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RESEARCH METHODOLOGY

RESULTS & DISCUSSION

INDINGS

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ROLE OF CORPORATE GOVERNANCE ON PERFORMANCE OF PRIVATE COMMERCIAL BANKS IN BANGLADESH: AN ECONOMETRIC ANALYSIS

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ABSTRACT

The paper seeks to examine the relationship between corporate governance (CG) mechanisms and firm's performance using 29 Private Commercial Banks (PCBs) listed in Dhaka Stock Exchange Ltd. for the period 2010. Corporate Governance Compliance Index (CGCI) has been developed using the code of Bangladesh Bank (BB) and Securities and Exchange Commission (SEC) to measure the compliance of CG mechanisms. The company size, ownership structure, company's age, board size and return on assets have been compared with CG mechanisms. Ordinary Least Square (OLS) method used for estimation and the multiple regression method used for analysis the data. The study found that there is a positive significant relationship between ROA, company size, board size and CGCI while the study found less significant impact of ownership structure on CG practices.

KEYWORDS

Corporate Governance, Firm's performance, Corporate Governance, mechanism.

INTRODUCTION

It is widely believed that good corporate governance (CG) is an imperative factor in improving the performance of financial and non- financial firm. But the relationship between corporate governance and the firm's performance (FP) differs in the both cases due to the distinctive corporate governance structures in the organizations resulting from the dissimilar social, economic and regulatory conditions in Bangladesh. Therefore it is an imperative to understand which factors affect the value of a firm for academic investigations, financial and management practices and public regulation of markets and corporations. The existing literature on how good corporate governance contributes to improving the firm's performances in Bangladesh is not well developed and has serious precincts. No single research thus far, has undertaken a comprehensive study on the relationship between the level of corporate governance sophistication of the commercial banks and its contribution to the bank's performance. In order to overcome the limitations of the existing literature, this study develops *separate various models* for the CG and FP relationships for listed commercial banks in Bangladesh.

CG means leading and doing the whole thing of a company with the best feasible approach. It articulates the rights and responsibilities of the stakeholders of the corporation and spells out the rules and regulations of making decision on corporate affairs in such a way where all stakeholders are treated equally and become satisfied from their position. Organization of Economic Cooperation and Development (OECD, 1999) provides a more articulation of corporate governance as the system by which business corporations are directed and controlled. The best CG practice can only ensure the best inter-relationship and sharing of power and interests.

Bangladesh has lagged behind its neighbors and the global economy in corporate governance (Gillibrand, 2004). Ahmed and Yusuf(2005) identified poor bankruptcy laws, less demand from international investors, limited or no disclosure regarding related party transactions, weak regulatory system, lack of shareholder active participations are the constraints of corporate Governance in Bangladesh. The contribution of banking sector to GDP (Gross Domestic Product) is 1.25 pc (percent) during the last ten years on average and more than 90 percent of service sector (Bangladesh Bank, 2011). In 1982, the privatization was started in banking sector and the denationalization of nationalized commercial banks was launched from that period. The pace of denationalization and privatization quivers the importance of CG in banking sector to protect the rights and claims of stockholders. The operational efficiency of the banking sector in Bangladesh has continued to be depressed though the expansion has been increased (Sayeed, 2002; Raquib, 1999). With the increase of failures of corporations due to poor corporate governance the issue comes to front and many organizations marked the guidelines to protect the right of various stakeholders and to reduce the conflict among them. The most of them are different acts and laws. The legal aspects of CG in Bangladesh are: (i) Securities and Exchange Ordinance 1969; (ii) Bangladesh Bank order 1972; (iii) Bank Company Act 1991; (iv) Financial Institutions Act 1993; (v) Securities and Exchange Commission Act 1993; (vi) Company Act 1994; (vii) Bankruptcy Act 1997; (viii) Bangladesh Bank Circulars; (ix) Financial Institutions Regulations 1994; (x) Any rules and regulations promulgated by the concerned authorities and bodies. The Security and Exchange Commission (SEC) promulgated CG guidelines for the banks for governing the corporate properly (SEC, 2006). Bangladesh Bank (BB) promulgated CG guidelines in banking sector for an efficient CG in Bangladesh (Bangladesh Bank, 2003). The present study aims to find out the relationship between the degree of compliance of CG mechanism (rules and conditions of disseminated by Security Exchange Commission (SEC) of Bangladesh and Bangladesh Bank) and the selected variables related to firm's performance and the ownership structure. The relationship between the degree of compliance of corporate governance mechanism promulgated by the two controlling authorities and the bank's

performance will be investigated by using several econometric techniques. The study will also examine which factors (s) significantly influence the compliance of the corporate governance mechanism and whether there is any relationship between corporate governance mechanism and the variables. This study is a contribution to the ongoing debate on the examination of the relationship that exists between corporate governance mechanisms and firm performance. The rest of the paper is organized as follows: Section 2 discusses on the literature review, where both theoretical and empirical studies on previous works are looked

into. It also incorporates the corporate governance mechanism practicing in Bangladesh. In section 3, the methodology of this study is discussed followed by empirical results and discussions are made, while section 4 concludes the study.

2. REVIEW OF LITERATURE

There are numerous factors and variables that comprise yardsticks by which corporate governance can be measured in an organization. CG is typically perceived by academic literature as dealing with "problems that result from the separation of ownership and control." (Fernando, 2009). While balance between economic and social goals and a balance between individual and communal goals incorporating both efficiency gain and accountability are the spotlights of CG examined by Cadbury A.(1992). Distribution of rights and responsibilities among different participants in the corporation are the focus of CG of Organization of Economic Cooperation and Development (OECD, 2001). Siddiqui (2010) examined the nature of CG suitable for an emerging economy like Bangladesh and pointed in favor of the Anglo-American shareholder model of CG. Performance impact of corporate governance mechanism examined by Farooque et al (200 7), Gugler & Yurtoglu(2008), Imam and Malik (2007), Kostyuk A.(2011), Renato G. et al (2010), Pham et al(2011) where they examined influences of the firm size, leadership and composition of board directors together with external shareholders to enhance the firm's efficiency. Banik and Chowdhury(2008) investigated CG of bank and financial institutions and argued that the existing practice of CG in Banks and financial institutions in Bangladesh is mostly in the line of international best practice. Bhuiya and Biswas (2007) and Deepty & Ahmed (2011) have developed the corporate governance disclosure index (CGDI) and found that there is significant difference of CGDI among various sectors of the corporations and the financial sector practices better CGDI than the non financial sector. Caprio & Levine (2002), Bhasin (1997) examined effective implementation of rules and regulations of CG, Das & Saibal(2004) examined the issue corporate governance in the Indian banking system. There are also several study examined the extent of CG on firm's performance and firm's structure. Imperative of CG practices on firm's investment decisions studied by McKinsey (2002), relationship between CG and firm's performance examined by Gompers et al (2003) examined the impact of ownership structure on performance, Hart and Moore (1990) studied firm's structure of capital and ownership and Ben Emukufia et al (2010) examined the supervisory laxity on firm's performance.

3. METHODOLOGY

The data used for this study were derived from the audited financial statements of the Private Commercial Banks (PCBs) listed in the Dhaka Stock Exchange (DSE). The sample of the firms were selected using the combination of non- probability sampling technique (firms with the required information were initially selected) and stratified random technique (firms were then selected based on their sector-wise classification). A total of 29 banks were finally used as sample for the period of 2010. The Ordinary Least Squares (OLS) method is used for estimation and the multiple regression method has been used for analysis the data. The study employed three Corporate Governance Compliance Indices (CGCI), such as the Security and Exchange Commission's conditions as per notification dated the 20th February, 2006, no SEC/CMRRCD/2006-158/Admin/02-08 compliance index, Bangladesh Bank's conditions as per BRPD Circular No. 16, dated 24 July, 2003 compliance index. The third one is the total weight of the first and second index. Then, third index called CG mechanism regresses on the selected variables of the banks through the econometric analysis. In estimating the empirical relationship between performance and corporate governance, most empirical studies have estimated a variant of the following model:

$$y_{it} = x_{it}\beta + z_{it}\gamma + \eta_i + \varepsilon_{it}, \qquad i = 1....N, t = 1....T$$

Where, y_{it} is some measure of firm performance (e.g. return on assets, stock returns), x_{it} contains the governance variables of interest, z_{it} contains a set of observable control variables and η_i is a firm-specific effect (usually assumed to be fixed) that captures unobservable heterogeneity across firms. Several key governance variables have utilized to examine the firm performance, where board size used by Yermack (1996), Agrawal and Knoeber (1996) includes management shareholding and board structure; Himmelberg et al (1999) employed management ownership, board size and composition used by Bhagat and Black (2002) and Gompers et al (2003) used an index of shareholder protection. Both simple OLS (when T = 1) and pooled OLS (when T > 1), ignore unobserved heterogeneity by assuming that neither the governance variables nor the control variables are correlated with unobserved firm characteristics,

i.e.,
$$E(X'_{it} \eta_i) = 0$$
 and $E(Z'_{it} \eta_i) = 0$. We assume that this assumption is likely to hold when estimating the relationship between performance

and governance. Aside from unobserved heterogeneity, OLS estimation of (1) relies on the assumption that neither the governance variables (X_{it}) nor the control

variables (Z_{it}) are correlated with the error term, \mathcal{E}_{it} , i.e., $E(X'_{it}\mathcal{E}_{it}) = 0$ and $E(Z'_{it}\mathcal{E}_{it}) = 0$. With these assumptions the study attempt to examine the overall and incremental impact of corporate attributes on CGCI.

We start with a simple presentation of the model defined as:

$$Y_i = f(X_i, \beta) + \mathcal{E}_i$$

Y_i is a vector of corporate governance compliance index, f (X_i, β) is deterministic part of the observed variables. X_i is a vector of N inputs of corporate attributes

related to CGCI, ei is a residual component. The e_rs are non-negative random variables assumed to be distributed as $NID(0, \sigma^2)$ with truncation at zero. In the first equation, we regress CGCI on company's size(csize) measured by each company's capital in Bangladeshi Taka (BDT) in lac (1 million = 10 lac), return on asset (roa), percentage of ownership of domestic sponsors (owspnd), percentage of ownership of government (owgov), percentage of ownership of institutions (owinst), percentage of foreign ownership (owfor), percentage of public ownership (owpub), total year of company's production period (yrprd) and company's board size (brdsiz). The description of model variables is given in Table-2:

TABLE-2: V	ARIABLE	DESCRIPTION

variable in the model	Variable	Measurement
CGCI	Corporate Governance Compliance	CGCI = Total Score of the Individual Company $r100$
		Maximum Possible Score Obtainable by Company
Csize	Company size	Measured by the total assets of the company
Roa	Return on assets	Measured by expressing net profit as a proportion of total assets
Owspnd	ownership of domestic Sponsor	Measured by the percentage of shares owned by domestic sponsors
Owgov	ownership of government	Measured by the percentage of shares owned by government
Owinst	ownership of institution	Measured by the percentage of shares owned by institution
Owfor	foreign ownership	Measured by the percentage of shares owned by foreign sponsor or institution
Owpub	ownership of public	Measured by the percentage of shares owned by public
Yrprd	Time period	Total year of company's time period
boardsiz	Board Size	Measured by taking the total number of members of the board of directors of a firm

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Table- 3 shows the descriptive statistics of all variables. Based on the International Standards of Accounting and Reporting session of the United Nation's secretariat, here we have employed the CGCI to examine the level of corporate governance disclosures of the sampled banks listed in the Dhaka Stock Exchange (DSE). To investigate the significant corporate attributes influencing CGCI of selected banks, several regression models has been conducted.

Variable	Observation	Minimum	Maximum	Mean	Std. Deviation
CGCI	29	65.85	97.57	81.97	7.06
Csize	29	1.8642e+005	4.6796e+007	2.5713e+006	8.6856e+006
Roa	29	-7.28	5.28	2.06	2.14
Owspnd	29	0	61.3	38.47	18.21
Owgov	29	0	32.75	1.34	6.20
Owinst	29	0	48.65	15.22	11.67
Owfor	29	0	25.68	1.81	6.25
Owpub	29	9.79	96.81	43.86	20.50
Yrprd	29	11	30	19.07	7.06
Boardsiz	29	6	27	15.60	5.03

TABLE-3: DESCRIPTIVE STATISTICS

For 29 observations of all variables, company size, percentage of ownership of domestic sponsors, percentage of ownership of institutions and percentage of ownership of public have comparatively higher standard deviation and all other variables have significant standard deviation. The estimated models for CGCI are given bellow:

(2).....CGCI= β_1 owspnd + β_2 ownisti+ β_3 pub+ \mathcal{E}_1

(3).....ln CGCI= β_1 owspnd + β_2 owgov + β_3 ownisti+ β_4 owfor + β_5 pub+ \mathcal{E}_2

(4).....ln CGCI= β_1 ln csize + β_2 ln roa + β_3 ln boardsiz+ \mathcal{E}_3

(5).....CGCI= \mathcal{B}_1 ln csize + \mathcal{B}_2 ln roa + \mathcal{B}_3 ln yrprd+ \mathcal{E}_4

(6).....ln CGCI= β_1 ln csize + β_2 ln roa + β_3 ln yrprd+ β_4 ln boardsiz +

As the above models show, the underlying corporate governance theory dictates that the intercept term be absent from the model, where it is postulated that the CGCI is proportional to all measures of governance namely return on asset, board size, ownership and company size etc. So we performed regression

through the origin technique where $\sum \hat{\mathcal{E}}_i$ need not be zero. Here equation 2 is a simple linear model, equation 3 is a log linear model and both equation 4 and 6 are known as log-log model where as equation 5 is a lin-log model. The results obtained from the estimation of equations above are given in the following tables. It is important to mention that except equation 6, each equation was estimated two times. Finally we excluded all insignificant variables and considered only variables appropriate with our a priori information and theory of corporate governance. In our first regression model, we included all explanatory variables and found only three significant variables with their appropriate sign.

TABLE-4: REGRESSION RESULTS						
Model	Dependent Variable	Explanatory Variable	Coefficient	t-value	p-value	R ² and F
M1	CGCI	Owspnd	0.77	10.24	< 0.00001	R ² =0.99
		owinst	0.55	3.29	0.0037	F(9,19)=407
		owpub	0.76	6.26	< 0.00001	
M2	In_CGCI	Owspnd	0.04	22.60	< 0.00001	R ² =0.99
		owgov	0.03	4.62	0.00019	F(9,19)=1885
		owinst	0.03	8.48	< 0.00001	
		owfor	0.03	3.80	0.00120	
		owpub	0.04	13.42	< 0.00001	
M3	In_CGCI	ln_ csize	0.21	6.06	< 0.00001	R ² =0.99
		ln_roa	0.29	2.63	0.0148	F(4,23)=2419
		In_boardsiz	0.29	2.36	0.0270	
M4	CGCI	ln_csize	0.26	7.98	< 0.00001	R ² =0.99
		In_roa	0.37	3.31	0.0029	F(3,24)=2707
100		In_yrprd	0.15	1.04	0.306	
M5	In_CGCI	ln_csize	0.21	6.06	< 0.00001	$R^2 = 0.99$
		In_roa	0.29	2.63	0.01	F(4,23)=2419
		In_yrprd	0.12	0.90	0.37	
		In_boardsiz	0.29	2.36	0.02	

Note: variables are significant at 5% level of significance

So, for M1, we have regressed CGCI on three variables, namely ownership of domestic sponsor, ownership of institution and ownership of public. All explanatory variables are positively related with CGCI and result is consistent with the theoretical expectation with value of R² and F statistic. Coefficient of domestic sponsor base owner is 0.77, institutional owner is 0.55 and for public ownership the value is 0.76. So for 1 % increase of sponsor ownership CGCI increases by 77%. In model 3 and 5, we employed log-log model, so the coefficient B's measure the elasticity of CGCI with respect to explanatory variables. Both models show insignificant contribution of board size and period of firm's operation to CGCI. Where as in model 2, which is log-lin model assumes that the elasticity coefficient between CGCI and explanatory variables, B's, remains the same. As we know it is not usual in the theoretical aspect so we have used model 3 and 5 to examine the determinants of CGCI. The regression result shows that the elasticity of CGCI with respect to company size is about 0.21 for both models, suggesting that if company size goes up by 1 percent (1 million BDT), on average , the CGCI goes up by about 0.21 percent and based on p values, all model supports significant contribution of company size to CGCI. Thus, CGCI is very much responsive (in-elastic) to the change in company size, as measuring in total company assets in Bangladesh Taka. For other two variables, namely return on asset and board size, we have found same elasticity value of 0.29. So for 1 percent change in company's return on assets or company's board size indicating identical impact on CGCI. In model 4, we have significant elasticity value of CGCI with respect to company's return on asset, estimated elasticity value is 0.37, suggesting that if company's return on asset is goes up by 1 percent, on average, the CGCI goes up about by about 0.37 percent, indicating greater impact on CGCI. For all models, we have examined the normality tests for e_i which shows fairly normal distribution for all of these models. In model 5, CGCI is expresses in the functional form of log-log, where estimated β and t value for ln_ csize, ln_roa and

In_boardsiz shows moderate effect on CGCI. In order to make a forecast on the CGCI, here in the following graph we have plotted the forecasting pattern using 95% confidence intervals at t(23, 0.025) = 2.069, where forecasted values of In_index are not too much divergent from the actual values.



For the overall significance of the model, analysis of variance technique is very convenient here. Under the assumption that $\mathcal{E}_i \sim (0, \sigma^2)$,

$$E\frac{\sum_{i=1}^{n^2}}{n-3} = E(\sigma^2) = \sigma^2$$

 $\frac{E(\beta^{2}\sum y_{i}x_{2i}+\beta^{3}\sum y_{i}x_{3i})}{2}=\sigma^{2}$

with additional assumption that $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_1 = 0$ and $H_a: H_0: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \# 0$, where

Therefore, if the null hypothesis is worth to reject, both above equation may not give identical estimate of true σ^2 . In this context as we have significant relationship between CGCI and ln_csize, ln_roa, ln_yrprd and ln_boardsiz, the sole source of variation in Y is due to explained variation (regression in table) by all explanatory variables, as it is R² =99%, where as variation in Y is due to the random forces represented by residual is very trivial. Therefore, the F value provides a test of the null hypothesis that the true slope coefficients are simultaneously zero. Here we have found that computed F (2419) value exceeds the critical F value from F table at 5 % level of significance, we can reject null hypothesis. Alternatively p value of the observed F is sufficiently low (0.00001) and F value is sufficiently large F(4, 23) = 2419, leading to rejection of the null hypothesis that together ln_csize, ln_roa, ln_yrprd and ln_boardsiz have significant

effect, although not strong, on CGCI. Above estimation and result are based on the assumption that the error term \mathcal{E}_i follows the normal distribution. Although

we cannot directly observe \mathcal{E} , but we can observe their proxy \mathcal{E} , $\hat{\mathcal{E}}$ that is, the residuals. For all of our regression results, the histogram of the residuals are shown in the following figure:



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From histograms, it seems that the residuals are normally distributed. We also performed two other test to examine normality assumption of c_i , both the Doornik-Hansen test (142.484, with p-value 1.14815e-031) and Jarque-Bera test (456.73, with p-value 6.64101e-100) shows that the error term follows the normal distribution. It is important to say, both Doornik-Hansen test and Jarque-Bera test is large -sample test and our sample of 29 observations is not necessarily enough for both tests.

4. CONCLUSION

This study examined the relationship between firm performance and corporate governance mechanisms (board size, company size, time period of firm's operation and ownership structure) for the year 2010 of 29 PCBs listed in the Dhaka Stock Exchange in Bangladesh. Multiple regression method used to analyze the data and OLS method applied for estimation the data. The analysis and discussion revealed that :(i) There is a strong positive and significant relationship between ROA, board size and CGCI. (ii) Although first model shows a positive and significant (at 10% level) relationship between public ownership and CGCI, but log linear and double log model reveals less significant contribution on CGCI. The study also revealed in favor of growing CG practices in banking sector in Bangladesh measured by CGCI. It requires a significant role of the board size, firm's size and management and their relationships with others in the corporate structure. There is an urgent need to make strong regulatory measures that might promote CGCI disclosure, corporate environmental disclosure, disclosure of symmetric information to shareholders reform in the existing CG law and rules as the study showed moderate contribution of all determinants on CGCI. The limitations of sample size, endogenity issue between CG and firm performance should be considered to make the recommendations. Regarding future line of research, efforts should be put at increasing the sample size and the corporate governance variables, particularly the inclusion of ownership concentration. It requires examining the relationship between firm's performance and other variables of CG when leverage is introduced will make the outcome of the research to be more robust. Apart from it, the econometric literature also indicates a sample selection bias may occur in favor of a big bank.

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