

CORPORATE BOARD DIVERSITY AND FIRM PERFORMANCE: EVIDENCE FROM NIGERIA

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Abstract

This paper investigates the impact of corporate board diversity on the financial performance of Nigerian quoted firms using a panel data of 122 quoted Nigerian firms. The aspects of board diversity studied comprise board nationality, board gender and board ethnicity. The Fixed Effect Generalised Least Square Regression is used to examine the impact of board diversity on firm performance for the period: 1991-2008. The results show that gender diversity was negatively linked with firm performance, while board nationality and board ethnicity were positive in predicting firm performance. The study provides insights for practitioners and policy makers on the need to view the board as a strategic resource in line with the resource dependency theory instead of viewing the board solely from agency theory perspective.

Keywords: Board of Directors, Corporate Governance, Diversity, Firm Performance

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1. Introduction

Corporate governance research has been influenced mainly by agency theory. Agency theory is based on the fact that many corporate managers are not owners but agents of owners, contracted to manage the company on their behalf. Since they are not direct owners but managers, and thus have less personal wealth at stake, their natural pursuit of self-interest could result in their taking riskier or even dishonest actions, which could bring harm to the firm or its owners (Jensen and Meckling, 1976). Agency problem arises whenever managers have incentives to pursue their own interest (self-serving behaviour) at the expense of shareholders. Most studies on corporate governance focus on how to effectively monitor the agents (resolving the conflict) against self serving behaviour in order to protect shareholders interest.

In the aftermath of corporate scandals in different countries such as Enron, WorldCom, Tyco International in the United States, HIH Insurance in Australia, Parmalat in Italy, a number of practitioners have called for board diversity. Board diversity is rooted in resource dependency theory. Resource dependency theory views board members as strategic resource, and opines that the provision of resources is the main function of boards of directors

(Pfeffer and Salancik, 1978). Provision of resources refers to the ability of board members to bring resources and also constitute important human capital resource to the firm which promotes firm performance. Board activities related to the provision of resources are: providing legitimacy/bolstering the public image of the firm, providing expertise, administering advice and counsel, linking the firm to important stakeholders or other important entities, facilitating access to resources such as capital, building external relations, diffusing innovation, and aiding in the formulation of strategy or other important firm decisions.

A fierce debate has emerged in corporate governance literature on the impact of board diversity on firm performance. Empirical evidence on the performance effect of board diversity is mixed. These studies used different measures of board diversity. Some of the measures include gender, nationality, colour and age, among others. These studies used data from developed economies like the United States of America and United Kingdom. The focus of corporate governance reforms and research in Nigeria has been on resolving the conflict of interest between agents and principals as evidenced in the recommendations of Nigerian Securities and Exchange Commission Code of Best Practice for Publicly Quoted Companies 2003.

However, the resource dependency theorists have shown that the important role of the board is not only that of resolving the agency conflicts, but also constituting important strategic resource to the firm. The resource dependency theorists therefore advocate for the diversity of corporate boards. There has been less empirical attention to this aspect of board research in Nigeria. This paper uses three measures of board diversity; board gender, board ethnicity and foreign board members to investigate the impact of board diversity on the financial performance of Nigerian firms. This study differs from others by the large number of firms and time frame covered. The inclusion of ethnic diversity in the study is novel, since there has not been any study along ethnic tribes. Finally, this study based on the researcher's knowledge, is the first to empirically examine the impact of board diversity on firm performance in Nigeria using institutional perspective of resource dependency theory.

2. Review of Related Literature

Corporate governance research is influenced principally by agency theory. Agency theory is traced to the landmark work of Adam Smith (1776), *The Wealth of Nations*, where he suggested that "a manager with no direct ownership of a company would not make the same decisions, nor exercise the same care as would an owner of that company". This view was popularized by Berle and Means (1932) and Jensen and Meckling (1976) as the agency theory.

Agency theorists argue that where there is separation of management from ownership, the manager seeks to act in self interest which is not always in the best interests of the owner and departs from those required to maximise the shareholder's returns. This agency problem can take two different forms such as adverse selection and moral hazard (Eisenhardt, 1989). Adverse selection can occur if the agent misrepresents his ability to perform the functions assigned and gets chosen as an agent. Moral hazard occurs if the chosen agent shirks the responsibilities or underperforms due to lack of sufficient dedication to the assigned duties. Such under-performance by an agent, even if acting in the best interest of the principal, will lead to a residual cost to the principal (Jensen and Meckling, 1976). These costs, resulting from sub-optimal performance by agents, are termed agency costs.

In order to mitigate the agency cost, a principal is expected to establish controls and reporting processes to regularly monitor agent's behaviour and performance outcomes (Fama, 1980; Jensen and Meckling, 1976). However, the degree of information asymmetry between principal and agent decides the effectiveness of the monitoring mechanism. This theory has stimulated several governance researches and the adoption of various corporate governance principles and codes in several countries. The

common denominator of all these codes and principles is their emphasis on the importance of an independent board as a strategy for resolving this conflicts of interest between principal and agents.

However, the introduction of the resource dependency theory has now widened the scope of governance research to include viewing the board as a strategic resource. Resource dependence theory provides a theoretical foundation for the role of the board of directors as a resource to the firm (Johnson et al., 1996). A key argument of the resource dependence theory is that organisations attempt to exert control over their environment by co-opting the resources needed to survive (Pfeffer and Salancik, 1978). Accordingly, boards are considered a link between the firm and the essential resources that a firm needs from the external environment for superior performance. Appointment of outsiders on the board helps in gaining access to resources critical to firm success (Johnson et al., 1996).

Resource dependency theorists extended the argument by positing that board members with different skills, different cultural background, different gender, among others, will act as strategic resource to the firm which may result to superior performance. This postulation laid the theoretical foundation for corporate governance research on board diversity.

Proponents of board diversity argue for the case of boardroom diversity along ethical and economic gains. The ethical view point regards board diversity as desirable, and argues that it is inequitable to exclude certain groups from corporate elites based on gender, race, religion among others (Carter et al., 2003). Additionally, board diversity is one means to empower constituencies of societies that have historically been excluded from positions of power. Also, board diversity is associated with the notion of equality of representation and ultimately, to the ideal of fair outcomes in the society (Brammer et al., 2007). In terms of the economic case for board diversity, it is argued that diversity promotes the functional ability of the board, particularly its ability to engage in complex problem solving, strategic decision making, and management monitoring (Forbes and Milliken, 1999).

Theoretically, there are a number of arguments in favour of diversity of board members. For example, Carter et al. (2003) identify five positive arguments for board diversity in a principal agent framework. They opine that a more diverse board is able to make decisions based on the evaluation of more alternatives compared to a more homogenous board. A diverse board is seen to have a better understanding of the market place of the firm, which increases innovation and creativity. Board diversity may also improve the image of the firm if the positive image has positive effects on customers' behaviour. Explicitly, advocates of board diversity argue that a diverse board will result to improved financial and organisational

performance, increased capacity to link with the global and domestic markets, expanded access to global and domestic talent pools, enhanced creativity and innovation, and strengthened social capital and cohesion (Kochen, et al. 2008).

However, there are arguments against board diversity. For example, if a diverse board produces more opinions and more critical evaluations, this may be time consuming and ineffective, especially if the firm is operating in a highly competitive environment where the ability to react quickly to market shocks is very important (Smith, Smith and Verner, 2005). Board diversity may also corrode group cohesion and lead to a board whose members are less cooperative and experience more emotional conflicts. Such board squabbles may create an entirely new version of agency problem, there by impeding firm performance. Smith, Smith and Verner (2005) equally argue that a culturally, ethnically or gender diverse board may experience more conflicts, and though they may ultimately make better quality decisions, it may not offset the negative effects of a slower decision-making process should the firm's market place demands quick responses.

On the empirical front, results from studies in different jurisdictions are mixed and inconclusive. Carter et al. (2007) examined the impact of board gender and ethnic diversity on the financial performance of all firms listed on the Fortune 500 over the period 1998-2002. Their results show support for the positive effect of diversity on financial performance measured by Tobin's Q. Smith, Smith and Verner, (2005) examined the relationship between gender diversity and firm performance using 2,500 largest Danish firms over the period 1993-2001, and find that the proportion of women on the board have positive effect on firm performance. Oxelheim and Randoy (2001) examined the effect of foreign board member diversity on firm value in Norway and Sweden, and the result indicates a significantly higher performance for firms with foreign board membership.

However, Marimuthu and Kolandaisamy (2009) examined the effect of demographic diversity on firm performance of listed companies in Malaysia. Their results suggest that board diversity is not relevant to firm performance. Randoy, Thomsen and Oxelheim (2006) analysed board diversity and its impacts on corporate performance of 500 largest companies from Denmark, Norway and Sweden and found no significant diversity effect of gender, age, and nationality on stock market performance or return on assets.

3. Hypotheses Development

This paper examines the impact of board diversity using measures of board heterogeneity based on gender, ethnic background, and foreign board membership. The detailed expected performance

results for each of the three diversity measures are shown below:

Board Nationality: This is the ratio of foreign board members to total board size. The potential advantages of foreign board membership have received serious attention in corporate governance studies globally (Marimuthu and Kolandaisamy, 2009; Grismcombe and Mattis, 2002; Kose and Senbei, 1998). First, with foreigners on the board, a large stock of qualified candidates would be available for the board (with broader industry experience). Second, because of their different backgrounds, foreign members can add valuable and diverse expertise which domestic members do not possess (Lee and Farh, 2004). Foreign board members can also help assure foreign minority investors that the company is managed professionally in their best interests (Oxelheim and Randoy, 2001). On the other hand, opponents to this view argue that foreign board members may be less informed about domestic affairs and therefore, less effective. Also, changing the board language to fit foreign members may be costly and add to adjustments problems (Hassan, Samian and Silong, 2006). This leads to the following hypothesis;

Hypothesis 1: Board nationality is negatively related to firm performance

Board Ethnicity: Empirical research presents contradictory findings on the value of diversity. Watson, Kumar and Michealson (1993) report that a homogeneous board is better in the short-term, while a heterogeneous board is better in the long-term in achieving corporate goals. However, Pelled, Eisenhardt and Xin (1999) found that a heterogeneous board resulted in emotional conflict that ultimately harmed firm performance. These studies adopted different measures of diversity like the ratio of blacks to whites, ratio of minority tribes to majority tribes. Nigeria is made of about 250 ethnic groups and 500 languages. These ethnic groups are broadly classified into major and minor tribes. The major tribes are Igbos, Hausas and Yorubas. In the past, prominent political positions revolved around the three major tribes. A board that is ethnically diffused in Nigeria may have a strong board capital. Board capital has been positively associated with the provision of advice and counsel, the provision of firm legitimacy and reputation, the provision of channels of communication and the acquirement of resources elements outside the firm, and a source of effective performance. The researcher examined this variable using a dummy, which takes a value of 1 if the board is made up of people from different tribes and 0 if otherwise, and propose that;

H2: Ethnic diffused board is positively linked to firm performance

Board Gender: The ratio of the number of women to total board size is used as measure of board gender. Boards are traditionally composed of only male members. The presence of women on the board leads to gender diversity. It is generally accepted that female board members are more independent because they are not part of the 'old boys' network (Carter et al. 2003). Rynan and Haslam (2005) argue that women are more likely to be placed in positions of leadership in circumstances of downturn. The implication is that the presence of women on the board could be perceived by shareholders that significant change is on the way, thereby making them more confident in the company's success, which results in increase in share price. Diversity in general is considered to improve organizational value and performance as it provides new insights and perspectives (Fondas and Sassalos, 2000; Carter et al., 2003; Latendre, 2004; Huse and Solberg, 2006) and provides for representation of different stakeholders for equity and fairness. This leads to the following hypothesis:

H3: Board gender is positively related to firm performance.

4. Data and Methodology

4.1 Data

The data is based on a sample of 212 publicly quoted firms in the Nigerian Stock Exchange. Ninety companies were dropped from the final observation due to non-availability of data on key variables. As a result, the final sample size comprised 1462 firm-year observations of 122 firms for the period: 1991-2008. The data were handpicked from annual reports and statements of accounts of quoted companies in Nigeria. The annual reports and statements of accounts of companies were obtained from the corporate headquarters of the companies, the Corporate Affairs Commission, the Securities and Exchange Commission, and the Nigerian Stock Exchange.

4.2 Model Specification

Drawing from previous studies on corporate governance, this study applied the Generalised Least Square (GLS) Fixed-Effect and Random-Effect models to test the various hypotheses. The preference for Generalised Least Square regression over pooled Ordinary Least Square regression is due to the important assumptions of homoskedasticity and no serial correlation in Pooled Ordinary Least Square (Wooldridge, 2002). The Fixed-Effect and Random-Effect models allow the researchers to examine variations among cross-sectional units simultaneously with variations within individual units over time (Gaur and Gaur, 2006). It assumes that regression

parameters do not change over time and do not differ between various cross-sectional units, enhancing the reliability of the coefficient estimates. The dependent variable is financial performance, independent variables are board gender, board nationality and board ethnicity, while the control variables are CEO duality, firm age, board skill (ratio of board members with Ph.D to board size) and firm size. The multiple regressions is represented as follows;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_n X_n + \epsilon \quad (1)$$

To suit the study, equation 1 is modified thus;

$$\text{Firm Performance} = \alpha + \beta_{\text{gender}} + \beta_{\text{nationality}} + \beta_{\text{ethnicity}} + \beta_{\text{control variables}} + \epsilon \quad (2)$$

The dependent variable is firm performance. Return on asset (profit before interest and tax divided by total asset) was used as a measure of firm performance. Independent variables are board gender (total number of female board members divided by total board size), board nationality (total number of foreign board members divided by total board size), board ethnicity (dummy variable that assigns 1 if board members are from different ethnic tribes, and 0 if otherwise), while the control variables are firm size (natural log of total assets), CEO duality (dummy variable that takes 1 if one person occupies the position of CEO and board chair and 0 if these two position are occupied by different persons), board skill (total number of board members with Ph.D divided by board size) and firm age (natural log of age from date of incorporation).

Therefore, equation (2) is modified as follows;

$$\text{Firm performance} = \alpha + \beta_{\text{gender}} + \beta_{\text{nationality}} + \beta_{\text{ethnicity}} + \beta_{\text{duality}} + \beta_{\text{skill}} + \log TA + \log Age + \epsilon \quad (3)$$

Where; α is the intercept of the regression line; β_{gender} is board gender; $\beta_{\text{nationality}}$ is board nationality; β_{duality} is board duality; $\beta_{\text{ethnicity}}$ is board ethnicity; β_{skill} is board skill; $\log TA$ is natural logarithm of total assets; $\log Age$ is natural logarithm of firm age; and ϵ is the error term. Equation (2) will enter the model as follows;

$$\text{LogPBIT-TA} = \alpha + \beta(BG) + \beta(BN) + \beta(BE) + \beta(BD) + \beta(BSK) + \log TA + \log Age + \epsilon \quad (4)$$

Where; LogPBIT-TA is the natural logarithm of profit before interest and tax divided by total assets and is used as the proxy for firm performance; BG is board gender; BN is board nationality; BE is board ethnicity; BD is board duality; and BSK is board skill.

Most studies along this line assume that the exogenous variables have immediate impact on the endogenous variable. This assumption might introduce bias in the results, since the decision to restructure corporate board characteristics and its ultimate payoff in terms of return on asset employed may involve considerable lag period (Gujarati and Porter, 2009). To make the result of this study robust, the researchers used the lagged effects of the dependent variable. The logical explanations for this approach are two folds. One, most studies use the Tobin's q, which implies that information on changes in corporate leadership immediately reflects on the

share price of the affected firms. In the case of Nigeria with informationally opaque firms, this information might not have immediate impact on the market of the affected company shares. Second, this study used the accounting-based measure of firm performance reported at the end of the company's financial year. This shows that the impact of board diversity is not immediate, but lagged over a period ($t-1, t-2, \dots, t-n$).

5. Results

5.1 Descriptive Statistics

Table 1 presents the descriptive analysis of the absolute values of the variables. Results based on the descriptive analysis show that the average board size of Nigerian firms is approximately 9 members (mean = 0.923). The average number of Ph.D holders on the corporate boards of Nigerian firms is 9% (mean = 0.0885) scaled by average board size. This result shows that in every 10 board members, only 1 is likely to possess Ph.D qualification. The results show that the average number of foreigners on Nigerian corporate boards are approximately 2 foreigners per board (mean = 0.17). The selected companies based on data availability would have influenced this result. For example, about 50% of the firms in the conglomerate, petroleum, food/beverages and tobacco and construction industries are foreign-owned.

The average number of women board members is 4.6% scaled by average board size. This indicates that in every 22 board members, only 1 is a woman. Interestingly, our results show that 77% of firms in the observation have ethnic diffused boards, while about 33% of the boards are homogeneous in terms of ethnic diversity. This might not be separated from the ownership structure of the affected firms. Board duality is a dummy variable taking the value of 1 if the manager of the firm is also the chairman and 0 if otherwise. The results show that about 56% of the firms in the observations separate the position of CEO from the board chair, while 44% of the selected firms allow one person to function simultaneously as CEO and board chairman. An interesting issue arising from board duality is the fact that foreign-owned and large firms tend to separate these two positions, while small or young firms with indigenous ownership structure merge these two positions. Results based on descriptive statistics show that average performance of firms in the sample is not very effective. Considering the accounting measure of return on asset, it was found that the average return on assets is approximately -177% for the 18-year period. This suggests that managers do not effectively manage the assets of the companies in terms of converting them into income. The -177% return on asset employed is unfavourable because the firms are earning negative returns on assets, which could account largely for the high rate of corporate failures in Nigeria.

5.2 Correlation Matrix

Table 2 presents the correlation results. The correlation between firm age and return on assets employed is weakly positive. Though the non-significant relationship may create the impression that these two characteristics are not important, the arising statistics tend to prove that the age of the firm has a positive relationship with the profitability of the firm. This confirms the earlier assertions of Berger and Udell (1998), Gregory, Rutherford, Oswald and Gardiner (2005) and Boone et al. (2007) that newer firms are expected to have smaller earnings than older ones because they have less experience in the market, are still building their market position, and normally have a higher cost structure. The correlation result also justifies the inclusion of firm age as one of the control variables.

The correlation between firm size and the proxies of board size, board nationality and board ethnicity is positive and significant. This finding validates the *a priori* position that governance structures are substitutable and the firms can choose appropriate governance options based on what is right for them. For example, as the complexity of the firm increases, board size may increase due to need for advice and environment monitoring (Pfeffer and Salancik, 1978; Zahra and Pearce, 1989). In that case, CEO duality may be dropped as a trade-off in favour of director/insider ownership to ensure firm performance through alignment of interests between shareholders and directors. Obviously, these changes in the firm size are likely to affect different characteristics of the board. Hence, the result justifies the inclusion of firm size and CEO duality as control variables.

The 36 results of inter-correlation recorded between the pairs of the explanatory variables shows that the correlation between board size and board duality is negative and non-significant. This validates the theoretical standpoint of agency theory which posits that board size has effect on CEO duality. As the board size increases, representation of outsiders also increases (Lehn, Patro and Zhao, 2004). This implies an increase in the board independence along with a simultaneous decrease in CEO's influence (Hermalin and Weisbach, 1998). Therefore, a larger board helps in effective oversight of management. To facilitate improved monitoring role of the board to mitigate the agency costs, positions of Chair and CEO are separated. An independent Chair is likely to be more effective if he/she has the backing of a larger number of board members. Thus, as the board size increases, firms with absence of CEO duality will perform better and those with presence of CEO duality will perform worse.

The correlation between board size and board gender is positive and significant. This validates our earlier findings in the descriptive statistics that women's representation on corporate board in Nigeria

increase with board size. It implies that women do not replace men on boards, rather, they get more representation as the board size increases, indicating a corresponding increase in both board size and the number of women on corporate boards.

Ethnic diffused board requires representation from different segments of the society and is found to be positively and significantly associated with board size. As the firm increases in complexity, the board size also increases (Boone et al., 2007). The more the representation, the larger will be the size of the board. This result implies that ethnic diffused board is made possible by increasing the board size. When the board size is increased by increasing representation to outsiders, it is likely that there will be ethnic diversity of board members in general. Such diversity is considered a strategic resource and provides a link to different external resources. Most of the coefficients, as observed, whether positive or negative, significant or non-significant are weak. This indicates at first glance, that although likely cases of multicollinearity may exist, the degree of such may be too remote to affect the results of the regression estimates.

5.3 Test for Random and Fixed Effects Regression

In line with the earlier assumption that the unobserved or latent variables might influence the stochastic disturbances, Table 3 presented the random-effects results. The result shows that the F-test is 0.0000 which is less than 5%, which indicates that the random-effects model is consistent with the dataset in the study. Also, the two-tail p-value test shows that the unobserved or latent time invariant variables have significant influence on the dependent variable. However, the fraction of the variance due to unobserved time invariant variables is 0.

The fixed-effects results reported in Table 4 showed that the fixed effects model fitted properly with the dataset in the study. Also, the t-values which test the hypothesis that coefficient is different from zero shows that the unobserved variables have significant influence on the dependent variable. The fixed and random effects models showed contradicting results, which was resolved with the Hausman test. Table 5 reported the results of the Hausman test. The result of the Hausman fixed and Random effects tests showed some significant support for the fixed effects regression than random effects regression. The p-value was highly significant at 5 per cent level. The null hypothesis of an equality of fixed and random effects regression estimation was rejected. Thus, Generalised Least Square (GLS) fixed effects regression model captures both group and time effects.

5.4 The Generalised Least Square Fixed Effects with Lagged Values of Return on Assets Results

Table 6 presents the regression results. The regression coefficient of board nationality was positive and significant in predicting the financial performance of Nigerian firms. This implies that foreign board members offer Nigerian firms greater financial flexibility, which in turn provides firms the opportunity to cut down cost of capital by reducing cross-border information gaps and agency costs. The finding of the study is also consistent with the descriptive statistics results and affirms the resource dependency theory which argues that because of their different backgrounds, foreign board members can add valuable and diverse expertise to board effectiveness which domestic members do not possess.

The regression coefficient of board gender was negative and non-significant in predicting the financial performance of Nigerian quoted firms. This result could be influenced by the fact that most boards with female representatives are companies with strong family ties. This implies that women who are selected into the board of directors of Nigerian firms are not as qualified as their male colleagues, but because of their family ties or connection to the firms.

The regression coefficient of board ethnicity was positive but non-significant in predicting the financial performance of Nigerian quoted firms. This finding is important, given the serious ethnic bias that exists among Nigerians. In a more lucid term, the result in line with the resource dependency theory addresses the potential for synergy between managers from different ethnic tribes in Nigeria. Specifically, board diversity along ethnic tribes might have national outlook, an understanding of the Nigerian market given the variants of cultures, boost access to critical resources, which suggests a positive financial performance. According to Carter et al (2003), a more diverse board could benefit from a greater understanding of its customers or other key stakeholders.

6. Policy Implications

Companies in developing countries with weak corporate governance and unfavourable macroeconomic environment could mitigate adverse effects of these systemic problems by choosing those internal governance models that enhances the survival and financial performance of firms in such jurisdictions. For example, corporate governance laws in Nigeria dwell so much on resolving the agency conflict between managers and shareholders. While it is generally accepted that in an environment where regulations are incapable of preventing managers and board members from appropriating earnings for selfish gains, the selfish interests of these individuals

entrusted with corporate management and control can actually be directed to self-serving behaviour. It is also important to note that from resource dependency perspective, the corporate board is a strategic resource to organizations and a board constituted under subjective circumstances might fail to serve the shareholders' interest regardless of the degree of measures put in place to mitigate the agency problems.

Given the weak corporate governance environment in Nigeria, companies can now look inward on how to diversify their corporate boards in line with the resource dependency theory, at least to improve their financial performance. Specifically, firms in emerging markets that are considering breaking away from their domestic market either get listing on an international stock exchange or incorporate one or more foreigners into their boards. The long-term value arising from the inclusion of a foreign board member seems to exceed that of a cross-listing on an international market. Hence, the inclusion of a foreign board member should be seen not only as a low-budget alternative for firms that regard cross-listing as too big a venture, but also as an important complement for firms where cross-listing already exists.

Firms operating in Nigeria need to rethink their strategies on the economic case for ethnic diversity in the composition of corporate boards. The essence of the economic case for board ethnic diversity is as follows: board diversity enhances the effectiveness of board actions which increases the productivity and performance of the firm resulting in increased profitability and shareholder value. Some functions of the board are enhanced if the board has a more ethnic diverse membership. The economic case does not argue that ethnic diverse directors are perfect substitutes for other board members, rather, ethnic diverse directors are individuals with unique characteristics that create additional value for shareholders.

Finally, the inclusion of women into corporate boards should be based on their capabilities and competencies rather than family ties. Corporate governance research has established that female board members bring a different kind of perspective into the boardroom. Where they are selected based on their corporate track record, they will prove to be invaluable assets to the affected firm, especially in Nigeria where weak external governance laws give management incentives to misbehave.

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Table 1. Descriptive Statistics

. summarize LogPBIT_TA LogPBIT_TA1 LogBZ BSK BN BG BR BE BD LogTA LogAge						
Variable	Obs	Mean	Std. Dev.	Min	Max	
LogPBIT_TA	1656	-1.768976	1.322829	-4.60517	5.363637	
LogPBIT_TA1	1655	-1.769072	1.323223	-4.60517	5.363637	
LogBZ	2084	.9226296	.1344686	.48	1.34	
BSK	2084	.0885461	.1300602	0	1.4	
BN	2084	.1677303	.1987292	0	.88	
BG	2084	.0462908	.0808008	0	.43	
BR	2084	.7476008	.4344933	0	1	
BE	2084	.7691939	.4214498	0	1	
BD	2085	.4446043	.4980055	0	2	
LogTA	1868	5.607853	1.076507	1.52	9.09	
LogAge	2041	1.458702	.2479898	0	2.37	

Source: Computed from Data in appendixes 4-18 (Using Stata-Computa Analytical Package)

Table 2. Correlation Matrix

Variables		ROA	Board Size	Board Skill	Board Nationality	Board Gender	Board Ethnicity	Board Duality	Firm Size	Firm Age
ROA	Pearson Correlation Sig. (2-tailed)	1								
Board Size	Pearson Correlation Sig. (2-tailed)	0.0035 0.8761	1							
Board Skill	Pearson Correlation Sig. (2-tailed)	- 0.0167 0.458	- 0.064* 0.003	1						
Board Nationality	Pearson Correlation Sig. (2-tailed)	0.009 0.699	0.102* 0.000	- 0.067* 0.010	1					
Board Gender	Pearson Correlation Sig. (2-tailed)	0.015 0.500	0.099* 0.000	0.054* 0.013	-0.080* 0.000	1				
Board Ethnicity	Pearson Correlation Sig. (2-tailed)	0.001 0.791	0.057* 0.009	0.085* 0.000	0.066* 0.002	0.032 0.148	1			
Board Duality	Pearson Correlation Sig. (2-tailed)	0.009 0.706	-0.003 0.878	0.070* 0.001	-0.066* 0.002	0.110* 0.000	0.069* 0.002	1		
Firm Size	Pearson Correlation Sig. (2-tailed)	0.041 0.077	0.189* 0.000	0.058* 0.011	0.067* 0.003	-0.034 0.133	0.125* 0.000	0.004 0.862	1	
Firm Age	Pearson Correlation Sig. (2-tailed)	0.223 0.327	0.135* 0.000	0.149* 0.000	0.109* 0.000	0.044* 0.045	0.097* 0.000	0.027 0.232	0.126 0.000	1

*correlation is significant at the 0.05 level (2-tailed).

Source: Computed from Data in appendixes 4-18 (Using Stata-Computa Analytical Package)

Table 3. Random Effects Results with Lagged Values of Return on Asset

```

. xtreg LogPBIT_TA LogPBIT_TAL1 LogBZ BSK BN BG BEthnic BDual LogTA LogAge, re
      random-effects GLS regression                     Number of obs   =    1462
group variable: Firm                                Number of groups  =    119

      <-sq:  within = 0.1519                               Obs per group: min =     1
              between = 0.8699                             avg   =    12.3
              overall = 0.4722                             max   =     19

      random effects u_i ~ Gaussian                      Wald chi2(9)       =   1299.20
      corr(u_i, X)      = 0 (assumed)                    Prob > chi2        =    0.0000

```

LogPBIT_TA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
LogPBIT_TAL1	.6191802	.0198224	31.24	0.000	.5803289	.6580314
LogBZ	.0183879	.1990953	0.09	0.926	-.3718317	.4086076
BSK	.3166911	.2830925	1.12	0.263	-.23816	.8715423
BN	.5135037	.130154	3.95	0.000	.2584065	.7686009
BG	-.6437491	.329104	-1.96	0.050	-1.288781	.0012828
BEthnic	.0052049	.0643061	0.08	0.935	-.1208326	.1312425
BDual	-.0124162	.0527488	-0.24	0.814	-.1158019	.0909694
LogTA	-.1983461	.0266657	-7.44	0.000	-.2506099	-.1460823
LogAge	.2229717	.1137633	1.96	0.050	-3.56e-07	.4459438
_cons	-.0318851	.2576729	-0.12	0.902	-.5369148	.4731445
sigma_u	0					
sigma_e	.86568849					
rho	0					
	(fraction of variance due to u_i)					

Source: Stata Analytical Software Computations

Table 4. Fixed Effects Results with Lagged Values of Return on Asset

```
. xtreg LogPBIT_TA LogPBIT_TAL1 LogBZ BSK BN BG BEthnic BDual LogTA LogAge, fe
Fixed-effects (within) regression      Number of obs   =    1462
Group variable: Firm                  Number of groups =    119

R-sq:  within = 0.2279                Obs per group:  min =     1
      between = 0.2920                  avg   =    12.3
      overall  = 0.2767                  max   =    19

corr(u_i, xb) = -0.0357                F(9,1334)        =    43.76
                                          Prob > F         =    0.0000
```

LogPBIT_TA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LogPBIT_TAL1	.2697012	.0235786	11.44	0.000	.2234459	.3159564
LogBZ	.3780067	.3278111	1.15	0.249	-.2650747	1.021088
BSK	.334176	.392035	0.85	0.394	-.4348962	1.103248
BN	.2585586	.1786876	1.45	0.148	-.0919806	.6090978
BG	.7656812	.5141207	1.49	0.137	-.2428919	1.774254
BEthnic	-.0088037	.0762716	-0.12	0.908	-.1584289	.1408216
BDual	.008738	.0567786	0.15	0.878	-.102647	.120123
LogTA	-.5663605	.0409697	-13.82	0.000	-.6467325	-.4859885
LogAge	.9391022	.2623581	3.58	0.000	.4244229	1.453782
_cons	.0159587	.4813508	0.03	0.974	-.9283284	.9602457
sigma_u	.80207898					
sigma_e	.86568849					
rho	.46191489	(fraction of variance due to u_i)				

F test that all u_i=0: F(118, 1334) = 5.18 Prob > F = 0.0000

Source: Stata Analytical Software Computations.

Table 5. Hausman Fixed Random Effects Results with Lagged Values of Return on Asset

```
. hausman fixed random
```

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
LogPBIT_TAL1	.2697012	.6191802	-.349479	.012768
LogBZ	.3780067	.0183879	.3596187	.2604249
BSK	.334176	.3166911	.0174849	.2712011
BN	.2585586	.5135037	-.2549451	.1224303
BG	.7656812	-.6437491	1.40943	.3949819
BEthnic	-.0088037	.0052049	-.0140086	.0410132
BDual	.008738	-.0124162	.0211542	.021009
LogTA	-.5663605	-.1983461	-.3680144	.031104
LogAge	.9391022	.2229717	.7161305	.2364099

b = consistent under H₀ and H_a; obtained from xtreg
B = inconsistent under H_a, efficient under H₀; obtained from xtreg

Test: H₀: difference in coefficients not systematic

chi2(9) = (b-B)'[(V_b-V_B)⁻¹](b-B)
= 861.45
Prob>chi2 = 0.0000

Source: Stata Analytical Software Computations.

Table 6. Generalised Least Square with Lagged Values of Return on Assets

. regress LogPBIT_TA LogPBIT_TAL1 LogBZ BSK BN BG BEthnic BDual LogTA LogAge						
Source	SS	df	MS	Number of obs = 1462		
Model	1304.65787	9	144.961985	F(9, 1452) = 144.36		
Residual	1458.10287	1452	1.00420308	Prob > F = 0.0000		
				R-squared = 0.4722		
				Adj R-squared = 0.4690		
Total	2762.76073	1461	1.89100666	Root MSE = 1.0021		
LogPBIT_TA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LogPBIT_TAL1	.6191802	.0198224	31.24	0.000	.5802965	.6580639
LogBZ	.0183879	.1990953	0.09	0.926	-.3721573	.4089332
BSK	.3166911	.2830925	1.12	0.263	-.2386229	.8720052
BN	.5135037	.130154	3.95	0.000	.2581937	.7688137
BG	-.6437491	.329104	-1.96	0.051	-1.289319	.0018209
BEthnic	.0052049	.0643061	0.08	0.936	-.1209378	.1313477
BDual	-.0124162	.0527488	-0.24	0.814	-.1158881	.0910557
LogTA	-.1983461	.0266657	-7.44	0.000	-.2506535	-.1460387
LogAge	.2229717	.1137633	1.96	0.050	-.0001864	.4461298
_cons	-.0318851	.2576729	-0.12	0.902	-.5373361	.4735659

Source: Stata Analytical Software Computations.