), it can be seen that there is no problem of multicollinearity as all variables' VIF is less than 10. The mean VIF is 1.94 for the model.

Table 6: Test of Multi Collinearity

Variable	VIF	1/VIF
Board Size	1.83	0.545565
Board Independence	1.46	0.685768
Female Directors in the Board	1.57	0.636823
Family Dominance in the Board	2.01	0.496472
Members of the Audit Committee	1.42	0.70311
Independent Member(s) in Audit Committee	1.61	0.620553
External Auditor Quality	1.38	0.726221
Total Capital Employed	4.03	0.248393
Size of the Firm	4.25	0.235324
Market Risk Measure	1.53	0.653578
Leverage	1.25	0.799415
Age of the Firm	2.03	0.493101
Asset Turnover	2.11	0.474733
Sales Growth	1.1	0.911141
Mean VIF	1.94	

Source: Authors' Calculation using STATA

5. Discussion

There are only three variables that are significantly related to the firms' performance. The variables are proportion of female member in the board, the proportion of family dominance in the board, and the quality of external auditors. Among the three variables, the proportion of female directors in the board and external auditor's quality are positively related to the performance of the firm. The results support the findings of Al-Baidhani, (2015); Akhtaruddin at al. (2009) and Das (2017). Based on the result, it can be concluded that hypothesis 2, 4 and 7 have failed to reject.

Table 7: Results of Hypothesis Testing

Hypothesis	Result
H1: There is a significant relationship between the board size and the performance of the firm.	Rejected
H2: There is a significant relationship between the female director in a board and the performance of the firm.	Accepted
H3: There is a significant relationship between the independent director in a board and the performance of the firm.	Rejected
H4: There is a significant relationship between the family dominance in the board and the firm's performance.	Accepted

H5: There is a significant relationship between the number of members of the audit committee and the performance of the firm.	Rejected
H6: There is a significant positive relationship between the number of independent directors in the audit committee and the performance of the firm.)	Rejected
H7: There is a significant positive relationship between the external audit firm quality and firm performance.	Accepted

Source: Authors Derived based on Hypothesis Testing

The results are supported by different theories too. The stewardship theory reveals that the board contributes positively with expertise, knowledge, and experience (Muth & Donaldson, 1998). Therefore, board diversification can be seen as a combination of different knowledge. Therefore, the female directors will help to enhance the effectiveness of the board that ultimately impacts the performance of the firm. On the other hand, the stakeholder theory shows that the external auditor quality can help to increase the investors' confidence that affects the performance of the firm positively.

However, the proportion of family dominance in the board is negatively related to the performance of the firm. According to the agency theory, there are two types of agency problems such as type I agency problem and type II agency problem. Here, the type II agency problem is seen, where there is an agency problem between the dominant shareholders and minority shareholders. Due to the impact of controlling shareholders family dominance in the board exists. Therefore, it increases the agency cost in the firm that impacts the performance of the firm negatively.

6. Conclusion

This study shows that there is a positive and significant relationship between female directors in the board and ROE and a negative significant relationship between family dominance in the board and ROE. Moreover, no independent variable has shown any significant relationship with ROA. But there is a significant positive relationship between female directors in a board and EPS, audit firm quality, and EPS of the firm. In addition, there is a significant negative relationship between family dominance in the board and EPS that also supports the result of (Model 1). So, our findings suggest that having more female directors and reducing the dominance of family members in the board can ensure more transparency and accountability of the organizations.

Some areas of future research can be suggested here. The study has focused on a limited period of time, but a study can be conducted based on a longer time horizon. Nguyen et al. (2014) suggested that a long time horizon can give a more concrete scenario of a changing effect of corporate governance variables. The study has focused on manufacturing companies especially the pharmaceutical and chemical industry, and cement industry as well as textile industry. Future researches can consider other sectors. Moreover, the study has focused on the companies of Bangladesh. Future researches should focus on a cross-sectional analysis of different countries that can show a different result. The sample companies from various indices of DSE or CSE like DS30 index, and DSEX index can be taken up for studies of this nature.

One of the main limitations is that the study is based on the manufacturing sector, and it is based on two years' data. As a result, if different industries and different time periods are considered findings of the study can change. Besides, our study has considered 7 important factors as independent variables. So, there is a scope for considering more factors as corporate governance mechanisms.

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