

DETERMINANTS OF BANK BOARD STRUCTURE IN GHANA

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ABSTRACT

The paper investigates the determinants of bank board structure in Ghana and finds that the Scope of Operations Hypothesis could explain the variation in board size but not board independence. On the other hand, the Board Monitoring Hypothesis could only explain the variation in board independence but not board size. The study also finds that cost-income ratio, foreign majority ownership structure and Ghana Stock Exchange listing status are positively and significantly associated with large bank board size. The paper, therefore, argues that as a bank grows in Ghana the size of its board of directors is likely to increase. However, the increase is likely to result in inefficiency of the bank. Furthermore, the study has evidence to conclude that banks with foreign majority ownership structure are not likely to appoint more independent directors.

JEL: G20, G21, G30, G34

KEYWORDS: Board structure, board size, board independence, Scope of Operations Hypothesis, Board Monitoring Hypothesis

INTRODUCTION

The board structure of firms has received a tremendous attention in the corporate governance and financial economics literature because of the indispensable roles of boards in corporate affairs. Studies on board structure report that optimal board structure is predicated on the costs and benefits of the board monitoring and advising roles coupled with other firm and governance characteristics (Linck et al., 2008). Raheja (2005); Adams & Ferreira (2007); and Linck et al. (2008) identify two most important roles of a board of directors as monitoring and advising. Grounded on the agency theory of the firm (Eisenhardt, 1989, and Jensen & Meckling, 1976), the board of directors serves as monitors of managers of the firm to circumvent pursuit of personal aggrandizement (e.g. shirking and perquisites) that is detrimental to shareholder wealth maximization. The board discharges its advising role by providing strategic direction to the firm through opinions and directions to managers.

Most of the studies on corporate boards have always modeled two specific elements of the boards: board size and board composition (i.e. independent directors) as points of reference (Pathan & Skully, 2010). Thus, the current study is focused on these two dimensions of boards. It builds on the studies such as Pathan & Skully's (2010) study on the determinants of bank board structure. The current study, however, differs from the previous studies and is, therefore, significant for two main reasons. One, unlike the previous key studies that use samples of bank holding companies, the current study uses individual universal banks in Ghana. Two, unlike the previous studies that use samples from the developed economies, the current study uses a sample from Ghana which is a developing economy and, thus, provides board structure perspectives from the developing world. Two main questions constitute the main motivation behind the current study: (1) What are the determinants of bank board size in Ghana? (2) What are the determinants of bank board independence in Ghana?

The remainder of the paper is organized as follows. Section 2 briefly discusses the relevant literature and states the hypotheses to be tested. Data selection, research methodology and empirical model are

described in section 3. Section 4 provides analysis and interpretations of the empirical findings and section 5 concludes the paper.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Scope of Operations Hypothesis (SOH) and the Board Monitoring Hypothesis (BMH) are the two main hypotheses that have dominated the discourse on board structure. Consequently, the current study purports to find evidence to either uphold or refute them. The two hypotheses are discussed below.

Scope of Operations Hypothesis

Financial economists have reached few definitive conclusions about the forces that determine board size and composition (Boone et al., 2007). One of the views that have dominated the corporate finance and financial economics literature regarding forces that drive board size and composition is SOH. This view argues that as the operations of a firm grow in size and complexity there is a corresponding increase in its demand for more board members to deal with the concomitant challenges associated with such growth and complexity. This presupposes that a firm's diversification into new product lines or new geographical areas should trigger its quest for new board members to help oversee managers' performance (Fama & Jensen, 1983; and Lehn et al., 2005). Contributing to the SOH debate, Bhagat & Black (1999) and Agrawal & Knoeber (2001) have asserted that a grown and complex firm's motivation for new directors stems from the possibility of new directors possessing specialized knowledge that applies to the new growth areas of the firm. Results reported by Denis & Sarin (1999) and Yermack (1996) lend credence to the SOH as their findings suggest that board size is positively related to firm size. Boone et al. (2007) find that board size and independence increase as firms grow and diversify over time. Consequently, the study proposes the following hypotheses:

H₁: Board size is positively and significantly associated with scope of operations

H₂: Board independence is positively and significantly associated with scope of operations

Board Monitoring Requirements Hypothesis

Raheja (2005) and Adams & Ferreira (2007) report that board structure correlates with the net benefits of monitoring managers' private benefits as well as the monitoring costs to directors. BMH states that in terms of 'private benefits' the benefit obtained from board of directors' monitoring of managers of the firm increases if managers have the opportunity to increase their private benefits from the firm (Boone et al., 2007; and Chi & Lee, 2010). Availability of free cash flows as well as managers' immunity to any shareholders' activism (i.e. M&A activities) generally provide opportunities for private benefits to managers (Boone et al., 2007). According to Boone et al. (2007) the tendency for firms to engage the services of more independent directors thereby increasing overall board size is predicated on the presence of the opportunity for greater 'private benefits' to insiders. Regarding 'monitoring costs,' Fama & Jensen (1983) argue that they are greater for firms with high information asymmetry. Empirical studies assert that firms with greater monitoring costs should fall less on outside directors because it is costly to transfer firm-specific information to outsiders since they have relatively less information about the firm's projects (Linck et al., 2008). The theoretical models of Raheja (2005) and Adams & Ferreira (2007) on board structure predict that the number of outsiders decreases with 'monitoring costs. Consequently, the study will explore the following hypotheses:

H₃: Board size is negatively and significantly associated with private benefits

H₄: Board size is negatively and significantly associated with monitoring costs

H₅: Board independence is negatively and significantly associated with private benefits

H₆: Board independence is negatively and significantly associated with monitoring costs

The measures of the two hypotheses and their expected relationships with board size and board independence are presented in Table 1 below.

Table 1: Measures of the Scope of Operations Hypothesis and Monitoring Hypothesis and their Relationships with Board Structure

Variables	Number of Directors	Proportion of Independent Directors
1. For the Scope of Operations Hypothesis		
Bank Size	+	+
Bank Age	+	+
2. For the Monitoring Hypothesis		
Free Cash Flow (Private Benefit)	+	+
Market-to-Book Ratio (Monitoring Cost)	-	-

This table shows how the two main hypotheses are defined and their relationships with board structure.

RESEARCH METHODOLOGY

This section discusses how the study was undertaken. It describes the econometric model employed, sample size, data source and data collection procedures.

The Model

Two measures are used to measure board structure: board size; and board independence. The board size and board independence are, therefore, dependent variables. In line with the studies of Anderson & Reeb (2003); De Andres et al. (2005); Jackling & Johl, 2009) board size is measured using the natural logarithm of the total number of members of the board of directors. The log transformation of board size is used to make the distribution of the board size dependent variable more symmetric (Eisenberg et al. 1998). Board independence is measured as the proportion of non-executive directors on a bank’s board of directors. Independent director has been defined as one that could get a seat in the board without the controlling shareholder's votes (Lefort & Urzúa 2008).

The explanatory variables are size of bank (SIZE); bank age (AGE); free cash flow (CASHFLOW); market to book ratio (MTBRATIO); cost-income ratio (CIRATIO); Return on equity (ROE); bank ownership structure (BNATURE) and bank GSE listing status (GSELISTING). Size of bank is defined as the natural logarithm of the total assets (Anderson & Reeb, 2003). In keeping with the theory of Klein (2002) that large board promotes efficiency through specialization, Cost-income ratio is included in the model to measure efficiency of a bank and is defined as operating expenses plus other costs divided by net income. The literature supports a negative correlation between board size and firm performance (Eisenberg et al., 1998; Adusei, 2011). Thus, return on equity has been included in the model and is calculated as profit after tax divided by total equity. The nature of a bank (BNATURE) is a dummy variable. It is set to 1 if a bank is a subsidiary of multinational or international bank and set to zero if not. The listing status of bank (LISTING) is a dummy variable. It is set to 1 if the bank is listed on the Ghana Stock Exchange (GSE) and set to zero if not. Description of the variables is presented in Table 2.

The panel data model for relating the dependent variable to independent variables is compactly stated thus:

$$Y_{it} = \alpha + \beta X_{it} + \delta_1 d_{1it} + \delta_2 d_{2it} + \epsilon_{it} \tag{1}$$

Where:

Subscript i represents the cross-sectional dimension of the data

t denotes the time-series dimension of the data

Y represents the dependent variables in the model which are measures of bank board structure

X represents the set of independent variables in the estimation model

δ represents the coefficient of the dummy variable

d represents dummy variables

α and β denote constant and regression coefficient respectively

ϵ represents the error term

Following prior studies, including Boone et al. (2007) and Linck et al. (2008), the primary estimation method of regression is pooled ordinary least squares (OLS).

Table 2: Description of Variables

Variable	Definition
Board Size(BSIZE): Dependent variable	the natural logarithm of the total number of members of the board of directors
Board Independence (BINDEPEND): Dependent variable	Proportion of outside directors on the board
Bank Size (SIZE)	the natural logarithm of total assets of a bank at the end of a fiscal year
Bank Age (AGE)	the natural logarithm of the number of years of a bank's existence
Private Benefit: Free Cash Flow (CASHFLOW)	Operating Income minus capital Expenditure divided by Total Asset
Monitoring Cost :Market-to-Book Ratio (MTBRATIO)	Stated Capital plus capital surplus divided by Total Assets
Cost-Income Ratio (CIRATIO)*	Operating expenses+ other costs divided by Net Income
Return on Equity (ROE)	Profit after tax divided by Total Equity
Dummy for Bank Nature (BNATURE)	= 1:if bank has majority foreign ownership structure; =0: otherwise
Dummy for GSE Listing Status (GSELISTING)	= 1: if bank is listed on GSE; = 0: Otherwise

*This table describes the variables used in the model.. * This is used to proxy the efficiency of a bank. The lower the ratio the better. Thus, a bank that experiences a decline in this ratio becomes more efficient and vice versa.*

Sample and Data Sources

A total sample of 17 out of 26 universal banks in Ghana, representing 65% of the study population was used in the study. Data for the study were gathered from the annual reports of the banks. The website of each of the universal banks in Ghana was visited. On the website, the annual reports for the chosen period of study (2005-2009) were downloaded. Since the study required background data such as age and the

structure of board of directors, the websites were surfed to glean such data where they could not be found in the annual reports. Not all banks provided their annual reports for all the years under review. However, any bank that provided at least a two-year financial report was included in the study. The nine (9) banks excluded from the study were excluded because of the non-availability of their annual financial reports covering the study period. In all, 55 observations were obtained after editing the financial reports of the 17 banks.

ESTIMATION RESULTS

The descriptive statistics of the data used are given in Table 3. As can be seen, 55 observations were used for the analysis.

Table 3: Descriptive Statistics

	Panel A: Board Size		Panel B: Board Independence	
	Mean	Std. Deviation	Mean	Std. Deviation
BSIZE	0.9513	0.08126	0.9513	0.08126
AGE	1.2593	0.48074	1.2593	0.48074
SIZE	8.5796	0.60224	8.5796	0.60224
CASH FLOW	9.5565	5.47984	9.5565	5.47984
MTB RATIO	91.0664	18.18965	91.0664	18.18965
CIRATIO	71.6578	20.67025	71.6578	20.67025
ROE	22.7815	14.48020	22.7815	14.48020
BNATURE*	0.42	0.498	0.42	0.498
GSELISTING*	0.38	0.490	0.38	0.490
INDEPEND	75.8727	15.26349	75.8727	15.26349
N	55	55	55	55

*This table provides descriptive statistics of the data used in the study. Variables with * notation against them are dummy variables.*

The Pearson Correlation Matrices reported in Tables 4 and 5 indicate that multicollinearity problem is not present in the models (Bryman and Cramer, 1997). The absence of multicollinearity problem in the data is corroborated by the collinearity diagnostics results-Variance Inflation Factor (VIF) and Tolerance (TOL) - reported in Tables 6 and 7.

Table 4: Board Size as Dependent Variable

Correlations										
Panel A: Pearson Correlation										
BSIZE	1.000	.527	.152	-.075	-.342	.107	-.142	.211	.364	.106
AGE	.527	1.000	.401	.054	-.407	-.280	.182	.206	.392	-.013
SIZE	.152	.401	1.000	.054	-.115	-.136	.211	.267	.391	-.354
CASHFLOW	-.075	.054	.054	1.000	.311	.146	-.121	-.209	-.178	.076
MTBRATIO	-.342	-.407	-.115	.311	1.000	.293	-.253	-.243	-.310	-.180
CIRATIO	.107	-.280	-.136	.146	.293	1.000	-.456	-.130	-.435	.259
ROE	-.142	.182	.211	-.121	-.253	-.456	1.000	.264	.176	-.141
BNATURE	.211	.206	.267	-.209	-.243	-.130	.264	1.000	.017	-.280
GSELISTI	.364	.392	.391	-.178	-.310	-.435	.176	.017	1.000	-.268
INDEPEND	.106	-.013	-.354	.076	-.180	.259	-.141	-.280	-.268	1.000
Panel B: Sig (1-tailed)										
BSIZE		.000	.134	.294	.005	.219	.150	.061	.003	.220
AGE	.000		.001	.348	.001	.019	.091	.066	.002	.464
SIZE	.134	.001		.348	.201	.161	0.61	.024	.002	.004
CASHFLOW	.294	.348	.348		.011	.143	.189	0.62	.097	.289
MTBRATIO	.005	.001	.201	.011		.015	0.31	.037	.011	.095
CIRATIO	.219	.019	.161	.143	.015		.000	.172	.000	.028
ROE	.150	.091	.061	.189	.031	.000		.026	.099	.153
BNATURE	.061	.066	.024	.062	.037	.172	.026		.452	.019
GSELISTI	.003	.002	.002	.097	.011	.000	.099	.452		.024
INDEPEND	.220	.464	.004	.289	.095	.028	.153	.019	0.24	

This is the Pearson Correlation Matrix of Panel A with Board Size as Dependent Variable

The collinearity diagnostics results satisfy the acceptable standards of Myers (1990) and Menard (1995) respectively and reinforce the robustness of the models. Myers (1990) suggests that if the largest VIF value is greater than 10, then multicollinearity problem may exist. Menard (1995) suggests that TOL below 0.2 indicates a potential multicollinearity problem.

The evidence presented in Table 6 suggests that the SOH could explain bank board size, implying that as a universal bank in Ghana expands its operations the probability of increasing its board size to ensure effective supervision is high. Thus, hypothesis H₁ is supported. This finding is in tandem with the extant literature (Bhagat & Black, 1999; Agrawal & Kneober, 2001; Denis & Sarin, 1999; and Yermack, 1996; and Boone et al., 2007).

Table 5: Board Independence as Dependent Variable

Correlations										
Panel A: Pearson Correlation										
	INDEPEND	AGE	SIZE	CASHFLOW	MTBRATIO	CIRATIO	ROE	BNATURE	GSELITI	BSIZE
INDEPEND	1.000	-.013	-.354	.076	-.180	.259	-.141	-.280	-.268	.106
AGE	-.013	1.000	.401	.054	-.407	-.280	.182	.206	.392	.527
SIZE	-.354	.401	1.000	.054	-.115	-.136	.211	.267	.391	.152
CASHFLOW	.076	.054	.054	1.000	.311	.146	-.121	-.209	-.178	-.075
MTBRATIO	-.180	-.407	-.115	.311	1.000	.293	-.253	-.243	-.310	-.342
CIRATIO	.259	-.280	-.136	.146	.293	1.000	-.456	-.130	-.435	.107
ROE	-.141	.182	.211	-.121	-.253	-.456	1.000	.264	.176	-.142
BNATURE	-.280	.206	.267	.209	-.243	-.130	.264	1.000	.017	.211
GSELISTI	-.268	.392	.391	-.178	-.310	-.435	.176	.017	1.000	.364
BSIZE	.106	.527	.152	-.075	-.342	.107	-.142	.211	.364	1.000
Panel B: Sig (1-tailed)										
INDEPEND		.464	.004	.289	.095	.028	.153	.019	.024	.220
AGE	.464		.001	.348	.001	.019	0.91	.066	.002	.000
SIZE	.004	.001		.348	.201	.161	0.61	.024	.002	.134
CASHFLOW	.289	.348	.348		.011	.143	.189	.062	.097	.294
MTBRATIO	.095	.001	.201	.011		.015	.031	.037	.011	.005
CIRATIO	.028	.019	.161	.143	.015		.000	.172	.000	.219
ROE	.153	.091	.061	.189	0.31	.000		.026	.099	.150
BNATURE	.019	.066	.024	.062	.037	.172	0.26		.452	.061
GSELISTI	.024	.002	.002	.097	.011	.000	.099	.452		.003
BSIZE	.220	.000	.134	.294	.005	.219	.150	.061	.003	

This is the Pearson Correlation Matrix of Panel A with Board Size as Dependent Variable

Table 6 shows that increasing bank cost-income ratio is associated with increasing size of the bank's board of directors. In other words, an increase in bank board size is likely to be accompanied by an increase in bank inefficiency. This corroborates the position of Fama & Jensen (1983) and Yermack (1996) and challenges the view of Klein (2002). Banks with foreign majority ownership structure as well as GSE listing are likely to have larger board sizes compared to their counterparts. Table 7 indicates that banks with majority foreign ownership structure are not likely to appoint more independent board of directors and vice versa. As Tables 6 and 7 show, profitability does not determine neither board size nor board independence.

Table 7, however, suggests that the SOH has no empirical support as far as board independence is concerned. Hypothesis H₂ is, thus, rejected. This implies that banks in Ghana are not likely to increase the proportion of independent directors on their boards as they grow in size and complexity. This may be attributed to greater information asymmetry inherent in the industry (Linck et al., 2007). Although predictably, and in line with the extant literature (Boone et al. 2007), there are negative relationships between board structure and board monitoring cost yet the relationships between board size and board monitoring requirements variables are statistically insignificant. Hypotheses H₃ and H₄ are refuted. Thus, it is empirically tenable to argue that the size of a bank's board of directors cannot be determined by board monitoring requirements. On the other hand, as Table 7 demonstrates, there is evidence to support the argument that as the bank monitoring cost increases, this is likely to decrease the probability of the bank engaging more independent directors on its board of directors and vice versa (Raheja, 2005; and

Adams & Ferreira, 2007). This implies that hypothesis H₆ has empirical backing. Table 7 shows that there is no empirical basis for accepting hypothesis H₅.

Table 6: Regression Results-Panel A: Board Size as Dependent Variable

Variable	β	t	TOL	VIF
CONSTANT	-	5.349***	-	-
AGE	.465	3.615***	0.623	1.605
SIZE	-.148	-1.161*	0.629	1.589
CASH FLOW	-.016	-.136*	0.791	1.265
MTB RATIO	-.110	-.832*	0.590	1.695
CIRATIO	.349	2.673***	0.603	1.659
ROE	-.188	-1.574*	0.724	1.382
BNATURE	.242	2.011**	0.711	1.406
GSELISTING	.411	3.071***	0.574	1.743
INDEPEND	.102	0.804*	0.636	1.573
R ² =0.537				
F=5.792; Prob.(F-Statistic) 000				

This table shows the regression estimates of the equation: $Y_{it} = \alpha + \beta X_{it} + \delta_1 d_{1it} + \delta_2 d_{2it} + \epsilon_{it}$ with Board Size as the dependent variable and AGE, SIZE; CASH FLOW, MTB RATIO, CIRATIO, ROE, BNATURE, GSELISTING, and INDEPEND as independent variables. The first figure in each cell is the regression coefficient. The second figure in each cell is the t-statistic. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively. The study has, however, adopted 5 percent level as the maximum significance level.

Table 7: Regression Results -Panel B: Board Independence as Dependent Variable

Variable	β	t	TOL	VIF
CONSTANT	-	2.778***	-	-
AGE	.082	0.482*	0.485	2.061
SIZE	-.246	-1.679*	0.649	1.540
CASH FLOW	.069	0.521*	0.795	1.258
MTB RATIO	-.353	-2.425**	0.657	1.522
CIRATIO	.191	1.187*	0.536	1.865
ROE	-.054	-0.378*	0.688	1.453
BNATURE	-.317	-2.294**	0.729	1.372
GSELISTING	.273	-1.638*	0.502	1.990
BSIZE	.138	0.804*	0.470	2.128
R ² =0.373				
F= 2.979 Prob.(F-statistic) 0.007				

This table shows the regression estimates of the equation: $Y_{it} = \alpha + \beta X_{it} + \delta_1 d_{1it} + \delta_2 d_{2it} + \epsilon_{it}$ with Board Independence as the dependent variable and AGE, SIZE; CASH FLOW, MTB RATIO, CIRATIO, ROE, BNATURE, GSELISTING, and BSIZE as independent variables. The first figure in each cell is the regression coefficient. The second figure in each cell is the t-statistic. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively. The study has, however, adopted 5 percent level as the maximum significance level.

CONCLUSION

Two main questions constitute the main motivation behind the current study: What are the determinants of bank board size in Ghana? and What are the determinants of bank board independence in Ghana? A total sample of 17 out of 26 universal banks in Ghana, representing 65% of the study population has been used in the study. Data for the chosen period of study (2005-2009) have been gathered from the annual reports of the banks. The study has found that the SOH could explain the variation in board size but not board independence. On the other hand, the BMH could only explain variation in board independence but not board size. The study also finds that cost-income ratio, foreign majority ownership structure and Ghana Stock Exchange listing status are significantly associated with large bank board size. The paper, therefore, argues that as a bank grows in Ghana the size of its board of directors is likely to increase. However, the increase is likely to result in inefficiency of the bank. Furthermore, the study has evidence to conclude that banks with foreign majority ownership structure are not likely to appoint more independent directors. One obvious weakness of this paper is its inability to establish causality between the dependent variables and the independent variables. Another weakness is that data were gathered from

published accounts of the universal banks in Ghana. It has always been argued that financial statements of companies are sometimes bedecked with deliberate factual inaccuracies to impress stakeholders. Not all, the current study depends on data from one country which makes its findings limited. Future researchers can enhance the quality of the current findings as well as expand its frontiers by gathering data from other countries to explore the possibility of performing causality tests between the dependent and the independent variables.

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