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Board leadership structure and earnings quality

Evidence from quoted manufacturing firms in Nigeria

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Abstract

Purpose – One main concern and issue affecting earnings quality is the extent to which managers manipulate earnings to mislead stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers. This study builds on prior research and examines empirically the relationship between board leadership structure and earnings quality of manufacturing firms in Nigeria. The purpose of this paper is to specifically focus on four board structure characteristics: board size, composition, proportion of non-executive directors and CEO duality.
Design/methodology/approach – Data used for this investigation were collected from secondary sources, i.e. annual reports and accounts. The study used the Pooled OLS regression model to examine the effect of the board structure on earnings management for a sample of 45 non-financial listed Nigerian companies (conglomerates, consumer goods and industrial goods firms) for the years 2011 to 2016.
Findings – Based on the analysis, board size and board composition were positive and significant. However, proportion of non-executive directors was negative and significant; while, CEO duality was positive and statistically significant. It was consequently recommended that audit firms should review their audit business model and become more circumspect of their client, e.g. provide fraud assessment and checks for earnings quality. Boards should not just reflect size but rather the skills and expertise of individuals appointed to the board. Furtherance to this, the effectiveness of boards can be improved by committees and sub-committees allocation of duties.
Originality/value – Few studies have addressed this area in the country.

Keywords Structure, Board, Earnings quality

Paper type Research paper

1. Background to the study

Sun and Rath (2008) posit that the primary role of financial statements is to disclose a company's financial information to internal and external users in a timely and reliable manner. This was further reiterated by the International Accounting Standard Board (2001) that the objective of a financial report is to provide information about the financial position, performance and change in financial position of an entity that is useful to a wide range of users in making economic decisions. In the preparation of financial reports, managers are free to select accounting and reporting methods (Algharaballi, 2013). This, as in most cases, leads to the selection of reporting methods that could be misleading to the users of such information. This arises from the agency relationship; when shareholders (principals) delegate authority to managers (agents) as the decision makers of the corporations (Ruangviset *et al.*, 2014). Managers (agents) are led to self-seeking behavior, and thereby present the most successful image to the market, by exploiting insufficiencies of accounting rules (Sayari *et al.*, 2013).

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Financial reporting system is designed to provide value-relevant financial information for all users (AL-Dhamari and Ismail, 2014), and a sound system of corporate governance is expected to curb the managerial use of opportunistic earnings management activities (Hashim and Devi, 2007). Earnings management may take "the form of creative accounting such as recording anticipated sales as turnover for the present year, or the reduction in the cost of research and development" (Obigbemi *et al.*, 2016).

It may also involve the use of discretionary accruals, the accumulation of accrued expenses in the bid to give a different picture of the financial well-being of the company (Obigbemi *et al.*, 2016). Evidence of such misdeeds was highlighted by reporting scandals that have rocked both the financial and non-financial sectors. Such erosions in earnings quality caused investors to be less confident in the integrity of accounting numbers and thereby unable to make informed investment decisions (AL-Dhamari and Ismail, 2014). Therefore, the literature is filled with issues bothering corporate boards as the main focal point of the corporate governance discuss. Discussions on boards size, proportion of NEDs, CEO duality, women representation, among several others have emerged (Adams *et al.*, 2010; Anderson *et al.*, 2004).

According to Jensen (1993), the board is responsible for decision making and the operation of a company. Boards define the rules for the chief executive officer (CEO/executive director) regarding hiring, firing and compensation plans, and provide high-level advice (Holtz and Sarlo Neto, 2014). According to Vafeas (2000), boards are responsible for monitoring the quality of information contained in financial reports and controlling the behavior of managers to ensure that their actions are aligned with the interests of stakeholders. The ability of managers to effectively monitor the quality of such information is constrained by the structure of the board and effectiveness of internal controls (Alves, 2012). This was succinctly put by Obigbemi *et al.* (2016) that "the board structure of an organization gives an overview of the standard of such organization, which also influences its public image." In general, boards are responsible for monitoring, evaluating and disciplining the management of a company (Anderson *et al.*, 2004). The present study therefore evaluates the how board leadership structure of Nigerian manufacturing firms is related to earnings quality of such firms.

2. Statement of the problem

Studies have investigated and documented the effect of board leadership structure on accounting information quality (Yasser and Mamun, 2016; Holtz and Sarlo Neto, 2014; Alkdai and Hanefah, 2012; Alves, 2012; Dimitropoulos and Asteriou, 2010; Habib and Azim, 2008; Firth *et al.*, 2007; Ahmed *et al.*, 2006; Vafeas, 2000). The studies however, present mixed findings on the relationship between both. While some document a positive association, others show a negative association. Yasser and Mamun (2016), in the context of Asia-Pacific countries, reveal that board leadership structure was not associated with firm performance and financial reporting quality. Holtz and Sarlo Neto (2014) show that for companies listed on the Brazilian Securities, Commodities and Futures Exchange, the characteristics of board independence and separation of the roles of chairman and executive director positively influence the quality of reported accounting information. AL-Dhamari and Ismail (2014), on a sample of firms in Malaysia, find that the quality of earnings is higher among firms with independent chairmen than firms with non-independent chairmen. They also found inconclusive results for board independence, and that investors do not perceive board size as a good indicator of quality earnings.

Chaharsoughi and Rahman (2013), on a sample of firms listed on the Tehran Stock Exchange (TSE), show that there was an insignificant positive relationship among independent boards of directors, managerial ownership and earnings quality. Subsequent analysis shows an insignificant negative relationship between board size and earnings quality.

However, the literature is scanty on this area of research in Nigeria. Osemene (2012) observed that majority of Nigerian firms are driven by the need to make more and more profits to the detriment of other stakeholders. As such, managers may engage in engage in

earnings manipulation to meet or beat analysts forecast. Few studies by Isa and Farouk (2018) and Madugba and Ogbonnaya (2017) focused on money deposit banks, while the study by Eze (2017) focused on six food product firms. Another extensive study was conducted by Obigbemi *et al.* (2016) on a sample of 137 quoted firms from the period 2003–2010. This was period before the mandatory adoption of International Financial Reporting Standards in the country.

Despite the adoption of several corporate governance codes in Nigeria, such as the Companies and Allied Matters Act (1990) as amended, Financial Reporting Council of Nigeria Act (2011), Bank and other Financial Institution Act (for financial institutions), among others, that serve as guidelines for the preparation of financial reports (Obigbemi *et al.*, 2016). The country has witnessed its fair share of corporate collapses; the study therefore addresses the link between board leadership structure and earnings quality of manufacturing firms in Nigeria.

3. Objectives of the study

Based on the above research problem, the main objective of this study is to determine the relationship between board leadership and earnings quality of quoted manufacturing firms in Nigeria. The specific objectives of the study are as follows:

(1) to determine the relationship between board size and earnings quality of manufacturing firms;

(2) to determine the relationship between board composition and earnings quality of manufacturing firms;

(3) to determine the relationship between board independence and earnings quality of manufacturing firms; and

(4) to investigate the relationship between ceo duality and earnings quality of manufacturing firms.

4. Conceptual framework

4.1 Board leadership structure

According to the Association of Chartered Certified Accountants, the most prominent group of actors in corporate governance are the company's directors, who can be either executive or non-executive directors (NEDs). Board characteristics, such as the distinction between the CEO and the chairman, and the percentage of non-executive (outside directors) in the board can be seen as among the internal mechanisms of corporate governance (Mousa *et al.*, 2012). According to Kumar and Singh (2010), the primary role of the board of directors is that of trusteeship to protect and enhance shareholders' value through strategic supervision. As trustees, they will ensure that the company has clear goals relating to shareholders' value and its growth. The provide direction, and exercise appropriate control to ensure that the company is managed in a manner that fulfils stakeholders' aspirations and societal expectations.

As one of the mechanisms, the board of directors is expected to monitor and control the behavior of managers to ensure they act on the behalf of shareholders and protect shareholders' investment (Hendry and Kiel, 2004). In addition, the board is accountable to endorse the strategy of the firm; develop directional policy; appoint, supervise and remunerate senior executives; and ensure accountability of the firm to its related parties (Ponnu, 2008). Several board characteristics (e.g. board size, board composition, role duality) have been examined in the literature (Yermack, 1996; John and Senbet, 1998; Pye, 2000; Kiel and Nicholson, 2003).

4.2 Board size

Empirical research has documented that board size may inform the level of disclosure and transparency in corporation (Majeed *et al.*, 2015). Smaller boards are easier to coordinate; quicker in making decisions; less likely to have free-rider problems; and less likely to oppose innovation (Dimitropoulos and Asteriou, 2010). Smaller boards also facilitate the influential exchange of ideas between the firm and its directors and are less likely to exacerbate the coalition costs among board members (Vafeas, 2000). Board efficiency involves the issue of increases in coalition costs between members and the fact that boards with more members have greater difficulty finding time to discuss and reach consensus on issues pertaining to the company's organizational structure (Firth *et al.*, 2007). Lipton and Lorsch (1992) suggest that one reason for the lack of meaningful dialogue on boards is their size. According to the authors, when a board has more than ten members, it becomes difficult for everyone to express their opinions and ideas in the limited time available for meetings.

According to Ahmed and Duellman (2007), larger boards can face the problem of "free riding" in the sense that the members of the board depend on each other to monitor management. Jensen (1993) believes that as the number of directors' increases, the board's efficiency decreases and internal conflicts can arise.

4.3. Board composition

The perspective that board monitoring is a function of not only the composition of the board as a whole, but also of the structure and composition of the board's subcommittees is a relatively recent one. Kesner (1988) posits that most crucial board decisions are made at the committee level. Corollary to this, Vance (1983) identified four committees that are vital to corporate decision-making: audit, executive, compensation, nomination committee.

Klein (1998) finds no association between board composition and firm performance; however, the structure of accounting and finance committees impact performance. Similarly, Davidson *et al.* (1998) find that the composition of a firm's compensation committee influences the market's perception of golden parachute adoption. One deduces from these studies that outside directors may be more important in committees that handle agency issues (e.g. compensation and audit committees), while insiders may best use their knowledge of corporate activities on committees that focus on firm-specific issues (e.g. investment and finance committees) (Chen and Wu, 2016).

4.4 Board independence

Board independence refers to the extent to which a board is comprised of non-executive directors who have no relationship with the firm beyond the role of director (Davidson *et al.*, 2005). A non-executive director is defined as a director who is not employed in the company's business activities and whose role is to provide an outsider's contribution and oversight to the board of directors (Hanrahan *et al.*, 2001). A non-executive director who is entirely independent from management is expected to offer shareholders the greatest protection in monitoring management (Baysinger and Butler, 1985). Fama and Jensen (1983) posit that the superior monitoring ability of non-executives can be attributed to the incentive to maintain their reputations in the external labor market.

Booth *et al.* (2002) identify two measures of independence on the board: the percentage of outside directors on the board and whether the CEO also serves as the board chairperson. Furthermore, appointing outside directors to the board appears to be an effective corporate governance mechanism to reduce the agency problem and increase earnings quality (Klein, 2002; Peasnell *et al.*, 2000).

Studies by Beekes *et al.* (2004), Firth *et al.* (2007), Ahmed and Duellman (2007), Dimitropoulos and Asteriou (2010), Marra *et al.* (2011) and Abdoli and Royaee (2012) find that firms with greater board independence are associated with higher quality accounting information.

4.5 CEO duality

Literature on corporate governance has argued that the separation between CEO and chairperson positions can improve the efficiency and effectiveness of internal control systems in companies; consequently, corporate value will be affected. When the chairman of the board of directors also takes the role of the CEO, the effectiveness of the board to monitor top management is decreased (Firth *et al.*, 2007). The occupation of the roles of chairman and executive director by the same person can reduce the independence of the board as well as its ability to control managers effectively (Holtz and Sarlo Neto, 2014). One effect could be a decreased dissemination of timely and relevant information to external stakeholders (Gul and Leung, 2004). Segregation of the two roles provides the needed checks and balances of power and authority on management behavior (Chapra and Ahmed, 2002).

However, research findings are mixed. Huafang and Jianguo (2007) and Saleh Al Arussi *et al.* (2009) found a significant negative association between duality and disclosure. On the other hand, Li *et al.* (2008) and Said *et al.* (2009) found an insignificant relationship between duality and disclosure. Previous evidence also identifies several firms with the combined role of CEO and chairman of the boards, yet were very effective, and the capability to keep the top management in check (Haniffa and Cooke, 2002).

4.6 Earnings quality

According to Omoye and Eriki (2014), earnings management is recognized as attempts by management to influence or manipulate reported earnings by using specific accounting methods or accelerating expense or revenue transactions, or using other methods designed to influence short-term earnings. Relevance and reliability are viewed as two principle qualitative characteristics of earnings numbers. In order to be relevant, among other things, current earnings numbers must be persistent and have predictive values. As for the reliability, earnings information must be representationally faithful and free from errors and bias. Earnings persistence, predictability and informativeness are used to represent earnings quality in this study because the features are important characteristics of relevant and reliable earnings information (AL-Dhamari and Ismail, 2014).

Earnings information should be relevant in helping investors make correct asset pricing and investment decisions (Yuan and Jiang, 2008). However, earnings quality is qualitative in nature and several proxies must be used to measure it. Persistence and predictability are viewed as two important characteristics of earnings numbers that help investors in predicting future earnings and cash flows. Earnings are said to be of high quality when they are persistent. It is argued that the importance of predictive nature of accounting earnings is manifested when taking into consideration, for instance, the use of accounting earnings when evaluating the equity of firms (Velury and Jenkins, 2006). At the other end of the spectrum, earnings informativeness refers to the ability of earnings to influence the expectations of investors with respect to the quality of earnings figures, as reflected in changes in share price (Kormendi and Lipe, 1987).

Healy and Wahlen (1999) defined earnings management as follows:

> Earnings management occurs when managers use judgment in the financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers.

According to Algharaballi (2013), these definitions represent two common views of company management. The first view holds that management needs to exercise judgment in business operations and financial reporting since GAAP clearly requires management to make wise estimates and judgments. The second view is known as that of opportunistic

earnings management, i.e. managers base their judgments and decisions on whether they will result in personal private gain.

Scott (2003) defines earnings management as follows: "Given that managers can choose from a set of accounting policies (for example, GAAP), it is natural to expect that they will choose policies so as to maximize their own utility and/or the market value of the firm." Also, Belkaoui (2006) defines earnings management as the ability to "manipulate" the options available and make the right choices in order to achieve the expected level of profit.

5. Theoretical framework

5.1 Agency theory

According to Li (2014), the agency theory is highly relevant to the understanding of corporate governance in modern corporations. Jensen and Meckling (1976) define agency relationship in terms of a "contract under which one or more persons the principal(s) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent." The agency theory paradigm was first formulated by Ross (1973) in the 1970s. The term was first associated with agency costs by Jensen and Meckling in 1976 (Ross, 1973; Jensen and Meckling, 1976; Shapiro, 2005). Rooted in information economics (Turnbull, 1997), the agency theory addresses the problem that occurs when goals of cooperating parties differ (Ross, 1973; Jensen and Meckling, 1976). "Agency conflict is exacerbated by the problem of information asymmetry" (Lopes, 2008, p. 182).

The agency theory tries to resolve two problems that usually occur when one party (the principal) delegates work to another (agent). The first is the conflict of goals between the principal and agent and the costs associated with the minimization of such discrepancy; and, second is the problem of sharing risk when the risk preference of the principal and agent differs (Eisenhardt, 1989). According to Davis *et al.* (1997), the agency theory provides "a useful way of explaining relationships where the parties' interests are at odds and can be brought more into alignment through proper monitoring and a well-planned compensation system."

Eisenhardt (1989) outlined two streams of the theory which developed over time: the principal–agent, where both act in concert, and the positivist perspective, where they are likely to have conflicting goals. She further explained that the agency problem arises when "(a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing." The agency theory rests on a number of assumptions, including human assumptions of self-interest, bounded rationality and risk aversion; organizational assumptions, of partial goal conflict among participants, efficiency as the effectiveness criterion and information asymmetry between principal and agent; and information assumptions, on information as a valuable commodity.

The information asymmetry problem embedded in the principal–agency relationship may result in moral hazard and adverse selection and precludes cooperative parties from the benefits of sharing risks (Li, 2014). Daily *et al.* (2003) point to two factors that influence the prominence of the agency theory. First, the theory is a conceptually simple one that reduces the corporation to two participants, managers and shareholders. Second, the notion of human beings as self-interested is a generally accepted idea. The agency theory may be applied to any contractual relationships in which the principal and agent have partly differing goals and risk preferences, for example, compensation, regulation, leadership, impression management, whistle-blowing, vertical integration, merge and acquisition, and transfer pricing (Eisenhardt, 1989). Managers can play an important role in improving the value of a firm. They can reduce the agency cost in a firm by decreasing the information asymmetry, which results in improving the value of a firm (Monks and Minow, 2001).

The agency theory serves as the underlying rationale for corporate law as well as principles and regulations of corporate governance (Li, 2014). The agency theory argues

that corporate governance mainly deals with three types of conflicts between: shareholders and managers; controlling shareholders and minority shareholders; and shareholders and non-shareholding stakeholders (Davies, 2000, cited in Li, 2014). Hart (1995) believes that the subject of corporate governance arises when two conditions are combined. First, there is an agency problem, or conflict of interest involving members of the organization. Second, transaction costs are such that this agency problem cannot be dealt with through a contract. Financial markets capture these agency costs as a value loss to shareholder (McColgan, 2001; Ruangviset *et al.*, 2014).

5.2 Empirical review

Eze (2017) investigated the relationship between corporate governance mechanisms and earnings management in Nigeria. The sample comprised six firms in the food product sector. The study used secondary data from 2003 to 2014. He employed panel data regression to test the hypotheses. The study found that board meeting and board gender had a negative insignificant relationship, while institutional ownership had significant negative effect. Audit committee meeting was positive and significant at 10 percent.

Obigbemi *et al.* (2016) explored the relationship between board structure and earnings management in Nigeria. The sample comprised one thirty seven quoted firms from the period 2003–2010. They measured earnings management using the performance matched modified Jones model. Ordinary least squares (OLS) regression technique was used to analyze the data. The results revealed that there is a negative significant relationship between board size, gender and board composition; however, board meeting is positive and significant. The presence of a remuneration committee and CEO duality was positive but not significant.

Abdulmalik *et al.* (2015) examined the relationship between board monitoring, training and financial reporting quality in Malaysia. The sample comprised top 100 Malaysian firms as identified by the Malaysian Shareholder Watchdog Group from the period 2010–2011. They used feasible GLS (FGLS) regression method to test the hypotheses. The result revealed that the proportion of grey directors is positively and significantly related to both accrual and real earnings management, while the proportion of independent directors is negative and insignificant. Training and outsourcing of internal audit function negatively and significantly affected accrual and real earnings management.

Holtz and Sarlo Neto (2014) investigated the effect of board structure on the quality of accounting information in Brazil. The sample comprised non-financial companies listed on the BM&FBovespa with annual stock market liquidity higher than 0.001, from the period 2008–2011. They used multiple regression technique for analyzing the data. Accounting information relevance and earnings informativeness were used as proxies for the quality of accounting information. The results revealed that board independence and separation of the roles of chairman and executive director had a positive influence on accounting information relevance. Earnings informativeness is positively affected by board independence but negatively affected by larger board size (more than nine members).

Yasser and Mamun (2016) explored the relationship between board-leadership structure and earning management in Asia-Pacific countries. They used panel data from 330 firm years from Australia, Malaysia, Philippines and Pakistan from the period 2011–2013. The results revealed that board leadership structure has no effect on firm performance and financial reporting quality. However, female CEOs had a negative impact on firm performance in Malaysia, the Philippines and Pakistan.

AL-Dhamari and Ismail (2014) investigated the relationship between board characteristics and earnings quality in Malaysia. They used heteroskedasticity-corrected least square regressions on a sample of firms from 2008 to 2009. The study results

showed that earnings quality was higher for firms with independent chairmen than firms with non-independent chairmen. However, they reported inconclusive results for board independence. The also concluded that investors do not perceive board size as a good indicator of quality earnings.

Chaharsoughi and Rahman (2013) examined the relationship between independent directors, board size, managerial share ownership and earnings quality. The sample comprised one hundred and fourteen firms listed on the TSE from 2008 to 2010. They found that there was an insignificant positive relationship between independent directors, managerial ownership and earnings quality. Board size was negative and insignificant.

Prior studies conducted in the USA also document mixed evidence on diverse corporate governance attributes. For instance, Klein (2002) examined the relationship between earnings management, board and audit committee independence on a sample of six hundred and seven, publicly traded firms. The results showed that earnings management were less pronounced in firms with audit committees comprising majority of independent directors. She also documented a negative association between abnormal accruals and proportion of independent directors.

The study by Beasley (1996) on a sample of 150 publicly traded sub-divided into 75 fraud and 75 non-fraud firms from the period 1980–1991. He employed a logit cross-sectional regression model and the results showed that the proportion of outside directors is higher for non-fraud firms and lower for fraud firms. Also, as the board size increases the likelihood of financial statement fraud increases.

Using evidence from the UK, Peasnell *et al.* (2000) compared pre-managed earnings with earnings thresholds (either zero earnings or last year's reported earnings). The results showed that firms with higher proportion of outside directors have less income-increasing accruals when earnings fall below the threshold. However, when earnings exceed the threshold, there is strong evidence of income-decreasing accruals. They concluded that outside directors were more concerned with constraining income-increasing accruals.

6. Methodology

6.1 Research design

The study adopts an *ex post* facto research design. An *ex post* facto design seeks to reveal possible relationships by observing an existing condition or state of affairs and searching back in time for plausible contributing factors (Kerlinger and Rint, 1986); in such cases, the researcher does not have direct control of independent variables because their manifestations have already occurred and are inherently not manipulated.

6.2 Population of the study

The population of the study is made up of all quoted manufacturing companies on the Nigerian Stock Exchange as at January 1, 2017. The companies are classified under eleven sectors, as follows: agriculture; construction/real estate; consumer goods; financial services; healthcare; industrial goods; information & communications technology; natural resources; oil & gas; services; utilities; and conglomerates. The population consisted of 173 firms under the 11 sectors.

6.3 Sample for the study

Sampling is the process of selecting a subset of the target population to be its true representative on the study (Mugenda and Mugenda, 2009). The study used the purposive sampling technique and selected the 45 firms in the conglomerates, consumer goods and industrial goods sector. The companies included in the sample are shown in Table I.

1. A.G. Leventis Nigeria Plc	Conglomerates
2. Chellarams Plc	Conglomerates
3. John Holt Plc	Conglomerates
4. SCOA Nigeria Plc	Conglomerates
5. Transnational Corporation Plc	Conglomerates
6. UACN Plc	Conglomerates
7. DN Tyre & Rubber Plc	Consumer goods
8. Champion Breweries Plc	Consumer goods
9. Golden Guinea Breweries Plc	Consumer goods
10. Guinness Nigeria Plc	Consumer goods
11. International Breweries Plc	Consumer goods
12. Nigerian Breweries Plc	Consumer goods
13. 7-Up Bottling Company Plc	Consumer goods
14. Dangote Flour Mills Plc	Consumer goods
15. Dangote Sugar Refinery Plc	Consumer goods
16. Flour Mills Nigeria Plc	Consumer goods
17. Honeywell Flour Mill Plc	Consumer goods
18. Multi-Trex Integrated Plc	Consumer goods
19. N. Nigeria Flour Mills Plc	Consumer goods
20. Union Dicon Salt Plc	Consumer goods
21. Cadbury Nigeria Plc	Consumer goods
22. Nestle Nigeria Plc	Consumer goods
23. Nigerian Enamelware Plc	Consumer goods
24. Vitafoam Nigeria Plc	Consumer goods
25. P.Z. Cussons Nigeria Plc	Consumer goods
26. Unilever Nigeria Plc	Consumer goods
27. Mcnichols Plc	Consumer goods
28. NASCO Allied Industries Plc	Consumer goods
29. African Paints (Nigeria) Plc	Industrial goods
30. Ashaka Cem Plc	Industrial goods
31. Austin Laz & Company Plc	Industrial goods
32. Avon Crowncaps & Containers	Industrial goods
33. Berger Paints Plc	Industrial goods
34. Beta Glass Plc	Industrial goods
35. CAP Plc	Industrial goods
36. Cement Co. of North.Nig. Plc	Industrial goods
37. Cutix Plc	Industrial goods
38. Dangote Cement Plc	Industrial goods
39. First Aluminium Nigeria Plc	Industrial goods
40. Greif Nigeria Plc	Industrial goods
41. Lafarge Africa Plc	Industrial goods
42. Meyer Plc	Industrial goods
43. Paints and Coatings Manufactures Plc	Industrial goods
44. Portland Paints & Products Nigeria Plc	Industrial goods
45. Premier Paints Plc	Industrial goods

Source: Nigerian Stock Exchange (2017)

Table I.
Firms included in the sample for the study

6.4 Sources of data

The data for the study were from secondary sources. The secondary data were extracted from the annual reports of the selected manufacturing companies.

6.5 Reliability of data

There are significant reasons for considering annual reports as a source of data. First, an annual report is considered as a source for most of the information of a firm (Botosan, 1997) because significant issues and concerns of a firm are expressed comprehensively through

the annual report (Khan *et al.*, 2009; Abeysekera and Guthrie, 2005). According to Part X1, Chapter 1 of the Companies and Allied Matters Act (1990), companies are required to produce accounts that give true and fair view of the company. Second, annual reports are easily accessible source of information (Unerman, 2000).

6.6 Methods of data analysis

The study made use of multiple regression technique in testing the formulated hypotheses. Hair *et al.* (2006) defined multiple regression technique "as a statistical technique which analyses the relationship between a dependent variable and multiple independent variables by estimating coefficients for the equation on a straight line."

Model specification:

$$EQ_{(i,t)} = \alpha + BS_{(i,t)} + CFO_{(i,t)} + FS_{(i,t)} + \mu, \quad (1)$$

$$EQ_{(i,t)} = \alpha + BC_{(i,t)} + CFO_{(i,t)} + FS_{(i,t)} + \mu, \quad (2)$$

$$EQ_{(i,t)} = \alpha + PNED_{(i,t)} + CFO_{(i,t)} + FS_{(i,t)} + \mu, \quad (3)$$

$$EQ_{(i,t)} = \alpha + CEOD_{(i,t)} + CFO_{(i,t)} + FS_{(i,t)} + \mu, \quad (4)$$

where EQ = earnings quality, BS = board size, BC = board composition, PNED = population of non-executive directors, CEOD = CEO-duality, α = constant, μ = error term, technically known as the stochastic disturbance or stochastic error term.

Description of variables for the study:

(1) Board size (BS): this is measured as the total number of directors sitting on the board as at the financial year end.

(2) Board composition (BC): this is measured as the number of sub-committees existing within the board as at the financial year end.

(3) Board independence (BI): this is measured as the number of non-executive directors sitting on the board as at the financial year end; a logarithmic transformation of the figures was also done.

(4) CEO duality (CD): CEO duality occurs when the CEO also holds the position of the Chairman of Board at the same time.

(5) Firm size (FS): firm size was proxied using total assets as at financial year end, a logarithmic transformation of the figures was done. Bachetti (2013) observed that statistical models are sometimes more meaningful and accurate if outcome or predictor variables are transformed, and a common choice for transforming variables is to apply logarithmic transformation. This may be appropriate when the variable only takes on positive values, and results are easier to interpret than with most other types of transformations.

(6) Cash flows from operations (CFO): this is measured as the amount of net cash flows generated from operations as at the financial year end.

7. Data analysis

7.1 Descriptive statistics

Financial information of the selected manufacturing firms over a six-year period from 2011 to 2016 was obtained (subject to its availability); this gave rise to a panel data set of observations.

The Statistical Package for Social Sciences was used for the analysis. The information derived can be seen in Appendix 1. Table II shows the descriptive statistic of the data.

The descriptive statistic showed that at minimum, the studied firms had two committees and at maximum six committees.

7.2 Test of hypotheses

H1. There is a positive relationship between board size and earnings quality of selected manufacturing firms.

Pooled OLS results showing the relationship between EQ and BS, CFO, FS for the studied manufacturing firms in Nigeria are shown in Tables III–V.

The result of the multiple regression analysis for *H1* is summarized in Tables III–V. Table III shows the coefficient of determination (R^2) otherwise known as R^2 which is the percentage of response variable variation that is explained by a linear model. The Adjusted R^2 value of 0.108 clearly indicates that the model explains approximately 11 percent variation in the dependent variable. The *F*-statistic (shown in Table IV) which is used to check the statistical significance of the model showed a value of 10.317; p-value < 0.05; therefore, the hypothesis that all the regression coefficients are zero is rejected. Table V shows the *t*-statistic of our variable of interest (BS) is 2.558 ($p < 0.05$), confirming that BS has a positive and statistically significant relationship with EQ; thus, the alternate

Table II.
Descriptive statistics of panel data

	n	Minimum	Maximum	Mean	SD
CFO	233	−10,536,074,000	10,561,326,040	34,529,393,253	93,842,772,813
Net income	229	−7,217,001,000	196,678,391,000	8,021,768,603	23,466,240,757
Total asset	232	−42,217,000	21,043,605,390	99,365,227,091	247,938,024,866
Board size	234	4.0	17.0	9.013	2.4133
Non-executive directors	234	0.0	11.0	4.692	2.8359
Board structure	234	2.0	6.0	3.278	0.9999
CEO duality	234	0.0	1.0	0.795	0.4047
Valid *n* (listwise)	226				

Source: SPSS Ver. 23

Table III.
Model summary for *H1*

Model	*R*	R^2	Adjusted R^2	SE of the estimate
1	0.345[a]	0.119	0.108	3.624957

Note: [a]Predictors: (Constant), BS, CFO, FMS
Source: SPSS Ver. 23

Table IV.
ANOVA output for *H1*

Model		Sum of squares	df	Mean square	*F*	Sig.
1	Regression	406.701	3	135.567	10.317	0.000[b]
	Residual	3,009.132	229	13.140		
	Total	3,415.834	232			

Notes: [a]Dependent variable: earnings quality; [b]predictors: (Constant), BS, CFO, FMS
Source: SPSS Ver. 23

hypothesis is accepted and null rejected. On the other hand, the control variables of firm size and cash flow from operations in the same table also show that FS is negative but not significant, while CFO is negative and significant. We propose the following hypothesis:

H2. There is a positive relationship between board composition and earnings quality of selected manufacturing firms.

Pooled OLS results showing the relationship between EQ and BC, CFO, FS for the studied manufacturing firms in Nigeria are shown in Tables VI–VIII.

The result of the multiple regression analysis for *H2* is summarized in Tables VI–VIII. Table VI shows the coefficient of determination (R^2) otherwise known as R^2 which is the percentage of response variable variation that is explained by a linear model. The Adjusted R^2 value of 0.099 clearly indicates that the model explains approximately 9.9 percent variation in

Model		Unstandardized coefficients *B*	SE	Standardized coefficients *β*	*T*	Sig.
1	(Constant)	−5.446	1.999		−2.725	0.007
	CFO	−1.362	0.000	−0.333	−5.287	0.000***
	FMS	−0.003	0.067	−0.003	−0.048	0.962
	BS	5.537	2.165	0.165	2.558	0.011**

Notes: [a]Dependent variable: earnings quality. **$p < 0.05$; ***$p < 0.01$
Source: SPSS Ver. 23

Table V. Model coefficients for Equation (1)

Model	*R*	R^2	Adjusted R^2	SE of the estimate
1	0.332[a]	0.110	0.099	3.643225

Note: [a]Predictors: (Constant), BC, CFO, FMS
Source: SPSS Ver. 23

Table VI. Model summary for *H2*

Model		Sum of squares	df	Mean square	*F*	Sig.
1	Regression	376.296	3	125.432	9.450	0.000[b]
	Residual	3,039.538	229	13.273		
	Total	3,415.834	232			

Notes: [a]Dependent variable: earnings quality; [b]predictors: (Constant), BC, CFO, FMS
Source: SPSS Ver. 23

Table VII. ANOVA output for *H2*

Model		Unstandardized coefficients *B*	SE	Standardized coefficients *β*	*T*	Sig.
1	(Constant)	−2.340	1.065		−2.197	0.029
	CFO	−1.303E-11	0.000	−0.319	−5.079	0.000***
	FMS	0.017	0.066	0.016	0.255	0.799
	BC	3.822	1.868	0.129	2.046	0.042**

Note: [a]Dependent variable: earnings quality. **$p < 0.05$; ***$p < 0.01$
Source: SPSS Ver. 23

Table VIII. Model coefficients for Equation (2)

the dependent variable. The *F*-statistic (shown in Table VII) which is used to check the statistical significance of the model showed a value of 9.450; *p*-value < 0.05; therefore, the hypothesis that all the regression coefficients are zero is rejected. Table VIII shows the *t*-statistic of our variable of interest (BC) is 2.046 ($p < 0.05$), confirming that BC has a positive and statistically significant relationship with EQ; thus, the alternate hypothesis is accepted and null rejected. On the other hand, the control variables of firm size and cash flow from operations in the same table also show that FS had positive non-significant effect, while CFO is negative and significant. We propose the following equation:

H3. There is a positive relationship between board independence and earnings quality of selected manufacturing firms.

Pooled OLS results showing the relationship between EQ and PNED, CFO, FS for the studied manufacturing firms in Nigeria can be shown in Tables IX–XI.

The result of the multiple regression analysis for *H3* is summarized in Tables IX–XI. Table IX shows the coefficient of determination (R^2), otherwise known as R^2 which is the percentage of response variable variation that is explained by a linear model. The Adjusted R^2 value of 0.115 clearly indicates that the model explains approximately 11.5 percent variation in the dependent variable. The *F*-statistic (shown in Table X) which is used to check the statistical significance of the model showed a value of 11.003; *p*-value < 0.05; therefore, the hypothesis that all the regression coefficients are zero is rejected. Table XI shows the *t*-statistic of our variable of interest (PNED) is -2.900 ($p < 0.05$), confirming that PNED has a negative and statistically significant relationship with EQ; thus, the alternate hypothesis is rejected and null accepted. On the other hand, the control variables of firm size and cash flow from operations in the same table also show that

Table IX.
Model summary for *H3*

Model	*R*	R^2	Adjusted R^2	SE of the estimate
1	0.355[a]	0.126	0.115	3.610681

Note: [a]Predictors: (Constant), PNED, CFO, FMS
Source: SPSS Ver. 23

Table X.
ANOVA output for *H3*

Model		Sum of squares	df	Mean square	*F*	Sig.
1	Regression	430.357	3	143.452	11.003	0.000[b]
	Residual	2,985.476	229	13.037		
	Total	3,415.834	232			

Notes: [a]Dependent variable: earnings quality; [b]predictors: (Constant), PNED, CFO, FMS
Source: SPSS Ver. 23

Table XI.
Model coefficients for Equation (3)

Model		Unstandardized coefficients		Standardized coefficients		
		B	SE	*β*	*T*	Sig.
1	(Constant)	−1.391	0.693		−2.007	0.046
	CFO	−1.275	0.000	−0.312	−5.031	0.000***
	FMS	0.024	0.065	0.023	0.366	0.715
	PNED	−4.042	1.394	0.179	−2.900	0.004***

Notes: [a]Dependent variable: earnings quality. **$p < 0.05$; ***$p < 0.01$
Source: SPSS Ver. 23

FS is positive and not significant, while CFO is negative and significant. We propose the following hypothesis:

H4. There is a positive relationship between CEO-duality and earnings quality of selected manufacturing firms.

Pooled OLS results showing the relationship between EQ and CEO Duality, CFO, FS for the studied manufacturing firms in Nigeria are shown in Tables XII–XIV.

The result of the multiple regression analysis for *H4* is summarized in Tables XII–XIV. Table XII shows the coefficient of determination (R^2), otherwise known as R^2 which is the percentage of response variable variation that is explained by a linear model. The Adjusted R^2 value of 0.109 clearly indicates that the model explains approximately 11 percent variation in the dependent variable. The *F*-statistic (shown in Table XIII) which is used to check the statistical significance of the model showed a value of 9.486; p-value < 0.05; therefore, the hypothesis that all the regression coefficients are zero is rejected. Table XIV shows the *t*-statistic of our variable of interest (CEO duality) is 2.070 ($p < 0.05$), confirming that CEO duality had a positive and statistically significant relationship with EQ; thus, the alternate hypothesis is accepted and null rejected. On the other hand, the control variables of firm size and cash flow from operations in the same table also show that FS is negative and not significant, while CFO is negative and significant.

7.3 Discussion of findings

The empirical results revealed a positive and significant effect of board size on earnings quality. Contrary to this, Chaharsoughi and Rahman (2013) in Iran reported a negative

Model	*R*	R^2	Adjusted R^2	SE of the estimate
1	0.342[a]	0.117	0.109	3.532457

Note: [a]Predictors: (Constant), CEO duality, CFO, FMS
Source: SPSS Ver. 23

Table XII. Model summary for *H4*

Model		Sum of squares	df	Mean square	*F*	Sig.
1	Regression	377.578	3	125.859	9.486	0.000[b]
	Residual	3,038.256	229	13.267		
	Total	3,415.834	232			

Notes: [a]Dependent variable: earnings quality; [b]predictors: (Constant), CEO Duality, CFO, FMS
Source: SPSS Ver. 23

Table XIII. ANOVA output for *H4*

Model		Unstandardized coefficients *B*	SE	Standardized coefficients β	*T*	Sig.
1	(Constant)	−1.211	0.707		−1.713	0.088
	CFO	−1.244	0.000	−0.304	−4.866	0.000***
	FMS	−0.014	0.070	−0.013	−0.197	0.844
	CEO duality	1.290	0.623	0.136	2.070	0.040**

Notes: [a]Dependent variable: earnings quality. **$p < 0.05$; ***$p < 0.01$
Source: SPSS Ver. 23

Table XIV. Model coefficients for Equation (4)

insignificant effect of board size. Also, Holtz and Sarlo Neto (2014) in Brazil reported that earnings informativeness is negatively affected by larger board size (more than nine members). However, AL-Dhamari and Ismail (2014) argued that investors do not perceive board size as a good indicator of quality earnings. Beasley (1996) in the USA also found likelihood for financial statement fraud as board size increases.

The second hypothesis revealed a positive and significant effect of board composition on earnings quality. Prior studies have shown that most decisions originate at the committee level (Kesner, 1988). The finding is contrary to the study by Eze (2017) in Nigeria, which found that board meeting had a negative insignificant effect on earnings management. However, Obigbemi *et al.* (2016) revealed that there is a negative significant relationship between board composition and earnings management.

The results revealed that proportion of non-executive directors had a negative and statistically significant effect on earnings quality. This is consistent with the study by Abdulmalik *et al.* (2015) in Malaysia; when they reported a negative and insignificant effect between the proportion of independent directors and earnings management. Klein (2002) in the USA also documented a negative association between abnormal accruals and proportion of independent directors. Contrary to this, Holtz and Sarlo Neto (2014) in Brazil showed that board independence has a positive influence on accounting information relevance. While, Beasley (1996) in the USA showed that the proportion of outside directors is higher for non-fraud firms and lower for fraud firms.

The empirical results showed that CEO duality is positive and statistically significant. Similar to this, the study by Holtz and Sarlo Neto (2014) in Brazil showed that CEO duality had a positive influence on relevance of accounting information. However, AL-Dhamari and Ismail (2014) in Malaysia showed that earnings quality was higher for firms with independent chairmen than firms with non-independent chairmen.

8. Conclusion and recommendations

8.1 Conclusion

The study provides empirical evidence on the relationship between earnings quality and board leadership (i.e. board size, board composition and board independence and population of non-executive directors) for manufacturing companies in Nigeria. The study documents mixed findings on the attributes, while some are in support of prior studies others refute such. The board of directors is considered the main pillar in the internal corporate governance structure, and plays a pivotal role in monitoring and enforcement. The board supervises and monitors the CEO; thus, can prevent or mitigate opportunistic behavior by the CEO. If the board enjoys more independence, it plays the role mentioned above more efficiently. Furthermore, public companies are subject to the scrutiny of more external monitoring and capital market regulations. The study confirms a form of relationship between board leadership structure and earnings quality. Firm size was not significant in all four models, while cash flows from operations was found significant. Scholars have argued that cash flow information may be more reliable as they are not prepared on an accrual basis like the income statement items.

8.2 Recommendations

Based on the findings of this study, the following recommendations are given:

(1) Shareholders should ensure that BOD of manufacturing firms should not just reflect size but rather the skills and expertise of individuals appointed to the board. Furtherance to this, the effectiveness of boards can be improved by committees and sub-committees allocation of duties. Diligently undertaking a task may be much easier at the committee level than a convergence of the entire board members.

(2) The appointment of independent non-executive directors to create more room for board independence is strongly encouraged. Independent boards are more apt at mitigating the CEO from manipulation of earnings, as they are often more conscious of their reputation. Independent directors strengthen the corporate governance structure of a firm and can reduce the agency problem. Therefore, regulators should consider this issue in corporate governance rules and regulations for manufacturing firms. Audit firms should review their audit business model and become more circumspect of their client.

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Appendix 1

Name of company	Year	Board size	Non-executive directors	Board structure	CEO duality
A.G. Leventis	2016	8	5	3	1
	2015	8	5	3	1
	2014	8	2	3	1
	2013	8	5	3	1
	2012	8	5	2	1
	2011	8	4	3	1
Ashaka Cem	2016	14	11	6	1
	2015	13	11	6	1
	2014	14	11	6	1
	2013	13	10	6	1
	2012	12	11	5	1
	2011	12	11	5	1
Beta Glass	2016	9	8	4	1
	2015	9	8	4	1
	2014	9	8	4	1
	2013	9	8	4	1
	2012	9	8	4	1
	2011	9	8	4	1
Cadbury Nigeria Plc	2016	7	5	5	1
	2015	7	5	5	1
	2014	7	5	5	1
	2013	7	5	5	1
	2012	7	5	5	1
	2011	7	5	5	1
CAP plc	2016	6	4	4	1
	2015	6	4	4	1
	2014	6	4	4	1
	2013	6	4	4	1
	2012	6	4	4	1
	2011	6	4	4	1
Chams	2016	8	4	3	1
	2015	8	4	3	1
	2014	8	4	3	1
	2013	7	4	3	1
	2012	7	4	3	1
	2011	7	4	3	1
Chellarams Plc	2016	5	2	3	0
	2015	5	2	3	0
	2014	5	2	3	0
	2013	5	2	3	0
	2012	5	2	3	0
	2011	5	2	3	0
Dangote Cement	2016	9	4	4	1
	2015	9	4	4	1
	2014	9	4	4	1
	2013	9	4	4	1
	2012	9	4	4	1
	2011	9	4	4	1
Dangote Sugar	2016	9	7	3	1
	2015	9	7	3	1

Table AI.
Board leadership data

(*continued*)

Name of company	Year	Board size	Non-executive directors	Board structure	CEO duality
	2014	9	7	3	1
	2013	9	7	3	1
	2012	9	7	3	1
	2011	9	7	3	1
Transcorp	2016	9	7	4	1
	2015	9	7	4	1
	2014	9	7	4	1
	2013	9	7	4	1
	2012	9	7	4	1
	2011	9	7	4	1
Arbico PLC	2016	7	0	4	1
	2015	7	0	4	1
	2014	7	0	3	1
	2013	7	0	3	1
	2012	7	0	3	1
	2011	7	0	3	1
Berger Paints Nig PLC	2016	9	7	2	1
	2015	9	7	2	1
	2014	9	7	2	1
	2013	9	7	2	1
	2012	9	7	2	1
	2011	9	7	2	1
PZ Cussons	2016	12	2	3	1
	2015	12	2	3	1
	2014	12	2	3	1
	2013	12	2	3	1
	2012	12	2	3	1
	2011	12	2	3	1
Champion Breweries	2016	9	0	2	1
	2015	9	0	2	1
	2014	9	0	2	1
	2013	9	0	2	1
	2012	9	0	2	1
	2011	9	0	2	1
Dangote Flour Mills	2016	10	7	3	1
	2015	10	7	3	1
	2014	10	7	3	1
	2013	10	7	3	1
	2012	10	7	3	1
	2011	10	7	3	1
First Aluminium Nig PLC	2016	6	3	2	1
	2015	6	3	2	1
	2014	6	3	2	1
	2013	6	3	2	1
	2012	6	3	2	1
	2011	6	3	2	1
Flour Mills of Nigeria	2016	14	0	4	1
	2015	14	0	4	1
	2014	14	0	4	1
	2013	14	0	4	1
	2012	14	0	4	1
	2011	14	0	4	1
GSK	2016	9	7	6	1
	2015	9	7	6	1

(*continued*)

Table AI.

Name of company	Year	Board size	Non-executive directors	Board structure	CEO duality
	2014	9	7	6	1
	2013	9	7	6	1
	2012	9	7	6	1
	2011	9	7	6	1
Guinness Nigeria PLC	2016	14	8	4	1
	2015	14	8	4	1
	2014	14	8	4	1
	2013	12	8	4	1
	2012	12	8	4	1
	2011	12	8	4	1
Honeywell Flour Mills	2016	8	6	2	1
	2015	8	6	2	1
	2014	8	6	2	1
	2013	8	6	2	1
	2012	8	6	2	1
	2011	8	6	2	1
Julius Berger	2016	12	8	4	1
	2015	12	8	4	1
	2014	12	8	4	1
	2013	12	8	4	1
	2012	12	8	4	1
	2011	12	8	4	1
John Holt	2016	12	8	3	1
	2015	12	8	3	1
	2014	12	8	3	1
	2013	12	8	3	1
	2012	11	8	3	1
	2011	10	7	3	1
Livestock Feeds	2016	5	0	2	0
	2015	5	0	2	0
	2014	5	0	2	0
	2013	5	0	2	0
	2012	5	0	2	0
	2011	4	0	2	0
Neimeth Int. Pharm.	2016	11	8	3	0
	2015	11	8	3	0
	2014	11	8	3	0
	2013	11	8	3	0
	2012	11	8	3	0
	2011	11	8	3	0
Nestle Nig PLC	2016	8	2	3	1
	2015	8	2	3	1
	2014	8	2	3	1
	2013	8	2	3	1
	2012	8	2	3	1
	2011	8	2	3	1
Nigerian Breweries	2016	17	6	4	1
	2015	17	6	4	1
	2014	17	6	4	1
	2013	13	6	4	1
	2012	15	6	4	1
	2011	15	6	4	1
SCOA	2016	9	2	2	1
	2015	9	2	2	1

Table AI. (*continued*)

Name of company	Year	Board size	Non-executive directors	Board structure	CEO duality
	2014	9	2	2	1
	2013	9	2	2	1
	2012	9	2	2	1
	2011	9	2	2	1
UACN	2016	8	5	3	1
	2015	8	5	3	1
	2014	8	5	3	1
	2013	8	5	3	1
	2012	8	5	3	1
	2011	8	5	3	1
Vitafoam	2016	11	6	3	0
	2015	11	6	3	0
	2014	11	6	3	0
	2013	11	6	3	0
	2012	11	6	3	0
	2011	11	6	3	0
Unilever Nig PLC	2016	8	4	5	1
	2015	8	4	5	1
	2014	8	4	5	1
	2013	8	4	5	1
	2012	8	4	5	1
	2011	8	4	5	1
Union Dicon Salt	2016	8	5	4	0
	2015	8	5	4	0
	2014	8	5	4	0
	2013	8	5	4	0
	2012	8	5	4	0
	2011	8	5	4	0
7-UP Bottling Coy. Plc	2016	10	8	3	1
	2015	10	8	3	1
	2014	10	8	3	1
	2013	10	8	3	1
	2012	10	8	3	1
	2011	10	8	3	1
Nig. Enamelware Plc	2016	7	4	3	0
	2015	7	4	3	0
	2014	7	4	3	0
	2013	7	4	3	0
	2012	7	4	3	0
	2011	7	4	3	0
Multi-Trex intgrt. Prdt.	2016	7	3	3	0
	2015	7	3	3	0
	2014	7	3	3	0
	2013	7	3	3	0
	2012	7	3	3	0
	2011	7	3	3	0
NASCO Plc	2016	10	7	3	1
	2015	10	7	3	1
	2014	10	7	3	1
	2013	10	7	3	1
	2012	10	7	3	1
	2011	10	7	3	1
PS Mandrides Plc	2016	7	0	2	0
	2015	7	0	2	0

(*continued*)

Table AI.

Name of company	Year	Board size	Non-executive directors	Board structure	CEO duality
	2014	7	0	2	0
	2013	7	0	2	0
	2012	7	0	2	0
	2011	7	0	2	0
UTC Nig. Plc	2016	7	0	2	1
	2015	7	0	2	1
	2014	7	0	2	1
	2013	7	0	2	1
	2012	7	0	2	1
	2011	7	0	2	1
Premier Paints Plc	2016	9	6	3	1
	2015	9	6	3	1
	2014	9	6	3	1
	2013	9	6	3	1
	2012	9	6	3	1
	2011	9	6	3	1
International Brew. Plc	2016	8	5	3	1
	2015	8	5	3	1
	2014	8	5	3	1
	2013	8	5	3	1
	2012	8	5	3	1
	2011	8	5	3	1

Table AI.

Source: Annual report of sampled companies

Appendix 2

Name of company	Year	CFO	Net income	Average asset	Earnings quality
A.G. Leventis	2016	0	0	22,501,905,000	0
	2015	0	−176,986,000	35,011,872,500	−0.00506
	2014	475,770,000	211,813,000	32,374,085,000	−0.00815
	2013	1,665,820,000	356,357,000	33,031,595,500	−0.03964
	2012	641,126,000	314,870,000	32,495,698,500	−0.01004
	2011	769,514,000	727,363,000	10,551,653,500	−0.00399
Ashaka Cem	2016	0	0	453,012,397,000	0
	2015	57,867,963,000	26,998,273,000	532,385,026,500	−0.05798
	2014	57,816,725,000	34,660,666,000	220,362,950,000	−0.10508
	2013	36,939,298,000	2,616,387,000	101,037,000,000	−0.33971
	2012	3,315,218,000	2,784,554,000	98,874,451,000	−0.00537
	2011	8,734,442,000	2,728,857,000	32,605,917,500	−0.18419
Beta Glass	2016		0	27,171,069,000	0
	2015	4,842,441,000	1,991,127,000	40,513,921,500	−0.07038
	2014	4,341,369,000	2,390,223,000	40,630,674,500	−0.04802
	2013	928,427,000	1,467,344,000	36,039,807,500	0.014953
	2012	2,735,475,000	1,328,580,000	29,249,873,500	−0.0481
	2011	4,382,800,000	1,545,780,000	39,707,396,000	−0.07145
Cadbury Nigeria Plc	2016	739,315,000	−672,822,000	43,765,305,500	−0.03227
	2015	3,781,283,000	1,153,295,000	29,780,661,500	−0.08824
	2014	4,382,800,000	1,512,687,000	50,958,703,500	−0.05632
	2013	30,261,902,000	5,498,851,000	61,397,727,000	−0.40332
	2012	26,829,844,000	5,511,000,000	52,548,319,500	−0.4057
	2011	0	5,053,000,000	2,120,681,845,000	0.002383
CAP plc	2016	0	42,976,212,000	2,887,646,269,500	0.014883
	2015	0	36,297,592,000	2,662,910,377,000	0.013631
	2014	0	38,404,784,000	875,623,700,500	0.04386
	2013	1,448,652,000	1,416,795,000	4,393,308,000	−0.00725
	2012	913,532,000	1,115,554,000	4,505,047,000	0.044843
	2011	933,155,000	1,078,276,000	764,579,573,000	0.00019
Chams	2016	447,711,000	20,773,000,000	1,058,342,000,000	0.019205
	2015	179,948,000	10,157,000,000	892,634,500,000	0.011177
	2014	0	7,440,000,000	287,831,255,000	0.025848
	2013	418,404,000	188,464,000	14,076,770,500	−0.01633
	2012	−243,973,000	87,539,000	12,062,064,500	0.027484
	2011	146,239,000	−1,236,982,000	3,851,684,000	−0.35912
Chellarams Plc	2016	0	0	15,415,668,000	0
	2015	−455,259,000	90,407,000	23,123,502,000	0.023598
	2014	−380,290,000	90,407,000	23,123,502,000	0.020356
	2013	4,163,044,000	90,407,000	22,467,312,000	−0.18127
	2012	−2,650,343,000	251,162,000	17,797,438,000	0.163029
	2011	0	228,232,000	6,736,757,500	0.033879
Dangote Cement	2016	278,594,000	186,624,000	1,874,897,000	−0.04905
	2015	299,517,000	181,323,000	843,758,746,500	−0.00014
	2014	0	196,678,391,000	1,264,804,912,500	0.155501
	2013	231,541,819,000	196,678,391,000	1,079,802,370,500	−0.03229
	2012	180,268,299,000	142,714,089,000	863,681,245,500	−0.04348
	2011	164,109,364,000	125,909,831,000	350,450,316,500	−0.109
Dangote Sugar	2016	0	10,856,673,000	124,739,815,500	0.087035
	2015	10,655,421,000	10,856,673,000	124,739,815,500	0.001613

(*continued*)

Table AII.
Earnings quality data

Name of company	Year	CFO	Net income	Average asset	Earnings quality
	2014	0	10,856,673,000	124,739,815,500	0.087035
	2013	92,297,062,000	10,856,673,000	124,631,388,500	−0.65345
	2012	1,056,132,604,000	10,735,450,000	114,340,446,000	−9.14285
	2011	99,974,586,000	7,244,056,000	207,162,722,500	−0.44762
Transcorp	2016	0	3,304,260,000	256,133,043,000	0.012901
	2015	0	3,304,260,000	256,133,043,000	0.012901
	2014	7,731,243,000	3,304,260,000	234,842,094,000	−0.01885
	2013	−2,535,529,000	6,957,902,000	150,336,408,500	0.063148
	2012	4,012,332,000	2,710,701,000	99,274,186,000	−0.01311
	2011	3,712,795,000	4,666,217,000	30,736,042,500	0.03102
Arbico PLC	2016	0	0	4,532,183,000	0
	2015	119,437,000	271,234,000	6,723,544,500	0.022577
	2014	768,523,000	−252,993,000	4,709,694,500	−0.2169
	2013	252,627,000	99,242,000	3,794,377,000	−0.04042
	2012	480,182,000	−48,305,000	1,276,946,500	−0.41387
	2011	0	0	0	0
Berger Paints Nig PLC	2016	0	0	3,536,641,000	0
	2015	0	251,346,000	5,304,961,500	0.047379
	2014	0	251,346,000	5,304,961,500	0.047379
	2013	311,797,000	251,346,000	4,616,435,500	−0.01309
	2012	275,445,000	192,009,000	4,099,092,500	−0.02035
	2011	296,518,000	227,816,000	72,303,252,500	−0.00095
PZ Cussons	2016	0	5,082,747,000	106,448,602,500	0.047748
	2015	4,298,160,000	5,082,747,000	59,968,003,500	0.013083
	2014	67,822,932,000	5,082,747,000	84,538,988,000	−0.74214
	2013	66,021,901,000	5,321,187,000	100,555,007,000	−0.60366
	2012	69,615,755,000	2,538,846,000	101,129,927,500	−0.66327
	2011	60,180,918,000	5,697,066,000	44,055,645,500	−1.23671
Champion Breweries	2016	0	−754,523,000	14,388,571,500	−0.05244
	2015	0	−754,523,000	14,388,571,500	−0.05244
	2014	4,056,906,000	−754,523,000	13,933,906,500	−0.3453
	2013	3,411,284,000	−1,178,025,000	11,368,058,000	−0.4037
	2012	3,122,035,000	−1,336,690,000	10,470,962,000	−0.42582
	2011	3,616,868,000	−1,825,759,000	3,535,681,000	−1.53934
Dangote Flour Mills	2016	0		70,965,735,000	0
	2015	0	−7,217,001,000	101,360,529,500	−0.0712
	2014	0	−7,217,001,000	98,816,493,000	−0.07303
	2013	37,177,420,000	−7,217,001,000	111,325,550,000	−0.39878
	2012	33,656,472,000	−1,854,490,000	82,647,955,500	−0.42967
	2011	66,165,622,000	115,704,000	21,727,298,000	−3.03995
First Aluminium Nig PLC	2016	0	0	8,476,056,000	0
	2015	0	29,807,000	12,714,084,000	0.002344
	2014	770,123,000	29,807,000	12,808,821,000	−0.0578
	2013	872,165,000	97,123,000	13,151,663,500	−0.05893
	2012	25,6662,000	−1,014,720,000	14,290,232,500	−0.08897
	2011	784,557,000	−325,044,000	4,928,549,500	−0.22514
Flour Mills of Nigeria	2016	0		297,249,445,000	0
	2015	555,099,000	5,367,875,000	445,874,167,500	0.010794
	2014	32,677,481,0000	5,367,875,000	428,762,714,500	−0.74961
	2013	294,401,519,000	7,539,810,000	372,926,365,000	−0.76922
	2012	249,891,595,000	8,376,656,000	279,690,549,500	−0.86351
	2011	229,346,736,000	9,450,204,000	109,820,011,500	−2.00234
GSK	2016	1,010,812,000	2,378,145,000	45,424,252,500	0.030101
	2015	4,942,350,000	873,134,000	43,657,724,500	−0.09321

Table AII.

(*continued*)

Name of company	Year	CFO	Net income	Average asset	Earnings quality
	2014	1,352,052,000	1,848,842,000	40,210,097,000	0.012355
	2013	4,841,758,000	2,919,170,000	34,899,552,500	−0.05509
	2012	3,725,370,000	2,823,526,000	28,836,516,500	−0.03127
	2011	5,079,202,000	2,294,988,000	141,298,351,000	−0.0197
Guinness Nigeria PLC	2016	0	9,573,480,000	198,492,409,500	0.048231
	2015	32,538,985,000	9,573,480,000	198,492,409,500	−0.1157
	2014	99,628,640,000	9,573,480,000	187,224,757,500	−0.481
	2013	110,599,812,000	11,863,726,000	163,064,482,500	−0.6055
	2012	111,616,989,000	14,671,195,000	143,494,910,000	−0.6756
	2011	105,735,191,000	17,927,934,000	109,944,351,000	−0.79865
Honeywell Flour Mills	2016	0	3,351,564,000	95,745,658,500	0.035005
	2015	5,602,147,000	3,351,564,000	95,745,658,500	−0.02351
	2014	51,732,741,000	3,351,564,000	87,352,697,500	−0.55386
	2013	42,865,862,000	2,843,520,000	72,658,819,000	−0.55083
	2012	35,369,071,000	2,702,431,000	51,607,647,000	−0.63298
	2011	31,565,227,000	2,492,397,000	241,830,060,500	−0.12022
Julius Berger	2016	0	7,853,340,000	340,891,885,500	0.023038
	2015	0	7,853,340,000	340,891,885,500	0.023038
	2014	0	7,853,340,000	340,891,885,500	0.023038
	2013	15,922,650,000	7,853,340,000	292,664,792,500	−0.02757
	2012	31,548,838,000	8,012,694,000	258,882,126,000	−0.09091
	2011	19,881,569,000	4,874,513,000	94,986,522,000	−0.15799
John Holt	2016	0	591,000,000	15,456,000,000	0.038238
	2015	0	591,000,000	15,456,000,000	0.038238
	2014	145,000,000	591,000,000	14,410,000,000	0.030951
	2013	2,971,000,000	93,000,000	16,560,000,000	−0.17379
	2012	−1,862,000,000	424,000,000	17,532,500,000	0.130386
	2011	1,527,000,000	−1,565,000,000	5,783,500,000	−0.53462
Livestock Feeds	2016	0	0	3,670,604,000	0
	2015	0	210,746,000	5,505,906,000	0.038276
	2014	0	210,746,000	5,505,906,000	0.038276
	2013	−175,817,000	210,746,000	3,907,622,000	0.098925
	2012	−34,174,000	144,102,000	2,595,405,000	0.068689
	2011	−11,729,000	97,682,000	3,562,110,500	0.030715
Neimeth Int. Pharm.	2016	160,380,000		4,173,732,000	−0.03843
	2015	94,824,000	−228,535,000	4,173,732,000	−0.07747
	2014	89,515,000	−228,535,000	4,282,323,000	−0.07427
	2013	96,845,000	130,578,000	2,599,948,500	0.012974
	2012	159,023,000	0	1,731,613,500	−0.09184
	2011	0	0	577,204,500	0
Nestle Nig PLC	2016	0	14,904,000,000	133,450,000,000	0.111682
	2015	42,913,138,000	14,904,000,000	200,175,000,000	−0.13992
	2014	76,961,000,000	14,904,000,000	187,167,000,000	−0.33156
	2013	81,928,000,000	10,445,000,000	186,450,000,000	−0.38339
	2012	81,264,000,000	11,060,000,000	177,205,500,000	−0.39617
	2011	73,966,000,000	9,804,000,000	248,227,200,000	−0.25848
Nigerian Breweries	2016	0	42,520,253,000	292,889,697,000	0.145175
	2015	72,673,843,000	42,520,253,000	447,878,586,500	−0.06733
	2014	223,852,222,000	42,520,253,000	524,291,365,500	−0.34586
	2013	225,533,169,000	43,080,349,000	428,472,021,000	−0.42582
	2012	214,631,499,000	38,042,714,000	362,518,010,500	−0.48712
	2011	173,021,048,000	38,050,756,000	126,955,156,000	−1.06313
SCOA	2016	1,792,952,000	2,945,000	13,796,483,000	−0.12974
	2015	458,210,000	179,477,000	13,866,306,000	−0.0201

(*continued*)

Table AII.

Name of company	Year	CFO	Net income	Average asset	Earnings quality
	2014	690,557,000	179,477,000	12,434,572,000	−0.0411
	2013	485,966,000	110,738,000	10,980,870,000	−0.03417
	2012	−44,763,000	73,406,000	9,609,300,500	0.012297
	2011	−160,082,000	101,266,000	3,035,991,500	0.086083
UACN	2016	0	10,944,795,000	130,360,660,000	0.083958
	2015	8,432,638,000	10,944,795,000	195,540,990,000	0.012847
	2014	2,339,231,000	10,944,795,000	190,195,824,000	0.045246
	2013	7,408,670,000	9,902,858,000	185,483,340,000	0.013447
	2012	9,489,345,000	7,102,951,000	183,081,419,500	−0.01303
	2011	−5,438,823,000	3,407,685,000	74,142,180,500	0.119318
Vitafoam	2016	−1,925,426,000	−32,032,000	19,522,239,500	0.096987
	2015	661,883,000	3,500,000	16,385,815,500	−0.04018
	2014	901,147,000	3,000,000	14,941,557,000	−0.06011
	2013	15,928,510,000	410,313,000	15,239,180,000	−1.01831
	2012	13,978,187,000	501,594,000	14,422,101,500	−0.93444
	2011	14,001,930,000	518,850,000	4,646,385,500	−2.90184
Unilever Nig PLC	2016	0	0	45,736,255,000	0
	2015	15,773,000,000	2,412,343,000	68,604,382,500	−0.19475
	2014	53,341,966,000	2,412,343,000	66,622,241,500	−0.76445
	2013	55,279,690,000	4,724,429,000	58,374,681,000	−0.86605
	2012	49,950,185,000	5,597,613,000	50,528,770,000	−0.87777
	2011	49,209,536,000	5,491,076,000	16,139,979,000	−2.70871
Union Dicon Salt	2016	0	0	0	0
	2015	153,224,000	0	93,945,000	−1.631
	2014	343,000	−87,616,000	133,399,500	−0.65937
	2013	−1,711,000	11,844,000	121,636,836,500	0.000111
	2012	11,963,000	−20,415,000	60,754,594,500	−0.00053
	2011	−210,000	−325,044,000	67,775,502,500	−0.00479
7-UP Bottling Coy. Plc	2016	16,984,343,000	−2,897,369,000	100,329,480,500	−0.19816
	2015	11,631,223,000	410,319,000	89,078,796,500	−0.12597
	2014	−10,536,074,000	6,434,601,000	79,301,774,500	0.214001
	2013	−9,740,888,000	42,976,212,000	375,361,869,000	0.140443
	2012	2,072,320,000	37,497,651,000	410,539,588,000	0.08629
	2011	1,076,658,000	15,378,322,000	117,850,598,000	0.121354
Nig. Enamelware Plc	2016	0		6,886,614,000	0
	2015	−1,652,580,000		10,329,921,000	0.15998
	2014	55,754,309,000	3,351,564,000	3,443,307,000	−15.2187
	2013	0	2,843,520,000	0	–
	2012	349,676,784,000	2,702,431,000	14,778,273,000	−23.4787
	2011	235,701,196,000	2,492,397,000	7,389,136,500	−31.561
Multi-Trex intgrt. Prdt.	2016	0	0	0	–
	2015	0	2,105,646,000	0	–
	2014	0	5,367,875,000	0	–
	2013	349,676,784,000	7,539,810,000	0	–
	2012	253,633,629,000	8,376,656,000	122,975,593,000	−1.99435
	2011	114,389,432,000	9,450,204,000	61,487,796,500	−1.70667
NASCO Plc	2016	0	2,105,646,000	0	–
	2015	4,007,770,000	2,105,646,000	0	–
	2014	0	9,573,480,000	1,100,793,000	8.696894
	2013	16,338,823,000	11,863,726,000	1,354,977,500	−3.30271
	2012	14,479,781,000	14,671,195,000	1,240,102,500	0.154353
	2011	14,520,780,000	17,927,934,000	418,906,000	8.133457
PS Mandrides Plc	2016	0	7,853,340,000	0	–
	2015	0	7,853,340,000	122,975,593,000	0.063861

Table AII. (*continued*)

Name of company	Year	CFO	Net income	Average asset	Earnings quality
	2014	114,389,432,000	0	183,081,419,500	−0.6248
	2013	114,389,432,000	7,853,340,000	71,761,734,500	−1.48458
	2012	8,057,546,000	8,012,694,000	23,987,244,500	−0.00187
	2011	6,071,983,000	4,874,513,000	9,252,391,500	−0.12942
UTC Nig. Plc	2016	0	210,746,000	1,100,793,000	0.191449
	2015	0	210,746,000	1,651,189,500	0.127633
	2014	0	0	1,651,189,500	0
	2013	16,338,823,000	210,746,000	1,354,977,500	−11.9028
	2012	14,479,781,000	144,102,000	1,240,102,500	−11.5601
	2011	14,520,780,000	97,682,000	418,906,000	−34.4304
Premier Paints Plc	2016	0	0	341,289,000	0
	2015	25,656,000	−29,497,000	18,675,427,500	−0.00295
	2014	12,904,000	591,000,000	9,532,779,500	0.060643
	2013	2,751,000	93,000,000	1,240,987,000	0.072724
	2012	−22,311,000	424,000,000	19,055,179,500	0.023422
	2011	0	−1,565,000,000	42,734,497,500	−0.03662
International Brew. Plc	2016	0	2,652,748,000	46,912,643,000	0.056547
	2015	3,151,232,000	1,946,490,000	147,414,068,000	−0.00817
	2014	99,628,640,000	2,105,500,000	187,224,757,500	−0.52089
	2013	110,599,812,000	2,327,342,000	163,064,482,500	−0.66399
	2012	111,616,989,000	2,327,342,000	143,494,910,000	−0.76163
	2011	105,735,191,000	−2,172,888,000	46,113,912,000	−2.34003

Source: Annual report of sampled companies

Table AII.

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