

The Impact of Corporate Board Size on Firm Performance: Evidence from Ghana and Nigeria

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Abstract

This paper examines the impact of corporate board size on firm performance for a sample of 137 listed firms in Ghana and Nigeria. Our findings suggest a statistically significant and positive relationship between board size and firm performance, implying that in Ghana and Nigeria allowing corporate board size to be dependent of firm size tends to improve firm performance. Our findings are consistent across different kinds of models that deal with different types of endogeneities and corporate performance proxies. Our results provide empirical support for agency theory, which suggests that optimal corporate board size effectively advise, monitor and discipline management thereby improving firm performance.

Keywords: Board Size, Firm performance, Agency Theory, Resource Dependency Theory

1. Introduction

The paper examines the impact of corporate board size on firm performance in Ghana and Nigeria. Ghana and Nigeria over the years have pursued reforms and reviews in corporate governance framework in the form of code of best practices in 2010 and 2013 respectively. These reforms generally sought to improve the corporate governance systems in these countries. Specifically, these reforms are geared towards enhancing the effectiveness of board of directors in performing their functions. The size of a board is seen as important factor in influencing the monitoring and decision-making process (Haniffa & Hudaib, 2006; Larmou & Vafeas, 2010; Fauzi & Locke, 2012) thereby enhancing firm performance. Board size refers to the total number of directors on the board of directors of a firm. The importance of board size in influencing firm performance is evidenced by number of empirical studies in recent years (Fuji, Adliana, & Julizaerma, 2016; Alves, 2014; Hillman & Dalziel, 2003) However, empirical findings have been mixed and inconclusive. A number of issues have

been attributed with respect to the conflicting findings of past studies. First, previous studies use different theoretical frameworks. The relationship between board size and firm performance is supported by different corporate governance theories. Agency and resource dependency theories support board with large number of directors whereas stewardship theory supports smaller board size for effective management. Agency theory proposes that the firm director acts as representatives of the various shareholders and stakeholders of the company for monitoring the performance and managers activities. A larger board consists of more number of directors who work towards the interest of the stakeholders. Thus, agency theory believes that larger board size enhances the firm performance by improving monitoring function. In the same vein, the resource dependency theory proposes that larger board size brings a wide variety of expertise and knowledge and experience in diverse fields to enhance the functions of the firm.

Secondly, studies of board-size effect in firms are of interest because factors that drive the choice of board size in firms could differ. For instance, factors influencing board size in large firms are likely to differ from small firms. For example, small and mid-sized firms are frequently closely held, implying that the influence of agency problems between managers and owners on decisions affecting the firm is probably less prevalent in this class of firms. This assertion supports the fact that firm size is influenced by firm level characteristics. However, in prior empirical studies examining the relationship between board size and firm performance, board size is measured using the natural logarithm of number of board members not recognizing the variations in board size due to different firm size. Therefore, such weakness in measurement of board size is likely to affect any relationship between board size and firm performance and its theoretical and policy implications doubtful. In this paper board size is measured using the ratio of number of board members to the total asset. This measure is likely to improve the relationship between board size and firm performance.

Third, it has been argued that the effect of board size on firm performance may not just vary by firm level characteristics, but also by variations in country-specific governance mechanism, institutional, legal practices (Karamanou & Vafeas, 2005). This notwithstanding, prior empirical papers related to this study have been conducted mainly in developed markets. Several empirical studies (e.g. Ntim, 2009; Ntim et al., 2015) suggest that country-level specific factors, such as culture, religious, governance mechanisms, and legal framework and ownership structures affect board composition which in turn affect board monitoring function and subsequently on firm performance. Therefore, examining the effect of board size and firm performance in developing African countries is expected to providing a more complete understanding of the impact of board size and firm performance. In this paper, we examine the impact of board size on performance for listed companies in Ghana and Nigeria. The case of these countries provides an interesting context to examine this relationship. In Nigeria, the Code of Corporate governance best practice in 2003 recommend that the size of the board should be at least five members and a maximum of fifteen members. However, the 2011 revised code did not give any ceiling and further indicates that the maximum number should reflect the complexity and scale of the operations of the firm. This gives indication to suggest that the size and complexity the firm determine the ceiling of the board size. On the other hand Ghana's companies' code recommends at least two members as board members but did not give any ceiling. The introduction of the code of best practices in 2010, on the other hand, recommends at least between 8-16 members. The code indicates that such a number is ideal to sufficiently improve the monitoring function of the board.

In this paper, we argue that lack of empirical studies distinctively addressing the impact these reforms in these countries serves as a compelling basis to examine the impact of board size

on corporate performance in Ghana and Nigeria. This paper contributes to the extant literature in a number of ways. First, using a unique dataset of 137 listed firms from 2008 to 2014, we provide evidence on the impact of board size on firm performance in Ghana and Nigeria and introduce a new measurement of board size. To the best of our knowledge, this paper presents an initial attempt at investigating in Sub-Saharan African context, with reference to Ghana and Nigeria following reforms in corporate governance framework and more essentially extends the extant literature to that sub-continent. Second, this paper is motivated by agency and resource dependence theories to examine the relationship between board size and firm performance following the waves of corporate scandals that has been hitting corporate worlds highlighting the role of board of directors in monitoring manager's activities.

Our findings suggest a statistically significant and positive relationship between board size and firm performance, implying that in Ghana and Nigeria allowing corporate board size to be dependent of firm size tends to improve firm performance. The remainder of the paper is organized as follows. Section 2 provides an overview of the CG environment in Ghana and Nigeria. Section 3 reviews the prior literature on the impact of board size on corporate performance. Section 4 describes the research design. Section 5 reports empirical analyses. Section 6 presents summary and conclusion.

2. Corporate Governance Framework in Ghana and Nigeria

As the results of recent scandals in the corporate world, the need for effective governance practices in mitigating agency conflict and improving firm performance has been recognized and grown substantially. Firms and country level governance frameworks and practices are responding to these challenges of which Ghana and Nigeria are of no exception. The initial corporate governance framework in Ghana is the Companies Code, 1963 (Act, 179) which regulates limited liability companies and the provisions of the Companies Code are mandatory. In Nigeria, corporate governance legislation is based on Companies and Allied Matters Act (CAMAD) 1990.

Over the years, various reforms aimed at enhancing the corporate governance practices to protect shareholders and ensure effective monitoring of managers with the aim of reducing agency problem have been enacted. In Nigeria, such reforms are reflected in the Code of Corporate governance best practice in 2003 and recently the Nigerian Securities Exchange Commission issued another Code of corporate governance in 2011(Ogbechie et al. (2007). The Security and Exchange Commission of Ghana issued a Code of Best Practices in 2010. The provisions in these codes of corporate governance are similar to those of Organization of Economic Cooperation and Development (OECD, 2004) and the Commonwealth Association of Corporate Governance (CACG, 1999). However, one interesting issue about these Codes in these countries is that their adoption is voluntary but not mandatory in non financial firms. Another recommendation that permeates through these Codes is the characteristics of individuals to be appointed as directors. In this paper we seek to empirically investigate whether corporate governance reforms relate to board size as indicated in code of best practices in Ghana and Nigeria do impact on firm performance.

3. Literature on the Impact of Board Size and Firm Performance

To intensify board monitoring and improve performance, one fundamental theory is agency theory. Agency theory describes the size of the board depicting the level of control exercised by management. Other theories such as managerial hegemony theory believe that if management dominant the board, board will be inactive in resolving agency conflict. These theoretical views place the size of the board partly as a critical component of corporate board

in ensuring monitoring intensity in resolving agency conflict and improving firm performance. Board size is a critical component of a well composed board and can affect the effectiveness of board monitoring and control function. Board size depicts the ability of the board to resist the control exercised by managers (Sundgren & Wells, 1998; Shelash Al-Harwery, 2011). This is expected to improve board monitoring and enhance performance.

Following these theoretical predictions and viewpoints, Boone et al. (2007) find that board size and independence increase as firms grow and diversify over time. Previous studies have investigated the impact of board size on monitoring managers, setting their compensation and enhancing the firm's value. Board size is expected to play a key role in terms of the quality of the board in supervising, monitoring the management of the company and thus affecting the quality of the internal control (Lipton & Lorsch, 1992; Jensen, 1993; Vallelado 2008). Studies such as Fernández et al. (2007) observe a non-monotonic relationship and thus estimating the optimal number of directors. Related studies have tried to approximate the optimal board size. Jensen (1993) for instance suggests that the optimal board size is between seven and eight members.

Studies on board size argue that smaller boards are more effective because directors enjoy better communications and interactions between them (Yermack, 1996; Ozkan, 2007). Yermack (1996) observe that small boards of directors are more effective, and that companies with small size achieve higher market value. Fischer and Pollock (2004) obtain evidence to support the effectiveness of smaller boards in monitoring CEO resulting from reduced coordination and free-rider problems (Yermack, 1996; Chanchart, Krishnamurti, & Tian, 2012) and enhance firm performance. Supporting the effectiveness of small board in improving firm performance empirical studies (see; Mak & Li, 2000; Cheng, 2008; Guest, 2009) report that large board size is linked to low firm performance and high earnings management.

Contrary to the effectiveness of smaller board size, other studies assume that larger boards are supposed to provide firms with better monitoring as they generally have more time and experience than smaller boards (Monks & Minow, 1995; Uadiale, 2010). Reddy et al. (2010) support this assertion indicating that board monitoring is directly associated with larger boards as a result of their ability to share work load over a greater number of directors. Large boards are strongly related to lower levels of earnings management (Peasnell et al., 2000; Bedard et al., 2004; Xie et al., 2008).

As it can be observed from the above review, evidence on the relationship between board size and firm performance is not only mixed and inconclusive but has concentrated in developed market. However, small board size is easily manipulated by senior managers (Sharma, 1985) from managers' perspective. It can be argued that when board size is large; the ability of the board to monitor and control managers becomes effective in controlling agency problem and improving firm performance.

In respect to Ghana and Nigeria the code of best practices in these countries address the issue of board size, whereas the code of best practices in Ghana in 2010 recommends between 8-16, Nigeria code of best practices 2011 does not give ceiling. This therefore places the board size as contextual issues in these two countries. Agency theory predict that the size of the board depict the level of control by management. Therefore, this study conjectures that board size is related to firm performance. Accordingly,

H1: *Ceteris paribus* there is a positive relationship between the board size and firm performance

4. Research Design

4.1 Data

The paper seeks to examine the relationship between board size and firm performance. The target firms for the study include all companies listed on the stock markets in Ghana and Nigeria. The reason for the selection of these stock markets is two folds. First, Nigeria and Ghana (with the exception of South Africa) stock exchanges are the most active and largest in the sub-Saharan region in terms of number of companies listed and market capitalization valued at \$114.2 and \$28.2 billion respectively as at 2013. Second, they share a number a common attributes: (i) they are all countries of Anglo-Saxon origin with similar accounting, auditing, corporate governance mechanisms, and legal systems; (ii) they have adopted the international financial reporting standards; and (iii) they have similar corporate law and ownership structures (Ntim, 2016).

In all 224 companies were listed in these two stock markets as at 2013. Consistent with prior studies (see Chu & Cheah, 2006; Yatim et al., 2006, Ahmed & Duellman, 2007) financial and insurance companies are excluded from the sample as well as those that have gone through mergers and acquisitions. The reason for their exclusion is that these industries are tightly regulated and secondly, they are heavily geared. This has proven to have different effects on governance mechanisms and it is appropriate for them to be separately analyzed (see Collett & Hrasky, 2005; Mangena & Chamisa, 2008; Ntim, Opong, Danbolt, & Thomas, 2012).

The time horizon for the study is 2008- 2014. The reason for the selection of this period is in two folds. First, 2008 is the start period because it was the earliest year for which the required data is available for all the variables across the two countries and ends in 2014 because it is the most recent period for which data is available. Second, this is to ensure that the results are current and remain relevant. After deleting outliers and companies without data for the period, a sample of 137 companies is obtain resulting in 959 firm-year observations. Information on the variables is obtained from the Nigeria and Ghana Stock Exchange libraries.

4.2 Measurement of Variables

Board size is our main independent variable in our regression model. This is measured as the ratio total number of directors of total sales. This is different from the measurement used in other empirical studies (see Daniel & Naveen, 2008; Ntim 2016). Though the contribution of board size in improving board monitoring function remains inconclusive, there is a preposition that board size is not uniform across firms. Larger firms are expected to have larger board size and smaller firms are expected to have small board size. In small firms little separation of ownership and control presumably exist resulting in less management-board conflicts. This implies that small firms may need small board size. On the other hand, large firms are characterized by high level of agency conflict requiring large board size to mitigate the agency conflict. Consistent with this preposition, Eisenberg et al. (1998) conclude that there is a significant direct relationship between board size and firm growth opportunity proxied by firm size. Therefore, this measurement is desirable because of its ability to capture the variations in board size in different firm size. Contextually, considering the recommendation of the code of best practices in Ghana and Nigeria as explained above; give indication to suggest that the board size is dependent on the size, nature and complexity of the firm. Therefore this measure is able to capture the uniqueness of the sample.

Firm performance as the dependent variable is measured using market and accounting measures. All these measurements have their own advantages and disadvantages. For instance, the accounting values as a measure of performance is affected by accounting practices and

standards. Tobin Q is also criticized as severely suffering from accounting artifacts. In this paper we use return on assets (ROA) and Tobin's Q as a performance measures. This is because the use of only accounting or market based performance measures have been cited to account for mix relationship between corporate governance variables and firm performance. We measure ROA as the ratio of Earnings before Interest and Taxes to Total Assets (EBIT/TA) and Tobin's Q as (market value of equity plus total debt)/total assets.

We also include some control variables such as firm size, leverage and firm age. Firm size is measured as the natural logarithm of total assets. Large corporations are more likely to have highly diffused ownership structures that effectively separate ownership of residual claims from control of corporate decisions. Greater scale of operations is normally the characteristic of large forms. There is therefore greater incentive and opportunities for managers to shirk ((Faleye et al., 2011). Consistent with Dey (2008) and DeFond (1992) leverage is measured as long-term debt to total assets. Dey (2008) observes that agency costs related to debt are likely to be higher in firms with debt than those without debt. Owner managers prefer to accept high risk project thereby transferring wealth from creditors to shareholders to reject positive net present value. Firm age is measured as natural logarithm of age of the firm from date of incorporation. We expect that firm incorporated for a long period may have high level of agency conflict as compared with those listed for a short period and therefore the demand more monitoring. This may have the tendency of affecting firm performance.

4.3 Empirical Model

The general panel equation to be estimated takes the following form:

$$y_{it} = \delta + \theta_1 BSIZ_{it} + \beta'X_{it} + \lambda_i + \varepsilon_{it} \dots\dots\dots (1)$$

Where:

$i = 1, 2, 3, \dots, N$ is the cross-sectional dimension of companies, $t = 1, 2, 3, \dots, T$ $BSIZ_{it}$ is natural log of the number of board members, X_{it} is the set of control variables, λ_i represents the unobserved firm specific fixed effect, ε_{it} is the error term. y_{it} represents the dependent variable. In addition, other variables are used to control the effects of the unobserved variables. These include firm size (FSIZE), firm age (FAGE) and leverage (LEV)

4.4 Estimation Techniques

Having specified the model for the study and the variables contained in it, we then proceed to describe the technique adopted for estimation. Prior empirical studies adopt different estimation techniques. These include pooled mean group, fully modified least square, two stage least square and generalized method of moments. Considering the data set of the study having short time dimension ($t=7$) and larger number of firm ($n= 137$) renders panel data analysis like co-integration analysis as unsuitable. Therefore co-integration techniques such as pooled mean group and fully modified least square produces inefficient estimates. This study adopts system generalized method of moments. For robustness checks purposes, difference generalized method of moments complement it. However the baseline estimator for this study is System GMM

As stated earlier this study adopts the generalized method of moment to test the hypothesis described earlier. This estimation technique has a number of properties that makes it more suitable to test the hypothesis. Hypothesis described above is basically governance variable. This variable is likely to suffer from endogeneity bias. Suspecting possible endogeneity, using other estimators is likely to produce unreliable estimate. Using system GMM estimator is capable of accounting for the problem of endogeneity which are normally ignored by other

studies. The data used in this study consists of individual firm over time as described and this estimator offers the possibility of controlling the unobserved heterogeneity between individuals with panel data methods. This implies that the lagged dependent variable is likely to be correlated with the error term in the model. In such a situation, estimating the above equation using ordinary least square (OLS) estimator results in inefficient and biased estimates. In order to treat this problem and use OLS to estimate the model, the equation is transformed by differencing the time series means of each variable for each firm. Though differencing the time series means of the variables eliminates the individual firm -specific effects, λ_i because it does not vary with time, the correlation between $(y_{it-1} - \bar{y}_i)$ and $(\varepsilon_{it} - \bar{\varepsilon}_i)$ still remains. This again renders the estimate inconsistent. Thus, in order to deal with this problem, the first-differenced GMM attributable to Arrelano and Bond (1991) is used. This estimator uses lagged level of the dependent variable and other endogenous explanatory variables as instruments for the first-differenced equation. In the light of this, it becomes essential to use the system GMM which provides consistent and efficient estimates. The system GMM as proposed by Blundell and Bond (1998) is derived from estimating two simultaneous equations, one in levels (with lagged first differences as instruments) and the other in first-differences (with lagged levels as instruments).

This study tests for the presence of endogeneity. This is because the problem of endogeneity has recently received significant attention and awareness within the positive accounting literature (e.g., Börsch-Supan, & Köke, 2002; Chenhall & Moers, 2007a and b; van Lent, 2007; Larcker & Rusticus, 2007, 2008) because it can affect the efficiency of empirical models being estimated (Chenhall & Moers, 2007). However, there has been disagreement whether the problem is worth considering in accounting research (Chenhall & Moers, 2007; Larcker & Rusticus, 2007; van Lent, 2007). Empirical studies indicate that endogeneity problem may be caused by problems of omitted variables, reverse causation, measurement errors, and equilibrium conditions. In this paper we address the problem of endogeneity and respond to positive accounting researchers (e.g., Chenhall & Moers, 2007; Börsch-Supan, & Köke, 2002).

In resolving the above problem, we follow the steps proposed by Larcker and Rusticus (2008). First, we use seven year panel data as it has proven to reduce endogeneity (Börsch-Supan & Köke, 2002; Larcker & Rusticus, 2007). Second, a number of control variables are introduced in our model to reduce omitted variable problem. Third, the presence of endogeneity is tested using Durbin-Wu-Hausman exogeneity test. The results of the Durbin-Wu-Hausman exogeneity test show that coefficient of board size is statistically significant implying that the key board variables are endogenously related firm performance. Accordingly, instrumental estimation techniques are adopted.

5. Empirical Analysis

5.1 Descriptive Statistics Regression Analyses

Table 1 presents the descriptive statistics of the main variables used conduct the regression analysis

Table 1. Descriptive Statistics of Variables used in the study

<i>Variable</i>	<i>Mean</i>	<i>Standard Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Return on Asset	0.21	.06	0.12	0.39
Tobins' Q	0.29	1.86	0.18	0.35
Board Size	0.34	0.45	0.2	0.7
Firm Age	26.35	63.94	10	46
Firm Size	4.49	2.99	1.87	5.75
Leverage	10.13	52.87	5.21	64.13
(Number of Observations: N = 959)				

Comparing accounting and market based performance measures, it that the sampled firms seems the firms are relatively doing better on the market based measure than the accounting measure. Whereas, the mean value of return on assets is 0.21 that of Tobin's Q is 0.29. This result suggests an average return on assets of 21%. Most of the sampled firms on the average have been operating on the stock market for an average of 26.35 years. The maximum years a firm from the sampled firm is listed on the stock market is 46 years. This is relatively lower than what is reported in South African and UK. This is not surprising because the stock markets in Ghana and Nigeria are relatively young as compared to that of the UK and South Africa. As it can be observed from table 1, long term debt represents a major component of financing for the sample sampled firms. The leverage level of the sampled firm ranges from maximum of 64.13% to a minimum of 10.13% with a mean long-term debt to total assets of 52.89%. On average, the sampled firms have an assets size of \$4.46 million with a range of \$1.87 to \$5.75 million

The overall model is also investigated for the presence of multicollinearity by conducting the Pearson correlation tests among the variables and variance inflation factor. For the sake of brevity the results are not reported, (available upon request) but indicate that no significant multicollinearity problems were present among the variables. This implies that it is appropriate to carry out multivariate regression analyses.

Table 2 reports on system GMM regression results. First, to examine whether the board size affect firm performance. The results obtained is shown in model 1 of table 2

Table 2. Regression Results of Board size on Firm Performance

Variables	Expected sign	Firm Performance (Return on Asset)	Firm Performance (Tobin's Q)
Board size	+	0.172** (1.15)	0.110* (1.24)
Firm size	+/-	-0.190*** (-3.23)	0.320* (1.21)
Firm age	+/-	34.185 (0.15)	-21.321** (1.30)
Leverage	+/-	0.06 (0.049)	-0.021 (-1.31)
Country Dummy		3.25 (1.70)	3.75 (1.60)
Performance(lagged)1	+	0.25 (-2.21)	0.120 (-0.41)
No of observations		959	959
Number of firms		137	137
Test of autocorrelation		AR(1) 2.32* AR (2) 2.21	AR(1) 2.22* AR (2) 2.12
Sargan test		0.712	0.723
F-Value		7.44*	7.24*
Adjusted R ²		.423	.531

***denotes significance at 1% level, ** denotes significance at 5% level, * denotes significance at 10% level. The t-statistics are provided in parentheses. All the models passed instruments validity test.

The results show that there is a positive and statistically significant relationship between board size and firm performance thereby providing support for the hypothesis. Theoretically, our findings are consistent with agency theory that proposes that larger board corporate boards improve monitoring function of the board and accordingly improve firm performance.

This evidence is inconsistent with the negative relationship between the board size and firm performance was documented by a number of researchers (Eisenberg, Sundgren, & Wells, 1998; Garg, 2007; Ghosh, 2006; Kota & Tomar, 2010; Guo & Kga, 2012) and a positive relationship (Adhikary, Huynh, & Hoang, 2014)

This result supports the empirical studies that suggest that the ideal board structure may vary with firm characteristics. Denis and Sarin (1999), Gillan, Hartzell and Starks (2003), Lehn, Patro and Zhao (2003), and Boone, Field, Karpoff and Raheja (2004), among others, have found cross-sectional differences on board size and composition. The implication of this results is that corporate board size appropriate for firm size positively impact on firm performance. This is because the effect of board size is properly aligned. For instance, an ideal board size ensure proper coordination and communication while ensuring that they are capable of resolving agency conflict as a result of free rider problem associated with large board size.

6. Summary and Conclusion

This paper investigates the impact of board size on firm performance using a unique data set of 137 listed firms in Ghana and Nigeria. Prior empirical studies do not distinctively considered the impact of firm size on board size and mainly concentrated on developed market. Moreover, existing studies do not consider the impact of recent reforms in code of best practices in Ghana and Nigeria. Our findings suggest a statistically significant and positive relationship between the corporate board size and firm performance. Our findings are robust across a number of econometric models that deals with for different kinds of endogeneities. This results support the agency theory preposition that optimal board size improve monitoring to enhance the performance of the firm. This evidence also provides important regulatory and policy implications. The finding that board size is positive and statistically significant with firm performance support the recommendations of code of best practices in Ghana in 2010 that suggest that the size of the board should be at least between 8-16 and be dependent on the nature and complexity of the firm. It further support the concept that 'one board size fits all' may not be appropriate to improve firm performance. It therefore has implication for countries contemplating on revising its code of best practices for board size to reflect the size, nature and complexity of the firm. Whilst the results reported are reliable and significant, the limitations associated with the study need to be acknowledged explicitly. We limited our analysis to board size as a result of data availability. As more data become available, researchers may consider including other board attributes such as board independence and gender diversity. Also, similar to other archival studies, our variables employed as measures for performance and board composition may or may not represent how boards, managers and shareholders relationship operate in practice. Methodologically, more insights may be obtained by future studies by conducting in-depth interviews with boards, managers and shareholders.

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