



BOARD ATTRIBUTES AND THE LIKELIHOOD OF FINANCIAL STATEMENT FRAUD: EVIDENCE FROM NIGERIA

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Abstract

The study examines board attributes and the likelihood of financial statement fraud among non-financial firms listed in the Nigerian Stock Exchange. The study adopted a longitudinal research design; using a population size of ninety-three (93) firms; with sample size of fifty-six (56) firms using filtering criterion of firms that do not have all the annual reports during the period 2006 to 2018. The study used the binary estimation technique to obtain a functional relationship between a transformed qualitative variable (logit) and the predictor variable. The study found that board size has an inverse relationship with the likelihood financial statement fraud while board independence and board meetings exhibit positive relationship with the likelihood of financial statement fraud. Based on the result, the study concludes that board attributes are not aversive mechanisms in curtailing managers' excesses on the likelihood to engage in financial statement fraud. The study recommends that although it is germane to seek reforms on corporate governance framework continually, however, there is the need to look inward on the attributes of these CEOs viz-a-viz organisation performance.

Keywords: Fraud, financial statement fraud, board attributes, Beneish M-score

1. Introduction

The financial statement fraud cases and the consequent collapse of several corporate entities across the world's major economies had battered the confidence towards the financial markets, financial information, and the global accounting profession. Razali and Arshad (2014) confirm that these giant firms sudden collapse were due to financial statement fraud incidences, attributed to deficiencies in corporate



mechanisms and weak internal control occasioned by the poor corporate governance system. Some of these corporate entities that had experience high-profile fraud cases include Global Crossing (UK), Enron (US), Arthur Andersen (US), WorldCom (US), Oceanic Bank (NIG), Cadbury Nig. Plc., Intercontinental Bank (NIG), Skye Bank and Diamond Bank of Nigeria. According to Norwani, Mohamad and Chek (2011), fraud case instances in Malaysia firms such as Megan Media Holding Berhad, Oilcorp Berhad, and Perwaja Steel Sdn. Bhd., Polymate Holdings Berhad, and Transmile Group Berhad were alleged to have reported fraudulent financial information. Also, Eneh (2018) posits that about 5% of revenue loss in an organisation occurs from fraudulent activities each year. It has wiped out tens of billions of dollars in shareholder value (Enofe, Ekpulu & Ajala, 2015; Uwuigbe et.al., 2019).

The continuous increase in financial statement manipulation has elicited concerns among investors, creditors, auditors, employees and other stakeholders. These notable insider activities have left regulators and academics to keep unearthing answers to the alleged financial statement fraud cases. This has raised questions on how corporate governance mechanisms were overridden. This has also led to several corporate governance reforms, such as the Sarbane Oxley Act of 2002 in the United States. The case has not been different in Nigeria as code of corporate governance has been passed, though modified severally by the Securities and Exchange Commission ([SEC], 2003, 2011, 2014). A recent code, the Nigerian Code of Corporate Governance (NCCG) issued by the Financial Reporting Council of Nigeria (FRCN, 2018) is also in existence, effective from 1st January 2019. A prominent role of corporate governance is monitoring and controlling business entities' operations and the organisation's management team, which also extends to financial monitoring and control. Good corporate governance is a corporate set of guides geared towards maximising the shareholders' value on a legally, ethically and sustainable basis while ensuring that equity and transparency to every stakeholder within and outside the company are accorded utmost priority (Murthy, 2006). According to Cohen, Krishnamoorthy and Wright (2004), corporate governance is essential for a quality financial reporting process.

The internal mechanisms of corporate governance, such as the board of directors is vital in protecting the shareholders' interest. The board of directors' responsibility is to monitor and control the management team to ensure compliance with laws and regulations and achieve financial information reliability. Despite the board of directors' role in reducing managers' opportunistic tendencies, managers' discretion in financial reporting has continually threatened shareholders' interest. The persistent divergence of interest between managers and shareholders has been a recurring issue,



and this has continually elicited empirical investigation in research. Prior literature provides considerable evidence on the empirical causal link between board of directors' attributes and the likelihood of financial statement fraud; however, divergent views abound (Abdul Rashid & Salem, 2015; Adebisi, 2017; Adigwe & Ogoun, 2018; Anichebe, Agbomah & Agbagbara, 2019; Beasley, 1996; Dechow, Sloan & Sweeney, 1996; Ibrahim, 2015; Moses, 2019; Razali & Arshad, 2014; Saleh, Iskandar & Rahmat, 2005; Shawtari, Har Sani, Abdul Rashid, & Salem, 2015).

The vacillating nature of findings may not be unlikely due to differences in the corporate governance framework. Therefore, to generalise these findings to the Nigerian context is unacceptable. Again, the measurement choice of the likelihood of fraudulent financial statement across retinue of studies both in and out of the Nigerian context also presents a gap that motivates this study. Therefore, the broad objective of the study is to investigate the relationship between the board of directors attributes and the likelihood of financial statement fraud within the Nigerian context. Board of directors, an internal aspect of corporate governance mechanism, is pivotal in firms' corporate governance framework. It is seen as an agent of shareholders acting on their behalf in their dealing with management.

Using the binary estimation technique, the study found that board size has an inverse relationship with the likelihood of financial statement fraud. In contrast, board independence and board meetings have a positive relationship with the likelihood of financial statement fraud. Based on the result, the study concludes that board attributes are not aversive mechanisms in curtailing managers' excesses on the likelihood to engage in financial statement fraud. This is evidenced by the several corporate scandals that occurred around the world. The study contributes to knowledge in the following ways: (i) it addresses the measurement issue most studies have ignored in prior studies, therefore enriching the growing body of literature; (ii) it provides a basis for policy implication on the discourse in the Nigerian context rather than relying on findings from other economies.

The rest of the paper is organised as follows: section 2 is on literature review; section 3 is on methodology; section 4 is on presentation and discussion of results, and section 5 is on conclusion and recommendations.

2. Literature Review and Hypotheses Development

2.1 Financial Statement Fraud

The concept comprises of: fraud and financial statement fraud. Idowu (2009) posits that fraud is an intentional forgery, camouflage or omission of truth to conceal the

financial harm incurred by the individual or an institution for dishonesty/stage management purposes. According to the International Standard on Auditing (ISA), section 240, as issued by the International Federation of Accountants ([IFAC], 2009), fraud is an intentional act by one or more individuals among management, those charged with governance, employees, or third parties involving the use of deception to obtain an unjust or illegal advantage. KPMG (2006) opined that it is a deceptive scheme for reporting financial record, including income accounting, due to incorrect identification and overvaluation of income. According to Salehi and Mansoury (2009), financial statement fraud is the intentional distortion of financial statements or other records aimed at concealing the misappropriation of assets or otherwise for gain. Fig. 1 is a spectrum of financial fraud.

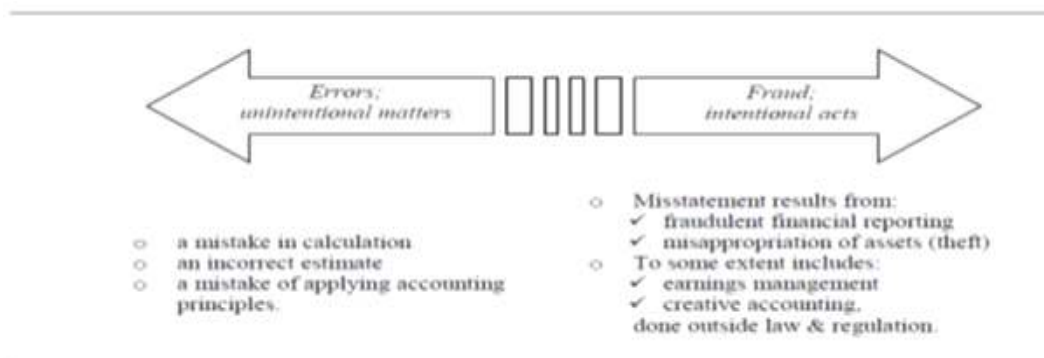


Fig. 1: Spectrum of financial fraud
Source: AICPA (2011)

According to Smaili and Labelled (2009), financial irregularities are construed as part of a continuum that leads to outright financial statement fraud. That means that accounting irregularities are part of a continuum from low levels of non-compliance with standards to outright fraudulent financial reporting. At the other end of the spectrum, accounting irregularities are known as a fraud when it involves misappropriation of assets, fraudulent reporting and to some extent earnings management and creative accounting. The critical factor separating mistake from embezzlement is the accidental or deliberate underlying activity resulting in accounting irregularities. An accidental mistake is a minor degree of accounting abnormality in financial reports (AICPA, 2011).

Several measures have been used to proxy the likelihood of financial statement fraud: (i) Altman Z-score model; (ii) Beneish M-score; and (iii) Dechow F-score. Among these three proxies, this study focused on the Beneish M-score fraud detection model. The Beneish M-score model is a comprehensive fraud detection model compared to other models, and it encompasses several indices such as DSRI= Days Sales in



Receivables Index, GMI= Gross Margin Index (GMI), AQI= Asset Quality Index, SGI= Sales Growth Index, DEPI= Depreciation Index, SGAI= Sales General and Administrative Expenses Index, TATA= Total Accruals to Total Assets, LVGI= Leverage Index

2.1.1 Beneish M-Score

The Beneish model is a statistical or mathematical model that employs eight financial ratios from company accounting data, weighted by a coefficient to calculate the high probability of whether the company's reported earnings have been manipulated. Eneh (2018) shows increased scientific confirmation of the Beneish M-score's model in detecting financial statement fraud. The Beneish model maintains that firms are likely to manipulate profits by accelerating sales recognition, increasing cost deferrals, raising accruals and reducing depreciation. The Beneish M-Score is computed from eight (8) different ratios. The eight variables are then weighted together according to the following formula:

$$\text{Beneish M-Score} = -4.84 + 0.92 \cdot \text{DSRI} + 0.528 \cdot \text{GMI} + 0.404 \cdot \text{AQI} + 0.892 \cdot \text{SGI} + 0.115 \cdot \text{DEPI} - 0.172 \cdot \text{SGAI} + 4.679 \cdot \text{TATA} - 0.327 \cdot \text{LVGI}.$$

Where: DSRI= Days Sales in Receivables Index, GMI= Gross Margin Index (GMI), AQI= Asset Quality Index, SGI= Sales Growth Index, DEPI= Depreciation Index, SGAI= Sales General and Administrative Expenses Index, TATA= Total Accruals to Total Assets, LVGI= Leverage Index.

The fraud likelihood testing condition or threshold states that if a company scored less than -2.22 (i.e. a less negative or positive number), there is the unlikely engagement of profit manipulation. However, when the computed Beneish M-Score is greater than -2.22 or tends toward a positive value (that is, 1.0 and above), the company is likely to be engaged in fraud (Eneh, 2018).

2.2 Board Attributes

The corporate governance framework cut across both internal and external mechanisms. The internal include the board of directors while the external include ownership structure among others. According to the NCCG issued by FRCN (2018, p.1):

A successful company is headed by an effective Board which is responsible for providing entrepreneurial and strategic leadership as well as promoting ethical culture and



responsible citizens. As a link between stakeholders and the company, the Board is to exercise oversight and control to ensure that management acts in the best interest of shareholders and other stakeholders while sustaining the prosperity of the company.

However, shareholders engagement in enforcing corporate governance practice is also paramount. Specifically, the FRCN (2018, p.29) states that the board of directors should encourage institutional investors to "positively influence the standard of corporate governance and promote value creation in the companies in which they invest, monitor conformance with the provision of the code and raise concerns as appropriate". *However, the focus of this paper is the internal mechanism (board of directors).* This study discusses some of these board attributes such as board size, board independence and board meetings.

2.2.1 Board Size

Board size refers to the number of directors on the board. There exist two schools of thought concerning board size: small and large board size. There seems not to be a unanimous agreement on which board size provides better corporate board efficiency. Proponents of small board size opined that it contributes more to the organisation's success by prompt and precise decision making (Jensen, 1993; Lipton & Lorsch, 1992; Yermack, 1996). However, decision-making precision on some key areas may be reduced by having a small board size because it may not have a good spread on diverse business areas, which may affect decisions. Again, a small-sized board, although seen to be weak, incompetent, and inexperienced, may be appropriate for coordination (Jensen & Meckling, 1976). On a contrary view, proponents of large board size opine that it enables the corporate board to have access to relevant information that could improve the board effectiveness (Klein, 2002; Pfeffer, 1972). However, board efficiency is reduced when the board size is large because of the difficulty in achieving agreement concerning board decisions. According to Jensen (1993), large board size when compared to small board size is relatively less effective in pursuing their agenda. Also, Lipton and Lorsch (1992) state that as board size becomes larger, they face agency problems that result in only board members being attracted to the position. The NCCG did not specify a fixed number of directors on the board; instead, it should be done considering the scale and complexity.



2.2.2 Board Independence

Board independence refers to a corporate board with a majority of independent non-executive directors (Akpan & Amran, 2014; John & Senbet, 1998). Independent board is vital in determining the board effectiveness because it reduces managers' discretion and opportunistic tendencies. The proportion of executive and non-executive directors to the board's total number is germane in enhancing board independence. According to the NCCG issued by the FRCN (2018), executive directors are those who support the Managing Director (MD)/Chief Executive Officer (CEO) in the operation and management of a company. The non-executive directors bring their knowledge, expertise, and independent judgment on strategy and performance issues on the board. They are not involved in the company's day-to-day operations, which should be the primary responsibility of the MD/CEO and management team. Pfeffer and Salancik (1978) opine that there are three areas in which board composition is essential in an entity: service, resource acquisition, and control. In the area of control, it is the board monitoring function.

According to Fama and Jensen (1983), it is believed that the board dominated with independent non-executive directors are more vigilant in providing oversight on managers. Therefore, independent outside directors are presumed to carry out the monitoring function on behalf of shareholders to provide adequate oversight on managers to maximise shareholders interest (John & Senbet, 1998). Researchers have put forward arguments favouring board dominated by outside independent directors (Daily & Dalton, 1994a, b; Weisbach, 1988). Independent non-executive directors bring a high degree of objectivity to the board for sustaining stakeholder trust and confidence. Contrary views hold that outside independent directors may not necessarily act in the shareholders interest since the CEO often dominates the director nomination process (Mace, 1986). This could be explained against the backdrop of entrenchment view that outside independent board members are capable of becoming entrenched; therefore, inefficiency results in the form of unchecked deployment of corporate assets or transactions (Morck, Shleifer & Vishny, 1988).

In the same vein, Agrawal and Knoeber (1996) state that outside directors could be appointed for political reasons rather than to objectively carry out their role. Hermalin and Weisbach (2003) observe that a corporate board with a high proportion of independent directors does not always lead to better organisational performance. From the entrenchment perspective, a board dominated by outside independent directors could still yield an inverse relationship with organisational performance. It has also been argued that inside directors can drive organisational performance because they have better knowledge of the company's operation and can enhance the



board of directors' efficiency.

2.2.3 Board Meetings

The NCCG issued by the FRCN (2018) states that meetings are the principal vehicle for conducting the board's business and successfully fulfilling the company's strategic objectives. The recommended practices are: to effectively perform its oversight function and monitor management performance; the board should meet at least once every quarter. Every director should endeavour to attend all board meetings. The attendance record of directors should be among the criteria for the re-election of a director. Minutes of meetings of the board and its committees should be prepared and sent to directors on a timely basis. It will serve as a record of what transpired at those meetings. Such minutes should be formally reviewed and approved by the board or relevant board committee members at its next meeting. Ronen and Yaari (2008) posit that when managers are obliged to attend the meeting, it allows them to vote on important decision-making plans. When the board members meet frequently, it is instrumental to improving the organisation's performance. Vafeas (1999) opines that board meetings tend to increase when faced with a falling performance. This situation was reversed with the better performance of the company. Therefore, board meetings are seen as a control tool by directors with some expertise to scrutinise financial reports to scuttle or thwart any earnings manipulation in the accounting numbers.

2.3 Empirical Review

2.3.1 Board Size and Financial Statement Fraud

Bala and Gugong (2015) examine the relationship between board characteristics and earnings management of listed food and beverages firms in Nigeria. The study used six years (2009 to 2014). Multiple regression was employed to test the model, and the finding indicates that an inverse relationship exists between board size and earnings management. Similar findings were also observed in the study of Luo (2019) for UK listed companies. The study of Adigwe and Ogoun (2018) also exhibits an inverse relationship between board size and earnings manipulation for firms listed on the NSE floor. Salleh and Othman (2016) investigate the relationship between corporate governance and financial statement fraud. The findings revealed that board size exhibits an insignificant inverse relationship with corporate fraud.

However, Kao and Chen (2004) examine the relationship between board characteristics and earnings management. The study employs discretionary total



accruals (DTAC) and discretionary current accruals (DCA) as proxies to measure earnings manipulation. The findings reveal a positive relationship suggesting that large board size cannot curtail earnings management. Similarly, Al Azeez, Sukoharsono, Brawijaya and Andayani (2019) examine the effect of board characteristics on earnings management in the international oil and gas corporations. The result revealed that board size shows a positive relationship with earnings manipulation. They conclude that the larger the board size, the less efficient they become in the monitoring managers. Anichebe et al. (2019) investigate the relationship between financial statement fraud and corporate governance elements using panel data. They also applied the Beneish M-score to proxy for fraud likelihood but in a binary logit regression pattern. Their findings suggest that board size is positively related to fraud likelihood, though not statistically significant. Their findings suggest that the fraud likelihood increases as the board size also increases. Premised on the preceding, the study hypothesised that

H₀₁: Board size has no significant positive relationship with the likelihood of financial statement fraud of firms listed in the NSE.

2.3.2 Board independence and financial statement fraud

Busirin, Azmi and Zakaria (2015) investigate the relationship between board independence and earnings manipulation. The study used three hundred and seventy-two (372) firms listed on the Malaysia Stock exchange floor from 2010 to 2013. They also applied the Beneish M-score to proxy earnings manipulation. The findings revealed that board independence exhibits a significant inverse relationship with earnings manipulation. Their findings suggest that independent directors' presence plays a key role in monitoring and disciplining management who exhibit divergent interest with that of shareholders. The study by Kao and Chen (2004) investigate the relationship between board characteristics and earnings management. The study finding reveals that board independence exhibits an inverse relationship with the level of earnings manipulation. Moses (2019) examines corporate governance and corporate fraud in Nigeria using a binary logit regression technique. The result shows an inverse relationship between the board of directors independence and corporate fraud. However, the study concludes that independent board members ability to forestall corporate fraud is below the optimal level. In the study of Anichebe et al. (2019, as mentioned earlier, the result indicates an inverse relationship between board independence and earnings manipulation. Similar findings were also revealed in Alves (2011) studies and AlAzeez et al. (2019).

However, Francis, Hasan and Wu (2012) examine corporate boards influence on firm



performance. Firm performance was proxied using cumulative stock returns over the crisis to measure firms' performance. The findings suggest that board independence has no significant influence on firms' performance during the crisis, which may signal that earnings manipulation was not under control or check. Similarly, the study of Shan, Graves and Ali (2013) found that independent directors were seen to have no observable effects on earnings manipulation or incidence of fraud reduction. Premised on the foregoing, the study hypothesised that:

***H₀₂:** Board independence has no significant positive relationship with the likelihood of financial statement fraud of firms listed in the NSE.*

2.3.3 Board Meetings and financial statement fraud

Kantudu and Ishaq (2015) examine the relationship between corporate governance and financial reporting quality of Oil firms listed on the NSE. Financial reporting quality is proxy with the qualitative characteristics of financial statement. The data was secondary source obtained from the audited annual report of the sampled firms. The study period was twelve years (2000 to 2011). The study applies multiple regression as its regression technique to analyse the data. Findings from the study suggest that board meetings have an insignificant inverse relationship with financial reporting quality. This implies that the higher the frequency of meetings, the more the increase in earnings manipulation, which in turn decreases the quality of financial reporting. Shan et al. (2013) investigate the relationship between Malaysia's corporate governance practices and the increasing incidence of fraud in Malaysian listed companies from 2007 to 2009. The findings indicate that the number of board meetings exhibits a positive relationship with fraud, suggesting that the higher the frequency of board meetings, the more ineffective the board is in detecting fraud in the firm. Similarly, Gulzar and Wang (2011), Francis et al. (2012) and Salleh and Othman (2016) reported that the number of board meetings exhibits a positive relationship with earnings management.

Nevertheless, Ibrahim (2015) investigates the relationship between board characteristics and earnings management of quoted foods and beverages firms listed in NSE. The study used discretionary accruals as a surrogate for earnings management while adopting the modified Jones (1991) model. The study period is from 2007 to 2013. The results reveal that there is a significant inverse relationship between board meetings and earnings management. The study concluded that an increase in the number of board meetings constrain the level of discretionary accruals. Correspondingly, Adebisi (2017) findings reveal that board meetings exhibit an inverse relationship with financial reporting quality (proxied by



discretionary accrual). The study concludes that board composition is a vital component of the quality of financial reporting quality for Deposit Money Banks (DMBs) in NSE. Premised on the foregoing, the study hypothesised that:

H₀₃: Board meetings have no significant positive relationship with the likelihood of financial statement fraud of firms listed in the NSE.

2.4 Theoretical Review

2.4.1 Agency Theory

The agency theory seeks to analyse the contractual relationship between company owners (shareholders) and its agents (management). The theory has its root in the work of Berle and Means (1932). It was formalised by Jensen and Meckling (1976). The agency theory holds that the firm can be viewed as a network of contracts, implicit and explicit, among various parties. Agency problems arise when agents' interest is not in tandem with principals' interest because of the separation of ownership from management.

Furthermore, the agency theory posits that shareholders forgo decision-making rights (control) and delegates such to the manager to act in the shareholders' best interest. The separation of ownership from control necessitates a corporate governance system, which aims to align the interest of both managers and principals (Jensen & Meckling, 1976; Eisenhardt, 1989). The essence of aligning both managers and shareholder's interest is to forestall loss in shareholders wealth, and one of such areas is by curtailing financial statement fraud. Therefore, the board of directors, an internal aspect of corporate governance mechanism, is pivotal in firms' corporate governance framework. It is seen as an agent of shareholders acting on their behalf in their dealing with management. Therefore, one would expect that board of director should deter the likelihood of financial statement fraud by companies. Based on this view, this study is anchored on the agency theory.

3. Methodology

The study employs a longitudinal research design. The design is suitable because the nature of the data used for the variables involves repeated observations of the same variables over some time. The study population consist of all the ninety-three (93) non-financial service companies quoted in the NSE as of 2018. The choice of non-financial companies was predicated on the peculiar nature of regulations that exist in financial service companies. Secondary data was used in this study, sourced from the



annual reports of the sampled firms listed in the NSE during the period 2006 to 2018. A sample size of seventy-five (75) was determined using the Yamane (1967) sample size determination technique.

This is computed as: $n = \frac{N}{1+N(e)^2}$

Where: n = sample size;

N = the population size (93);

e = level of significance (0.05).

$$n = \frac{93}{1+93(0.05)^2} \quad n = \frac{93}{1+37(0.05)^2}$$

$$n = \frac{93}{1.2325}$$

n = 75 firms.

The sample size was reduced to fifty-six (56) after filtering out firms that the researchers could not access their annual reports during the study.

3.1 Theoretical Framework and Model Specification

The study is anchored on agency theory. Also, the model is built on the studies of Razali and Arshad (2014); Luo (2019); Moses (2019). The model for the study is specified thus;

$$\text{Logit(FSF)} = \ln \left(\frac{P(\text{FSF})}{1-P(\text{FSF})} \right) = \gamma_0 + \gamma_1 \text{BDS} + \gamma_2 \text{BIND} + \gamma_3 \text{BMT} + \gamma_4 \text{FS} + \mu \dots \dots \dots (i)$$

$$\text{Probit(FSF)} = \ln \left(\frac{P(\text{FSF})}{1-P(\text{FSF})} \right) = \gamma_0 + \gamma_1 \text{BDS} + \gamma_2 \text{BIND} + \gamma_3 \text{BMT} + \gamma_4 \text{FS} + \dots \dots \dots (ii)$$

$$\text{Gompit(FSF)} = \ln \left(\frac{P(\text{FSF})}{1-P(\text{FSF})} \right) = \gamma_0 + \gamma_1 \text{BDS} + \gamma_2 \text{BIND} + \gamma_3 \text{BMT} + \gamma_4 \text{FS} + \dots \dots \dots (iii)$$

Where: *FSF* = financial statement fraud; *BDS* = Board size; *BMT* =

Board meetingd; *FS* = Firm size; γ_0 = Constant; γ_{1-4} = Unknown coefficients of the variables;

and μ = Error term

A priori expectation: $\beta_1 - \beta_4 > 0$

3.2 Measurement of Variables

Financial Statement Fraud (FSF) ,the dependent variable, is measured using the Beneish-M Score (Eneh, 2018). Board Size (BDS) is measured as the number of directors on the firm's board (Kao & Chen, 2004; Kankanamage, 2015). Board Independence (BND) is measured as the ratio of non-executive directors to the firm's board size (Matoussi & Gharbi, 2011; Abri, Arumugam & Balasingam, 2019). Board meetings (BMT) is measured as the number of board meetings in a year (Kantudu & Ishaq, 2015; Adebisi, 2017). Firm Size (FS) as an independent and control variable is measured as the logarithm of total assets (Rahmawati, 2013).



3.3 Data Analysis Technique

This study makes use of binary regression analysis. The choice of the binary regression analysis is based on the fact that the dependent variable is binary (0 and 1). The study adopted the three widely used binary regression models (Logit, Probit and Gompit). This tool's choice is that it has the objective of obtaining a functional relationship between a transformed qualitative variable called logit, probit or gompit and the predictor variable, which can either be quantitative or qualitative. Also, the inability of multiple regression models to yield reliable coefficients and inference statistic in a situation where the dependent variable is binary, necessitated using the binary regression method. The difference in these models is based on the type of probability distribution they assume. Logistic binary regression follows a cumulative logistic probability distribution, binary Probit assumes cumulative normal distribution while the Gompit binary regression follows a generalised extreme value distribution.

4. Data Analysis and Discussion of findings

4.1 Preliminary Analysis of Result

Table 1: Descriptive Statistics

	FSF	BDS	BND	BMT	FS
Mean	0.319	9.032	66.043	4.640	7.082
Median	0.000	9.00	66.667	4.000	7.006
Maximum	1.000	19.00	94.444	15.000	9.241
Minimum	0.000	4.00	0.000	1.000	5.093
Std. Dev.	0.466	2.684	16.992	1.174	0.830
Jarque-Bera	129.511	75.730	320.926	3307.762	11.104
Probability	0.000	0.000	0.000	0.000	0.000
Observations	712	712	712	712	712

Source: Researchers' Computation (2021) from E-Views 10

Table 1 shows the descriptive statistics among the variables. As observed, for FSF, Mean= 0.319, which indicates that the sample companies are unlikely to engaged in fraud. This implies that the mean value for the Beneish M-score model for the sample firm is less than -2.22. The fraud likelihood testing condition or threshold states that if a company scored less than -2.22 (i.e. a less negative or positive number), there is the unlikely engagement of profit manipulation. The Std. Dev. = 0.466, which indicates the extent of clustering around the mean value. The Jarque-Bera coefficient= 129.511 with a probability value =0.000, which suggests that the presence of outliers in the distribution is unlikely; therefore, normality exist in the distribution. For BDS, Mean= 9 indicates that the sample company board of directors had nine (9) members



on average.

The NCCG issued by FRCN (22018) did not give a specific number of directors on the board. It states that the board should be of sufficient size to effectively undertake and fulfil its business; to oversee, monitor, direct and control the company's activities and be relative to the scale and complexity of its operation. It is believed that the size of respective boards of the sample companies was determined considering the provisions of the NCCG: appropriate mix of knowledge; skills, and experience, including the business, commercial and industry experience needed to govern the company; an appropriate mix of executive, non-executive and independent non-executive members such that majority of the board are non-executive directors; most of the non-executive directors should be independent; need for a sufficient number of members that qualify to serve on the committees of the board; need to secure quorum at the meeting; and diversity targets relating to the composition of the board. The Std. Dev. = 2.684, which indicates the extent of clustering around the mean value. The Jarque-Bera coefficient= 75.730 with a probability value =0.000, which suggests that the presence of outliers in the distribution is unlikely; therefore, normality exist in the distribution.

For BND, Mean= 66.043, which indicates that on average, the ratio of non-executive directors on the board to the total number of directors is 0.66. This conforms to the NCCG, which states that there should be an appropriate mix between the executive, non-executive and independent non-executive directors on the board. Preferably, most of the non-executive directors should be independent. The Std. Dev. = 2.684, which indicates the extent of clustering around the mean value. The Jarque-Bera coefficient= 75.730 with a probability value =0.000, which suggests that the presence of outliers in the distribution is unlikely; therefore, normality exist in the distribution. For BMT, Mean= 4 indicates that the board of directors of the sampled company met four (4) times a year. This conforms to the NCCG, which states that to perform its oversight function and monitor management's performance effectively, the board should meet at least once every quarter. The Std. Dev. = 1.174, which indicates the extent of clustering around the mean value. The Jarque-Bera coefficient= 3307.762 with a probability value =0.000, which suggests that the presence of outliers in the distribution is unlikely; therefore, normality exist in the distribution. On the control variable, FS, Mean= 7.082, which indicates that on average, the total assets of the sampled firms is about

Table 2: Correlation Result

Variables	FSF	BDS	BND	BMT	FS
FSF	1.0				
BDS	0.024346	1.0			
BND	0.080197	0.128801	1.0		
BMT	0.058104	0.155893	-0.01262	1.0	
FS	0.076984	0.486483	-0.04948	0.191453	1.0

Source: Researchers' Compilation (2021) from E-Views 10



Table 2 shows the correlation result among the explanatory variables. As observed, BDS is positively correlated with FSF ($r=0.0244$), BND positively correlated with FSF ($r=0.080$), BMT positively correlated with FSF ($r=0.058$) and FS positively correlated with FSF ($r=0.077$). Also, none of the explanatory variables correlates between themselves up to 0.80, this suggests that the multicollinearity among the explanatory variables is unlikely.

Table 3: Binary Regression Results

Variables	Apriori expectation	Model (i) (Binary Logit)	Model (ii) (Binary Probit)	Model (iii) (Binary Gompit)
C	Nil	-3.357* (-4.038) {0.000}	-2.037* (-4.077) {0.000}	-1.647* (-3.391) {0.001}
BDS	-	-0.032 (-0.910) {0.363}	-0.019 (-0.888) {0.374}	-0.017 (-0.833) {0.405}
BND	-	0.012* (2.347) {0.019}	0.007* (2.371) {0.017}	0.007* (2.425) {0.015}
BMT	-	0.086 (1.249) {0.212}	0.051 (1.225) {0.220}	0.048 (1.147) {0.251}
FS	+/-	0.238* (2.089) {0.037}	0.143* (2.084) {0.037}	0.138 (2.060) {0.039}
McFadden R-Squared		0.013	0.013	0.013
LR Statistics Prob.		11.574* (0.021)	11.527* (0.021)	11.428* (0.022)
N		712	712	712
Obs with Dep = 0		485	485	485
Obs with Dep = 1		227	227	227

Note: (i) Parentheses () are Z-statistic; { } are probability values; (ii) * 5% level of significance respectively.

Source: Researchers' Compilation (2021) from E-Views 10

Table 4.3 show the binary regression result of the study. This was done in three estimations: model (i) is on logit; model (ii) is on probit; and model (iii) is on Gompit. However, a choice among these three models is made based on the Log Likelihood (LL) criterion. The decision is that the higher the value of LL in absolute term, the better the results. Therefore, LL model (iii) is slightly the highest, and it is therefore adopted. The McFadden R-squared value is 0.013 which indicates that 1.3% of the

sampled companies' likelihood to engage in financial statement fraud is jointly explained by the explanatory variables (BDS, BND, BMT and FS).

4.2 Discussion of Findings

4.2.1 Board Size and the Likelihood of Financial Statement Fraud

Using the Gompit model's estimation result in table 4.3, board size exhibits an inverse and insignificant relationship { @ 5% } impact ($\beta_1 = -0.017$, $p = 0.405$) on the likelihood for firms to engage in financial statement fraud. Consequently, we accept the null hypothesis stated as; board size has no significant positive relationship with the likelihood of financial statement fraud of firms listed in the NSE. The inverse relationship could be that firms with small board size contribute more to the organisation's success by prompt and precise decision making (Jensen, 1993; Lipton & Lorsch, 1992; Yermack, 1996). However, caution should be exercised in making inferences based on the relationship because it did not pass the test of significance.

4.2.2 Board Independence and the Likelihood of Financial Statement Fraud

Using the estimation result from the Gompit model in table 4.3, board independence exhibits a positive significant { @ 5% } impact ($\beta_2 = 0.007$, $p = 0.015$) on the likelihood of firms engaging in financial statement fraud. Consequently, we reject the null hypothesis stated as; board independence has no significant positive relationship with the likelihood of financial statement fraud of firms listed in the NSE. Although the relationship between board independence and the likelihood of financial statement fraud passes the test of significance, caution should be exercised because it did not conform to apriori expectation that the board of directors is expected to deter fraudulent financial statements.

The finding is in contrary to most studies (Anichebe et.al., 2019; Al Azeez et.al., 2019; Alves, 2011; Busirin, Azmi & Zakaria, 2015; Francis et.al., 2012; Kao & Chen, 2004). Although this result is contrary to prior findings of an inverse relationship between board independence and financial statement fraud, it may not be unlikely. Outside independent directors may not necessarily act in the shareholders' interest since the CEO often dominates the director nomination process (Mace, 1986). This could be explained against the backdrop of the entrenchment perspective that outside independent board members can become entrenched; therefore inefficiency results in the form of unchecked deployment of corporate assets or transactions (Morck, Shleifer & Vishny, 1988). In the same vein, Agrawal and Knoeber (1996) state that outside directors could be appointed for political reasons rather than to objectively



carry out their role. Hermalin and Weisbach (2003) observe that a corporate board with a high proportion of independent directors does not always lead to better organisational performance. From the entrenchment perspective, a board dominated by outside independent directors could still yield an inverse relationship with organisational performance.

4.2.3 Board Meetings and the Likelihood of Financial Statement Fraud

Using the Gompit model's estimation result in table 4.3, board meetings exhibit positive insignificant { @ 5% } impact ($\beta = 0.048$, $p = 0.251$) on firms' likelihood to engage in financial statement fraud. Consequently, we accept the null hypothesis stated as; board meetings have no significant positive relationship with the likelihood of financial statement fraud of firms listed in the NSE. The relationship between board independence and the likelihood of financial statement fraud does not conform with apriori expectation that board of directors is expected to deter fraudulent financial statement and it is also insignificant. The finding is in tandem with prior studies that found a positive relationship between board meetings and firms' likelihood to engage in financial statement fraud (Ali, 2013; Gulzar & Wang, 2011; Salleh & Othman, 2016). This result may not be unlikely. Board meetings may be done every quarter as required by the NCCG, however, attendance may be poor. Consequently, board meetings being a control tool by directors with some level of expertise to scrutinise financial reports in order to thwart any earnings manipulation in the accounting numbers may be undermined.

5. Conclusion and Recommendations

The study examines board attributes and the likelihood of financial statement fraud among non-financial firms listed in the NSE. Two reasons motivate the study: (i) the vacillating nature of findings may not be unlikely due to differences in the corporate governance framework of different economies; therefore, to generalise findings from studies outside Nigeria to the Nigerian context is unacceptable; and (ii) the measurement choice of the likelihood of fraudulent financial statement across retinue of studies both in and out of Nigerian context also presents a gap that motivates this study. Therefore, the study hypothesised that board size, board independence and board meetings have no positive relationship with the likelihood of firms engaging in financial statement fraud.

With the aid of the binary estimation technique, the study found that board size has an inverse relationship with the likelihood of financial statement fraud. In contrast, board independence and board meetings positively correlate with the likelihood of



financial statement fraud. Based on the result, the study concludes that board attributes do not deter the likelihood of managers from engaging in financial statement fraud, consequently do not find support in agency theory. This conclusion is substantiated by the corporate scandal of most corporate entities around the world (Global Crossing [UK], Enron [US], Arthur Andersen [US], WorldCom [US], Oceanic Bank [NIG], Cadbury Nig. Plc., Intercontinental Bank [NIG], Skye Bank and Diamond Bank of Nigeria amongst others) despite these corporate bodies having board of directors. However, this study provides a basis for policy implication to stakeholders in Nigeria on board of directors' attributes and the likelihood of companies to engage in financial statement fraud.

The study recommends that although it is germane to seek reforms on corporate governance framework continually, however, there is the need to look inward on the attributes of these CEOs viz-a-viz organisation performance. Perhaps, this study may find support in the Upper Echelon theory.





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