

## Beneish Model, Corporate Governance and Financial Statements Manipulation

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### ABSTRACT

*This paper examined corporate governance and financial statements manipulation in Nigeria, using the Beneish model. To this end, the Beneish Model was employed to predict the likelihood of financial statements manipulation among the companies in Nigeria while the role of corporate governance variables to this manipulation was examined, using logistic regression analysis. In specific terms, the corporate governance variables of Board Composition, Board Gender Composition, Audit Committee Composition, and Board Dominance were examined as determinants. The data used were extracted from sixty-five (65) quoted companies in the Nigeria Stock Exchange for a 6-year period of 2009-2014. This period a near-crash in the Nigerian stock market with the consequential low ebb in economic activities in Nigeria. Preliminary analysis reveals that most of the companies quoted in the Nigeria Stock Exchange and sampled for this study, based on the Beneish Model, have the probability of manipulating their annual financial statements. Furthermore, results revealed that an increase in the Board Composition defined in the proportion of the Non-Executive Director (NED) on the Board, will increase the likelihood of detecting, preventing and investigating financial statements manipulation in the quoted companies in Nigeria. In addition, it was discovered that, in the Board Gender Composition, an increase in the proportion of female gender in the entire board will increase the likelihood of detecting, preventing and investigating financial statements manipulation. Meanwhile, it was revealed that an increase in the effectiveness and efficiency of the composition of the audit committee may reduce the likelihood of financial statements manipulation in Nigeria companies. Lastly, it was discovered that a decrease in Board Dominance will increase the likelihood of detecting, preventing and investigating misstatements in the annual financial statements of Nigeria companies. It is recommended. in the meantime, to use the Beneish model as a norm to assess the possibility of financial statements manipulation. More stringent measures, such as whistleblowing, ethics, value system, zero tolerance to fraud, just to mention a few, are to be effectively enforced by external regulatory authorities (such as Central Bank of Nigeria, Securities and Exchange Commission and the Nigerian Stock Exchange) to control the activities of the company's board of directors, as well as the application of Beneish model, would aid the detection of financial statements manipulation.*

*Keywords: Beneish Model; Beneish Model Metrics; Corporate Governance Variables; Nigeria.*

### INTRODUCTION

Annual financial statements remain the fundamental means of informing the users of financial information about financial performance, progress and financial position of the company. The financial statements are prepared by the directors of companies and certified by external auditors in line with the laws and auditing standards. However, the audited financial statements are expected to be timely, complete and reliable (Ibadin & Oladipupo 2015). Uninterestingly, these may not be practicable as a result of weak corporate governance structures, codes and institutions coupled with the untimeliness of the financial information and users' low level of competence (Dabor & Adeyemi 2009). At the height of all of these is the act of intentional manipulation which is embedded in fraudulent financial statements. Intentional manipulation of financial statements is an unethical practice of management which expresses in fraudulent financial statements. Intentional manipulation and fraud are terms that reflect the same concepts (Osisioma 2012). Warshavsky (2012) identifies some examples of accounting manipulations or manipulations that can occur in the financial statement

data to include but not restricted to: recording revenue too soon or with questionable quality; recording fictitious revenue; boosting income with one-time gains; shifting current expense to a different period; capitalizing otherwise currently recognizable expenses, and failing to record, or improperly reducing, liabilities, among others. These items may find expression in the three Ms..The 3Ms. of financial reporting fraud to include: (i) Manipulation, manipulation or alteration of accounting records or supporting documents from which financial statements are prepared; (ii) Misrepresentation in or intentional omission from the financial statements of events, transactions, or other significant information; (iii) Intentional misapplication of accounting principles relating to amounts, classification, manner of presentation, or disclosure. However, Statement of Auditing Standard No. 82 highlights the risk-factors relating to manipulated or fraudulent financial reporting and grouped them into three categories of Manipulation, Misrepresentation and Misapplication).

Financial statement frauds, manipulations or financial malfeasances have resulted in losses in the organizations. Corporate history has witnessed global economic systems

with significant levels of scandals and financial statements fraud and manipulation. More so, the collapses of giant companies, as AIG, Adelphia, Enron, WorldCom, Xerox, Lehman Brothers, and Freddie Mac, all in the United States of America- Amir-Mansour (in Iran), Anglo Irish Bank (in Ireland), Barlow Clowes (in United Kingdom), Biovail (in Canada), Tyco International (in Bermuda) and Halliburton in Nigeria, has led to losses worth billions of dollars and naira. This has increased investors' concerns about the financial statement fraud or manipulation (Kassem & Higson 2012).

Expectedly, the business community at large and in Nigeria has shown serious concerns for financial statements fraud and manipulation. In addition, auditors, board of directors, management and stakeholders are interested in avoiding financial statements fraud and manipulation with the use of fraud models, since the exposures of materially misstated financial statements usually result in massive investors' losses (Carcello & Hermanson 2008) and hindrances caused by unethical deeds and ultimately financial statement fraud and/or manipulation (Gupta & Gill 2012). As part of the rapid response to the dwindling investors' confidence in the United States, the Sarbanes-Oxley Act of 2002 was crafted and expected to strengthen the corporate governance structure in the United States and shift audit responsibility from management to Audit Committee, establish whistleblowing mechanisms and end the self-regulation system which was the usual practice in public company. Furthermore, some forensic accounting and research experts developed fraud models such as Beneish, Altman, Sloan, F-Score, Earnings Quality, and Revenue Quality, (Salaudeen, Ibikunle & Chima 2015) to enhance the quality of financial reporting.

In Nigeria, the growing incidence of fraudulent financial statements has also meant that investors' confidence in the capital market has waned. In fact, the current downturn in the market has been blamed partly on the fraud at the Nigerian Stock Exchange (Osaze 2011). In Nigeria, the Cadbury (Nig) PLC scandal has remained a reference point for fraudulent financial reporting. Other incidences of fraudulent financial reporting in Nigeria include the fraud at Afribank Plc and Lever Brothers (Nig) Plc (Ajayi 2006). Investors in Cadbury (Nig) Plc also lost heavily as the share price of the company took a downward turn. Nigerian Deposit Insurance Corporation (NDIC) annual report (2010), 1,532 cases of fraud was reported involving 21.29 billion naira with expected actual loss of 11.69 billion naira! Also, in 2011, about 2,352 cases of fraud were reported involving 28.4 billion naira with an expected actual loss of 4.071 billion naira. This represents a 53.5 percent increase. In 2014, there were 10,612 reported cases of fraud against 3,786 in 2013 with the involvement of 25.61 billion naira and 21.80 billion naira respectively. This represents about a 17.5 percent increase in amount involved. The expected actual loss for 2014 was 6.19 billion naira as against 5.76 billion naira in 2013, representing an increase of about 7.5 percent.

However, in recent times, blame has been shifted to management because auditors alone cannot solve the problems of inaccurate and manipulated financial statements, just as the management has control over the preparation of financial statements. On account of this, management is held liable for fraudulent or manipulated financial statements in order to enhance investors' confidence through improve transparency, accountability, reliability, integrity, and objectivity of financial disclosures. This brings to light the utilitarian value of corporate governance.

In Nigeria, different corporate governance codes have been developed, most of which are industry-specific, such as the Code of Corporate Governance in Nigeria of 2003, 2011, 2016 and now 2018. The 2003 and 2011 codes were both issued by the Securities and Exchange Commission (SEC). The 2016 and 2018 were issued by the Financial Reporting Council of Nigeria. Beyond these mentioned codes, the Code of Corporate Governance for Central Bank of Nigeria's (CBN's) (2006) issued Code of Corporate Governance in Nigeria for post-consolidation; the Code of Corporate Governance for Licensed Pensions Operators 2008 issued the Pension Commission (PENCOM), Code of Corporate Governance for Insurance Industry in Nigeria 2009 issued by the National Insurance Commission (NAICOM). Unfortunately, in Nigeria, the informal character of most businesses and an increase in the number of government-owned enterprises pose a challenge to the practice of corporate governance. Consequently, Nigeria witnessed a very high incidence of corporate failures, as a result of this weak corporate culture in these institutions (Aina & Adejugbe 2015).

It is in light of the above that this paper examined the relationship between Corporate Governance and Financial Statements Manipulation in Nigeria.

#### LITERATURE REVIEW

Statement of Auditing Standard (SAS) No. 122 (2012) issued by the Auditing Standard Board of the American Institute of Certified Public Accountants (AICPA), United States, defines fraud as an intentional act by the management staff and other individuals charged with governance. Such individuals include employees and third parties who engage in the use of deception which results in misstatements of financial statements. This is however different from an error that is unintentional. This has been truly reflected in Wells (2011) which differentiates fraud from error, and describes fraud as an intentional misstatement or omissions of amount or disclosures from an entity's accounting records or financial statements; in the said study, fraud is a false representation of material fact by an individual with intent to mislead (Okoye & Gbegi 2013).

There is no doubt that in the world of business today, fraud has various meanings—seen as an intentional deception, a misappropriation of the company's assets, and manipulation or alteration of the company's financial

information to the benefit of the fraudsters (Hall 2011). Viewing from another perspective, fraud encompasses the theft of assets, including inventory assets, misuse of expense account, secret commission and bribery, false invoicing, electronic and telecommunication fraud, unauthorized use of information, cheque forgery, manipulated financial statements, and any other acts of commission or omission that is intended to gain an advantage over another (Hamilton & Gabriel 2012). Fraud takes any dimension and its victims, such as the business organization, suffer and bear the losses. However, there are fundamental elements that must be present in a fraud: these include: i) misrepresentation ii) knowledge that the representation is false iii) reliance on the representation, and iv) damages suffered by the person relying on it (Dzomira 2015).

Fraudulent or manipulated financial statements are often two terms mistakenly seen as the same. In the Committee of Sponsoring Organisation of Treadway Commission's (COSO's) report of 2010, Beasley, Carcello, Hermanson and Neal (2010) had stated that manipulated financial statements involve intentional material misstatement of financial statements or financial disclosures or the perpetration of unethical act that has a material effect directly on the company's financial statements, with a distinction between manipulated financial statement from other possible causes of materially misleading financial statements. Manipulated financial statements are within the purview of material misstatements which include restatements of financial statements due to errors or earnings manipulation activities that result in a violation of external regulatory provisions (Salaudeen et al. 2015).

Furthermore, Gupta and Gill (2012) explain that manipulated financial statements present a charming financial position to the investors by manipulating and concealing the financial information and qualitative disclosures of financial statements. More so, these disclosures may not apparently contain fraud indicators, however, the warning signs of fraud or manipulation can be identified by a proper understanding of the syntactic as well as the semantics of any natural language because fraudsters may create artificial indicators by using semantic of the language in the manipulated financial statements.

The Nigerian Code of Corporate Governance (2018) seeks to institutionalize corporate governance best practices in Nigerian companies. The Code is also to promote public awareness of essential corporate values and ethical practices that will enhance the integrity of the business environment. By institutionalizing high corporate governance standards, the Code will rebuild public trust and confidence in the Nigerian economy, thus facilitating increased trade and investment. The code of corporate governance consists of seven (7) parts and twenty-eight (28) principles together with practices recommended by the Code for the implementation of each principle. However, firstly, the Board ensures that the Company remunerates fairly, responsibly and transparently so as to promote the achievement of strategic objectives and positive outcomes

in the short, medium and long term. Secondly, the Code recommends an effective whistle-blowing framework for reporting any illegal or unethical behaviour to minimize the Company's exposure and prevent a recurrence. Thirdly, the appointment of an external auditor to provide an independent opinion on the true and fair view of the financial statements of the Company and give assurance to stakeholders on the reliability of the financial statements. Fourthly, pay due adequate attention to sustainability issues including the environment, social, occupational and community health and safety by ensuring successful long term business performance and projects of the Company as a responsible corporate citizen contributing to economic development. Fifth, there should be a full and comprehensive disclosure of all matters material to investors and stakeholders, and of matters set out in the new Code, ensures proper monitoring of its implementation which engenders good corporate governance practice. Sixth, corporate organizations must ensure transparency by communicating and interacting with stakeholders to keep them conversant with the activities of the Company and assists them in making informed decisions. Seventh, the Code applies to all Companies as there is no distinction between Private Companies and Public Companies or Public Interest Entities under the FRC Act. Finally, there is no specific date for effective and enforcement stated.

Corporate governance variables, as determinants of increased corporate value, cannot be downplayed. In the literature, variables, such as Board Composition, Audit Committee, Board Gender Composition, and Board Dominance have been examined as critical factors in the successes and failures of companies. These and other corporate governance variables, depending on the thrust and the policy direction of the Board of Directors, have the ability to detect, prevent and predict misstated financial statements. It is instructive to note that the Board of Directors provides the link or the bridge that connects the companies with the stakeholders and the standard that determines the company's performance (Norwani, Mohamad & Chek 2011). Such institutional arrangement that brings about this include: Board Composition, Audit Committee, Board Gender Composition, and Board Dominance, audit committee and its defined roles, among others (Nigerian Code of Corporate Governance (2018).

#### BOARD COMPOSITION

Board composition represents the composition of the board between the executive and non-executive members of the board. The National Code of Corporate Governance (2018) provides the membership of the Board which should not be less than eight (8) shall have a number of executive directors on the Board not more than one-third of the Board and the number of non-executive directors on the Board of not less than two-thirds of the Board. The implication is to have a preponderance of independent non-executive directors to enhance independence in the Board's decision-making processes.

#### AUDIT COMMITTEE MEMBERS

Consistent with section 359(4) of the Companies and Allied Matters Act (2004), every public company shall establish a Statutory Audit Committee whose membership shall be an equal number of directors and shareholders subject to a maximum of six(6). The National Code of Corporate Governance (2018), in addition to a Statutory Audit Committee, provides that every public company shall, have a Board Audit Committee which shall be made of at least three members, all of whom shall be non-executive directors, a majority of whom shall be independent non-executive directors; the chairman of the Board Audit Committee must be an independent non-executive director. In the case of the Statutory Audit Committee, its chairman shall be either an independent non-executive director or an independent shareholder.

#### BOARD GENDER COMPOSITION

Generally, men have dominated the composition of the boards of directors in many parts of the developed world (Kibiya, Ahmad, & Amran 2016). This is quite unlike the African continent where a number of inhibitions including socio-cultural, religious and traditional practices constrain women from attaining corporate board membership (Obanya & Mordi 2014). In the literature, certain benefits tend to accrue to boards that are gender-sensitive. Documented evidence has shown that female directors are more risk-averse than men (Eagly & Carli 2003). Similarly, women have a higher predisposition to abide by the rules and regulations in financial decision contexts than men (Bernardi & Arnold 1997).

One viewpoint on the previous Code of Corporate Governance (2011) (CCG 2011) has been that, including females on the boards of directors would improve corporate governance practices aimed at enhancing long-term shareholder value, through improving corporate performance, transparency, and accountability. Obanya and Mordi (2014) reported that women have distinctive features needed to influence the strategic direction of a company positively and contribute to the monitoring of the financial reporting process in Nigeria to avoid shenanigans.

#### BOARD DOMINANCE

Haleblian and Finkelstein (1993) define 'dominance' as the capacity of an individual to exert his or her will. Board dominance presupposes CEO dominance as the latter may be an important factor in financial reporting manipulation behaviour since the CEO is typically the most powerful member of the corporate elite (Jensen & Zajac 2004). In the context of the power exerted by the CEO, Board Dominance allows the chief executive officer's position and the Board's chairman's position to be held by the same person. Furthermore, studies have indicated that this could impact negatively on the objectivity of the financial statements of the company. Board Dominance is a vehicle for management override of control; therefore, it increases

the chances of financial statements manipulation. More so, the Boards where Board Dominance exists may not be effective, since, it could result in the manipulation of financial statements (Krause, Semadeni, & Cannella 2014). However, Board Dominance is usually attributed to the nature of some family-owned businesses in developing countries.

#### BENEISH M-SCORE MODEL

Corporate governance does not possess the magic wand that can detect, prevent and predict misstated financial statements alone without some fraud detection models, one of which, and recently too, is the Beneish model. This is a quantitative forensic technique, which was developed to detect and predict manipulated earnings and fraud in the annual financial statements of US-based energy giant and carpet cleaning organizations, respectively, Enron and ZZZZ Best Company Ltd. (Warshavsky 2012). This technique, developed by Professor Messod Daniel Beneish, was designed to detect and predict manipulation in a financial statement (Kara, Ugurlu & Korpi 2015).

Beneish model hinges its application on certain indicators of companies susceptible to financial statements manipulation. In all, these indicators include eight (8) financial variables. The indicators include (i) Days sales in Receivables index(DSRI) (ii) Gross Margin index(GMI) (iii) Assets Quality index(AQI) (iv) Sales Growth index(SGI) (v) Depreciation index(DEPI) (vi) Sales and General Administrative index(SGAI) (vii) Leverage index(LVGI), and (viii) Total Accruals and Total Assets(TATA). Wells (2001) stated that, the following ratios: DSRI, GMI,AQI, SGI, DEPI, SGAI, LVGI, and TATA are critical in detecting manipulation of financial statements Researchers have argued the probability of manipulation increases when the company's financial statements show significant changes in accounts receivable, deteriorating gross margins, decreasing asset quality, sales growth and increasing accruals (Chongsirithitisak 2015).

On Days Sales in Receivables Index (DSRI), DSRI for the current year is measured against the DSRI for the previous year (Beneish 1999; Grove & Clouse 2013) Premised on this, a company that is trying to manipulate its revenue or profit may deliberately make some relevant changes in its collection policies for early revenues; and allow its customers or client a highly extended and favourable credit terms so as improve significantly the inflows of liquid. By this practice, the company increases revenue in the immediate quarter as revenue dwindles in the future performance in subsequent quarters. DSRI measures how accounts receivables as a percentage of sales have changed compared to the year before (Amoa-Gyarteng 2014; Kara, Ugurlu & Korpi 2015).

Gross Margin Index (GMI) is constructed to detect irregularities of financial statements by measuring the ratio of a company's previous year's gross margin to the present year's gross margin (Beinesh 1999; Nwoye, Okoye & Oraka 2013). However, where the computed ratio is greater

than 1.0 ( $GMI > 1$ ), it indicates the possibility of irregularities in the company's gross margin (Mahama 2015).

Besides, the quality of a company's assets can be measured by the Asset Quality Index (AQI) computed through the ratio of non-current assets to total assets. This ratio indicates the amount of total assets that are not too certain to be realized (Beneish 1999). A greater than 1.0 ratio ( $AQI > 1$ ) indicates the possibility of an increased inventory of intangible assets in the non-current assets to allow the chances of earnings manipulation resulting from higher assets quality index (Beneish 1999; Mahama 2015). Presumptuously, the higher the AQI, the greater the probability of earnings manipulation. Grove and Clouse (2013) demonstrated the use of Asset Quality Index and concluded that an increase in the index may for all intents and purposes represent additional expenses deliberately capitalized to manipulate earnings. This is demonstrated when instead of expensing costs, such as research and development or advertising, these expenses are capitalized as intangible assets. The intent may be to increase assets while preserving the company's profitability through manipulation of earnings. Premised on this, Nwoye, Okoye and Oraka (2013) affirm that the greater the AQI, the more the possibility of financial statement irregularities or manipulation. In sum, this index captures the possible manipulations done in other assets which may indicate excessive capitalization of expenditure.

Furthermore, the sales growth metric, which is a revenue-related statistical model, is employed to detect the likelihood of manipulated financial statements through current sales and previous sales. This Sales Growth Index (SGI) occurs when the current sales are related to previous sales. If a company experiences a very large increase in sales from one period to the next, the presence of deferred revenue or booking phony or mock revenue may be suggested as a possibility (Grove & Clouse 2013). Sales Growth Index (SGI) was accentuated by Warshavsky (2012), using the financial data of US-based companies, and it indicates that a greater than 1.0 ( $SGI > 1$ ) computed value may suggest that sales growth of the current year compared to that of the prior year are manipulated or manipulated (Mahama 2015).

Similarly, the Depreciation Index (DEPI) is used as a signal of earnings manipulation (Beneish 1999). It measures depreciation expenses against property, plant, and equipment; therefore, an increase in income may indicate a reduction in depreciation expense, which in turn may highlight red flags of earnings manipulation. Interestingly, a depreciation index (DEPI) whose ratio is greater than 1.0 ( $DEPI > 1$ ), may indicate an upward review or adjustment of the estimated life span of a company's property, plant, and equipment (PPE), would increase its income (Grove & Clouse 2013), thus, revealing a possibility of manipulated financial statements.

In addition, Sales, General and Administration Expenses Index (SGAI) were described by Beneish (1999) and its use further demonstrated by Nwoye, Okoye & Oraka (2013)) as an index that compares the ratio of a

company's sales, general and administrative expenses to sales. Therefore, an increase in sales that is not proportionate to sales, general and administrative expenses may signal a negative indication of the company's future. It may also be an indication of a probable red flag that fraud is imminent. In specific terms, such a higher SGAI may be an indication of a fall in administrative efficiency traced to either management's failure to deploy the appropriate sales strategies in the course of the business or company's involvement in financial statements manipulation or shenanigans (Kara, Ugurlu, & Korpi 2015).

Furthermore, the Leverage Index (LVGI) provides the ratio of the company's total debt to total assets. According to Beneish (1999), where the leverage index ratio is greater than 1.0 ( $LVGI > 1$ ), it may suggest the possibility that the company may be prone to financial statement fraud. The possibility of fraud can be traced to an excessive increase in leverage; such can be a reflection of a company's susceptibility to earnings manipulation (Amoa-Gyarteng 2014).

Another metric of interest is Total Accruals to Total Assets (TATA). This metric presents the ratio of total expense accruals to total assets. The accruals represent non-cash earnings. An increased ratio portends the possibility of troubled financial statements. This is because of the leeway provided by this measure to commit fraud (Dalhat 2014; Dechow, Ge, Larson & Sloan 2007; Beneish, 1999 and Warshavsky, 2012). Besides, a large part of income may be reported as accruals. Such an increase may be intended to mask total income since such accruals may be artificial in nature and not backed up by cash. Such practices of deliberately resulting in high accruals at the time of decreased cash may denote possible earnings manipulations (Mahama 2015).

Beneish M-score model is a probability model, and such cannot detect 100% manipulation. However, the Beneish model works well for companies that have manipulated their financial statements (MacCarthy 2017); but certainly not for companies that have not. The Beneish model does not also show the length of time that the manipulated accounts can be said to be fraudulent. Wells (2001) stated that, the following ratios: DSRI, GMI, AQI, SGI, DEPI, SGAI, LVGI, and TATA are critical in detecting manipulation of financial statements, On the other hand, the Altman Z-score model works well for accounts that are not manipulated; It was developed in 1968 for the purpose of evaluating the bankruptcy risk of public limited companies (Amoa-Gyarteng 2014; Mahama 2015). The Altman Z-score is a multivariate statistical formula used to forecast the probability that a company will get into bankruptcy trap within the specified period of two years (Amoa-Gyarteng 2014). The model employs five ratios with their coefficients, which were developed based on Altman's research. The Altman Z score has three categories which include, a score of less than 1.81 ( $Z < 1.81$  including a high risk of bankruptcy) which shows the traditional red flag region (detect bankruptcy), while a score between 1.81 and 2.99 ( $1.81 < Z < 3$  i.e. uncertain region) indicates

the grey region, then a score greater than 3 ( $Z > 3$ ) is said to be healthy region (Altman 2005).

The major weakness of this model is the absolute focus on predicting bankruptcy, thus the model tends to analyze the financial statements of companies in order to determine if there is likely financial distress. However, other weaknesses of the model include the inability to view companies as a going concern while restricting the periods for bankruptcy risk test to only two (2) years which indicates a short term period, which is inadequate to reveal in details the exposure resulting from the misstatement done in the financial statements. The model did not consider the possibility of the companies experiencing financial distress through inflated and capitalized expenses, thus neglecting the expenses ratio (Altman 2005). The effectiveness of this model is further hindered by the limitations accompanying the ratios, such as the historical nature of data, inability to determine the authenticity of the figures, human factors, among others. Altman Z-score is a Multiple Discriminant Analysis (MDA) or a quantitative model used to distinguish between surviving and failing companies (Robinson & Maguire 2001) based on information gathered from published financial statements. Altman Z-score model is the quantitative model used to predict financial corporate distress. Altman Z-score has the ability to discriminate between companies that are financially distressed and those that are not financially distressed. The model used financial figures from financial statements and grouped them into five different variables for analysis. These ratios or independent variables are used to predict the probability that, the firm would go into bankruptcy in almost two years.

From the review of the literature, Beneish matrices, provide the means through which fraudulent financial statements can be resolved or uncovered. A careful analysis of the financial statement with these metrics and underlying financial records can reveal the possibility or otherwise of anomalies in the financial statements. However, empirical findings are required to support the potency or otherwise of these metrics.

#### EMPIRICAL REVIEW

Empirical research on the Beneish model has been documented: Beyond the initial work done by the forerunner (Beneish 1999) of the demonstration of this model, Warshavsky (2012) demonstrated Beneish model by using data from Enron Corporation and ZZZZ Best Company Ltd., both in the United States America. Beneish model was applied to the elements of the annual financial statements of these companies. Based on the analysis, it was discovered that the value arrived was greater than -2.22. The Beneish M score benchmark suggesting that the affected companies had engaged in financial statement manipulation prior to the time of the fraud outbreak.

In another study, Nwoye, Okoye and Oraka (2013) conducted a study and used primary and secondary data from audited financial statements of the first 5 most capitalized manufacturing companies, including Nigerian

Cadbury Plc, between 2002 and 2006. The application of the Beneish model on the companies revealed the potentials of the model, sufficient to detect financial statement manipulation. Beyond Nigeria, Beneish model has also been used in Ghana (Amoda-Gyarteng 2014), in the U.S., using Enron data (Mahama 2015), in Turkey (Kara, Ugurlu, & Korpi 2015), and in Thailand (Chongsirithitisak 2015).

In each of these studies, it was found that fraudulent practices were established before the 'bubble burst', with the conclusion that the Beneish model would have detected the fraudulent practices if it was ever used appropriately.

#### METHODOLOGY

The study employed ex-post-facto research design justified on account of the inability to manipulate the data of affected companies. In selecting the participating companies, simple random sampling was used to avoid biases in the choice of companies used. The study made use of data drawn within the period of 6 years (i.e. 2009 to 2014) and were collected from, 65 companies sampled from 189 (Factbook. 2014) at a 10% level of significance, using Yamane's (1968) sampling formula (See appendix for details). The analyses of data in the study were performed with the means of the Beneish model and logistic regression. The Beneish M-score was based on the eight (8) variables calculated, using the formula stated, thus:

$$M = -4.84 + (0.92 * DSRI) + (0.528 * GMI) + (0.404 * AQI) + (0.892 * SGI) + (0.115 * DEPI) - (0.172 * SGAI) + (4.679 * TATA) - (0.327 * LVGI) \quad (1)$$

Where -4.84 are a constant, and the individual variables of DSRI, GMI, AQI, SGI, DEPI, SGAI and TATA multiplied by their respective constant values of 0.92, 0.528, 0.404, 0.892, 0.115, 0.172, 4.679, and 0.327. In the model, summing the entire variables together is expected to provide a score of -2.22 less or more than this value. A score greater than -2.22 ( $> -2.22$ ) is an indication of the likelihood that the financial statements of a company may have been manipulated while a score that is less than -2.22 ( $< -2.22$ ) indicates the possibility of engaging in financial statements manipulation. These approaches are consistent with Mahama (2015) and Beneish (1999).

An extract from Warshavsky (2012) provides values that reflect the likelihood or otherwise of manipulation of financial statements.

Table 1 above contains the Beneish model metrics and individual standards or benchmarks established by Warshavsky (2012) to detect and predict companies that are likely to indulge in the manipulation of their financial statements. The likelihood of the non-manipulation of the individual metrics on the left indicates non-manipulation of financial statement earnings in table 1 above. However, the likelihood of manipulation of the metrics on the right reveals that the companies may likely be engaged in the manipulation of financial statements. With these extreme

TABLE 1. Values of likelihood or no likelihood of manipulation of financial statements

| Metrics                                  | Likelihood of Non-Manipulation of Financial Statements | Likelihood of Manipulation of Financial Statements |
|--|--|--|
| Days in Sales in Receivables (DSRI)      | $\leq 1.031$   | $\geq 1.465$                                       |
| Gross Margin (GMI)                       | $\leq 1.014$   | $\geq 1.193$                                       |
| Asset Quality (AQI)                      | $\leq 1.039$   | $\geq 1.254$                                       |
| Sales Growth (SGI)                       | $\leq 1.134$   | $\geq 1.607$                                       |
| Depreciation (DEPI)                      | $\leq 1.001$   | $\geq 1.077$                                       |
| Sales, General and Administrative (SGAI) | $\leq 1.054$   | $\geq 1.041$                                       |
| Total Accruals to Total Assets (TATAI)   | $\leq 0.018$   | $\geq 0.031$                                       |
| Leverage (LVGI)                          | $\leq 1.037$   | $\geq 1.111$                                       |

Source: Adapted from Warshavsky (2012).

divide, the affected companies are categorized based on this divide while the logistic regression model was used to select and categorize the companies.

Beneish M-score model, formulated from existing financial ratios, was applied to the elements of annual financial statements of Enron Corporation and ZZZZ Best Company to detect possible earnings manipulation. Based on the analysis, it was discovered that the values greater than -2.22 Beneish M scores were arrived at using both Enron Corporation's and ZZZZ Best Company's financial statements, thus, revealing that both companies had engaged in financial statement /manipulation/fraud prior to the time of the fraud outbreak. The benchmarks of Warshavsky (2012) are justified for use in Nigeria or any other country based on the universality of accounting language with the same use of terms and terminologies. Beside, the majority of countries today, including Nigeria, subscribe to the harmonization of accounting standards, such as the use of international accounting statements and international financial reporting standards on which the preparation of financial statements, such as the financial position/performances and values are based. To this end, financial values and performances were thrown up with the use of the financial metrics prior to the fraud outburst in Enron and ZZZZ Best Company Ltd.

Therefore, the eight financial metrics accentuated by Warshavsky (2012) truly reflect the "defacto" financial metrics for the detection and prediction of companies that are likely to indulge in fraudulent behaviours. The likelihood of the non-manipulations average of the individual metric indicates that the company is not likely to engage in earnings manipulation, where Beneish M-score is within the range contained in Table 1. However, the likelihood of manipulations mean of the metric reveals that the companies may likely be engaged in earnings manipulation when their Beneish M-score is within the manipulator's range.

#### MODEL SPECIFICATION, DATA PRESENTATION AND ANALYSIS

Logistic regression is a non-linear regression model that predicts values of 0 and 1. Binary. The logit model reflects this prediction, and it is appropriate and suitable for this

study. The binary logit categorizes the dependent variable into manipulated and non-manipulated financial statements of selected companies. The functional form of the model used was:  $MFS = f(BCOM, BGCO, AUDC, \text{ and } BODO)$ , and the testable form was:

$$FSF_{it} = \delta_0 + \delta_1 BCOM_{it} + \delta_2 BGCO_{it} + \delta_3 AUDC_{it} + \delta_4 BODO_{it} + \mu_{it} \quad (2)$$

Where;  $\delta_0$  = Constant;  $FSF_{it}$  = Financial statements manipulation for a 6-year period;  $\delta_1 BCOM_{it}$  = Board Composition for a 6-year period;  $\delta_2 BGCO_{it}$  = Board Gender Composition for a 6-year period;  $\delta_3 AUDC_{it}$  = Audit Committee Composition for a 6-year period;  $\delta_4 BODO_{it}$  = Board Dominance for a 6-year period;  $\mu_{it}$  = Stochastic error term;  $\delta_0, \delta_1, \delta_2, \delta_3, \delta_4$  = Regressants. Since the dependent variable has a dummy variables (that is, 1 or 0) category in this study, binary logistic regression analysis was used. Generally, the multivariate logistic regression model is defined as follows:

$$P(Y) = \frac{e^z}{1+e^z} \quad (3)$$

Herein Z is a linear combination of independent variables.

$$Z = \delta_0 + \delta_1 BCOM_{it} + \delta_2 BGCO_{it} + \delta_3 AUDC_{it} + \delta_4 BODO_{it} + \mu_{it} \quad (4)$$

Calculation related to logistic regression coefficients are as follows:

$$\begin{aligned} MFS &= \text{Manipulated financial statements} = 1; \\ NMFS &= \text{Non-manipulated financial statements} = 0 \end{aligned}$$

$$Q(NMFS) = 1 - P(MFS) \quad (5)$$

$$\frac{P(FSF)}{Q(NFSF)} = \delta_0 + \delta_1 BCOM_{it} + \delta_2 BGCO_{it} + \delta_3 AUDC_{it} + \delta_4 BODO_{it} + \mu_{it} \quad (6)$$

TABLE 2. Variables Definition and Measurements

| S/No | Variables | Definition                       | Capacity of Variables | Measurement(s)/Proxies   | Author(s) Who initially used it.   | Adapted and used in this study as follows:   | A priori expectation |
|------|-----------|----------------------------------|-----------------------|--|--|--|----------------------|
| 1    | MFS       | Financial Statement Manipulation | Dependent             | Possibilities of manipulating earnings take the value of one (1) and zero (0) otherwise. | Kara, Ugurlu and Korpi (2015).   | Take the value 1 if the company engaged in financial statements manipulation and 0 if otherwise. | N/A                  |
| 2    | BCOM      | Board Composition                | Independent           | Proportion of non-executive directors (NED) in the Board.                                | Chapple, Ferguson and Kang (2007), Norwani, Mohamad and Chek (2011), Matoussi and Gharbi (2011). | Proportion of non-executive directors in the Board.  | $\delta < 0 (-)$     |
| 3    | BGCO      | Board Gender Composition         | Independent           | Proportion of females in the entire Board.   | N/A  | Proportion of females in the entire Board.   | $\delta < 0 (-)$     |
| 4    | AUDC      | Audit Committee Composition      | Independent           | Proportion of non-executive directors (NED) in the committee.                            | Dabor and Adeyemi (2009).  | Proportion of non-executive directors (NED) in the committee.                                    | $\delta < 0 (-)$     |
| 5    | BODO      | Board Dominance                  | Independent           | coded 1 if there is Board Dominance and coded 0 if otherwise                             | Dabor and Adeyemi (2009), Adeyemi & Fagbemi (2010).Matoussi and Gharbi (2011).                   | Take the value 1 if there is Board Dominance and 0 if otherwise.                                 | $\delta < 0 (-)$     |



Natural logarithms related to both sides of the subordination rate equation. are presented, where required

$$\ln \frac{P(FSF)}{Q(NFSF)} = \delta_0 + \delta_1 BCOM_{it} + \delta_2 BGCO_{it} + \delta_3 AUDC_{it} + \delta_4 BODO_{it} + \mu_{it} \quad (7)$$

$$OR = \frac{P(FSF)}{Q(NFSF)} = e^z = e^{\delta_0 + \delta_1 BCOM_{it} + \delta_2 BGCO_{it} + \delta_3 AUDC_{it} + \delta_4 BODO_{it} + \mu_{it}} = Exp(\delta) \quad (8)$$

The Exp ( $\delta$ ) of each parameter in the aforementioned equations is taken as or values, more so, Exp ( $\delta$ ) specifies the number of times or the percentage of the possibility of observing Y variable with the effect of Xp variable with increased. The significance of  $\delta p$  coefficient is evaluated as the significance of OR (P) = Exp ( $\delta p$ ) as well.

#### OPERATIONALIZATION OF VARIABLES

Description and definitions of variables used for this study are shown in Table 2.

## RESULTS

### DESCRIPTIVE STATISTICS

The descriptive statistics are presented in Table 3 below where mean and standard deviation values of the variables used in the study are captured.

Table 3 shows the means and standard deviations of the individual variables. BCOM (Board Composition) has the mean and standard deviation of values 0.435267 and 0.332608 respectively. This is followed by BGCO (Board Gender Composition) with a mean value of 0.068213 and a standard deviation of 0.107914; the AUDC (Audit Committee Composition) has a mean and standard deviation values of 0.351538 and 0.258667 respectively

while the BODO (Board Dominance) has a mean and standard deviation of 0.069231 and 0.282892 respectively. However, the BCOM indicates the likelihood that 43% of the Non-executive Directors in the entire Board may aid or participate in the manipulation of financial statements while 57% may not manipulate financial statements. While there is a likelihood that 35% of the AUDC may aid or participate in the manipulation of financial statements and 65% of the members may object to the manipulation of financial statements. BGCO and BODO shows that on the average 7% of females in the entire Board may aid or participate in financial statements manipulation and 7% of BODO may aid financial statements manipulation respectively, while 93% females in the entire Board may not aid or participate in financial statements manipulation and 93% of BODO may not aid financial statements manipulation.

The Board and Management could employ an assortment of deceptive and fraudulent accounting practices to obscure their companies' actual financial position and financial performance.

### COEFFICIENT COVARIANCE MATRIX

The correlation covariance matrix for the explained and explanatory variables are analyzed and presented in Table 4.

Table 4 shows the association and interactions among the variables. The data correlate perfectly well between 0.004975 and 0.445516 and significant at a 5% confidence interval. Thus, there is no coefficient of covariance that is particularly large (greater than 0.7). However, the relationships between most of the explanatory variables are minimal, insignificant and negligible, hence, there is no singularity data problem; that is, and the data are differentiable or defined. There is a perfect fit between the dependent variable and the explanatory variables and there is no abnormality in the data used for this model. However, this further revealed that there is no problem of multicollinearity with the association that subsists among the variables.

TABLE 3. Descriptive Statistics for Explanatory Variables

| Variable     | Mean               |          |          |
|--------------|--------------------|----------|----------|
|              | Dep=0              | Dep=1    | All      |
| BCOM         | 0.437849           | 0.430707 | 0.435267 |
| BGCO         | 0.061407           | 0.080232 | 0.068213 |
| AUDC         | 0.355957           | 0.343735 | 0.351538 |
| BODO         | 0.076305           | 0.056738 | 0.069231 |
| Variable     | Standard Deviation |          |          |
|              | Dep=0              | Dep=1    | All      |
| BCOM         | 0.332603           | 0.333753 | 0.332608 |
| BGCO         | 0.098564           | 0.122149 | 0.107914 |
| AUDC         | 0.266636           | 0.244694 | 0.258667 |
| BODO         | 0.294781           | 0.261125 | 0.282892 |
| Observations | 249                | 141      | 390      |

TABLE 4. Coefficient of Covariance Matrix

|      | C         | BCOM      | BGCO      | AUDC      | BODO     |
|------|-----------|-----------|-----------|-----------|----------|
| C    | 0.012470  |           |           |           |          |
| BCOM | -0.006666 | 0.136676  |           |           |          |
| BGCO | -0.001469 | -0.027621 | 0.445516  |           |          |
| AUDC | -0.015218 | -0.143673 | -0.055593 | 0.235166  |          |
| BODO | 0.000502  | -0.010003 | 0.023209  | -0.004975 | 0.059635 |

## PRESENTATION AND DISCUSSION OF REGRESSION RESULTS

The summary of the regression model, is thus, presented in Table 5

$$\left(\ln \frac{P(FSF)}{Q(NFSF)}\right) = \delta_0 + \delta_1 BCOM_{it} + \delta_2 BGCO_{it} + \delta_3 AUDC_{it} + \delta_4 BODO_{it} + \mu_{it}.$$

Table 5 shows McFadden's pseudo R-squared of 0.008708. This indicates 0.87 percent probability of predicting the dependent variable by the explanatory variables in the model. Further, the low value of McFadden's pseudo R-squared of 0.008708 shows the very little probability of the corporate governance variables in the prediction of the manipulation of the financial statements of companies used in this study. However, the Low McFadden R-squared value may not suggest whether the coefficient estimates and predictions are biased, which is why one must assess the residual plots. One cannot also say that such a low McFadden's pseudo R-squared value indicates that the model is bad; but the McFadden's pseudo R<sup>2</sup> is an intuitive measure of how well the model fits.

The Z-statistics show that the corporate governance structures (Board Composition (BCOM), Board Gender Composition (BGCO), Audit Committee Composition (AUDC), Board Dominance (BODO) have no significant influence on annual financial statements manipulation. The non-statistical significance also shows that variables other than those assembled for this research may have predictive power. In light of the above, the null hypothesis is accepted while the alternative is rejected. The outcome of the Z-statistics value indicates that all the individual variables are less than 1.96 (Z-statistics  $-\text{test}_{\text{calculated}} < 1.96$ ). In the same vein, the individual Z-statistics-test probability value

is greater than 0.05 ( $P\text{-test}_{\text{calculated}} > 0.05$ ) at 5% confidence interval

In specific terms, the use of the Beneish model predicts were applied to data of selected companies extracted from financial statements with evidence of manipulation in some companies and non-manipulation in some others; this position demonstrates the method used by Warshavsky (2012) and Nwoye, Okoye and Oraka (2013) which showed that Beneish M-score benchmark could reveal financial statement manipulation/manipulation prior to the time of the outbreak. Board Composition (BCOM) has a positive but not significant relationship with Financial Statements Manipulation (MFS), and also not statistically significant. BCOM does not have a significant effect on financial statements manipulation, and on average, an increase in the size of the Non-Executive Director (NED) in a company's entire board, increases the tendency to detect, prevent and investigate the likelihood of financial statements manipulation. It was ascertained that BGCO has a positive relationship with the MFS and it was not statistically significant. BGCO has no significant impact on MFS and on average, an increase in the number of female genders in the company's entire board increases the tendency to detect, prevent and investigate the likelihood of financial statements manipulation in the entire company. This finding agrees with Obanya and Mordi (2014) which suggested that the gender-sensitive board has the potential of reducing the manipulations. It was ascertained that Audit Committee Composition (AUDC) has a negative relationship with MFS and it was not statistically significant. This indicates that AUDC has no significant effect on possible MFS and on the average, an increase in the company's compliance with the statutory required Audit Committee Composition, reduces the chances of financial statement manipulation in the entire company. This is consistent with the National

TABLE 5. Logistic Regression Output

| Variabes | Coefficient | Z-statistic | Probability | McFadden's pseudo R <sup>2</sup> | LR Statistic | Probability (LR Statistic) |
|----------|-------------|-------------|-------------|----------------------------------|--------------|----------------------------|
| C        | -0.522597   | -2.919615   | 0.0035      |                                  |              |                            |
| BCOM     | 0.092254    | 0.156968    | 0.8753      |                                  |              |                            |
| BGCO     | 2.157362    | 1.532058    | 0.1255      |                                  |              |                            |
| AUDC     | -0.650225   | -0.865974   | 0.3865      | 0.008708                         | 4.444134     | 0.349223                   |
| BODO     | -0.138982   | -0.330567   | 0.7410      |                                  |              |                            |

Source: Researchers' Computation (2016) using Eviews 8.0

Code of Corporate Governance (2018) and the Companies and Allied Matters Act (2004), though the impact is not statistically significant.

Furthermore, it was established that Board Dominance (BODO) has a negative relationship with financial statements manipulation (MFS) and it was not statistically significant. BODO has no significant effect on possible MFS and on average; a decrease in the company's BODO increases the detection, prevention, and investigation of the likelihood of MFS in the entire company. This finding is not however consistent with Krause, Semadeni and Cannella (2014) even though such a positive impact agree, though not significantly with the view of Norwani, Mohamad and Chek (2011) that the thrust and the policy direction of the Board of Directors, have the ability to detect, prevent and predict misstated financial statements (and that the Board of Directors provides the link or the bridge that connects the companies with the stakeholders.

#### CONCLUSION AND RECOMMENDATIONS

This paper examines the relationship between corporate governance and financial statements manipulation in Nigeria, using the Beneish model. It employed longitudinal and ex-post-facto research design with data extracted from the annual reports and accounts of sixty-five (65) selected companies between 2009 to 2014, the period of which witnessed near-stock market crash with the consequential low ebb in economic activities. Beneish model was applied to the data to determine the likelihood of other forms of financial statement manipulation. Given these matrices, the logistic regression technique was used to test the hypotheses. Findings revealed that financial statement manipulation was common, for diverse reasons, one of which was to boost the financial performance in the sampled companies in the Nigerian. On the basis of these findings, it was recommended that the Beniesh model be used in the interim to assess the financial statement manipulation Board of Directors of Nigerian companies should be composed of a higher proportion of Non-Executive Directors in order to present an unbiased disposition in their review of reports and accounts and their attitude of the detection of financial statements. Besides, there should be professional pronouncements on the appointment of female directors, as this will provide the companies with reasonable number of females as Board members to serve as a check on their male counterparts on the Board. More stringent measures, such as whistleblowing, ethics, value system, zero tolerance to fraud, just to mention a few, are to be effectively enforced by external regulatory authorities (such as Central Bank of Nigeria, Securities and Exchange Commission and the Nigerian Stock Exchange) in order to control the activities of the company's Board of Directors. In light of these recommendations, it is suggested for future research that Altman-Z score can be explored to evaluate the likelihood of financial statements manipulation in Nigeria.

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## APPENDIX 1.

## Sectoral Analysis

| S/N | Industry Sectors   | No of Firms | Manipulated Annual Reports |                          | Non Manipulated Annual Reports |                      |
|-----|--------------------|-------------|----------------------------|--------------------------|--------------------------------|----------------------|
|     |                    |             | No of Annual Reports       | % of Manipulated Reports | No of Annual Reports           | % of Non-Manipulated |
| 1   | Agriculture        | 4           | 10                         | 42                       | 14                             | 58                   |
| 2   | Conglomerates      | 10          | 20                         | 33.3                     | 40                             | 66.7                 |
| 3   | Construction       | 3           | 2                          | 11.1                     | 16                             | 88.9                 |
| 4   | Financial Services | 10          | 26                         | 43.3                     | 34                             | 56.7                 |
| 5   | Food Products      | 10          | 22                         | 36.7                     | 38                             | 63.3                 |
| 6   | Health Care        | 5           | 17                         | 56.7                     | 13                             | 43.3                 |
| 7   | ICT                | 4           | 2                          | 8.3                      | 22                             | 91.7                 |
| 8   | Industrial Goods   | 7           | 20                         | 47.6                     | 22                             | 52.3                 |
| 9   | Insurance          | 2           | 4                          | 33.3                     | 8                              | 66.7                 |
| 10  | Natural Resources  | 1           | 2                          | 33.3                     | 4                              | 66.7                 |
| 11  | Oil and Gas        | 6           | 12                         | 33.3                     | 24                             | 66.7                 |
| 12  | Services           | 3           | 4                          | 22.2                     | 14                             | 77.8                 |
|     | Total              | 65          | 141                        |                          | 249                            |                      |

Source: Researcher' Compilation (2016) using Beneish Model