# The Impact of Board Structure on Corporate Financial Performance in Nigeria

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#### Abstract

This study examines the impact of board structure on corporate financial performance in Nigeria. It investigates the composition of boards of directors in Nigerian firms and analyses whether board structure has an impact on financial performance, as measured by return on equity (ROE) and return on capital employed (ROCE). Based on the extensive literature, four board characteristics (board composition, board size, board ownership and CEO duality) have been identified as possibly having an impact on corporate financial performance and these characteristics are set as the independent variables. The Ordinary Least Squares (OLS) regression was used to estimate the relationship between corporate performance measures and the independent variables. Findings from the study show that there is strong positive association between outside directors sitting on the board and corporate financial performance. However, a negative association was observed between directors' stockholding and firm financial performance measures. In addition, the study reveals a negative association between ROE and CEO duality, while a strong positive association was observed between ROCE and CEO duality. The study suggests that large board size should be encouraged and the composition of outside directors as members of the board should be sustained and improved upon to enhance corporate financial performance.

Keywords: Board structure, Corporate financial performance, Board ownership, Duality

#### 1. Introduction

The board of directors is charged with oversight of management on behalf of shareholders. Agency theorists argue that in order to protect the interests of shareholders, the board of directors must assume an effective oversight function. It is assumed that board performance of its monitoring duties is influenced by the effectiveness of the board, which in turn is influenced by factors such as board composition and quality, size of board, duality of chief executive officer, board diversity, information asymmetries and board culture (Brennan, 2006).

The issue of structure of the board of directors as a corporate governance mechanism has received considerable attention in recent years from academics, market participants, and regulators. It continues to receive attention because theory provides conflicting views as to the impact of board structure on the control and performance of firms, while at the same time the empirical evidence is inconclusive. To date, the relationship between board structure (as opposed to board processes) and company performance has been the most studied aspect among all board investigations (Bhagat and Black, 1999). In these studies, it is often assumed that a company's financial performance is mainly determined by board characteristics.

In view of the importance attached to the institution of effective corporate governance, the Federal Government of Nigeria, through her various agencies came up with various institutional arrangements to protect the investors of their hard earned investment from unscrupulous management/directors of listed firms in Nigeria. These institutional arrangements, produced the "code of corporate governance best practices" issued in November 2003. The code proposes that the business of a firm should be managed under the direction of a board of directors who delegates to the CEO and other management staff, the day to day management of the affairs of the firm. The best practices of the code also recommend that the board sees to the appointment of a qualified person as the CEO and other management staff. The directors, with their wealth of experience, are expected to provide leadership and direct the affairs of the business with high sense of integrity, commitment to the firm, its business plans and long-term shareholder value. In addition, the board provides other oversight functions. Other mechanisms of corporate governance include audit committee, shareholders rights and privileges. The emergence of mega banks in the post consolidation era prompted the Central Bank of Nigeria to issue a new code of corporate governance

which became operative in 2006. In the same vein, the Nigerian Securities and Exchange Commission (SEC), published the revised Code of Corporate Governance in September, 2009 after consultations with other regulatory bodies. The new code was issued to address the weaknesses of the 2003 code and to improve the mechanism for its enforceability. It requires the separation of the position of the managing director from that of the chief executive officer. Also, the code recommends that the number of non-executive directors should be more than that of executive directors subject to a maximum board size of twenty (20) directors. In order to ensure both continuity and injection of fresh ideas, non-executive directors should not remain on the board for more than three terms of four (4) years each, that is, twelve (12) years.

The study adopted the definition of board structure as given by Tricker (1994). He noted that board structure distinguishes between those directors who hold management positions in the company and those who do not. Those with management positions are referred to as insider directors in the United States or executive directors in United Kingdom and Australia. The top person in the board is the chairman. He could be an executive or a non-executive of the company. If the CEO happens to be a director on the board, then he is an executive director. In this study, we concentrated on four board characteristics: board composition, directors' ownership, CEO duality and board size which have been identified as possibly having an impact on corporate performance and these characteristics are set as the independent variables.

Over the years, different variables have been used to measure corporate performance. Corporate performance can be measured using long-term market performance measures and other performance measures that are non market-oriented measures or short-term measures. Some examples of these measures include market value added (MVA), economic value added (EVA), cash flow growth, earnings per share (EPS) growth, asset growth, dividend growth, and sales growth (Coles, McWilliams and Sen, 2001; Abdullah, 2004). In their study, Dehaene, De Vuyst and Ooghe (2001) used return on equity (ROE) and return on assets (ROA) as proxies for corporate performance in Belgian companies. Market-to-book ratio was utilized on firms in Hong Kong (Chen, Cheung, Stouraitis and Wong, 2005). In their article, Judge, Naoumova and Koutzevoi (2003) used a series of indicators including financial profitability, customer satisfaction, product/service quality, capacity utilisation and process improvements to assess firm performance. For the purpose of this study, ROE and ROCE are used to measure firms' financial performance.

#### 1.2 Statement of the Problem

Boards of directors have been largely criticized for the decline in shareholders' wealth and corporate failure. They have been in the spotlight for the fraud cases that had resulted in the failure of major corporations, such as Enron, WorldCom and Global Crossing. In Nigeria, a series of widelyl-publicized cases of accounting improprieties have been recorded (for example, Wema Bank, NAMPAK, Finbank and Spring Bank). Some of the reasons stated for these corporate failures are the lack of vigilant oversight functions by the board of directors, the board relinquishing control to corporate managers who pursue their own self-interests and the board being remiss in its accountability to stakeholders. As a result, various corporate governance reforms have specifically emphasized on appropriate changes to be made to the board of directors in terms of its composition, structure and ownership configuration (Abidin, Kamal and Jusoff, 2009). Therefore, the study extends and contributes to the body of research using Nigerian data to investigate the likely impact of board structure on firms' financial performance. The findings would be useful to stakeholders in the Nigerian Stock Exchange (NSE) as it provides evidence on the relationship between board structure and firm's financial performance.

#### 1.3 Objectives of the Study

This study specifically identified the following objectives:

i. to evaluate the extent to which board size affects corporate financial performance,

ii. to examine the relationship between the number of outside directors and corporate financial performance in Nigeria,

iii. to assess the impact of directors' stockholding on corporate financial performance in Nigeria, and

iv. to investigate the relationship between CEO duality and corporate financial performance in Nigeria.

#### 1.4 Research Questions

The study attempts to find answers to the following specific questions:

i. to what extent does board size affect corporate financial performance?

ii. does the number of outside directors have any relationship with corporate financial performance in Nigeria?

iii. what impact does directors' stockholding have on corporate financial performance in Nigeria?

iv. is there any relationship between CEO duality and corporate financial performance in Nigeria?

#### 1.5 Research Hypotheses

The following hypotheses were formulated to guide the researcher in finding answers to the research questions:

H1: There is a negative relationship between board size and corporate financial performance.

**H2**: There is a positive relationship between proportion of outside directors sitting on the board and corporate financial performance.

H3: There is a negative association between directors' stockholding and corporate financial performance.

H4: There is a negative relationship between CEO duality and corporate performance.

The remainder of this paper is organized as follows: Section II discusses the relevant literature on board composition, size, ownership, CEO duality. The methodology adopted is discussed in Section III while Section IV captures empirical results and discussion. Section V concludes the paper.

#### 2. Literature Review

#### 2.1 Board Composition and Corporate Financial Performance

Board composition refers to the number of independent non-executive directors on the board relative to the total number of directors. An independent non-executive director is defined as an independent director who has no affiliation with the firm except for their directorship (Clifford and Evans, 1997). There is an apparent presumption that boards with significant outside directors will make different and perhaps better decisions than boards dominated by insiders. Fama and Jensen (1983) suggest that non-executive directors can play an important role in the effective resolution of agency problems and their presence on the board can lead to more effective decision-making. However, the results of empirical studies are mixed. A number of studies, from around the world, indicate that non-executive directors have been effective in monitoring managers and protecting the interests of shareholders, resulting in a positive impact on performance, stock returns, credit ratings, auditing, etc. Dehaene et al. (2001) find that the percentage of outside directors is positively related to the performance of Belgian firms. Connelly and Limpaphayom (2004) find that board composition has a positive relation with profitability and a negative relation with the risk-taking behaviour of life insurance firms in Thailand. Rosenstein and Wyatt (1990) find a positive stock price reaction at the announcement of the appointment of an additional outside director, implying that the proportion of outside directors affects shareholders' wealth. Bhojraj and Sengupta (2003) and Ashbaugh-Skaife, Collins and Kinney (2006) also find that firms with greater proportion of independent outside directors on the board are assigned higher bond and credit ratings respectively. Furthermore, O' Sullivan (2000) examines a sample of 402 UK quoted companies and suggests that non-executive directors encourage more intensive audits as a complement to their own monitoring role while the reduction in agency costs is expected. However, there is also a fair amount of studies that tend not to support this positive perspective. Some of them report a negative and statistically significant relationship with Tobin's Q (e.g. Agrawal and Knoeber, 1996; Yermack, 1996) while others find no significant relationship between accounting performance measures and the proportion of non-executive directors (e.g. Vafeas and Theodorou, 1998; Weir, Laing and mcKnight, 2002; Haniffa and Hudaib, 2006). Furthermore, based on a large survey of firms with non-executive directors in the Netherlands, Hooghiemstra and van Manen (2004) conclude that stakeholders are not generally satisfied with the way non-executives operate. Haniffa et al (2006) summarize a number of views expressed in the literature which may justify this non-positive relationship, such as that high proportion of non-executive directors may engulf the company in excessive monitoring, be harmful to companies as they may stifle strategic actions, lack real independence, and lack the business knowledge to be truly effective (Baysinger and Butler, 1985; Patton and Baker, 1987; Demb and Neubauer, 1992; Goodstein, Gautum and Boeker, 1994).

#### 2.2 Board Size and Corporate Financial Performance

This is considered to be a crucial characteristic of the board structure. Large boards could provide the diversity that would help companies to secure critical resources and reduce environmental uncertainties (Pfeffer, 1987; Pearce and Zahra, 1992; Goodstein *et al.*, 1994). But, as Yermack (1996) said, coordination, communication and decision-making problems increasingly impede company performance when the number of directors increases. Thus, as an extra member is included in the board, a potential trade-off exists between diversity and coordination. Jensen (1993) appears to support Lipton and Lorsch (1992) who recommend a number of board members between seven and eight. However, board size recommendations tend to be industry-specific, since Adams and

Mehran (2003) indicate that bank holding companies have board size significantly larger that those of manufacturing firms.

A review of the empirical evidence on the impact of board size on performance shows mixed results. Dehaene *et al.* (2001) find that board size is positively related to company performance. However, the results of Haniffa *et al.* (2006) are inconclusive. Using a market return measure of performance, their results suggest that a large board is seen as less effective in monitoring performance, but when accounting returns are used, large boards seem to provide the firms with the diversity in contacts, experience and expertise needed to enhance performance. Yermack (1996) finds an inverse relationship between board size and firm value; in addition, financial ratios related to profitability and operating efficiency also appear to decline as board size grows. Finally, Connelly and Limpaphayom (2004) find that board size does not have any relation with firm performance.

## 2.3 Board Ownership and Corporate Financial Performance

Board Ownership is also an important characteristic of board structure. It reduces manager-shareholder conflicts in stock ownership by board members (both executive and non-executive). To the extent that executive board members own part of the firm, they develop shareholder-like interests and are less likely to engage in behaviour that is detrimental to shareholders. Therefore, managerial ownership is inversely related to agency conflicts between managers and shareholders. In contrast to this notion, Demsetz and Lehn (1985) find no link between ownership structure and firm performance, and assert that there is little support for the divergence of interests between managers and shareholders. In empirical contrast to the Demsetz and Lehn (1985) findings, and in line with the beneficial effects of ownership, Morck, Shleifer and Vishny (1988) find that firm performance first rises as ownership increases up to 5%, then falls as ownership increases up to 25% and then rises slightly at higher ownership levels. They support the theory that managers tend to allocate the firm's resources in their own best interests, which may conflict with those of shareholders. McConnell and Servaes (1990) provide further evidence on the relation between the distribution of equity ownership and firm value and find a significant curvilinear relation between Q and the fraction of shares owned by corporate insiders. Specifically they find that O first increases, then decreases as share ownership is concentrated in the hands of managers and board members. A possible explanation for the nonlinearity in the ownership-performance relationship is that managers become entrenched when possessing a very high percentage of ownership. Alternative governance mechanisms, such as the corporate control market, become less effective when managers become entrenched. Research on the importance of ownership concentration in the UK has been sparse. Leech and Leahy (1991) find that profitability differences between ownership-controlled (closely-held) firms compared to management-controlled (diffusely-held) firms are only marginal. Such differences are unlikely to be economically meaningful. Moreover, Conyon and Leech (1994) examine, among other things, the mitigating role of ownership concentration in the pay-for-performance relationship. They find a weak relationship between pay and performance, while ownership is found to be insignificant in mitigating this relationship.

#### 2.4 CEO-Chairman Duality and Corporate Financial Performance

Under CEO-chairman duality, the CEO of a company plays the dual role of chairman of the board of directors. There are two schools of thought on CEO- chairman duality. Several researchers argue that CEO-chairman duality is detrimental to companies as the same person will be marking his "own examination papers". Separation of duties will lead to: (i) avoidance of CEO entrenchment; (ii) increase of board monitoring effectiveness; (iii) availability of board chairman to advise the CEO, and (iv) establishment of independence between board of directors and corporate management (Baysinger and Hoskisson, 1990; Fama and Jensen, 1983; Rechner and Dalton, 1991).

On the other hand, other researchers believe that since the CEO and chairman are the same person, the company will: (i) achieve strong, unambiguous leadership; (ii) achieve internal efficiencies through unity of command; (iii) eliminate potential for conflict between CEO and board chair, and (iv) avoid confusion of having two public spokespersons addressing firm stakeholders (Davis, Schoorman and Donaldson, 1997; Donaldson and Davis, 1991). Consistent with these arguments, Cannella and Lubatkin (1993) report a positive link between a dual leadership structure and financial performance, Brickley, Coles, and Jarrell (1997) find a negative market reaction upon the announcement of splitting roles, and Dedman and Lin (2002) find no evidence of significant abnormal returns upon the announcement of splitting roles in the post-Cadbury period, and Simpson and Gleason (1999) report that companies that combine the roles the CEO and chairman are less likely to be financially distressed. A closer look at the empirical evidence reveals that the relationship between CEO-chairman duality and company performance is mixed and inconclusive.

## 3. Methodology

This study uses a survey research design. Since this study is on board structure of quoted companies in Nigeria, population of the study is made up of companies listed on the floor of the Nigerian Stock Exchange (NSE). However, firms belonging to the financial services industry and regulated utility companies are excluded from the population. This is due to the special regulatory environment in which they operate. This follows from the argument that regulation masks the efficiency differences across firms, potentially rendering governance mechanisms less important (Vafeas and Theorodou, 1998; Singh and Davidson, 2003). A sample consisting of companies listed on the NSE was considered a good representation of quoted companies in Nigeria since the ultimate test of a sample design is how well it represents the characteristics of the population it purports to represent (Emory and Cooper, 2003). A sample of thirty (30) quoted companies for the period 2007 year end was used. Therefore, respondents cut across public limited companies that were listed on the floor of the NSE.

Information relating to firm performance (ROE and ROCE) and board characteristics (board size, board composition, board ownership and CEO duality) was collected from the sampled company's annual reports.

## 3.1 Dependent and Independent Variables

Dependent variable of the study is corporate financial performance which is represented by ROE (measured as the proportion of Profit after tax to issued share capital) and ROCE (measured as the proportion of profit after tax to issued share capital plus reserves). The independent variables are board size, board composition, board ownership and CEO duality.

#### 3.2 Statistical Analyses

For the purpose of empirical analysis, this study uses descriptive statistics, Pearson correlation analysis and linear multiple regression as the underlying statistical tests. The regression analysis is performed on the dependent variable, CORPERF, to test the relationship between the independent variables (board structure characteristics). The regression model utilized to test the relationship between the board characteristics and corporate performance is as follows:

 $CORPERF = \beta 0 + \beta 1BSIZE + \beta 2BCOMP + \beta 3 BOSHIP + \beta 4 CEO + e$ 

Where:

 $\beta 0$  = Intercept coefficient

 $\beta$ 1 = Coefficient for each of the independent variables

BSIZE = Number of directors on the board

BCOMP = Proportion of outside directors sitting on the board

BOSHIP = Proportion of total equity owned by executive and non- executive directors respectively.

CEO = Value zero (0) if the same person occupies the position of the chairman and the chief executive and one (1) for otherwise.

#### 4. Data Analysis and Presentation of Results

This section of the study is devoted to presenting the results of the analysis performed on the data collected to test the propositions made in the study and answer the research questions. Analyses were carried out with the aid of the Statistical Package for Social Sciences, (SPSS Version 15.0). Table 4.1 shows the descriptive statistics of all the variables used in the study. The mean ROE of the sampled firms is  $\aleph 2$  and the mean ROCE is  $\Re 0.11$ . The results indicate that for every  $\Re 100$  invested on equity there is a return of  $\Re 2$ . In the same vein, return on every  $\Re 100$  of capital employed is  $\Re 0.11$ . The average board size of the 30 firms used in this study is 9, while the proportion of the outside directors sitting on the board is 54%. The result also indicates that the proportion of total equity owned by executive and non-executive directors is 39%. The result above also reveals that 87% of the sampled firms have separate persons occupying the posts of the chief executive and the board chair, while 13% of the sampled firms have the same person occupying the two positions.

#### 4.1 Regression Analysis

A Pearson correlation analysis is performed on the variables to check for the degree of multicollinearity among the variables. The results are shown in Table 4.2, ROE is positively correlated with board size and is significant at (0.009). Similar results appear for board composition though not significant (0.694). However, ROE has a negative relationship with board ownership and CEO duality but not significant. The results also show that a negative and significant (0.001) relationship exists between board composition and board ownership. Table 4.3,

indicates that ROCE is positively correlated with three of the board structure variables (board size, board composition and CEO duality), though significant with only CEO duality (0.003). A negative correlation is observed between ROCE and board ownership though not significant (0.873). Board ownership also has a negative and significant (0.001) relationship with board composition. A negative correlation is also observed between board ownership and CEO duality, but not significant.

Tables 4.4a and 4.5a present the model summary. The  $R^2$  value, which indicates the explanatory power of the independent variables, is 0.467 and 0.334 respectively. This means that 46.7% of the variation in ROE is explained by the variation in the independent variables, while 33.4% of the variation in ROCE is explained by the variation in the independent variables.

From the output of the analysis in Tables 4.4b and 4.5b, the analysis of variance (ANOVA) returns significant p-values of 0.004 and 0.053 for ROE and ROCE respectively. This shows that the explanatory variables are linearly related to CORPERF and the model seems to have some validity. Table 4.6 shows the results of the coefficient estimates with ROE as dependent variable. Board size and CEO duality are significant at p-value < 0.05. This indicates a positive relationship between them and ROE. Board Ownership is significant at p-value < 0.10. Board composition is not significant at either level.

Table 4.7 shows the results of the coefficient estimates with ROCE as dependent variable. Three of the board structure variables (board size, board composition and board ownership) are not significant at p-value < 0.05. Only CEO duality is significant at p-value < 0.05. This means that there is a relationship between CEO duality and ROCE.

#### 5. Conclusion

The aim of this study was to empirically examine the impact of board structure on corporate financial performance in Nigerian quoted companies. In achieving this aim, the study obtained data on variables which were believed to have relationship with corporate financial performance and board structure. These variables included ROE, ROCE, BSIZE, BCOMP, BOSHIP, CEO-DUALITY. On the basis of these variables, hypotheses were postulated.

Results from the study indicate that there is strong positive association between board size and corporate financial performance. This is consistent with the findings of Dehaene *et al.* (2001). The study also reveals a positive association between outside directors sitting on the board and corporate financial performance. The result is consistent with previous studies (Dehaene *et al.* 2001, Connelly and Limpaphayom 2004, Rosenstein and Wyatt, 1990) to mention a few. A negative association was observed between directors' stockholding and corporate financial performance. In addition the study reveals a negative association between ROE and CEO duality, while a strong positive association is observed between ROCE and CEO duality. The results imply that large board size performs effectively. There is also evidence that a higher proportion of outside directors on the board have a positive impact on firm financial performance. However, the effect of directors' shareholding on firm performance (measured by ROE) is negative while the relationship between ROCE and directors' shareholding is strongly positive and significant (0.003).

Therefore, this study recommends that large board size should be encouraged. The composition of outside directors as members of the board should be sustained and improved upon. Furthermore, this study may be improved upon by including more variables that may affect corporate financial performance. A comparative analysis could be performed between Nigeria and other developing countries.

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| Table 4.1. Descriptive Statistics |  |
|-----------------------------------|--|
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|                    | Ν  | Minimum | Maximum | Mean   | Std. Deviation |
|--------------------|----|---------|---------|--------|----------------|
| ROE                | 30 | 88      | 14.50   | 2.0388 | 3.87181        |
| ROCE               | 29 | -2.11   | 1.77    | .1114  | .58273         |
| BDSIZE             | 30 | 4       | 15      | 8.93   | 2.703          |
| BCOMP              | 30 | .00     | .89     | .5431  | .28467         |
| BOSHIP             | 28 | .00     | 1.00    | .3900  | .38823         |
| CEODUALITY         | 30 | 0       | 1       | .87    | .346           |
| Valid N (listwise) | 27 |         |         |        |                |

Table 4.2. Results of Correlations – ROE as a financial performance measure (N=30)

|            | T               |     |          |       |         |            |
|------------|-----------------|-----|----------|-------|---------|------------|
|            |                 | ROE | BDSIZE   | BCOMP | BOSHIP  | CEODUALITY |
| ROE        | Pearson         | 1   | .467(**) | .075  | 178     | 156        |
|            | Correlation     | 1   | .407(**) | .075  | 178     | 150        |
|            | Sig. (2-tailed) |     | .009     | .694  | .365    | .412       |
|            | Ν               |     | 30       | 30    | 28      | 30         |
| BDSIZE     | Pearson         |     | 1        | 0(0   | 110     | 295        |
|            | Correlation     |     | 1        | 069   | .118    | .285       |
|            | Sig. (2-tailed) |     |          | .717  | .550    | .126       |
|            | N               |     |          | 30    | 28      | 30         |
| BCOMP      | Pearson         |     |          | 1     | 600(**) | 025        |
|            | Correlation     |     |          | 1     | 000(**) | .035       |
|            | Sig. (2-tailed) |     |          |       | .001    | .853       |
|            | N               |     |          |       | 28      | 30         |
| BOSHIP     | Pearson         |     |          |       | 1       | 296        |
|            | Correlation     |     |          |       | 1       | 286        |
|            | Sig. (2-tailed) |     |          |       |         | .140       |
|            | N               |     |          |       |         | 28         |
| CEODUALITY | Pearson         |     |          |       |         | 1          |
|            | Correlation     |     |          |       |         | 1          |
|            | Sig. (2-tailed) |     |          |       |         |            |
|            | N               |     |          |       |         |            |
|            |                 |     |          |       |         |            |

\*\* Correlation is significant at the 0.01 level (2-tailed).

|            |                        | ROCE | BDSIZE | BCOMP | BOSHIP  | CEODUALITY |
|------------|------------------------|------|--------|-------|---------|------------|
| ROCE       | Pearson<br>Correlation | 1    | .283   | .024  | 032     | .539(**)   |
|            | Sig. (2-tailed)        |      | .137   | .903  | .873    | .003       |
|            | N                      |      | 29     | 29    | 27      | 29         |
| BDSIZE     | Pearson<br>Correlation |      | 1      | 069   | .118    | .285       |
|            | Sig. (2-tailed)        |      |        | .717  | .550    | .126       |
|            | N                      |      |        | 30    | 28      | 30         |
| BCOMP      | Pearson<br>Correlation |      |        | 1     | 600(**) | .035       |
|            | Sig. (2-tailed)        |      |        |       | .001    | .853       |
|            | N                      |      |        |       | 28      | 30         |
| BOSHIP     | Pearson<br>Correlation |      |        |       | 1       | 286        |
|            | Sig. (2-tailed)        |      |        |       |         | .140       |
|            | N                      |      |        |       |         | 28         |
| CEODUALITY | Pearson<br>Correlation |      |        |       |         | 1          |
|            | Sig. (2-tailed)        |      |        |       |         |            |
|            | Ν                      |      |        |       |         |            |

| Table 4.3. Results of Correlations - | <ul> <li>ROCE as a financial</li> </ul> | performance measure. | (N=30) |
|--------------------------------------|---|----------------------|--------|
|--------------------------------------|---|----------------------|--------|

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 4.4a. Model Summary

| R    | R Square | Adjusted R Square | Std Error of the<br>Estimate | Durbin-Watson |
|------|----------|-------------------|------------------------------|---------------|
| .685 | .469     | .377              | 3.15274                      | 2.573         |

Dependent Variable: ROE

Table 4.4b. ANOVA

|            | Sum of  |    |             |       |       |
|------------|---------|----|-------------|-------|-------|
|            | Squares | df | Mean Square | F     | Sig.  |
| Regression | 201.943 | 4  | 50.486      | 5.079 | .004* |
| Residual   | 228.615 | 23 | 9.940       |       |       |
| Total      | 430.558 | 27 |             |       |       |

Dependent Variable: ROE

\* Significant at 0.01 level

Table 4.5a. Model Summary

| R    | R Square | Adjusted R Square | Std Error of the Estimate | Durbin-Watson |  |  |  |
|------|----------|-------------------|---------------------------|---------------|--|--|--|
| .578 | .334     | .213              | 0.53631                   | 1.924         |  |  |  |
|      |          |                   |                           |               |  |  |  |

Dependent Variable: ROCE

Table 4.5b. ANOVA

|            | Sum of Squares | df | Mean Square | F     | Sig.   |
|------------|----------------|----|-------------|-------|--------|
| Regression | 3.177          | 4  | .794        | 2.762 | .053** |
| Residual   | 6.328          | 22 | .288        |       |        |
| Total      | 9.505          | 26 |             |       |        |

Dependent Variable: ROCE

\*\*Significant at 0.05 level

## Table 4.6. Coefficient Estimates

|            | Unstandardized |            | Standardized |        |        |
|------------|----------------|------------|--------------|--------|--------|
|            | Coefficients   |            | Coefficients |        |        |
|            | В              | Std. Error | Beta         | t      | Sig.   |
| (Constant) | 600            | 3.393      |              | 177    | .861   |
| BDSIZE     | .992           | .241       | .674         | 4.111  | .000*  |
| BCOMP      | 203            | 2.816      | 014          | 072    | .943   |
| BOSHIP     | -4.097         | 2.075      | 398          | -1.975 | .060** |
| CEODUALITY | -5.197         | 1.910      | 464          | -2.721 | .012*  |

Dependent Variable: ROE

\*significant at 0.01% level

\*\* significant at 0.10% level

Table 4.7. Coefficient Estimates

|            | Unstandardized |            | Standardized |        |            |
|------------|----------------|------------|--------------|--------|------------|
|            | Coef           | ficients   | Coefficients | t      | Sig.       |
|            | В              | Std. Error | Beta         | В      | Std. Error |
| (Constant) | -1.187         | .582       |              | -2.041 | .053       |
| BDSIZE     | .027           | .041       | .123         | .658   | .518       |
| BCOMP      | .276           | .482       | .127         | .571   | .574       |
| BOSHIP     | .297           | .357       | .194         | .834   | .414       |
| CEODUALITY | .930           | .326       | .557         | 2.849  | .009*      |

Dependent Variable: ROCE

\*significant at 0.05 level

| S/N | Name of Firms                      | Sector                    |
|-----|------------------------------------|---------------------------|
| 1.  | TRANS-NATIONWIDE EXPRESS           | COMMUNICATION/ SERVICES   |
| 2.  | NIG. AVIATION HANDLING COY (NAHCO) | AIRLINE SERVICE           |
| 3.  | NAMPAK                             | PACKAGING INDUSTRY        |
| 4.  | STUDIO PRESS NIG                   | PACKAGING INDUSTRY        |
| 5.  | AVON CROWNCAPS & CONTAINERS        | PACKAGING INDUSTRY        |
| 6.  | UNIVERSITY PRESS                   | PRINTING & PUBLISHING     |
| 7.  | LONGMAN                            | PRINTING & PUBLISHING     |
| 8.  | AFRICAN PETROLEUM PLC              | PETROLEUM (MARKETING)     |
| 9.  | OANDO                              | PETROLEUM (MARKETING)     |
| 10. | ACORN PETROLEUM                    | PETROLEUM (MARKETING)     |
| 11. | MORISON INDUSTRIES PLC             | HEALTH CARE               |
| 12. | GLAXOSMITHKLINE                    | HEALTH CARE               |
| 13. | MORISON INDUSTRIES PLC             | HEALTH CARE               |
| 14. | HALLMARK                           | PAPER INDUSTRY            |
| 15  | THOMAS WYATT                       | PAPER INDUSTRY            |
| 16. | CAPITAL HOTELS                     | HOTEL & TOURISM           |
| 17. | PZ CUSSONS                         | CONGLOMERATE              |
| 18. | UNILEVER                           | CONGLOMERATE              |
| 19. | REGENCY ALLIANCE                   | INSURANCE                 |
| 20. | AIICO INSURANCE                    | INSURANCE                 |
| 21. | SOVEREIGN TRUST INSURANCE          | INSURANCE                 |
| 22. | INTERLINKED TECHNOLOGIES           | ENGINEERING TECHNOLOGY    |
| 23. | DUNLOP NIG PLC                     | AUTOMOBILE & TYRES        |
| 24. | DUMEZ NIG LTD                      | CONSTRUCTION              |
| 25. | COSTAIN (WA) PLC                   | CONSTRUCTION              |
| 26. | DANGOTE FLOUR MILLS                | FOOD / BEVERAGE & TOBACCO |
| 27. | ASHAKA CEMENT PLC                  | BUILDING MATERIALS        |
| 28. | LIVESTOCK FEEDS PLC                | AGRICULTURE               |
| 29. | GUINNESS NIG PLC                   | BREWERIES                 |
| 30. | PREMIER PAINTS                     | CHEMICAL PAINTS           |

# List of Nigerian Firms used in the Study