Corporate governance: the impact of director and board structure, ownership structure and corporate control on the performance of listed companies on the Ghana stock exchange

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Abstract

Purpose – *The purpose of this paper is to examine the relationship between corporate governance and firm performance of listed Ghanaian companies.*

Design/methodology/approach – *The paper adopts a longitudinal and cross-sectional data set of 20 sampled companies over a period of five years. The data were analyzed using a panel regression and ANOVA analysis to establish the relationship between corporate governance and firm performance. Corporate governance is defined in terms of three indices – board structure, ownership structure and corporate control, while firm performance is measured by return on assets, return on equity, net profit margin and Tobin's Q.*

Findings – *The empirical results show that ownership concentration and female representation on board have a positive impact on performance. Although the results revealed no evidence to support the impact of board size and audit committee size on performance, there is significant evidence to support the fact that independent directors and audit committee frequency both adversely affect firm performance.*

Research limitations/implications – *The scope of this paper can be expanded to include non-listed firms. In addition, other corporate governance mechanisms could be considered to broaden the scope of the paper.*

Originality/value – *This paper contributes to the scarce literature on corporate governance and firm performance in developing countries, especially in sub-Saharan Africa. The paper provides useful information that is of great value to policymakers, academics and other stakeholders.*

Keywords *Ghana, Corporate governance, Financial performance*

Paper type *Research paper*

Introduction

It is evident that good corporate governance provides the ability to improve competitive advantage, efficiency and effectiveness of companies (Maher and Andersson, 2000). As a result, stakeholders have begun to realize the importance of good corporate governance practices in protecting their interests. The empirical work on corporate governance and its impact on firm performance has grown remarkably in recent years, especially in developing countries. There is little research that has looked at corporate governance in developing countries such as Ghana. Previous studies also provide mixed findings on the directions of causality between corporate governance and firm performance. In this context, this paper attempts to examine the relationship between corporate governance and firm performance in Ghana. The Ghanaian business environment is characterized by a good level of growth, and further growth is expected because of the recent discovery of oil in the country. This

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has resulted in the increased awareness of the effects of corporate governance on the performance of firms in Ghana. The study adopts a longitudinal and cross-sectional data set of 20 sampled companies over a period of five years. Our findings are useful for the policy community who are concerned with the impact of governance structure on corporate disclosure.

The remainder of the paper is structured as follows. The second section provides an overview of prior literature, which explores the relationship between corporate governance and firm performance, and the development of hypothesis. The third section presents our research design. The main results are discussed in the fourth section, and we provide a summary of our results and conclusion in the last section.

Background of Ghana

Ghana is a developing country located in the West African Sub region and is categorized among countries often faced with poor economic performance, weak legal and regulatory frameworks, illiquid stock markets and very frequent market intervention by government agencies (Tsamenyi *et al.*, 2007). These structural characteristics have led to the demand for good corporate governance in Ghana and similar countries (Ahunwan, 2002). Ghana does not have a specific corporate governance code such as the UK (principles based) and the USA (rules based) (Abor, 2007; Aboagye and Otieku, 2010). This means that companies tend to operate on a different set of corporate governance guidelines (Koranteng *et al.*, 2004). Nonetheless, the Ghana Stock Exchange and the Security Exchange Commission serve as the primary regulators of all listed companies, ensuring that all listing requirements and regulations are adhered to while also ensuring that these companies adhere to good corporate governance measures. In this regard, an emphasis must be placed on the effects that good corporate governance has on firm performance to help improve the effectiveness and efficiency of listed firms.

Corporate governance and firm performance

The Organisation of Economic Co-operation and Development (1999) (OECD) defines corporate governance as the mechanism or the system by which businesses and organizations are directed and controlled. The OECD (1999) indicates that the adoption of good corporate practices has the ability to increase and restore shareholder confidence as well as economic efficiency and growth (OECD, 2004). According to Sheikh (1995), the concept of corporate governance is grounded mainly in the accountability of directors to shareholders in lieu of their responsibilities in ensuring wealth maximization. Corporate governance is a set of mechanisms that aims to direct managerial decisions and helps improve the firms' performance (Jarboui *et al.*, 2015), while Vintila and Gherghina (2012) emphasized the fact that corporate governance mechanisms have the ability to mitigate the agency problem by aligning the interests of managers and directors with those of the shareholders. A number of previous studies investigated the role of governance mechanisms in resolving conflicts of interest between shareholder and managers and in improving performance (Cubbin and Leech, 1983; Aydin *et al.*, 2007). However, the findings of these empirical studies are contradictory and inconclusive. The indecisive nature of the literature as it relates to whether there is any relationship existing between the firm performance and corporate governance is been operated as calls for this paper.

Board of directors

The key role of the board of directors is to monitor management decisions. Cadbury report (1992) identifies the board of directors' responsibilities as setting the company's strategic aims, providing the leadership to put them into effect, supervising the management of the business and reporting to shareholders on their stewardship. Boards of directors are typically measured by two characteristics: board composition and board size (BS); with either characteristic, there is a trade-off between more information and more effective

decision-making. According to the agency theory, non-executive directors can play a key role in monitoring management performance. Having a higher proportion of outside non-executive directors on the board would result in better monitoring of the activities by the board and will limit managerial opportunism (Fama, 1980; Fama and Jensen, 1983). Thus, it is expected that having more outside directors on the board will enhance the firm performance. Previous studies find a relationship between board composition and profitability of firms in the sense that as the number of independent directors increases, the level of firm performance also increases (Abor and Biekpe, 2007). These findings emphasize the need for non-executive directors. Chen *et al.* (2006) and Lo *et al.* (2010) added that greater board independence (BI) results in the reduction of fraudulent activities and the misappropriation of scarce resources. As implied by the resource dependence theory, non-executive directors with their expertise, knowledge, prestige and contacts provide firms with links to external environment (Wang and Hussainey, 2013). However, Agrawal and Knoeber (1996); Hermalin and Weisbach (2001) and Azeez (2015) conclude that outsiders on the board does not help performance. We expect a positive association between the number of non-executive directors and firm performance. This leads to our first hypothesis:

H1. A positive association exists between number of non-executive directors and firm performance.

It has been argued that larger boards result in high performance due to the increased opportunities arising from diversity – gender, level of experiences, skills, expertise and nationality, networking and planning. Previous studies have investigated the association between BS and firm performance (Kiel and Nicholson, 2003; Adams and Mehran, 2005; Dalton and Dalton, 2005). Earlier works on the relationship between BS and firm performance have often been attributed to Lipton and Lorsch (1992) and Jensen (1993), who support smaller boards as being more efficient than larger ones. Yermack (1996) examines large US firms from 1984 to 1991 and finds a strong negative effect of BS on Tobin's Q (TBQ). Eisenberg *et al.* (1998) present evidence of a negative correlation between BS and profitability. In the same vein, Jensen (1993) finds that keeping small boards can help improve their performance. This leads to our second hypothesis:

H2. A negative association exists between size of directors and firm performance.

Van der Walt *et al.* (2006) define diversity in the context of corporate governance as the structure of the board and the combination of the different qualities, characteristics and expertise of the individual members in relation to decision-making and other processes within the board. The level of board diversity affects their decisions and might also contribute to the discussion, exchange of ideas and performance of the group (Kang *et al.*, 2007). Gender diversity on board is a highly debated topic, which has received a tremendous amount of attention of policymakers, researchers and shareholders (Chapple and Humphrey, 2014). Davies (2011) has offered a business case for increasing the number of women on corporate boards and its potential impact on performance. In fact, substantial research is epidemic in the women-on-boards context and suggests that companies with a strong female representation at board and top management level perform better than those without it (Erhardt *et al.*, 2003; Carter *et al.*, 2003; Farrell and Hersch, 2005; Campbell and Mínguez-Vera, 2008; Adams *et al.*, 2009). Hence, it is expected that more female directors on board will improve the firm performance. This leads to our third hypothesis:

H3. A positive association exists between the presence of female on board of directors and firm performance

Ownership structure

The ownership structure has the ability to shape the corporate governance system in any given country (Zhuang, 1999).The ownership structure is presented in terms of blockholder

ownership and state ownership. Substantial shareholders are expected to have the power and incentive to monitor management. The level of concentration of the ownership structure has implications such as large shareholders dominating decision-making to the detriment of small shareholders (Kuznetsov and Muravyev, 2001). In other words, companies with concentrated ownership have less agency problems (Zhuang, 1999; Al-Najjar and Abed, 2014). However, the influence of blockholder ownership on firm performance has received mixed results. Previous studies examined the relationship between ownership and performance and found that a positive relation exists between ownership concentration and profitability (Cubbin and Leech, 1983; Xu and Wang, 1999; Hiraki *et al.*, 2003; Heugens *et al.*, 2009); they show the important role of large shareholders and how the market value is positively related to increasing values of shares held by larger shareholders. Nevertheless, other stream of studies contradict this view and have emphasized another source of agency problem created by rising ownership concentration that gives more power to a circumscribed number of shareholders, which in turn might expropriate value from minority shareholders (La Porta *et al.*, 1999). Similarly, Shah *et al.* (2012) demonstrate that an increase in the concentration levels of ownership structure leads to a reduction in good practices by firms. Nevertheless, we expect that blockholder ownership leads to high firm performance. This leads to our fourth hypothesis:

H4. A positive association exists between blockholder ownership and firm performance.

The association between state ownership and firm performance has motivated many empirical studies. Porta *et al.* (1999) argue that the incentive for government to own shares in firm might be related to achieving political objectives rather than economic objectives. On the other hand, Eng and Mak (2003) state that government ownership reduces the problems of asymmetric information that result from the imperfect information about the value of the company. However, the empirical studies for the relationship between firm performance and state ownership have mixed results. Some studies report a positive effect of government ownership on firm performance (Bös, 1991; Jiang *et al.*, 2008; Liao and Young, 2012), while other studies present a negative effect (Chen *et al.*, 2005; Wei, 2007; Mahmood *et al.*, 2011). Based on the above discussion, we expect that state ownership leads to lower performance. This leads to our fifth hypothesis:

H5. A negative association exists between state ownership and firm performance.

Audit committee

The role of the audit committee in most companies is to monitor the integrity of their financial statement as well as the announcements of financial performance. Okeahalam (2004) added that it is the duty of the audit committee to bring to the notice of the board of directors all issues that require special attention. The size of the audit committee is considered to be relevant to the effective discharge of its duties (Cadbury, 1992). A number of corporate governance reports mandates that audit committees consist of a minimum of four directors (BRC, 1999; New York Stock Exchange, 2002; CMA, 2006). It is argued that a larger committee has greater organizational status and authority and a wider knowledge base (Kalbers and Fogarty, 1993; Braiotta *et al.*, 2010). There are a number of studies that reported a positive relationship between BS and firm performance (Dalton *et al.*, 1999). On the other hand, Vafeas (1999), Mohd Saleh *et al.* (2007) and El Mir and Seboui (2008) suggest that larger audit committee can lead to inefficient governance, because of yielding frequent meetings, which leads to increased expenses, and therefore, it negatively affects firm performance. Thus, large audit committee board is more likely to result in low firm performance. This leads to our sixth hypothesis:

H6. A negative association exists between audit committee size and firm performance.

The frequency of audit committee meetings is used in prior research to measure the effectiveness of the audit meeting. It has been argued that inactive audit committees are unlikely to monitor management effectively (Menon and Williams, 1994). Mohd Saleh

et al. (2007) argued that audit committee with a small number of meetings is less likely to possess good role of monitoring. Abbott *et al.* (2004) found that audit committees of firms restating their financial statements are not likely to meet at least four times a year. A positive relationship was established between the frequency of audit committee meetings and firm performance (Raghunandan and Rama, 2007; Sharma *et al.*, 2009). On the other hand, Rebeiz and Salameh (2006) found that there is no relationship between audit committee meeting frequency and firm performance. Their finding was supported by a research conducted by Sharma *et al.* (2009). Based on the above discussion, we expect a positive association between the frequency of audit committee meeting and firm performance. This leads to our seventh hypothesis:

H7. A positive relationship exists between frequency of audit committee meeting and firm performance

Methodology and data

This study focuses on 20 of the 34 listed companies on the Ghana Stock Exchange across a five-year period (2008 to 2012). A purposive sample of at least one company from every industry on the Stock Exchange was selected to enable a true representation of the entire population. The data set for the research was primarily secondary data consisting of longitudinal and cross-sectional data. The sources of data include annual reports and financial statements of the listed companies. Variables such as return on equity (ROE), return on assets (ROA), net profits margin (NPM) and TBQ were adopted. Director information and board structure, board gender (BG), ownership and corporate control information were acquired from the Web sites, and annual reports of the various companies with additional information were also sought directly from the Ghana Stock Exchange. A pool panel regression and an ANOVA analysis were used to establish the presence or otherwise of a significant relationship between the dependent and independent variables while controlling for age, size and leverage ratio of the firm. In this study, corporate governance structure was considered as the independent variable, while corporate performance was taken to be the dependent variable. The study adopts four performance indicators to provide a deeper insight and basis of comparison. Tables I and II present the operational definitions adopted in the research.

Table I Operational definitions

No.	*Name of variables*	*Description*	*Effect on firm performance*
Board structure			
1.	Board size	Total number of directors of the board	Positive or negative relationship between board size and firm performance
2.	Board independence	Number of independent directors in relation to the total number of directors	Positive relationship with firm performance
3	Board gender	Number of female directors on the board	Board diversity is supposed to have a positive effect on firm performance
Ownership structure			
4	Top 20 shareholders	Ratio of shares held by the top 20 shareholders to the total shares outstanding	Higher concentrated ownership results in a better firm performance
5	State ownership	Ratio of state-owned shares to the total shares outstanding	State-owned firms perform more poorly than privately owned firms
Corporate control			
6	Audit committee size	Number of members on the audit committee	An effective audit committee has a positive effect on firm performance
7	Frequency of audit committee meetings	Frequency of audit committee meetings held	

Table II Operational definitions

Variable	*Label*	*Operationalization*
Return on equity	ROE	Net profit/total equity
Return on assets	ROA	Net income/total assets
Net profit margin	NPM	Net income/total sales
Tobin's Q	TBQ	(Market size + total asset − total equity)/total assets

Model

The research adopts a model similar to that adopted by Abor and Biekpe (2007), who used firm performance as a function of board and ownership structure. Their model was Performance = α + β (board) + δ (ownership) + K (control factors) + μ. However, the general panel regression model for analyzing cross-sectional and time series data is adopted and further expanded to include all the indices covered in the study:

$$Y_{it} = \alpha + bx_{it} + \varepsilon_{it}$$

Where:

- Y = dependent variables (ROA, ROE, NPM and Tobin's Q);
- x = independent variables (BS, BG, BI, TTS, SOS, FM, SAC, SZE, AGE and DBS);
- α and b = coefficients;
- i and t = cross-sectional and time-series dimensions; and
- ε = error term.

The various models are defined as follows:

$$ROA = \alpha + \beta BS + \beta BG + \beta BI + \beta TTS + \beta SOS + \beta FM + \beta SAC + \beta SZE + \beta AGE + \beta DBS + \varepsilon \quad (1)$$

$$ROE = \alpha + \beta BS + \beta BG + \beta BI + \beta TTS + \beta SOS + \beta FM + \beta SAC + \beta SZE + \beta AGE + \beta DBS + \varepsilon \quad (2)$$

$$NPM = \alpha + \beta BS + \beta BG + \beta BI + \beta TTS + \beta SOS + \beta FM + \beta SAC + \beta SZE + \beta AGE + \beta DBS + \varepsilon \quad (3)$$

$$TBQ = \alpha + \beta BS + \beta BG + \beta BI + \beta TTS + \beta SOS + \beta FM + \beta SAC + \beta SZE + \beta AGE + \beta DBS + \varepsilon \quad (4)$$

Where:

- Y = dependent variables (ROA, ROE, NPM and Tobin's Q);
- x = independent variables (BS, BG, BI, TTS, SOS, FM, SAC, SZE, AGE and DBS);
- α and b = coefficients;
- i and t = cross-sectional and time-series dimensions; and
- ε = error term.

Findings

Table III reports an average/mean BS of nine board members among the 20 sampled companies listed on the Ghana Stock Exchange. The analysis also reveals that on average, listed firms have three internal board members (executive directors) and approximately six external board members (non-executive directors). This implies that on average, there are more non-executive directors than executive directors, suggesting a high level of independence on the board which conforms to the Ghana Stock Exchange listing requirements of a minimum of four non-executive directors on a company's board. Also, the ratio of male board members to female board members was found to be 7:1, which implies that board diversity among listed firms is low.

As shown in Table III, on average, the top 20 shareholders hold about 83.26 per cent of the company's shares; thus, the ownership is concentrated among a few shareholders. This

Table III Descriptive statistics

Variable	*Mean*	*Median*	*SD*	*Minimum*	*Maximum*
Board size	9.095745	9	2.048179	6	14
Executive directors	3.071429	3	1.604104	1	7
Non-executive directors	5.892857	5.5	1.735649	3	10
Male	7.611111	7.5	1.752651	4	11
Female (board diversity)	1.455556	1	0.9848414	0	4
Audit committee size	3.942857	4	1.08862	2	7
Frequency of audit meetings	7.54	5.5	4.366898	1	15
Top 20 share ownership	83.25756	86.68	10.36681	54.67	96.02
State ownership	9.751495	0	17.69904	0	51.1
AGE	45.7000	44	23.50607	17	117
SZE	8.202602	8.179353	0.7013089	6.523828	9.535049
DBS	0.7497971	0.7596479	0.6573081	0.1076564	6.868094
ROA	5.553564	3.873085	7.942914	−13.44023	29.65137
ROE	−82.50871	18.13734	824.3728	−8069.237	59.73655
NPM	11.41533	11.48242	15.43508	−37.21357	61.19115
Tobin's Q	1.458058	1.120609	0.915152	0.099868	4.72146

result corroborates the findings of Salami (2011), who found that most of the listed companies on the Ghanaian Stock Exchange had very high ownership concentrations. The analysis also reveals that the state ownership on average is about 9.75 per cent of total shares outstanding, implying low government influence among listed firms on the Ghana Stock Exchange. The analysis on corporate control also indicates that on average, listed companies have four members on their audit committee, ranging from a minimum of two to a maximum of seven, and the audit committee held an average of eight meetings annually, varying between 1 to 15 times in a year. Table III reports on some performance indicators of the sampled firms from the Ghana Stock Exchange. It shows that the average ROA was 5.55 per cent, ROE was −82.42 per cent, net profit margin was 11.42 per cent, while TBQ was 1.458057 per cent. Furthermore, the table also reports that the average age of the sampled companies was 45.7 years, while the average firm size was 8.202602, with firm size indicated by the natural log of the firms' capitalization. Finally, the average debt to equity ratio for the sampled companies was reported to be 0.7497971.

Multicollinearity test

A multicollinearity test is conducted to ascertain whether the independent variables have a strong correlation among themselves. The test is important because the reliability of the results is questionable in the event of the existence of multicollinearity. All other things being equal, researchers desire higher levels of tolerance, as low levels of tolerance are known to adversely affect the results associated with a multiple regression analysis. Various recommendations for acceptable levels of tolerance have been published in the literature. According to Tabachnick and Statistics (2001), the minimum level of tolerance recommended is a value of 0.10, whereas Menard (1995) recommended the use of 0.20 as the minimum value and 0.25 by Huber *et al.* (1993).

Table IV shows that the tolerance levels are all higher than the minimum recommended values and, therefore, implies that the level of correlation between the independent variables are small and will not increase the standard errors significantly. Therefore, multicollinearity is not a problem in the models estimated below.

Regression results

Table V indicates that BS has a negative but insignificant relationship with ROA. The negative association suggests that companies with a relatively lower BS tend to perform better with regard to ROA than companies with a larger BS. The findings of the negative association consolidates the findings in Lipton and Lorsch (1992) and Jensen (1993), who concluded that smaller boards are more efficient as against larger boards. The regression

Table IV Variance inflation factor and tolerance levels of independent variables

Variable	*VIF*	*Tolerance level (1/VIF)*
BS	2.38	0.420075
AGE	2.14	0.46716
DBS	1.75	0.570689
SIZE	1.70	0.589835
SOS	1.68	0.594740
TTS	1.67	0.598509
BI	1.63	0.612415
BG	1.48	0.674595
SAC	1.43	0.744141
Mean VIF	1.75	

Table V Regression model (dependent variable: return on asset)

Variable	*Coefficient*	*Standard error*	t-*statistic*	*Probability*
Constant	14.39775	16.46431	0.87	0.386
BS	−0.8893935	0.7025447	−1.27	0.211
BI	−26.7383	10.13664	−2.64	0.011
BG	−0.0897605	12.37466	−0.01	0.994
FM	−0.8197644	0.3666621	−2.24	0.032
TTS	0.2893576	0.1182329	2.45	0.018
SOS	0.0834645	0.1093657	0.76	0.449
SAC	0.4786649	1.19128	0.40	0.690
AGE	0.2082823	0.0880447	2.37	0.022
SIZE	−1.96193	1.71972	−1.14	0.259
DBS	−1.666774	1.633173	−1.02	0.312
R^2	0.4221		*F*-statistic	2.34
Adjusted R^2	0.2415		Probability (*p*-value)	0.0335

results also reveal a ($p < 0.05$) significant negative (−26.7383) relationship between BI and ROA. This suggests that listed companies with a relatively lower number of non-executive directors tend to perform better in terms of ROA than companies with a larger percentage of non-executive directors. This result contradicts the study by Abor and Biekpe (2007), who found a significant positive relationship between BI and firm profitability.

Table V revealed that BG has a negative but insignificant impact on ROA. It also shows that the number of times audit committee meetings were held had an influence on performance, as given by the *p*-value of 0.032. Thus, the number of times audit meetings were held in a firm negatively affected ROA. The number of members on the audit committee does not have a significant impact on ROA at a 5 per cent level of confidence as its *p*-value was 0.690. Results on the impact of ownership structure on performance are also presented in Table V. The proportion of shares held by the top 20 shareholders has a positive and significant impact on ROA at the 5 per cent level of confidence. This result agrees with that of Zhuang (1999), who indicates that companies with higher concentrated ownership structures perform better than their counterparts. Ratio of state-owned shares to total shares outstanding (SOS), however, has a positive but insignificant impact on ROA as its *p*-value was 0.449.

On the impact of board composition on performance, results in Table VI indicate that BI has a negative and significant impact on ROE as its *p*-value of 0.030 is less than the 5 per cent level of confidence. This suggests that a unit increase in the number of non-executives would negatively affect ROE. Results also suggest a negative relationship between BS and ROE, but this relation according to Table VI was insignificant as its *p*-value was 0.250 which is higher than the 5 per cent level of confidence. BG or the proportion of female board members does have a positive but insignificant impact on ROE. Table VI also reports on the impact of corporate control on firm performance. The number of times companies hold audit meetings is shown by Table VI to have a negative and significant influence on ROE.

Table VI Regression model (dependent variable: return on equity)

Variable	*Coefficient*	*Standard error*	t-*statistic*	*Probability*
CONSTANT	−29.88866	35.37073	−0.85	0.402
BS	−1.757584	1.509296	−1.16	0.250
BI	−48.55246	21.77682	−2.23	0.030
BG	23.5524	26.58483	0.89	0.380
FM	−2.146939	0.735061	−2.92	0.006
TTS	0.2483074	0.2540031	0.98	0.333
SOS	0.3348998	0.2349533	1.43	0.160
SAC	1.919521	2.559275	0.75	0.457
AGE	0.2249509	0.1891489	1.19	0.240
SIZE	6.75072	3.694522	1.83	0.044
DBS	−4.452213	3.50859	−1.27	0.210
R^2	0.4436		*F*-statistic	2.55
Adjusted R^2	0.2698		Probability (*p*-value)	0.0216

Findings indicate that the number of members on the audit committee (SAC) does not significantly influence ROE, as its *p*-value lies above the 5 per cent level of confidence. With respect to the impact of ownership structure on performance, Table VI indicates that the ratio or percentage of shares held by the top 20 shareholders to the total shares outstanding does have a positive but insignificant impact on ROE as its *p*-value (0.333) lies above the 5 per cent level of confidence. Also, the ratio of state-owned shares to the total shares outstanding does not have a significant influence on ROE.

Table VII presents the regression model with net profit margin as the dependent variable and the explanatory variables use in the previous models. With respect to the impact of the board composition on performance, results in Table VII indicate BS to have a negative but insignificant impact on net profit margin of the sampled firms. Unlike the findings in our previous models where BI had a significant impact on performance, BI has a negative but insignificant impact on net profit margin. Board gender (board diversity), however, is shown to have a positive and a significant influence on net profit margin. The positive relation between BG and performance (net profit margin) conforms with the findings of Fondas and Sassalos (2000) and Carter *et al.* (2003). The number of audit meetings held shows no significant influence on performance (NPM), as the *p*-value was 0.242. The coefficient of the number of members on the audit committee is 3.277553 and its *p*-value is 0.059; this suggests that the size of audit committee does not influence net profit margin at the 5 per cent level of confidence. Considering the impact of ownership structure on performance, Table VII reports that the proportion of outstanding shares held by the top 20 shareholders has a positive but insignificant influence on net profit margin. The positive relation supports the findings of Zhuang (1999), who asserted that a high level of ownership concentration

Table VII Regression model (dependent variable: net profit margin)

Variable	*Coefficient*	*Standard error*	t-*statistic*	*Probability*
CONSTANT				
BS	−1.638836	1.001218	−1.64	0.108
BI	−12.38133	14.44603	−0.86	0.395
BG	36.65193	17.63551	2.08	0.043
FM	−0.6248072	0.5239308	−1.19	0.242
TTS	0.1378722	0.1684973	0.82	0.417
SOS	−0.2422159	0.1558603	−1.55	0.126
SAC	3.277553	1.697739	1.93	0.059
AGE	0.241896	0.1254752	1.93	0.049
SIZE	11.90848	2.450825	4.86	0.000
DBS	−0.0792751	2.327484	0.03	0.973
R^2	0.5573		*F*-statistic	4.03
Adjusted R^2	0.4189		Probability (*p*-value)	0.0012

are more effective in monitoring the activities of management. On the other hand, the proportion of outstanding shares held by the state has been shown to have a negative but insignificant impact on net profit margin.

Table VIII presents the regression model with TBQ as the dependent variable and the same independent variables use in the previous models. Table 4.6 indicates BS to have a negative but insignificant (p value = 0.479) impact on TBQ of the sampled firms. BI has a negative but insignificant (p value = 0.695) impact on TBQ. Board gender (board diversity) is shown to have a positive and insignificant (p value = 0.115) influence on TBQ. Also, the number of audit meetings does not have a significant impact on TBQ at the 5 per cent level of confidence. Table VIII also reports the coefficient of the number of member on the audit committee as having a negative but insignificant impact on TBQ as its p-value was 0.499, suggesting that the size of audit committee does not influence TBQ at the 5 per cent level of confidence. In terms of ownership structure, the proportion of outstanding shares held by the top 20 per cent of shareholders has a positive and a significant influence on TBQ. The positive relationship supports the findings of Zhuang (1999), who asserted that high level of ownership concentration increases shareholder effectiveness in monitoring the activities of management. However, the proportion of outstanding shares held by the state has been shown to have a negative but insignificant impact on TBQ.

ANOVA analysis of board size

Table IX presents the ANOVA results for the impact of BS on ROA, ROE, NPM and TBQ. The sampled companies have been classified into three groups. As shown above, companies with a BS of less than 8 members had an average ROA of 6.12208, those with a BS from 9 to 11 had an average ROA of 5.77912 and those with a BS greater than 11 had an ROA of 3.86995. This suggests that companies with a relatively smaller BS tend to perform better than companies with a relatively larger size. However, with an F-statistic value of 1.20 and a p-value of 0.3104, we conclude that there is no significant difference between the mean ROA for companies with different BSs. Thus, BS does not have a significant impact on ROA. BS also showed no significant impact on ROE, having recorded an F-statistic value of 1.66 and a p-value of 0.1194. Companies within the first group (less than 8 board members) had

Table VIII Regression model (dependent variable: Tobin's q)

Variable	*Coefficient*	*Standard error*	t-*statistic*	*Probability*
CONSTANT	0.5363313	1.970829	0.27	0.787
BS	−0.0602522	0.0843653	−0.71	0.479
BI	−0.473477	1.198990	−0.39	0.695
BG	2.410052	1.503104	1.60	0.115
FM	−0.0863936	0.048234	−1.79	0.083
TTS	0.0303281	0.013961	2.17	0.035
SOS	−0.0115636	0.0131307	−0.88	0.383
SAC	−0.1010056	0.1482196	−0.68	0.499
AGE	0.0276022	0.0115537	2.39	0.021
SIZE	−0.2095559	0.2041168	−1.03	0.310
DBS	0.0529347	0.1954531	0.27	0.788
R^2	0.2451		*F*-statistic	2.73
Adjusted R^2	0.1036		Probability (*p*-value)	0.047

Table IX The impact of board size on ROA, ROE, NPM and Tobin's Q

BS	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's Q)*
Less than 8	40	6.12208	17.0629	14.0962	1.5258
9 to 11	41	5.77912	21.8297	12.6373	1.34296
Greater than 11	19	3.86995	−517.284	3.13437	1.54896
F-statistic		1.20	1.66	2.08	1.12
p-value		0.3104	0.1194	0.0467	0.3619

an average ROE of 17.0629, with those in the second group (9-11 board members) recording an average ROE of 21.8297 and an average ROE of −517.284 for those in the third group (board members greater than 11).

Table IX also presents results on the impact of BS on NPM and TBQ. NPM was 14.0962 for a BS of 8 members and less; this decreased slightly to 12.6373 when the BS increased to 9 to 11 members. There was a further decrease to 3.13437 as the BS increased to 11 members and more. The *F*-statistic value of 2.08 and a *p*-value of 0.0467 indicate a significant impact of the size of the board on NPM. There was, however, no clear pattern discovered in the results of the TBQ. The first group (less than 8 members) recorded a TBQ of 1.5258, while TBQ for the second group (9-11 members) was 1.34296, increasing to 1.54896 for the above 11 board members group .Given a *p*-value of 0.3619, the impact of BS on TBQ was concluded to be insignificant.

ANOVA analysis of board independence

Table X above presents the ANOVA test for the impact of BI on ROA, ROE, NPM and TBQ. The ANOVA test was used to compare the averages of the four firm performance indicators based on the number of independent board members. Board independence was classified under three groups, with the first group having less than five non-executive members, second group with six to eight non-executive members and the last group with more than eight non-executive members. From the analysis, it can be inferred that the group with a relatively smaller number of non-executive directors performed better than companies with a relatively larger number of non-executive directors as depicted by the ROE of 21.3462 and NPM of 16.791 being the highest values. Mixed results were, however, discovered for the impact of BI on the performance indicators. The *p*-value for ROE and NPM was 0.0001 and 0.0058, respectively, implying that there is a significant impact of BI on both ROE and NPM. However, no significant impact was recorded for ROA and TBQ, as their *p*-values of 0.2683 and 0.3735 were above the 5 per cent acceptable error margin.

ANOVA analysis of board gender

Table XI reports on the impact of board diversity (BG) on firm performance. For this section, only two classifications were used. The first group was made up of boards with less than two female directors, while the second group was made up of boards with more than two female directors represented the second group. An increase in performance was identified for ROA, NPM and TBQ, as the number of females on the board became greater than two; this was, however, not the case with ROE, as the first group had an ROE of −3.9852; there was a further decrease to −361.111. Regardless of the above inferences, the *p*-values of

Table X Impact of board independence on ROA, ROE, NPM and Tobin's Q

BI	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's Q)*
Less than 5	42	7.46858	21.3462	16.791	1.69076
6 to 8	37	4.05727	15.0776	11.6835	1.28716
Greater than 8	21	4.35987	−462.156	0.191599	1.69076
F-statistic		1.29	4.99	3.14	1.10
p-value		0.2683	0.0001	0.0058	0.3735

Table XI Impact of board gender on ROA, ROE, NPM and Tobin's Q

BG	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's Q)*
Less than 2	78	5.05963	−3.92852	11.0336	1.40306
Greater than 2	22	7.30478	−361.111	12.7687	1.67498
F-statistic		1.24	0.30	1.81	0.8
p-value		0.3017	0.8756	0.1339	0.5269

ROA, ROE, NPM and TBQ were 0.3017, 0.8756, 0.1339 and 0.5269, respectively, indicating that there is no significant impact of the BG diversity on performance.

ANOVA analysis of top 20 ownership structure

Table XII presents the ANOVA analysis on the impact of the proportion of outstanding shares owned by the top 20 per cent of shareholders on the firm's performance. The sampled companies were grouped into three and their average performance in terms of ROA, ROE, NPM and TBQ. The ANOVA test reports an *F*-statistic of 1.00 with a *p*-value of 0.4830 by comparing the average ROA for the three groups. This implies no significant difference in ROA for the three groups, and hence, we conclude that the percentage of top 20 ownership does not have a significant impact on ROA. Similar results were discovered for ROE and TBQ, as their *p*-values were 0.9802 and 0.2752, respectively. Contrary to the findings above, the ANOVA test reported an *F*-statistic of 1.70 with a *p*-value of 0.0423 by comparing the average NPM for the three groups. This therefore implies a significant difference in NPM for the three groups and, hence, the conclusion that the proportion of outstanding shares owned by the top 20 per cent of shareholders does have a significant impact on NPM at the 5 per cent level of confidence.

ANOVA analysis of state ownership

Table XIII presents the ANOVA analysis on the impact of the proportion of outstanding shares owned by the state on the firm performance. The sample companies were group into three and their average performance in terms of ROA, ROE, NPM and TBQ were compared. The analysis revealed that a unit increase of state ownership in a firm, results in a reduction in firm performance. This was confirmed as the first group of companies with less than 20 per cent state ownership performed relatively better than the firms with state ownership greater than 40 per cent. The ANOVA test reported an *F*-statistic of 2.24 with a *p*-value of 0.0462 by comparing the average ROA for the three groups. This revealed a significant difference in ROA for the three groups and, hence, the conclusion that state ownership can affect ROA. This result is synonymous to that of ROE and NPM where *p*-values of 0.0000 and 0.0005, respectively, were recorded signifying an impact of the share of state ownership on these variables. With TBQ, the ANOVA test reported an *F*-statistic of 1.23 with a *p*-value of 0.3001 by comparing the average TBQ for the three groups. This suggests that state ownership has no significant impact on TBQ.

Table XII Impact of top 20% ownership on performance

TTS	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's q)*
Less than 60	5	2.72979	4.23032	1.86201	1.04668
60 to 80	30	5.76351	15.943	10.7136	1.4644
Greater than 80	65	5.67388	−134.62	12.4741	1.49162
F-statistic		1.00	0.49	1.70	1.21
p-value		0.4830	0.9802	0.0423	0.2752

Table XIII Impact of the share of state ownership on performance

SOS	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's Q)*
Less than 20	74	6.67593	18.8962	14.2875	1.61374
20 to 40	16	3.04625	−79.1616	7.85701	1.10631
Greater than 40	10	1.2598	−838.26	−4.14568	0.976279
F-statistic		2.24	6.50	4.45	1.23
p-value		0.0462	0.0000	0.0005	0.3001

ANOVA analysis of audit committee size

Table XIV presents the ANOVA analysis of the impact of the audit committee size on firm performance. The sample companies were grouped into two and their average performance in terms of ROA, ROE, NPM and TBQ reviewed. The ANOVA test reports an *F*-statistic of 3.53 with a *p*-value of 0.00070 by comparing the average ROA for the two groups. This implies a significant difference in ROA for both groups, thus concluding the presence of a significant impact on the firm's ROA. This implies that the companies with a larger audit size tend to perform better than the companies with a smaller size. The ROE yielded the same results after a comparison of the averages of the two groups. The *F*-statistics and *p*-value were 2.94 and 0.0190, respectively. This therefore implies that the size of the audit committee has a significant impact on ROE. Contrary to the findings of ROA and ROE, our results indicate that the audit committee size does not have a significant impact on both NPM and TBQ, as the *F*-statistics were reported to be 1.80 and 1.54, respectively, and their *p*-values were 0.1249 and 0.1913, respectively.

ANOVA analysis of the frequency of audit committee meetings

Table XV compares the average ROA, ROE, NPM and TBQ for firms based on how frequently audit meetings are held. The frequency of audit meetings were put into three groups, the first being less than 5 meetings a year, second group being between 5 to 10 meetings and the last group having more than 10 meetings. The average ROA for firms with less than 5 meetings per year was 7.90381, firms who held 6-10 meetings was −0.06698 and 5.90381 for firms who held more than 10 audit meetings. The *F*-statistic was 3.24 with *p*-value of 0.0039, indicating that the frequency of audit committee meetings has a significant impact on firm performance (ROA). The remaining performance indicators ROE, NPM and TBQ yield the same results as did ROA. Their *p*-values were 0.0000, 0.0076 and 0.0068, respectively, indicating that the number of meetings held by the audit committee has a significant impact on firm performance.

ANOVA analysis of firm age

Table XVI presents the ANOVA results of the comparison of the average performance of the sampled companies. The age of the firm are classified into three groups. The results as shown in Table XVI indicate that the age of firms have a significant impact on ROA, NPM and TBQ, as their respective *p*-values are less than the 5 per cent level of confidence. The impact of firm age on ROE was, however, insignificant as its *p*-value was 0.4176, which lies above the 5 per cent level of confidence.

Table XIV Impact of audit committee size on ROA, ROE, NPM and Tobin's Q

SAC	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's Q)*
Less than 3	27	3.78484	13.8149	9.82241	1.53069
Greater than 3	73	6.20775	−118.135	12.0045	1.42808
F-statistic		3.53	2.94	1.80	1.54
p-value		0.0070	0.0190	0.1249	0.1913

Table XV Impact of frequency of audit committee meetings on ROA, ROE, NPM and Tobin's Q

FM	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's Q)*
Less than 5	25	7.90381	18.7373	13.0403	1.87772
5 to 10	4	−0.06698	−2004.73	9.07691	0.824669
Greater than 10	71	5.90381	−9.86464	10.9749	1.33448
F-statistic		3.24	11393.65	2.94	3.03
p-value		0.0039	0.0000	0.0076	0.0068

Table XVI Impact of age on performance

AGE	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's q)*
Less than 50	60	4.4551	−150.655	10.0862	1.3268
50 to 80	30	7.29171	16.6691	8.5345	1.68172
Greater than 80	10	6.92993	28.8385	28.0324	1.4992
F-statistic		5.39	1.04	20.82	3.17
p-value		0.0000	0.4176	0.0000	0.0011

ANOVA analysis of firm size

Table XVII presents the ANOVA test results for the sampled companies put into two groups based on their size. Size was computed by taking the natural log of the firms' total assets. The results indicate that firm size does not have a significant impact on ROA, ROE and TBQ, as their respective *p*-values lies above the 5 per cent level of confidence. Table 4.14 however also shows that size of firm has a significant impact on NPM, as its *p*-value was 0.0000.

ANOVA analysis of firm's debt to asset ratio

Table XVIII also reports results for the impact of debt to equity ratio on performance. Table XVIII shows the *F*-statistics and their respective *p*-values for the performance indicators. And from these results, debt to equity ratio has a significant impact on ROA and TBQ, as their respective *p*-values lie below the 5 per cent level of confidence. However, debt to equity ratio has no significant impact on ROA and NPM.

Discussion

H1 suggests that there is positive relationship between the number of independence and firm performance. The findings revealed a negative relationship between BI and all the performance indicators. This implies that the performance of firms tends to decrease as the number of non-executive directors increased in relation to the executive directors. Therefore, the hypothesis is rejected. Our finding is consistent with that of previous studies (Agrawal and Knoeber, 1996; Hermalin and Weisbach, 2001; Azeez, 2015) and conclude that outsiders on the board does not help performance. On the other hand, this is contrary to findings of studies such as Black *et al.* (2006), Chen *et al.* (2006) and Abor and Biekpe (2007). However, given the context of Ghana, this raises the question of whether the non-executive directors truly fulfill the non-executive director characteristics which are recommended by the best practice code. *H2* predicted that BS negatively associated with the firm performance. Contrary to *H2*, the results show an insignificant relationship,

Table XVII Impact of firm size on performance

SAC	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's Q)*
Less than 8	68	6.77953	−132.305	4.71675	1.58241
Greater than 8	32	2.96751	23.3094	25.6498	1.22539
F-statistic		1.91	0.41	22.89	1.70
p-value		0.1336	0.7447	0.0000	0.1737

Table XVIII Impact of debt to equity ratio on performance

DBS	*Frequency*	*Mean (ROA)*	*Mean (ROE)*	*Mean (NPM)*	*Mean (Tobin's Q)*
Less than 3	89	5.6026	−83.3574	11.509	1.46189
Greater than 3	11	0.699382	1.51478	2.14347	1.12061
F-statistic		14.15	0.18	0.40	7.75
p-value		0.0000	0.8327	0.6744	0.0008

implying that BS does not predict firm performance. Therefore, *H2* is not supported. This result is in contrast with the result of the study by Ujunwa (2012), who asserted that BS has a significant negative relationship with firm performance. One possible reason for this could be the sample size. It is more likely that in small samples where the majority of firms consisted of similar number of total number of directors, the results would not highlight the influence of BS. *H3* suggests that the number of female directors on the board is positively associated with the performance. Our result revealed a positive and significant relationship with NPM which supports existing literature. This suggests that a unit increase in the number of females on the board of directors would result in increased profitability. However, a positive but insignificant relationship was established for both ROE and TBQ. *H4* suggests a positive relationship between ownership concentration and profitability. The results revealed a positive relationship with firm performance. There is strong evidence that the direct effect of ownership concentration on firm profitability in Ghana is positively and statistically significant, for ROA and TBQ. Thus, we find evidence in support of *H4*. This finding suggests that companies with a higher ownership concentration among the top 20 shareholders performed better than companies with lower ownership concentration. This result confirms the finding of previous studies such as Zhuang (1999); Hiraki *et al.* (2003) and Heugens *et al.* (2009), who also asserted that companies with higher ownership concentration performed better. Moreover, the result for state ownership shows that there is no association with firm performance; thus, *H5* is rejected. This finding is consist with the result of Xu and Wang (1999), who conclude that state ownership is considered irrelevant to the company profitability. Our finding did not find support *H6*, as the result indicates no relationship between audit committee size and company performance. Our result is consistent with previous studies (Rebeiz and Salameh, 2006; Sharma *et al.*, 2009; Al-Mamun *et al.*, 2014). *H7* predicts that the number of audit comment meeting would be positively associated with firm performance. Contrary to *H7*, the result showed a significant negative relationship between number of audit committee meetings and ROE and ROA. The result in consistent with that of Menon and Williams (1994). This could be due to the increased costs for holding frequent meetings as well as the reverse in changes of decision taken in earlier meetings (Al-Mamun *et al.*, 2014).

Conclusion and implications

Corporate governance has been identified as a very intense and controversial area aspect of the business administration literature. The increasing need to understand the relationship between governance and firm performance is, therefore, of the essence (Kraus and Britzelmaier, 2011). This study examined the relationship between corporate governance and firm performance of listed firms in Ghana. The corporate governance indicators used for this study included BS, BI, BG, ownership structure and effective audit committee. We demonstrated a mixed result in terms of the impact of corporate governance on firm performance. This in our view demonstrates the need not only for a uniform corporate governance code for companies operating in an emerging market but also for company-specific approaches based on good governance practice. Across all the indicators used, our results demonstrate an overwhelming support for the impact of good corporate governance on firm performance.

Limitations of the study

A major limitation of the study is that data used are predominately collected from annual reports and, thus, may not be a true reflection of the state of affairs of the company, as the regulatory and monitoring framework may be considered to be weaker in emerging markets than in matured markets. In addition, data used for the study covered a period of five years from 2008 to 2012 due to gaps in the data set outside of this range. We believe that a study covering a wider period could improve the quality of results generated. While we established a relationship between corporate governance and firm performance using companies across a range of industrial sectors, an industry-based analysis of firms on the

Ghanaian Stock Exchange, examining the relationship between director and board composition, ownership structure and corporate control, would provide deeper insights into the specific impact corporate governance has on various industries based on their peculiar characteristics and operations. This was, however, not possible due to the small number of listed firms on the exchange. Increasing the number of variables explored by studying the impact CEO tenure and duality, board equity ownership, executive compensation and remuneration committees on performance would no doubt increase the validity of the established relationship between good corporate governance and firm performance. Finally, due to missing data for some firms listed on the exchange, our study could not include all the listed firms on the exchange in our sample.

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