CORPORATE FRAUD, EARNINGS MANAGEMENT AND FIRM VALUE: EMPIRICAL APPLICATION OF M-SCORES

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ABSTRACT

Background: Corporate fraud and earnings management have been controversial and discussed extensively in the literature, as companies consider the practices strategic and creative to keep their companies afloat and sustain a desired firm value. While this unethical practice has remained illegal, unethical and a global concern, the trajectory to higher incentives by executives to insider dealings to keep the stock price attractive by managers is unacceptable, this study provides new insight and implications of corporate fraud and earnings management on firm value.

Objective: This paper investigates the effect of corporate fraud and earnings management on firm value from the perspective of the application of Beneish M-Score manipulation and probability index as indicators to detect corporate fraud and earnings management on Tobin’s Q as a surrogate of firm value. The main aim is to establish the consequence of corporate fraud and earnings management on firm value and highlights the forms of corporate fraud and earnings management, stakeholders concerns and unattractiveness of fraud corporate in whatever capacity.

Method: Using descriptive statistics and inferential analysis, the study provides evidence that leverage index, sales growth and sales and administrative expense exerted positive effects and channels for corporate fraud and earning management of the selected Nigerian-listed consumer goods manufacturing companies. We found that while each of the day’s sales trade receivables index, assets quality index, leverage index and sales growth quality index exerted positive effects, the gross margin index, depreciation index and total accruals to total index exhibited negative insignificant effects. However, the joint attributes of corporate fraud and earnings management had a positive significant effect on Tobin’s Q as a firm value surrogate.

Our Conclusion: The study contributing to knowledge, provides new empirical evidence of the application of the Beneish M-Score model as a novelty to the probability incentive for corporate fraud and earnings management in the companies examined.

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FRAUDE CORPORATIVA, GESTÃO DE LUCROS E VALOR FIRME:
APLICAÇÃO EMPÍRICA DE M-SCORES

RESUMO

Histórico: A fraude corporativa e a gestão de lucros têm sido controversas e discutidas extensivamente na literatura, já que as empresas consideram as práticas estratégicas e criativas para manter suas empresas em funcionamento e sustentar um valor firme desejado. Embora esta prática antiética tenha permanecido ilegal, antiética e uma preocupação global, a trajetória para maiores incentivos por parte dos executivos para negociações com base em informações privilegiadas a fim de manter o preço das ações atraente por parte dos gerentes é inaceitável, este estudo fornece novas percepções e implicações da fraude corporativa e da gestão de lucros sobre o valor da empresa.

Objetivo: Este artigo investiga o efeito da fraude corporativa e da gestão de ganhos no valor firme da perspectiva da aplicação da manipulação da pontuação-M Beneish e do índice de probabilidade como indicadores para detectar a fraude corporativa e a gestão de ganhos na Q Tobin como um substituto do valor firme O principal objetivo é estabelecer a consequência da fraude corporativa e da gestão de ganhos no valor firme e destaca as formas de fraude corporativa e gestão de ganhos, as preocupações das partes interessadas e a falta de atratividade da fraude corporativa em qualquer capacidade.

Método: Usando estatísticas descritivas e análise inferencial, o estudo fornece evidências de que o índice de alavancagem, o crescimento de vendas e as despesas administrativas e de vendas exerceram efeitos positivos e canais para fraude corporativa e gestão de ganhos das empresas de fabricação de bens de consumo listadas na Nigéria selecionadas. O Tribunal constatou que, embora cada um dos índices de contas a receber comerciais de vendas do dia, o índice de qualidade dos ativos, o índice de alavancagem e o índice de qualidade do crescimento das vendas tenham exercido efeitos positivos, o índice de margem bruta, o índice de depreciação e as acumulações totais para o índice total apresentaram efeitos negativos insignificantes. No entanto, os atributos conjuntos da fraude empresarial e da gestão dos lucros tiveram um efeito positivo significativo na Tobin’s Q enquanto substituto de valor de empresa

Conclusão: O estudo que contribui para o conhecimento fornece novas evidências empíricas da aplicação do modelo M-Score da Beneish como uma novaidade para o incentivo de probabilidade para a fraude corporativa e gestão de ganhos nas empresas examinadas.

Palavras-chave: fraude corporativa, gestão de ganhos, valor firme, margem bruta, crescimento de ativos, alavancagem.

1 INTRODUCTION

Sustainable value creation and additional efforts in corporate economic competitiveness are the trajectory drive of organizations’ determination and motivation in pursuing strategic initiatives among companies. Firm value (FV) and corporate fraud
have dominated high interest and are receiving increasing vast scholarly attention in the literature. Creating the ambience and enabling economic certainties are significant but a careful selection of the skilful and competent managerial team to navigate the road map to efficient optimization of corporate resources is essential in achieving set goals. The heterogeneity of operational demands to achieve expected firm value in Nigeria is complex and problematic as the companies listed and operating in Nigeria are faced with challenges and high disincentives (Ebinobowei, 2022; Akintoye et al., 2022). Evidently, the lack of enabling environment and contractual agreements for the protection of corporate rights are grossly ineffective due to infrastructural deficits and weak institutions in dispensing justice in protection and reassuring corporate organizations of corporate rights to contractual obligations and efforts to sanction unethical practices (Omesi & Appah, 2021; Rehman & Hashim, 2021).

Fraud no doubt is a global phenomenon and investors are still apprehensive and have shown a lack of confidence in the dynamics and extent of transparency, openness and honest dealings in the capital market (Khatib & Nour, 2021). All over the world, firm values are driven by both the activities in the market and other externalities. However, most importantly, the volume of trade, demand for common stock, share prices and vibrant participation of investors in the market tend to drive the firm value of participating companies. High levels of resentment and indifference to the credibility of reported earnings of companies’ performance and underlying stock prices have implications on the firm value as a consequence of asymmetric information surrounding market activities in Nigeria (Ozili, 2020; Akhidime, 2020). Franklin et al. (2022); Hendratama and Huang (2021) revealed that a lack of transparency and incentives for fraud is a great danger to corporate growth and firm value as strategic efforts have not curtailed the deepening scourge of corporate fraud and managers’ incentives to unhealthy earnings management.

Insider dealings, corporate fraud and other corporate financial crimes are dangerous to corporate image. Brand names have dramatic consequences on corporate competitiveness in the industry where they operate (Nguyen et al., 2020; Abdul et al., 2015). Corporate fraud and unethical earnings management are capable of eroding firm values and are critically destructive to stakeholder legitimacy and acceptance by the stakeholders and the general public. According to Al-Ahdal et al. (2020), the loss of stakeholders’ legitimacy, confidence and patronage has a damaging impact on firm value as well as corporate sustenance. Nigerian firms are struggling with myriad challenges.
impeding corporate growth and firm value. For instance, Al Amosh and Khatib (2021) posited that their economic policy somersault as economic policies are at the discretion of some politicians as the country lacks the successional continuity of imitated economic plans.

Foreign investors are concerned about what could be the next economic policy of the incoming politician as ongoing economic policy and existing contracts and corporate rights to property and the contract could be terminated by an ignorant new government. According to Free (2015), the problem of firm value is the lack of trust and confidence of investors in Nigeria's dynamics and business climate.

Corporate fraud seemed to have been institutionalized in Nigeria and trenched as cultural norms and every corporate body is not exempted (Anabd et al., 2015). Sadly, while corporate fraud impact firm value, the colour of corporate fraud is diverse and are various forms and companies are involved in various ways, deliberate withholding deducted Value Added Tax in most cases actual deductions are not remitted, under declaration of assets, understating taxable profits and corporate tax aggressiveness, under declaration of actual Pay-As-You-Earn (PAYE) by the corporate organization are common practices and every single corporate organization is closely associated with these forms or corporate fraud. According to Olaoye and Aguguom (2017), multinational companies and the constant practice of tax erosion actions and profits shifts activities and this is another form of corporate fraud.

From the global perspective, fraud has become a disturbing phenomenon with the advent of technologies and sophisticated cybercrime devices. The growth and expanding financial crimes and corporate fraud have now taken a new increasing dimension (Alsharairi et al., 2014). The cases of Enron, Tyco, WorldCom, Xerox, AIG, Parmalat, Bankia and many others at the time were insignificant compared to the growing wave of fraud and financial crimes in contemporary business operations (Gomez-Mejia, 2014; Ananzeh et al., 2022). Strategic initiatives for corporate fraud and earning management control should work together to devise legal and regulatory friction measures to detect and prevent fraud and earning management practices where possible (Sa’id & Azmi, 2020). Fraud is a monster and addressing this economic monster is a holistic response integrating fraud detection, prevention and redress, underpinned by strong determination and understanding of corporate inherent risks (Ahmad et al., 2021; Mishra et al., 2022).
Beneish et al. (2013) opined that corporate fraud and earnings management have ripple effects on firm value and corporate effective performance. Prior studies have written extensively on the possible inherent danger of corporate consequences of fraud. In 2016, businesses lost a total of 5%, amounting to $3.7 trillion in economic losses resulting from corporate fraud in a year alone and the number has been growing by 25% annually (Castillo-Merino & Rodriguez-Perez, 2021). Consequently, given the unprecedented growth rate of corporate fraud and costs associated with fraud and the incidence of unethical earnings management, researching using identified models that could accurately predict fraud is a novel contribution to knowledge from the perspective of fraudulent financial statements as another focus of the study.

The extent of literature on firm value and possibly earnings management is quite extensive but empirical consideration of corporate fraud as it affects firm value is scanty. Efforts of prior studies streaming towards detecting financial misstatements and other irregularities have been extensive (Timofeyev & Jakoljevic, 2020; Ibrahim & Hassan, 2021). However, empirical efforts have not been exhausted in the literature as new frauds, as there are still wide landscapes, owing to growing fraudulent acts and financial crimes. In addition, good empirical studies considering the problem of firm value are scanty, much remains to be done from the perspective of corporate fraud and earnings management to offer insight and guide to stakeholders, policymakers, regulators, academia and managers empirical research of the implications and effects of corporate fraud and earnings management on firm value using M-Score are scare screening model for fraud detection is novel and critical research in emerging accounting literature in Nigeria.

In pursuance of the objective of the study, identified parameters to surrogates to measure corporate fraud, earnings management and firm value are significant in providing much-needed innovation in corporate fraud detection. M-Score model measures were given in Table 1. Herein, this study formulated the understated research objective and hypothesized thus:

1.1 RESEARCH OBJECTIVE AND HYPOTHESIS

Examine how corporate fraud and earnings management affect Tobin’s Q of selected Nigerian listed consumer goods manufacturing companies.
H01: Selected Nigerian listed consumer goods manufacturing companies do not considerably suffer from corporate fraud and earnings management

This is how the rest of the article is organized. The next part examined the body of prior research and a theoretical framework from the viewpoints of corporate fraud, earnings management, and firm value. The study's methodology has been discussed in part three, and the data analysis, findings, and conclusions are provided in section four. Section five of the research provides recommendations, contributions to knowledge, and limits in addition to its conclusion.

2 THEORETICAL FRAMEWORK

2.1 CORPORATE FRAUD AND FIRM VALUE

The mediating nexus between corporate fraud and firm value is considered in relation to the discussion of the association between the propensity to fraud and the implicating effects on corporate image and firm value. The current study tends to demonstrate the undignified effects and reoccurring incentives for fraud by corporate executives and corporate bodies. Corporate fraud is concerned with illegal activities undertaken by individuals acting on behalf of corporate bodies or companies that are carried out in a dishonest or unacceptable ethical manner (Ali et al., 2022; Chen et al., 2020). In most instances, corporate fraud has a close negative effect on firm value. The growth and sustainable firm value lie in growing and maintaining a corporate image bone out of clear hard work, intensive competence and efficiency in the deployment of corporate capital and human resources of an organization (Aguguom et al., 2019). On the contrary, corporate fraud is designed to give an undue advantage to the perpetrating company as an aggressive manoeuvring legal and regulatory framework to achieve corporate goals or monetary gains (Roman et al., 2023; Chen et al., 2020; Franklin et al., 2021).

Zhao et al. (2021) posited that corporate fraud is influenced by a company's internal and external governance features. Local independent directors reduce the likelihood and severity of fraud in listed companies through internal governance (Zhou & Liu 2017). The largest shareholder in a corporation often owns a sizable number of shares, which helps to prevent unlawful activities (Chen et al. 2005). According to Chen et al. (2006), a company's board of directors' qualities can influence how frequently fraud occurs. The likelihood of fraud happening is particularly correlated with the percentage
of outside directors, the frequency of board meetings, and the term of the chairman. Additionally, the amount of corporate fraud is correlated with executive compensation structures, incentive payments in the form of options raise the risk of fraud, and anomalous upward earnings manipulations occur (Zhao et al., 2021; Chen et al., 2020).

Apparently, corporate fraud schemes transients beyond the scope of outsmarting the corporate victims or the stakeholders at large, rather fraud and unethical behaviours are marked by enduring complexities and economic impact that tend to hurt companies for years to come (Franco de Lima & Machiel-Lima, 2021; Falivena, 2020’ Huran et al., 2020). Falsifying accounting information, misrepresenting services or compromising the quality of products, tax evasion and other forms of tax aggressiveness aimed at taking undue advantages, misstatements and restatements considered as dishonest or illegal. The highly celebrated case of the Enron scandal of 2001 is a pointer to the damage fraud and financial crimes that could destroy corporate image and reputation (Jackson et al., 2020; Khan et al., 2021).

The firm’s worth can be positively impacted by corporate governance’s interest in corporate fraud and earnings management (Borghesi et al., 2019; Buchanan et al., 2018; Chang et al., 2019; Harun et al., 2020; Zolotoy et al., 2019). However, this cannot be applied generally, considering the fact that certain parties are primarily institutional investors, it is reasonable to believe that executive directors and senior management are only playing roles to conceal the company’s overall criminality (Aguguom & Olanipekun, 2021; Chen & Gaviou, 2015). Although executive directors and top management are a good thing, they still can’t erase the company’s whole history of wrongdoing. The study agrees with this premise since the general public said that top management and executive directors were employed to hide companies’ ugliness. Although fraud or embezzlement by company executives can take numerous forms, it frequently comes down to the following actions: theft of assets; falsification of financial reports; and failure to disclose disclosure that is not comprehensive or information that is deceptive.

2.2 EARNINGS MANAGEMENT AND FIRM VALUE

Globally, earnings are a company's profits, and investors, stakeholders, and analysts use earnings to gauge how appealing a certain stock is. Typically, the share prices of companies with bad profit prospects will be lower than those with strong prospects (Hendratama & Huang, 2021; Kartika, 2019). According to Lie et al. (2020), a company’s
potential for greater profits in the future is a key factor in determining the price of its stock. Earnings management is a strategy used by business management to consciously control the organization's earnings so that the figures meet a specific objective. This process is used to balance revenue (Mishra et al., 2022; Yang & Lee, 2020). The morality and fraud elements in earnings management have been extensively discussed in prior studies (Nawawi & Salin, 2018; Ozturk & Usul, 2020; Sakti et al., 2020). Sule et al. (2019) argued to ensure plausible firm value, managers engage in earnings management. Timofeyev and Jakovljevic (2020) remarked that the distortion and predetermined objective perspectives are disturbing and cannot be considered ethical actions as the business will want to maintain generally steady earnings at all means possible by adding and subtracting cash from reserve accounts rather than experience years of unusually high or low earnings (known as “cookie jar” accounts).

Zolotoy et al. (2019) documented that one sort of earnings management is when a company uses an accounting method that gives the impression it is making more profits in the near term to avoid sending red flags messages to stakeholders. The publicized fall of bankruptcy of energy giant Enron Corporate in 2001 will always be a reference point in the literature (Blythe & Goodpasture, 2019; Akhidime, 2020). Citrawati et al. (2020) posited that The Enron Corporation manipulated its statement of financial position using fictitious holdings and of-the-books accounting practices. The intention was to boost earnings and conceal the company’s obligations. Dang et al. (2020) revealed that earnings management has had a negative influence on firm value, suggesting that discretionary earnings are intended. According to Falivena (2020), earnings management is negatively associated with firm performance and inversely related to firm value. In previous studies, some business capitalises on their costs as an additional method of managing earnings (Hab et al., 2019; Hendratama & Huang, 2021). A company will capitalize expenditures as assets over time as opposed to recording costs as expenses right away on its statement of financial statement, in the process, the company increases its profits by altering the recording of expenditures.

Studies have shown concern about several ways earnings management could influence firm performance in order to impact firm value as desired (Howieson, 2018; Mishra et al., 2022). However, Olaoye et al. (2019); Sahdan et al. (2020); Saeidi et al. (2021) revealed several indicators that companies may be faking and manipulating their financial statements accounting numbers aimed at boosting revenue as management
strategies or corporate fraud: (i) Making claims of revenue growth without an equivalent increase in cash flow (ii) reporting greater earnings that only happen in the last quarter of the fiscal year (iii) increasing non-current assets beyond what is typical for the company or sector (iv) overstating the net worth of assets by failing to apply the proper accounting prescribed standards or depreciation schedule (v) occasionally provide investors and analysts with crucial information about possible changes financial methods

2.3 THEORETICAL FRAMEWORK

From the perspective of fraud scale theory: Albrecht in the year 1984 created the fraud scale after analysing 212 scams that occurred in the first half of 1908. The fraud scale theoretical understanding was based on the experience of company internal auditors of companies that had experienced corporate fraud or were motivated to earnings management, as a consequence of corporate pressure and opportunities (Abdul et al., 2015; Anand et al., 2015). Albrecht et al. (1984) posited that besides corporate pressure, there is corporate integrity and lastly rationalisation. Unlike rationalisation, which is exceedingly difficult to operationalize, corporate integrity may be assessed based on prior behaviours. Banker et al. (2014) revealed that executives and managers of such companies seldom re-hire top management employees who have performed poorly in their prior roles or who have been accused of financial misconduct.

The nexus between corporate fraud, earnings management and firm value was further expressed in fraud triangle theory as one of the earliest models to attempt to explain corporate fraud as propounded by Cressey in 1950. Cressey (1950) postulated a model to represent white-collar crimes in general, but it has since evolved into one of the most common models employed to characterise corporate fraud and this has been extensively mentioned in many standards throughout the world in prior studies (Brickner et al., 2010; Free, 2015; Eckert et al., 2019). According to VanAkkeren and Buckby (2015), Cressey identified three perspectives that influence corporate fraudulent actions based on interviews with white-collar criminals. Firstly, a non-shareable financial problem (corporate pressure/incentive to alter or manipulate facts. Secondly, knowledge of flaws in a corporation’s structure and operational opportunities would allow easy manipulation of facts, commit fraud and escape detection. Thirdly, the capacity to convince itself that the fraudulent actions or earnings management are not necessarily wrong but corporate strategy to remain afloat (rationalizations).
2.4 EMPIRICAL REVIEW

Corporate fraud, earnings management and firm value had been examined in prior studies and earnings management is employed for incentives contracts, and credit evaluation and valuations (Canina & Potter, 2018; Le, 1983; Banker et al., 2015; Tarjo et al., 2022; Zhao, 2020). Canina and Potter (2018) examined earnings management practices in lodging properties from the earnings persistence and predictability perspective and found that entry barriers determined by the proportion of marketing expenses had a favourable effect on profits and that revenue diversification benefits the companies to ensure profit stabilization. Similarly, some of the earliest studies. Lev (1983) and Banker et al. (2015) studied economic determinants of the time-series property of earnings management and differentiation strategy and sustainable firm performance respectively. The two studies revealed that earnings management characteristics and differentiation negatively affect firm performance.

In a related recent study, Tarjo et al. (2022) investigated the possibility that financial fraud could reduce the direct effect of Corporate Social Responsibility (CSR) on business value. The study used a fixed effect model based on Hausman diagnostic test statistics and discovered evidence to support this hypothesis. According to Chen et al. (2020)'s study of the capital spillover effect of the product market from stock price synchronicity in China, sharing information about a particular company can reduce information symmetry and stock price synchronicity. This is because the presence of many significant stakeholders may reduce corporate fraud by lowering the level of information asymmetry within a company.

Zhao et al. (2021), using data from Chinese listed businesses from 2010 to 2018, this study examined the impact of numerous significant owners on the degree of corporate fraud. When there are several huge corporations, we discover reduced frequencies and probabilities of corporate fraud. Chinese listed firms often have shareholders, showing that their existence affects corporate governance. Even if endogeneity is taken into account, these results remain. The separation of control rights and cash flow rights further strengthen the impact of several wealthy owners on corporate crime. Additional research revealed that businesses with several significant owners face far less information disclosure fraud, but no less operating or leader fraud.

Following the results consistent with previous studies, Ali et al. (2022) investigated how accounting fraud affects the accuracy of profits following the
completion of corrections, with a particular emphasis on the time after corporations submit their correction reports. That, upon the discovery of accounting fraud, amended their securities filings. The study found that the profit is employed for stock price appraisal if a firm is successful in both the years just prior to and following the completion of the correction, but the loss is not considered favourably.

More so, other studies have found that corporate fraud can be harmful to the company. Fraud can also result in costs for the organisation and damage its reputation (Dang et al., 2020; Devi et al., 2021; Hab et al., 2019; Hernawati et al., 2021; Karpoff & Lott, 1993). The primary factor driving the company's value reduction is internal fraud (Eckert et al., 2019; Sakti et al., 2020; Tarjo et al., 2021). The securities fraud scandal, in addition to internal causes, has the potential to reduce the firm's worth by causing impacted firms to lose the majority of their market value. Such theories claim that fraud can lessen the effect of corporate social responsibility on a company's worth. As a result, the effect of corporate social responsibility on the firm's value may be lessened if there is financial wrongdoing within the firm.

3 METHODOLOGY

In this section, we presented the methods adopted in the study. In consideration of the possible effect of corporate fraud and earnings management on firm value, we adopted M-Scores. The M-Scores were used by Beneish (1999); Grana (2016); Ramirez-Orellana et al. 2017) in various studies to detect fraud from the reported information content of the financial statements. In this study, the M-Scores were captured from the financial statements of the selected 10 consumer goods manufacturing companies listed in Nigeria for a period of 10 years covering 2012 to 2021.

3.1 M-SCORES

The M-Scores will be adopted as used in the previous studies to capture either the financial statements distortion that could have resulted in possible corporate fraud of manipulations or preconditions that have been as a result of earnings management as they could affect firm value. M-Scores use eight financial statement variables pragmatically designed to capture possible distortion in the financial statement data to ascertain the possibility of detecting fraud-induced manipulations.
Firm value is the main dependent variable but will be surrogated with Tobin’s Q (T_Q). Tobin’s Q was selected since it will capture the firm value from the market perspective of stock and share prices of the companies. According to previous studies, the study's independent variables include corporate fraud and profit management. Ramirez-Orellana et al. (2017) examined fraud and earnings of a worldwide family business, whereas Grana (2016) looked at Austevoll Seafood Marine Harvest in Boston. Beneish (1999) utilised Pescanove's financial statements to determine if the company's fraud might have been discovered. The study adopts M-Scores and takes into account eight (8) explanatory variables, including the day’s Sales trade receivable index (DTRI), gross margin index (GMI), assets quality index (AQI), leverage index (LVGI), depreciation index (DEPI), total accruals to total assets (TATA), sales growth index (SGI), sales and administrative expenditures index (SGAI).

Day’s Sales Trade Receivable Index (DTRI): A measurement of whether changes in trade receivables are consistent with changes in sales in the day's receivables is the trade receivable index

The Gross Margin Index (GMI): This often measures the gross margin, which is calculated as sales minus the cost of goods sold has decreased, which is a warning sign for a company's future prospects.

The Asset Quality Index (AQI): This tries to gauge shifts in a company’s asset quality and, consequently, hazards. This index’s increases indicate a rising willingness to capitalize on and postpone expenditure.

The sales Growth Index (SGI): This compares sales in year t to sales in year t minus 1. Although growth in and of itself does not suggest manipulation, growing companies are seen to be more inclined than other companies to engage in fraud due to pressure placed on their management to meet financial targets.

Depreciation Index (DEPI): This tends to track changes in depreciation rate. An increase in this index demonstrates an organization’s attempts to lower depreciation in order to boost profits.

Sales and Administration Expenditure Index (SGAI): The ratio of sales and administrative expenses to sales is known as the sales and administrative expenditure as this index’ abnormal rise might be viewed as a warning concerning the company’s future prospects.
**Leverage Index (LVGI):** This metric shows the overall debt a company has in relation to its assets. Higher readings of this metric are thought to indicate the managers of the company are more motivated to manipulate results than break s debt commitment.

**Total Accruals to Total Assets (TATA):** This measures how much revenue is reliant on cash. It’s possible that manipulating results might result in more positive and less cash.

### 3.2 MODEL SPECIFICATION

\[ T_Q = f(D_{TRI}, GMI, AQI, LVGI, DEPI, TATA, SGI, SGAI) \]  
\[ T_{Qi_t} = \beta_0 + \beta_1 D_{TRIit} + \beta_2 GMI_{it} + \beta_3 AQI_{it} + \beta_4 LVGI_{it} + \beta_5 DEPI_{it} + \beta_6 TATA_{it} + \beta_7 SGI_{it} + \beta_8 SGAI_{it} + \mu_{it} \]

Where:

- \( T_Q \) = Tobin’s Q, \( D_{TRI} \) = Day’s Sales Trade receivable index, \( GMI \) = Gross margin index, \( AQI \) = Assets quality index, \( LVGI \) = Leverage index, \( DEPI \) = Depreciation index, \( TATA \) = Total accruals to total assets, \( SGI \) = Sales growth, and \( SGAI \) = Sales, administrative expenses index.
### Table 1: Measurement of Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Abrev.</th>
<th>Measurement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobin’s Q</td>
<td>T_Q</td>
<td>[T_{-Q_{it}} = \frac{(BVA_{it} + MVE_{it} - BVE_{it})}{BVA_{it}}]</td>
<td>Zhao et al. (2021)</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day’s Sales Trade Receivables Index</td>
<td>DTRI</td>
<td>Receivables/Sales, Receivables_{t}/Sales_{t-1}</td>
<td>Beneish (1999); Grana (2016); Ramirez-Orellama et al. (2017)</td>
</tr>
<tr>
<td>Gross margin index</td>
<td>GMI</td>
<td>(Sales_{t-1}-Cost of goods sold_{t-1})/Sales_{t-1}</td>
<td>Ramirez-Orellama et al. (2017)</td>
</tr>
<tr>
<td>Assets quality index</td>
<td>AQI</td>
<td>1-(Current assets_{t} + PPE_{t})/Total assets_{t}</td>
<td>Beneish (1999); Grana (2016); Ramirez-Orellama et al. (2017)</td>
</tr>
<tr>
<td>Leverage index</td>
<td>LVGI</td>
<td>(Total debt_{t}/Total assets_{t})</td>
<td>Ramirez-Orellama et al. (2017)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Beneish (1999)</td>
</tr>
<tr>
<td>Depreciation index</td>
<td>DEPI</td>
<td>Depreciation_{t}/Depreciation_{t-1} + PPE_{t}</td>
<td>Ramirez-Orellama et al. (2017)</td>
</tr>
<tr>
<td>Total accruals to total assets</td>
<td>TATA</td>
<td>Δ[Working capital + ΔCash - Depreciation] / Total Assets_{t}</td>
<td>Ramirez-Orellama et al. (2017)</td>
</tr>
<tr>
<td>Sales growth</td>
<td>SGI</td>
<td>Sales_{t} / Sales_{t-1}</td>
<td>Ramirez-Orellama et al. (2017)</td>
</tr>
<tr>
<td>Sales and administrative expenses index</td>
<td>SGAI</td>
<td>Sales and administration expenses_{t}/Sales_{t}</td>
<td>Ramirez-Orellama et al. (2017)</td>
</tr>
<tr>
<td>Source: Research (2022)</td>
<td></td>
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</tbody>
</table>
4 RESULTS AND DISCUSSIONS

The presentation and discussion of the outcomes of the statistical analysis conducted to explore the empirical connections that exist between corporate Fraud, Earnings Management and Firm Value are presented in this subsection. For a clear understanding, this subsection is prearranged in two (2) separate segments. The first segment examines the main features of the variables of interest using a descriptive analysis approach. The main statistical tools employed are charts, tables, mean and standard deviation. In the second segment, the empirical analysis is carried out using a panel regression approach. Nevertheless, prior to the empirical analysis; correlation analysis is carried out to inspect if there are any potential associations among the variables of interest.

4.1 DESCRIPTIVE ANALYSIS

The description of the selected series for the purpose of this study is considered in this part as mentioned earlier using charts, tables, mean and standard deviation.

4.1.1 Summary of the Selected Series by Firm

Figure 1 presented the summary of the selected Corporate Fraud, Earnings Management and Firm Value proxies by Firm. There are obvious differences in the selected Corporate Fraud, Earnings Management and Firm Value proxies across the selected firms. Specifically, during the 10 fiscal years, T_Q-chart shows that the firm with the highest average T_Q value (1.127) is Neimeth International Pharmaceuticals Plc, followed by International Breweries Plc and Nestle Nigeria Plc with 0.774 and 0.741 as the average values respectively. On the other extreme, Lafarge Africa Plc has the least value (0.387). The firms are largely with ratios of less than one suggesting that they are all undervalued firms except Neimeth International Pharmaceuticals Plc. For TRI-chart, the firm with the highest average TRI value (1.432) is Chemical and Allied Products Plc, followed by Beta Glass Plc and Flour Mills Nigeria Plc with 1.374 and 1.315 as the average values respectively. On the other extreme, Neimeth International Pharmaceuticals Plc has the least value (0.981). The relatively high values could mean that the firms’ collection of accounts receivable is effective or they are conservative when it comes to credit extension to customers. For GMI-chart, the firm with the least (0.670) and highest (1.099) average
values are Cadbury Nigeria Plc and Flour Mills Nigeria Plc respectively while for AQI-chart, International Breweries Plc top the list with an average value of 1.838. Also, for LVGI and DEPI-charts, Cadbury Nigeria Plc and Neimeth International Pharmaceuticals Plc respectively top the list. For the TATA chart, it can be seen that the firm with the highest (-0.143) negative average value is International Breweries Plc while the least (-0.002) is May & Baker Nigeria Plc. For SGI and SGAI-charts, International Breweries Plc and Lafarge Africa Plc respectively top the least.

![Figure 1: Summary of the selected Series by Firm](image)

Note: T_Q = Tobin’s Q, DTRI = Day’s sales trade receivable index, GMI = Gross margin index, AQI = Assets quality index, LVGI = Leverage index, DEPI = Depreciation index, TATA = Total accruals to total assets, SGI = Sales growth, and SGAI = Sales, administrative expenses index; 1 = Beta Glass, 2 = Cadbury, 3 = CAP, 4 = FMN, 5 = Guinness, 6 = Int. Breweries, 7 = Lafarge, 8 = May & Baker, 9 = Neimeth Int., 10 = Nestle

Source: Authors computation (2022), based on data from selected firms’ financial documents submitted to Nigerian Exchange Group.

4.1.2 Trend of the Selected Series

Table 1 offers the descriptive statistics of selected series averaged for each year.
### Table 1: Trends of the selected series

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>T_Q</td>
<td>0.655</td>
<td>0.643</td>
<td>0.648</td>
<td>0.651</td>
<td>0.679</td>
<td>0.723</td>
<td>0.684</td>
<td>0.564</td>
<td>0.625</td>
<td>0.669</td>
</tr>
<tr>
<td>DTRI</td>
<td>1.849</td>
<td>1.394</td>
<td>1.038</td>
<td>0.946</td>
<td>1.490</td>
<td>0.301</td>
<td>1.074</td>
<td>1.308</td>
<td>0.834</td>
<td>0.842</td>
</tr>
<tr>
<td>GMI</td>
<td>0.973</td>
<td>0.795</td>
<td>0.838</td>
<td>1.054</td>
<td>1.121</td>
<td>0.949</td>
<td>1.061</td>
<td>1.129</td>
<td>0.977</td>
<td>1.047</td>
</tr>
<tr>
<td>AQI</td>
<td>0.879</td>
<td>0.355</td>
<td>0.648</td>
<td>0.812</td>
<td>0.915</td>
<td>1.564</td>
<td>1.108</td>
<td>1.575</td>
<td>1.062</td>
<td>1.159</td>
</tr>
<tr>
<td>LVGI</td>
<td>0.961</td>
<td>0.975</td>
<td>0.985</td>
<td>0.992</td>
<td>1.132</td>
<td>1.074</td>
<td>0.964</td>
<td>0.951</td>
<td>1.043</td>
<td>1.092</td>
</tr>
<tr>
<td>DEPI</td>
<td>0.994</td>
<td>0.919</td>
<td>1.045</td>
<td>0.993</td>
<td>1.075</td>
<td>1.011</td>
<td>1.013</td>
<td>0.991</td>
<td>0.988</td>
<td>1.025</td>
</tr>
<tr>
<td>TATA</td>
<td>0.013</td>
<td>-0.048</td>
<td>-0.104</td>
<td>-0.103</td>
<td>-0.006</td>
<td>-0.073</td>
<td>-0.112</td>
<td>-0.037</td>
<td>0.022</td>
<td>0.007</td>
</tr>
<tr>
<td>SGI</td>
<td>1.159</td>
<td>1.098</td>
<td>1.056</td>
<td>1.011</td>
<td>1.076</td>
<td>1.270</td>
<td>1.369</td>
<td>1.037</td>
<td>1.017</td>
<td>1.330</td>
</tr>
<tr>
<td>SGAI</td>
<td>1.047</td>
<td>1.050</td>
<td>1.015</td>
<td>1.089</td>
<td>0.896</td>
<td>1.018</td>
<td>0.932</td>
<td>1.040</td>
<td>1.234</td>
<td>0.921</td>
</tr>
</tbody>
</table>

Note: T_Q = Tobin’s Q, TRI = Day’s sales trade receivable index, GMI = Gross margin index, AQI = Assets quality index, LVGI = Leverage index, DEPI = Depreciation index, TATA = Total accruals to total assets, SGI = Sales growth, and SGAI = Sales, administrative expenses index. 
Source: Authors’ computation (2022), based on data from selected firms’ financial documents submitted to the Nigerian Exchange Group.

Overall, table 1 shows that there are noticeable differences in the selected Corporate Fraud, Earnings Management and Firm Value proxies across the years and the variable with the highest level of variability across the year is AQI which has the highest standard deviation value of 1.112 and followed by TRI. Furthermore, during the 10 fiscal years, the overall average values of T_Q, DTRI, GMI, AQI, LVGI, DEPI, TATA, SGI and SGAI are 0.664, 1.160, 0.994, 1.008, 1.017, 1.004, -0.044, 1.143 and 1.024 respectively. However, for the pooled data of the selected firms, the highest (0.723) T_Q during the years is observed in 2017. Likewise, for the pooled data of the selected firms, the highest DTRI (1.849), GMI (1.129), AQI (1.575), LVGI (1.132), DEPI (1.075), TATA (0.022), SGI (1.369) and SGAI (1.234) are recorded in 2012, 2019, 2019, 2016, 2016, 2020, 2018 and 2020 respectively.

#### 4.1.3 Correlation Matrix

The outcomes correlation analysis that provides insight into the potential associations among each of the Corporate Fraud and Earnings Management proxies is reported in Table 2.
Table 2: Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>T_Q</th>
<th>DTRI</th>
<th>GMI</th>
<th>AQI</th>
<th>LGVI</th>
<th>DEPI</th>
<th>TATA</th>
<th>SGI</th>
<th>SGAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>T_Q</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTRI</td>
<td>-0.129</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GMI</td>
<td>0.105</td>
<td>0.046</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AQI</td>
<td>-0.057</td>
<td>-0.014</td>
<td>0.067</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LGVI</td>
<td>0.238</td>
<td>-0.017</td>
<td>0.124</td>
<td>-0.061</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPI</td>
<td>0.113</td>
<td>0.122</td>
<td>-0.032</td>
<td>-0.172</td>
<td>0.031</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TATA</td>
<td>-0.091</td>
<td>0.236</td>
<td>-0.039</td>
<td>-0.114</td>
<td>-0.187</td>
<td>0.137</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGI</td>
<td>0.108</td>
<td>-0.143</td>
<td>0.045</td>
<td>0.007</td>
<td>0.169</td>
<td>-0.024</td>
<td>0.015</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SGAI</td>
<td>-0.117</td>
<td>0.141</td>
<td>-0.219</td>
<td>0.159</td>
<td>0.069</td>
<td>-0.070</td>
<td>-0.066</td>
<td>-0.224</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: T_Q = Tobin’s Q, DTRI = Day’s sales trade receivable index, GMI = Gross margin index, AQI = Assets quality index, LGVI = Leverage index, DEPI = Depreciation index, TATA = Total accruals to total assets, SGI = Sales growth, and SGAI = Sales, administrative expenses index.

Source: Authors’ computation (2022), based on data from selected firms’ financial documents submitted to Nigerian Exchange Group.

The result from the correlation analysis in Table 2 is offered to get the nature of the association among the variables. As in the table, the estimated correlation coefficients among the Corporate Fraud and Earnings Management proxies only take values between -0.024 and 0.169. This provides evidence that the multicollinearity problem is not likely to exist thus, the study proceeds to the regression analysis.

4.2 REGRESSION ANALYSIS

In order to achieve the objectives of this study, Firm Value is regressed on corporate Fraud, and Earnings Management proxies and the results are presented in Table 3. Furthermore, to identify the models that correctly capture the effects of corporate Fraud, and Earnings Management on the Firm Value of the selected listed firms in Nigeria, the Hausman and Breusch and Pagan Lagrangian multiplier tests are carried out.

Table 3: Regression Result

<table>
<thead>
<tr>
<th>Var</th>
<th>Coef.</th>
<th>Robust se</th>
<th>Z-stat</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTRI</td>
<td>0.0018</td>
<td>0.0072</td>
<td>0.25</td>
<td>0.804</td>
</tr>
<tr>
<td>GMI</td>
<td>-0.0041</td>
<td>0.0204</td>
<td>-0.20</td>
<td>0.840</td>
</tr>
<tr>
<td>AQI</td>
<td>0.0148</td>
<td>0.0121</td>
<td>1.22</td>
<td>0.224</td>
</tr>
<tr>
<td>LGVI</td>
<td>0.2021***</td>
<td>0.0474</td>
<td>4.27</td>
<td>0.000</td>
</tr>
<tr>
<td>DEPI</td>
<td>-0.0075</td>
<td>0.0318</td>
<td>-0.24</td>
<td>0.813</td>
</tr>
<tr>
<td>TATA</td>
<td>-0.0828</td>
<td>0.0570</td>
<td>-1.45</td>
<td>0.146</td>
</tr>
<tr>
<td>SGI</td>
<td>0.0556***</td>
<td>0.0147</td>
<td>3.78</td>
<td>0.000</td>
</tr>
<tr>
<td>SGAI</td>
<td>-0.0605**</td>
<td>0.0288</td>
<td>-2.10</td>
<td>0.036</td>
</tr>
<tr>
<td>Constant</td>
<td>0.4480***</td>
<td>0.0867</td>
<td>5.17</td>
<td>0.000</td>
</tr>
<tr>
<td>Observation</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.269</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wald-chi2</td>
<td>4797.39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob&gt;chi2</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hausman test 8.71 [0.368]
Lagrangian multiplier test 268.66 [0.000]
Heteroscedasticity test 79.693 [0.000]
Pesaran’s CSD test -1.275 [1.798]

Note: DTRI = Day’s sales trade receivable index, GMI = Gross margin index, AQI = Assets quality index, LVGI = Leverage index, DEPI = Depreciation index, TATA = Total accruals to total assets, SGI = Sales growth, and SGAI = Sales, administrative expenses index.

Source: Authors’ computation (2022), based on data from selected firms’ financial documents submitted to Nigerian Exchange Group.

In Table 3, the LM test result is statistically significant at 1% level (P-value < 0.01) suggesting that there is a panel effect. In other words, this means that pooled regression technique cannot technically capture the effects of corporate Fraud, and Earnings Management on the Firm Value of the selected listed firms in Nigeria. Consequently, the Hausman test is carried out to choose between Random and Fixed effect regression estimators. The insignificant (P-value > 0.05) outcome suggests that the Random Effect approach is better. Also, to check if the chosen Random effect regression estimator is reliable or statistically fit. Heteroscedasticity, and Pesaran’s CD are carried out and the result in Table 3 shows that the residual of the chosen model has no constant variance or shows a statistically significant value (P-values > 0.05) indicating that the models suffer from heteroscedasticity problems and on the other hand, the insignificant of the Pesaran’s test of cross-sectional independence suggests that there is no cross-sectional independence problem. To take care of the confirmed heteroscedasticity problem, the study used a model with robust standards. Furthermore, the Wald-Chi2 (P-value) = 4797.39 (0.000) shows that the model is statistically significant. Also, the R-squared of the regression model is 0.269 indicating that corporate Fraud and Earnings Management proxies jointly explain about 26.9% of changes in Firm Value. The F-statistics and R-squared values also indicate the goodness of fit.

Focusing on the estimated coefficients of the corporate Fraud, and Earnings Management proxies, the results in Table 3 give the impression that the Leverage index (LVGI), Sales growth (SGI) and Sales, administrative expenses index (SGAI) are the only significant determinants of Firm Value (T_Q) of the selected firms. Obviously, the estimated parameters of the Leverage index (LVGI) is positive and the coefficient is statistically significant at a 1% level suggesting that LVGI has a significant effect on the T_Q of the selected firms during the period of this study [$\beta = 0.202; \ P\text{-value} < 0.01$]. Similarly, the estimated parameter of Sales growth (SGI) is positive and the coefficient is statistically significant at the 1% level. By implication, the presumable penetrations of
corporate fraud tendencies and earnings management could be ruled out, as this tends to lay credence and is consistent with the result of the Beneish model (1999). Further, other studies in tandem with our results include the studies by Borghesi et al., 2019; Harun et al., 2020; Zolotoy et al., 2019; Ali et al., 2022).

In addition, the study result simply indicates that SGI had a positive and significant effect on the T_Q of the selected firms during the period of this study \[\beta = 0.056; \text{P-value} < 0.01\]. In other words, these mean that a unit increase in LVGI or SGI causes T_Q to increase by 0.202 units or 0.056 units. Again, the Sales, administrative expenses index (SGAI) is established to have a negative and statistically significant effect on T_Q; given the estimated coefficient of SGAI \[\beta = -0.061; \text{P-value} < 0.05\] which is significant at 5% level. Alternatively, this means that a unit increase in SGAI causes T_Q to fall 0.061 units. By implication, the negative effects reported in the day’s sales trade receivables, gross margin index, sales and administrative expense signalled a deteriorating red flag, in a desperate incentive to ensure sustainable good performance and high firm value. We cannot rule out the possibility of corporate aggressive accounting practice. This could attract a damping and bleak future for the companies if these led to potential corporate earnings management.

Consistent with prior studies (Beneish, 2013; Ramirez-Orellana et al., 2017; Zolotoy et al., 2019), we further align our result with the result reported by Beneish (2013) and recommended manipulating data to increase profits. Beneish et al. (2013); study distinguished three ratios (DSRI, DEPI, and TATA) that were included in the category of aggressive accounting, and five ratios (SGI, AQI, GMI, SGAI, and LVGI) were included in the category of propensity to commit fraud. In the day's sales in receivables index (DSRI) and total accruals to total Assets, Pescanova thus demonstrates aggressive accounting (TATA). Additionally, this business has a tendency for deception in the sales growth index (SGI) and leverage index (LVGI).

5 CONCLUSION

This study considered the implications and possibilities of corporate fraud and earnings management and their effect on firm value. The study employed Beneish M-Score using manipulation and the probability of manipulation as measures of corporate fraud and earnings management and Tobin’s Q as a surrogate of the firm value of Selected Nigerian listed consumer goods manufacturing companies listed in Nigeria. The study
found mixed results: day’s sales trade receivable index, assets quality index leverage index and assets growth index exhibited positive effects, while the gross margin index, depreciation index and sales and administrative expenses had negative effects. The report research was reported by Beneish et al. 2013; Ramirez-Orellana 2017; Precipe et al., 2014. We report that our results suggested that the companies tested reveal characteristics of poor running and in desperation to retain firm value consistently reported, made aggressive accounting practices through manipulation and earnings management of their gross margin index, sales and administrative expenses and depreciation index. Our study has demonstrated contribution through the theoretical framework and the empirical results adding to the existing literature. The study recommended that corporate fraud and earnings management could be unintentional, as some of the companies’ motivation is to remain afloat. However, fraud and unethical practices whatever intention are detrimental and injurious to corporate image. Managers and executive directors should consider the implications and possible legal consequences of corporate fraud and aggressive earnings management. The reputational damage to corporate brands and associated corporate sandals are all capable of impacting firm value.

Despite the contributions of this study, we nevertheless must state a few of his limitations: First, there is a lack of empirical studies that researched corporate fraud using Beneish M-Scores in Nigeria, to enable more synthesis using Nigerian studies. Secondly, the nature of data used was scanty in some of the selected Nigerian listed consumer goods manufacturing companies limiting the number of companies used for the study. Lastly, the data used were sourced from financial statements as the reliability and credibility of the reported figure as some of the clients' staff members may collude in fraud that can be deliberately hidden from the auditors or misrepresent matters to them for the same purpose, thus audited financial statements made be materially misstated. However, regardless of the limitations, the research findings demonstrate that adequate efforts were made to select credible and reliable data from the selected companies. Further studies should expand the frontiers and expand the scope to include other firms in other sectors operating in Nigeria.
REFERENCES


Banker, R. D., Mashruwala, R., & Tripathy, A. (2014). Does a differentiation strategy lead to more sustainable financial performance than a cost leadership strategy? Management Decision, 52(6), 872-896


