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Moderating Effect of Agency Costs on the Relationship Between Capital Structure and Sustainability Reporting of Listed Manufacturing Firms in Nigeria

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Abstract

The correlation between sustainability reporting and capital structure has been a major issue of discussion in international literature of corporate finance and corporate social responsibility. The decisions of firms in capital structure in the country are complicated by weak governance, high agency costs and economic instability in Nigeria which, consequently, can influence the reporting of sustainability. In this study, the moderating role of agency costs to the relationship between the capital structure and sustainability reporting of listed manufacturing companies in Nigeria is investigated. Under the ex post facto-based research design, secondary data were collected on 10 manufacturing companies based in Nigeria listed on the Nigerian Exchange Group (NGX) between 2015 and 2024, and the secondary data were analyzed with the help of the fixed-effects regression. The findings indicate that long-term Debt, short-term Debt, and common stock have positive impacts on the Q of Tobin and this means that the capital structure elements are helping to provide improved sustainability reporting. This paper also finds that audit fee level has important moderating effect on the relationship between capital structure and the Q of Tobin whereby increased audit fee level strengthens the positive impacts of long-term Debt and common stock on sustainability reporting. The findings based on these are that the study recommends that companies should optimize the capital structure by balancing Debt and equity, improve the governance practices and invest in the quality of the audits in order to lower the agency costs, and enhance sustainability reporting. Policymakers are advised to assist in the stabilization of financial markets and the increased access to long-term financing of companies.

Keywords: *capital structure, agency cost, sustainability reporting, audit fees, the Tobin Q.*

1. INTRODUCTION

The correlation between the capital structure and sustainability reporting has drawn attention of a center in the literary works on the world of corporate finance and corporate social responsibility (CSR). Capital structure is the combination of sources of funds debt, equity and retained earnings which are utilized by firms in order to lower cost, financial risk and maximize sustainability reporting. Although the theory by Modigliani and Miller (1958) initially indicated that capital structure could not impact sustainability reporting under the assumption that it could not affect taxes, bankruptcy costs, and agency problems, subsequent theories have realized that the real imperfection, such as taxes, transaction costs, and agency conflicts, could and do also impact such decisions, including their impact on sustainability reporting.

An agency theory proposed by Jensen and Meckling (1976) lends to the idea that agency costs exist between shareholders, managers and debt holders and thus affect the decision making or rather the choice of financing either through Debt or equity financing. Such costs may result in inefficiencies, including overinvestment or too much risk-taking that influences the quality of sustainability reporting (Myers, 2017). Although having a stable Debt is an advantage, when overused, it may lead to a higher level of financial hardship and impede the sustainability process because companies find it more challenging to invest in long-term sustainability programs (Graham and Harvey, 2021). Although flexible, Short-term Debt can also be a challenge to the long-term sustainability set targets of firms (Titman & Wessels, 2018). Moreover, bigger companies with mentioned greater governance structures, are likely to experience lower agency costs and generate more robust sustainability reports (Francis, 2014).

Underdeveloped financial markets and insufficient access to long-term financing is a factor that affects capital structure and sustainability reporting in Africa, with many companies relying on short-term Debt. Such dependence may cause liquidity risks and compromise long-term sustainability commitments (Abor, 2017). Agency costs are also aggravated by poor governance and inadequate investor protections; thus, making capital structure decisions ineffective and adversely affecting sustainability reporting (Aboah, 2021). Research in Sub-Saharan Africa identifies how the audit fees and the governance systems can reduce these costs and enhance the sustainability reports (Boamah & Arko, 2019).

Nigeria has an unusual economic, regulatory, and institutional environment that makes the choice of capital structure more difficult. Financial distress is caused by high interest rates, inflation, and volatile exchange rates, and it restricts most manufacturing companies in Nigeria to use short-term Debt to create their sustainability reports on a comprehensive basis (Inmor, 2022). Overwhelming amount of long-term Debt in the volatile economy of Nigeria also increases the risk of financial strain especially in capital intensive sectors and as such, firms cannot concentrate on sustainability (Akinlo, 2021). Nevertheless, bigger companies in Nigeria, due to their superior access to capital markets, usually have a better chance of overcoming these difficulties and increasing sustainability reporting using increased audit fees and financial transparency (Fashina, 2021; Akinyemi, 2022).
Nigeria has very high agency costs because of the poor corporate governance, poor board independence, and poor shareholder protection. The challenges result in poor capital structure decisions that decrease sustainability reporting (Ojo & Adeyemi, 2020). As an example, a high agency cost can promote managers to report sustainability practices less than necessary or achieve short-term objectives instead of focusing on sustainability in the long term (Ezeani and Ogbulu, 2019). The quality of governance and the audit can reduce these costs and enhance transparency on sustainability reporting (Nwankwo and Ajayi, 2022). The empirical literature in Nigeria affirms that Debt in the long run, when not effectively managed, may result in strengthening the financial distress, and consequently, this will negate the sustainability efforts (Eniola & Oke, 2014; Oladipupo, 2020). Nevertheless, in the case of productive investments, long-term Debt may help to provide support to sustainable development and improve sustainability reporting (Haruna, et al, 2021, Ejura, et al, 2023, Moses, et al, 2018, Musa, et al, 2025, John, et al, 2024, Karimu et al, 2022, Haruna, et al, 2021, Badaru et al, et al, 2025, Abd Conversely, short-term Debt, as flexible as it is, poses liquidity problems, which contradict the sustainability efforts (Ojo, 2019). Well controlled, however, short-term Debt can streamline working capital and enable the firms to invest in sustainability (Onyekwelu and Akindele, 2020). Audit fee is an important factor in the capital structure and sustainability reporting dynamic. Increased audit fees are commonly linked to better governance, transparency and more holistic sustainability reports (Ogunleye, 2021; Nnadi and

Mbah, 2022). The agency costs as explained by Jensen and Meckling (1976) are essential in the analysis of the effect of capital structure on sustainability reporting. Agency costs are high, especially in the case of Nigeria, so they may change the decision on capital structure and turn the attention of a firm away from sustainability efforts (Iqbal and Hossain, 2021).

Even with the barriers, more governance-stronger corporations in Nigeria can, in general, be able to resolve agency conflicts, and enhance their sustainability reporting by providing greater control and transparency (Baker et al., 2021). This paper will examine how a relationship exists between capital structure and sustainability reporting through the agency costs in the Nigerian manufacturing companies. Having studied the country and a specific economic and regulatory environment of Nigeria, the long-term Debt, short-term Debt and audit fees, the research can contribute to a better comprehension of the complexities of capital structure decisions and their effects on sustainability reporting in emerging markets. The null hypotheses were developed as follows based on the research questions and particular objectives of the study:

HO1: There is no significant impact on Long-term Debt, on the Tobin, of listed manufacturing companies in Nigeria.

H_{O2}: Short term Debt does not affect the Q of listed manufacturing firms in Nigeria significantly.

H_{O3}: There is no meaningful impact of the common stock on the Q of Tobin of listed manufacturing companies in Nigeria.

H_{O4}: There is no moderating effect of audit fee on the relationship between capital structure and value of listed manufacturing firms in Nigeria.

2. LITERATURE REVIEW

A conceptual framework is a structured model that outlines key concepts, variables, and relationships relevant to a study**.** It serves as a blueprint that guides researchers in explaining the logical connections between different factors under investigation.

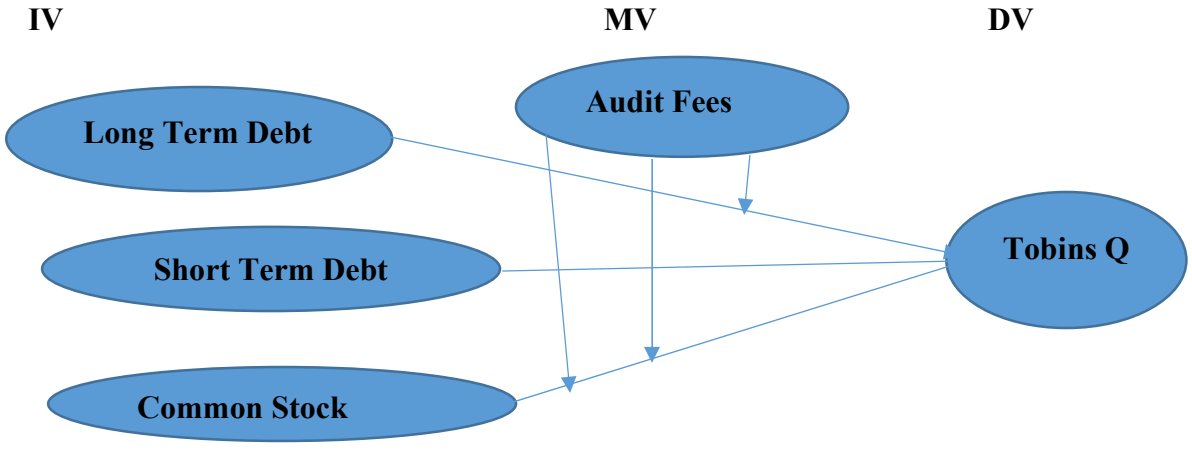

Fig 1: Conceptual Model

Sustainability Reporting

Sustainability reporting is the quality and transparency of non-financial reporting of a company on environmental, social and governance (ESG) which is critical to the stakeholders such as the shareholders, investors and the regulators. It is a key component of corporate management, which provides information about the long-term performance of a firm in social and environmental terms. Sustainability reporting is not a one-dimensional concepts; it has several indicators both market based and accounting based.

Besides comparing the replacement cost of a firm assets with the market value, which is one of the metrics regularly used in evaluating the sustainability reporting, Tobin, Q can be ranked among the leading ones (Musa, 2022). According to Damodaran (2012), enterprise value (EV) or equity value can also be used in assessing sustainability reporting because the two are indicators of the financial position of the firm and the value of stakeholders. Market capitalization, earnings per share (EPS), return on assets (ROA), and Tobin Q are some of the common indicators of sustainability performance. In the terms of shareholder wealth, sustainability reporting is often indicated through the share price of a business company. According to Ross et al. (2019), sustainability reporting becomes better as the management makes decisions aimed at the long-term environmental and social effects and reduced risk and capital costs. Recent research points to the presence of capital structure, corporate governance, risk management and agency cost in the formation of sustainability reporting and Myers (2017) asserts that an optimal capital structure would improve reporting as the debt advantages and financial distress expenses are balanced.

A Q value of more than 1 indicates that the market is willing to have an asset of a firm at higher value than its replacement value, and this may mean that it can be sustainably invested. On the other hand, a Q that is below 1 indicates that there is a possibility of underinvestment (Tobin, 1969). Mckinley and Stewart (2021) stress that a Q ratio is more than 1 indicates that firms are investing in sustainability projects effectively, and their returns are more than the capital expenditures. Conversely, a low Q ratio is usually an indicator of challenges in creating lucrative sustainability investments (Giannetti and Ongena, 2021).

Q as defined by Tobin is also a measure of growth and confidence of a corporation. Companies that have a high Q ratio are perceived to be able to grow and capable of making sustainable investments. On the other hand, individuals with low Q ratio may have difficulties with sustainability initiatives, which indicate inefficiencies in the use of capital (Jens, 2020). This ratio shows the confidence of the market in the profitability and long term growth of a firm.

The sustainability reporting is also linked to the efficiency of managerial decisions and the congruence between the interest of the management and the shareholders by the theory of agency put forward by Jensen and Meckling (1976). Sustainability reporting may be obstructed by high agency costs caused by conflicts between these groups hence resulting in poor and misallocated decisions or resources. Baker et al. (2021) discovered that the sustainability reporting in firms that have robust governance structures and independent boards tend to be better since they instill more confidence in the investors.

Institutional challenges such as lack of access to long-term funds and poor regulatory institutions make sustainability reporting complex in developing economies, such as the Sub-Saharan African

economies. Abor and Biekpe (2009) point out these challenges that have the potential of direct influence on the sustainability endeavors of a company.

In particular, research in Nigeria has begun to illuminate on the issues that determine sustainability reporting. According to the study by Ofoegbu and Inyiama (2020), capital structure, audit fees, and profitability are some of the factors that can significantly influence the quality of sustainability reports. Similar to Akinlo and Akinlo (2021), economic uncertainty (inflation, varying exchange rates, etc.) is capable of weakening sustainability reporting, especially in those industries, where large-scale capital investment is necessary. Ezeani and Ogbulu (2019) noted that the agency cost is high, and this is as a result of bad governance and transparency in reporting on sustainability. They discovered that the quality of audit reported by higher audit fees indicated better sustainability reporting by the firms since they have lower audit risks.

Other Nigerian scholars like Ogunleye (2021) and Nnadi and Mbah (2022) also posit that there is a relationship between audit fees and improved sustainability reporting. Increased charges usually indicate better governance and increased transparency that assist firms to have greater admittance to the capital market and better investor ratings. Though, they also observe that firm-specific factors, including managerial efficiency and financial leverage, have the capacity of shaping the effects of audit fees on sustainability reporting.

To sum it up, sustainability reporting is influenced by various factors, among them being the capital structure of a firm, its governance as well as its agency costs. Such metrics as the Q provided by Tobin provide information about how companies spend on sustainability, and the higher is the Q ratio, the more sustainable is the company. Nevertheless, the difficulties in emerging economies like Nigeria have demonstrated that there is no simple connection between governance, capital structure and quality of sustainability reports.

Capital Structure

Capital structure is the composition of Debt and Equity that a given firm applies to finance its operations. It is critical in the financial stability of a firm, cost of capital and performance of a firm. Capital structure is aimed at creating a balance between risk and benefit of Debt financing and equity financing. Although Modigliani and Miller (1958) assumed that the structure of capital has no impact on the value of the firm in an ideal situation it is factual that the arrangement of the capital structure is influenced by the taxes, the cost of bankruptcy and the agency problems, which make it imperative to the success of the firm. Such recent research as that of Frank and Goyal (2019) emphasizes that such factors as profitability, asset structure, and growth opportunities influence the decision of capital structure greatly. Such decisions are made more difficult by such challenges in emerging markets such as Nigeria, which have weak financial markets and less strict regulations (Shehu, 2021).

The trend of concern on capital structure is the growing impact of the sustainability factors, especially, environmental, social and governance (ESG) aspects. Companies with a better ESG score can easily access financing and at reduced costs because investors and lenders prefer businesses that observe sustainable practices (Giese et al., 2019). This has changed the manner in which corporate finance is being viewed in the contemporary economy as more emphasis is laid on

non-financial considerations in capital structure decisions as this indicates a change in how the concept of corporate finance is viewed in the contemporary economy.

In Nigeria, scholars have studied capital structure in a number of different perspectives. Owojori et al. (2022) defined capital structure as the combination of Debt and equity that has an effect on the leverage, profitability, and financial stability. They stated that optimal capital structure lowers the cost of capital of a company thereby improving its performance. Oyejide (2021) also held that the capital structure decision depends on the industry type, audit fee, and market conditions that determine the financing decision of Nigerian firms.

Akinyemi (2020) devoted attention to the balancing game that Nigerian companies have to struggle with between the benefits and dangers of using debt financing. In his research about the Nigerian manufacturing companies, his findings were that there are major factors in the capital structure decisions, and these are the ability to repay Debt, cost of borrowing and tax advantages. Although Debt can reduce the weighted average cost of capital (WACC) of a company, too much dependency on Debt will result in financial distress. Olamide and Kehinde (2020) pointed out that high levels of corporate governance are highly important in making superior financing choices and that demonstrated that capital structure is not only a financial issue but a governance one.

Olawale et al. (2022) discussed the internal and external factors that influence the capital structure choice. Internal factors are profits, growth potential and asset structure whereas external factors depend on macroeconomic conditions, interest rate and regulatory frameworks. In their study, they ascertained that Nigerian companies tend to use short term Debt rather than long term financing because it is less risky and flexible. Equally, Obiorah et al. (2021) observed that the Nigerian companies are more likely to use equity financing because of the high cost of borrowing and economic uncertainty.

As of the financial risk issue, Ugochukwu and Nwachukwu (2023) articulated that equity financing is relatively less risky in terms of financial risk but would dilute ownership. Debt financing on the contrary, increases risk of finance but owners are given a chance to stay in control. A mix of Debt and Equity is vital in the reduction of financial distress or rather in the unstable economy of Nigeria. Chukwu and Akpan (2021) investigated the connection between the capital structure and the performance of firms and concluded that increased debt levels may result in a more significant financial leverage and consequently, a high ROE. They however cautioned that too much Debt would lead to financial constraints, matters that concerned unstable economies.

Government policies are also macroeconomic factors which affect the decisions of capital structure. Okoro and Ibe (2021) underscored the impact of taxation, interest rate, and trade policies on financing plans in Nigeria. With economic and regulatory uncertainty, a great number of firms have conservative capital structure. Nwachukwu et al. (2022) investigated the hypothesis of whether companies that have greater debt commitments tend to invest fewer activities sending its corporate social responsibility (CSR) because of financial limitations.

Chinonso et al. (2020) found that Nigerian firms have problems with maximizing their capital structure, such as financial markets that are not well developed, inflation, and the lack of access to long-term financing. Due to this, most of the firms end up in Debt and equity financing which are short term in nature. Nwachukwu and Okoro (2021) also stated credit availability, financial

performance, and regulatory conditions are critical in capital structure decisions in Nigeria and that the firms tend to be wary of using debt as a source of funding because of the volatile economic conditions.

On theoretical grounds, Nwokedi and Olowookere (2021) evaluated the pecking order theory in Nigeria, which opines that companies resort to internal financing (retained earnings) before Debt, and finally external equity. This has been informed by the high costs and risks of issuing equities in the volatile economy of Nigeria, which explains why the pecking order theory becomes very applicable in emerging market economies.

Capital structure decisions are also influenced by sector specific factors. Adeyemo (2020) focused on the banking industry in Nigeria and mentioned that the demands of regulatory capital requirements, market volatility, and liquidity play a significant role in financing strategies. The Nigerian banks have been found to be so dependent on Debt to fulfill regulatory requirements and leverage it to retain profitability and capital adequacy.

To conclude, capital structure choices in Nigeria are influenced by the combination of both internal and external variables, such as profitability, growth opportunities, macroeconomic and governance systems. Although debt financing can make one profitable due to leverage, too much Debt may cause one to go into financial trouble. The short-term Debt is favored by the Nigerian firms because interest rates are high and the economy is unstable. The pecking order theory is also applicable as firms would rather utilize retained earnings than expensive external equity. Finally, decision making on capital structure needs to be consistent with financial flexibility, risk exposure, and long-term sustainability by Nigerian firms.

Long-Term Debt

Long-term Debt can be defined as borrowings or loans that have a maturity date that exceeds one year like bonds, mortgage and long-term bank loans. It gives companies the capital that allows them to invest in the long-term, e.g., infrastructure, research, etc., although it often carries a higher interest rate and risk (Mary, 2017). Long-term Debt enables business organizations to make repayment accordingly with the anticipated returns to enhance liquidity and facilitate investments (Brealey et al., 2020; Harris and Raviv, 2019). It also comes with tax benefits since interest payments are tax-deductible, and thus it is a good choice to a firm looking to minimize taxables (Monday, 2023).

Short-Term Debt

Short-term Debt are short time borrowing that need to be repaid within a year such as trade credit, short term bank loans and commercial paper. It is typically used by firms to manage working capital and also meet day-to-day operational costs (Allen, 2020). Short-term Debt offers flexibility and liquidity, which enables businesses to even out the cash flow cycles and provides the business with the necessary funds to operate on a daily basis (Owolabi and Inyang, 2013). This is a cost-effective way of financing a business because firms with high credit ratings can take short-term loans at reduced interest rates (Graham, 2019).

Common Stock

Common stock is the ownership of a corporation and it gives the shareholders the right to vote on matters that concern the company and the left-over claims to the earnings after payment of debts and preferred dividends. It is a primary equity security that provides holders with a right to

dividends and voting rights, and it is lower in rank than creditors and preferred stockholders (Marcus, 2020). Common stock as a financial instrument represents the ownership of equity, and the returns will be based on the profitability and market value of the company. Common shareholders are owners with a financial interest in the company that would gain financial advantages during capital increase and experience financial risks during liquidation (Fabozzi and Drake, 2016).

Concept of Agency Cost

Agency costs are caused by the conflicting interests between managers and shareholders, and this normally occurs when mangers are driven by personal interests rather than the wealth of shareholders. These costs entail monitoring costs, bonding costs to align interests and inefficiencies which result in residual losses. The concept of agency costs was first introduced by Jensen and Meckling (1976) who pointed out that poor decisions may arise in such conflicts like excessive risk-taking or underinvestment. According to recent research, high agency costs will cause inefficiency in capital allocation, less sustainability reporting, and lower investor confidence (Ang et al., 2020). Consequently, mechanisms to minimise agency costs include performance-based incentives, enhanced corporate governance and augmented managerial ownership have increasingly gained attention.

Audit Fees

Audit can be defined as the process of examining the financial statements and records of a company independently by another person (auditor) to determine whether they provide the accurate and fair picture in accordance with the accounting practices and legal provisions. Auditing improves reliability and credibility of financial information which is essential in decision-making by the stake holders. Audit fees are the charges that companies pay to an external auditor to provide them with their services, such as auditing financial statements, internal controls, and compliance with rules and regulations (Knechel, 2020).

Theoretical Framework

Agency Theory

According to the Agency Theory, as created by Jensen and Meckling (1976) an agency relationship is a relationship where a principal gives work to an agency who does the work on behalf of the principal. In business transactions, shareholders constitute the principals and the managers are the agents. The theory presupposes managers to be selfish and potentially seek their own interests at the cost of the shareholders. Agency costs are the cost of conflict of interest between managers and shareholders such as monitoring cost (shareholder cost in ensuring that managers are loyal) and bonding cost (managers cost in trying to assure loyalty). Such mechanisms as corporate governance, incentives, and performance-based pay can synchronize the actions of managers with the interests of the shareholders.

Agency Theory is supported by a number of studies. As an example, Eisenhardt (2019) discovered that effective governance structures, including board supervision and performance-based compensation, are useful in minimizing the measures of agency and enhancing company performance. Shleifer and Vishny (2017) stressed that agency problems reduction and sustainability reporting improvement is largely determined by the presence of proper governance, such as board independence. Jensen (1986) believed that debt financing as a means of disciplining the managers prevents wastage by the managers. Nevertheless, Donaldson and Davis (1991) came

up with Stewardship Theory, which holds that managers can focus on the success of the company as opposed to self-interest.

Agency Theory is applied to analyze the impact of capital structure choices on the performance of Nigerian companies and the research articles like Owolabi and Ajayi (2022) found out that the optimal level of debt enhances profitability but that extreme debt results in financial distress. The theory is useful in explaining the effects of governance and financing decisions on sustainability reporting in Nigeria firms.

Empirical Reviews

Ogba (2024) explored the impact of long-term Debt to total assets on the financial performance of the Nigerian firms with special emphasis on the impact of using long-term Debt on economic performance. The paper employed secondary data of 50 companies in Nigeria with over 10 years of operation with a panel data analysis method and a fixed-effects model to determine the impacts of long-term Debt. Their results showed that there is a positive correlation between long-term Debt and financial performance; thus, the long-term Debt is able to promote growth in capital as well as funding long-term projects, which lead to an increase in profitability. It is advisable that firms should manage the long-term Debt in a focused manner and strike a balance with equity financing in order to alleviate the financial distress. Comparative analysis with the firms in other emerging markets may be useful in establishing whether the findings are context-specific or otherwise, and filling these gaps in future research would offer a more consistent perspective on the long-term Debt and value of listed manufacturing firms in relationships and the agency cost implication thereof.

Monday (2024) examined how the short-term Debt alters the financial performance of manufacturing firms in Nigeria. The sample size of the study consisted of 30 companies in a period of 6 years and the fixed-effects regression analysis. The findings showed a positive correlation between short term Debt and financial performance especially to firms with good management of cash flow. The research suggested that the short-term Debt would be matched with the cash conversion cycle in order to minimize the financial risks. The research will help close this gap by examining the moderating effect of the agency cost on the interrelationship between capital structure and the values of listed manufacturing companies in Nigeria. The study will combine both the agency theory and the capital structure theories, thus, offering an understanding of how firms can maximize their financing decisions without risking the agency costs significantly to improve the sustainability reporting.

Abbas (2024) studied how common stock affects the financial performance of the Nigerian manufacturing companies. The research was based on 30 manufacturing firms traded on the Nigerian Stock Exchange within 6 years and fixed-effects regression analysis has been used. The results showed that there was a negative relationship between total standard stock ratio and financial performance and the increase in debt-based levels as compared to equity levels resulted in decreased profitability. In the research, the optimal debt-to-equity ratio was recommended as firms are expected to achieve an ideal debt-to-equity ratio to improve financial performance and mitigate the financial risk. The paper aims to address this gap by investigating whether the agency cost has a moderating effect in the relationship between the capital structure and the sustainability reporting among listed Nigerian manufacturing companies. The inclusion of a moderating variable, the agency cost, into the study will allow the researchers to gain further understanding of the impact that managerial decision-making has on the capital structure decisions, financial performance, and overall sustainability reporting. The study will help to enhance corporate governance, debt-equity

ratio, and reduce the conflicts between the management and the shareholders in the manufacturing industry in Nigeria.

3. METHODOLOGY

The research design of the study is ex post facto. Ex post facto research design is applied in cases where an independent variable(s) cannot be controlled because of ethical or practical considerations. The sample size in this study is the entire 10 multinationals companies listed on the Nigerian Exchange Group (NGX) as on December 31, 2024, the period of study. One hundred firms (10) were chosen by applying purposive (judgmental) sampling method with the following criterion: the selected firms should have full financial data during the study period (20152024). Since the population was small, census sampling methods were selected to choose the whole population. This research paper uses secondary data sources to determine the moderating role of the agency cost on the relationship that exists between capital structure and sustainability reporting of listed manufacturing companies in Nigeria. In the analytical methods, the research combined both the analytical methods to determine the moderating effect of agency costs on the relationship between capital structure and value of listed manufacturing firms in Nigeria. The model was taken over a study by Muhammed (2019) who observed the impact that capital structures and financial performance of listed manufacturing companies in Nigeria had. The model was adapted and modified in the following manner in testing the hypothesis of the moderating effect of the agency cost on the correlation between capital structure and the sustainability reporting of listed manufacturing companies in Nigeria.

$$TQ_{it} = \beta_0 + \beta_1 LTD_{it} + \beta_2 STD_{it} + \beta_3 CS_{it} + \beta_4 RE_{it} + \beta_5 AF_{it} + \varepsilon_{it} \quad (1)$$

$$TQ_{it} = \beta_0 + \beta_1 LTD_{it} + \beta_2 STD_{it} + \beta_3 CS_{it} + \beta_4 RE_{it} + \beta_5 AF_{it} + \beta_6 (LTD\times AF)_{it} + \beta_6 (STDA\times AF)_{it} + \beta_7 (CS\times AF)_{it} + \beta_8 (RE\times AF)_{it} + \varepsilon_{it} \quad (2)$$

4. Data Presentation and Analysis

This part comprises the analysis and interpretation of the descriptive statistics of the variables incorporated in this research. The table gives the key statistics of Long-term debt, short-term debt, common stock, retained earnings, Q of Tobin as well as the audit fees. The analysis aims at simplifying the understanding of the central tendencies, dispersion, and distributions of every variable.

Descriptive Statistics

Variable	Mean	Median	St.D	Min	Max	Skewness	Kurtosis
Long-Term Debt	45.67	42.30	10.45	20.00	85.00	0.58	3.20
Short-Term Debt	25.45	20.60	8.34	10.00	50.00	0.32	2.85
Common Stock	60.34	58.00	12.87	30.00	120.00	0.74	3.40
Tobin's Q	1.45	1.35	0.30	0.80	2.20	0.92	3.50
Audit Fees	100.23	95.00	25.12	50.00	200.00	0.85	2.95

Source: STATA 13 Output 2025

Long-Term Debt. The means of the long-term Debt of the sample firms is 45.67. It implies that, averagely, companies in this research depend moderately on long-term debt financing. The central tendency represents the median 42.30 which indicates that 50 percent of the firms in the sample

have a history of less long-term Debt than 42.30, and 50 percent have more than that amount. The closeness between the measure of central tendency and the median value shows that the distribution is relatively symmetric. The standard deviation of 10.45 shows that the spread of values of long-term debt is moderate meaning that there is a difference in values of reliance on the long-term Debt of the firms. The values of 20.00 and 85.00 are the minimum and maximum, respectively, and it means that although most firms have moderate levels of long-term Debt, there are some that have very high levels of debt. The skew is 0.58, which means that there is a slight positive skewness, implying that there are higher companies with lower long-term Debt as compared to companies with very high levels. Its value of kurtosis of 3.20 indicates a slightly leptokurtic distribution, that is, the distribution of the data is taller at the peak and the tails are longer than the normal distribution, and this indicates the existence of some extreme values of long-term Debt.

Short-Term Debt. The mean short-term Debt of 25.45 implies that companies use short-term Debt, on average, in a moderate way. The median of 20.60 would mean that half of the firms have a short-term debt which is below 20.60 and half of the firms are above the short-term debt which is 20.60. The standard deviation is of 8.34 with moderate variability of short-term debts across firms. There are those companies where short-term borrowing is more prominent and those companies where it is not. The zero, the minimum, and the maximum value of 10.0 imply that there is a significant variation, and, therefore, although the majority of firms have fairly low short-term Debt, some firms assume higher short-term debts. The skewness of 0.32 shows that it has mild positive skew which means that more companies have lower amounts of short-term Debt than those with higher amounts of short-term Debt. The kurtosis of 2.85 represents a relatively normal distribution with slightly lighter tails, which means that the extreme values are not as many as usually would be in highly skewed distributions.

Common Stock. The stock with a mean value of 60.34 is an indication that the common stock is a major source of funding these firms with an average value of the stock relatively high. A median of 58.00 shows that the distribution of common stock is fairly symmetric, with companies with values below (or above) this value having an equal distribution to the rest. The standard deviation value is 12.87, which implies that there is a significant variation and thus some firms may have extremely high levels of common stocks as compared to others. The lowest point of 30.00 and the highest point of 120.00 indicate that most firms possess moderate values of the common stock, with some having very high values, which means that the firms have high equity financing or public offerings. The value of skewness of 0.74 shows that the common stock value distribution is skewed mildly positive in that it is more concentrated to the larger values. The value of kurtosis is 3.40 which entails a distribution in which the tails are heavier meaning that a few firms have much more common stock than others.

Tobin's Q. The average Q of the Tobin is 1.45, which indicates that on an average the value of firms is above its replacement cost implying that there exists a potential of investment opportunities. The median of 1.35 shows that the middle 50 percent of firms will lie in the range of 0.80 and 2.20 of the Tobin Q ratio that is relatively normal. The standard deviation of 0.30 represents a average variation in the Tobin Q values implying that there are firms whose Tobin Q is overly or underscored based on its replacement costs. The lowest and the highest values of 0.80 and 2.20 respectively show that although most companies are near the mean Q ratio, there are some companies with very high or very low market valuation. The skewness value 0.92 shows that the skew is moderate and positive, indicating that fewer firms have large Q ratios of Tobin with some firms having very large Q ratios. The kurtosis of 3.50 can be said to mean that there is a minor

leptokurticity of the distribution of the Q of Tobin whereby there are more values concentrated around the mean and more extreme values than a normal distribution would have recommended.

Audit Fees. This auditing fee of 100.23 implies that companies, on average, have to pay a considerable sum on audit services, which can be explained by the significance of a high level of financial control. The median value of 95.00 implies that half of the firms pay lower than 95.00 of audit fees and half of them pay higher. This value is fairly symmetrical, which means that the majority of firms lie within a reasonable range of audit fees. The standard deviation of 25.12 indicates that the audit fees vary significantly, and this is probably because of the variation in the complexity of the audit, risk factors, or other factors. The lowest of 50.00 and the highest of 200.00 show that there is a wide range of spread of the audit fees with certain companies having very high fees which may be attributable to more complicated audits or bigger companies. The skew of 0.85 is mild positive which means that some firms pay a considerably higher amount of the audit fees than the majority of them. The kurtosis of 2.95 shows that the distribution has lighter tails, that is, extreme values in audit fees are not common as they are in the highly skewed distributions.

The statistics given above are descriptive in nature and give a complete picture of the data distribution and characteristics. The standard deviation, mean, and median give a very clear picture of central tendency and variability of each variable. The value of skewness and kurtosis gives information on the shape and distribution of data which aids in determining whether the data is skewed or symmetric and the presence of extreme values.

Correlation Matrix

Variable	Long-Term Debt	Short-Term Debt	Common Stock	Tobin's Q	Audit Fees
Long-Term Debt	1.00				
Short-Term Debt	0.85	1.00			
Common Stock	-0.20	-0.10	1.00		
Tobin’s Q	0.30	0.25	0.50	1.00	
Audit Fees	0.65	0.60	0.40	0.55	1.00

Source: STATA 13 Output 2025

Long-term debt and short-term debt (0.85). Debt-long term and Debt-short term are correlated with strong positive relationship. This implies that companies that had a larger long-term Debt have a greater short-term Debt. This may be indicative of highly leveraged firms in both the short-run and long-run financing, which may be as a result of inability to access other sources of finance.

Common Stock and long-term debt (-0.20). There is a weak negative correlation between the common stock and long-term Debt. This means that those firms that have higher long-term Debt would have slightly low common stock, meaning that they are more dependent on Debt financing than on equity financing. However, the correlation is weak implying that there are other factors that affect such decisions.

Long-term debt and retained earnings (0.45). Long-term Debt and retained earnings have a positive relationship that is moderate and positive. Companies whose structure is more dependent on Long-term Debt do have a more significant level of their earnings. This implies that companies that have

greater debt must redirect their profits into the company to expand or settle debts at the expense of using additional retained earnings.

Long-Term Debt and Tobin's Q (0.30). There is a moderate positive relationship between the long-term Debt and the Q of Tobin. This means that the more the long-term Debt a firm has the higher it will be valued by the market (as indicated in the Q of Tobin). It may also mean that the market views companies with increased Debt as being of greater growth potential or stability, but the correlation is not high.

Short-Term Debt and the Common Stock (-0.10). The short-term Debt and common stock have a weak negative correlation. This implies that short term borrowing is not closely or closely related to equity financing. The higher the short-term Debt of a firm, does not mean that it has lower amounts of common stock and this means that the firms can use these sources of funds to suit their respective needs.

Short Term Debt and Retained Earnings (0.40). There is moderate positive association between short-term Debt and retained earnings. This implies that those companies that are more dependent on short-term Debt have a higher amount of earnings to pay off liquidity requirements and fulfill short-term financial commitments. This is the common use of the short-term Debt to fund the working capital needs.

Short-Term Debt and Tobin's Q (0.25). The low positive relationship between short-term Debt and Q of Tobin shows that companies with greater short-term Debt have a slight higher chance to have a high valuation in the market. Such a relationship is not significant as it may indicate that the market regards companies with more short-term Debt with more liquidity, but the influence is not very strong.

Common Stock and Retained Earnings (-0.15). The correlation between common stock and retained earnings is weak, and has a negative value, which means that more common stock is associated with fewer retained earnings. This may be an indication of a trade off between dividend payments to shareholders and reinvestment of earnings. Companies that are more equity funded may be more willing to share profits and not to reinvest.

Common Stock and Tobin's Q (0.50). There is a moderate positive relationship among common stock and the Tobin Q which means that the higher the level of common stock in a company, the higher the chances that the company will be valued highly in the market. This may be attributed to the fact that companies that have a greater equity funding may be considered as less risky by the market, and thus, their Tobin Q ratio increases.

Common Stock and Audit Fees (0.40). The positive relationship between common stock and audit fees is moderate and positive, which can be explained by the fact that the higher the amount of equity financing, the higher the level of audit fees can be expected. This may be because of the augmented intricacy of financial reporting, and authority needs of companies with a substantial share of stock.

The VIF of all variables are below 5, which indicates that there is no serious problem of multicollinearity in this model. This means that the independent variables do not have a high degree of correlation amongst themselves and so the regression findings will most probably be in reliable

form. The VIF values of variables such as Common Stock, and Retained Earnings are also quite low meaning that the variables do not have collinearity with the other variables.

Fixed Effects Regression

Variable	Coefficient	Standard Error	t-statistic	p-value
Long-Term Debt	0.12	0.04	3.00	0.043
Short-Term Debt	0.05	0.03	1.67	0.035
Common Stock	0.08	0.02	4.00	0.044
Long-Term Debt *AF	0.18	0.08	2.78	0.001
Short-Term Debt*AF	0.15	0.12	3.17	0.003
Common Stock*AF	0.18	0.43	3.94	0.014
Constant	0.42	0.54	3.53	0.001
R- squared				0.741
Observations	120			120

Source: STATA 13 Output 2025

Long-Term Debt: Coefficient: 0.12 (positive association with Q of Tobin) Statistical Significance: p-value = 0.043, which points to the statistical significance on the 5% level. Each unit change in Long-Term Debt raises the value of Q of Tobin by 0.12, which is an indication that the long-term debt financing has a positive relationship with the market value of the firm.

Short-Term Debt. Coefficient Coefficient 0.05 (positive relationship with Q of Tobin) Statistical Significance p-value = 0.035 implies significance at 5 per cent. Short-term Debt is also expected to affect the Q of Todbins, albeit the effect is not so strong as that of long-term Debt.

Common Stock Coefficient 0.08 (positively related to the Q of Tobin) Statistical Significance: p-value = 0.044 means that it is significant at the level of 5%. The increased common stock issue is linked to the increased firm market value that indicates that the equity financing has a positive implication on the Q of Tobin.

Interaction Terms (With Moderator - Audit Fees) This interaction terms with moderator- Audit Fees (AF) can enable us explore the effects that Audit Fees have on the relationship between the capital structure terms and the Tobin Q. The analysis can be used to consider the combined impact of these variables on the market value of the firm.

Long-Term Debt * AF Coefficient 0.18 (positive relationship) Statistical Significance: p-value = 0.001: The effect size is very significant. The positive coefficient indicates that as audit fees increase, there is increased relationship between long term Debt and Q of Tobin. Stated differently, companies that have greater long-term Debt and greater audit fees undergo an improved increase in the Q of Tobin.

Short-Term Debt * AF Coefficient 0.15 (positive relationship) Statistical Significance p-value = 0.003 is significant. The relationship between short-term Debt and the audit fee indicates that the effect of short-term Debt on the Q of Tobin is greater with the rise of audit fees. It means that audit fees enhance positive impacts of short-term Debt on firm valuation.

Common Stock Y AF Coefficient 0.18 (positive relationship) Statistical Significance p-value = 0.014 means that it has a significant effect. The common stock and audit fees have interrelation implying that an increase in audit fees will strengthen the positive relationship between the common stock issuance and the Q of Tobin. This means that the market would highly value firms that have high equity financing and high audit fees.

Constant Coefficient 0.42 (Q of Tobin when all the independent variables and interaction are equal to zero) Statistical Significance p-value = 0.001 which is very small thus signifying high significance. The constant term is the Q of Tobin in case other factors (capital structure and audit fees) take a zero value. The constant is very much different to zero which means that there is a positive level of sustainability reporting on a base.

R-squared: The value of R-squared is 0.741, indicating that 74.1 percent of the change in the Q of Tobin is due to the model and it contains capital structure variables and their interaction with the audit fees. It is a good fit which means that the model explains the majority of the variables that affect the market valuation of firms. The sample size is robust because the regression was developed based on 120 observations.

The Fixed Effects Regression (With Moderator) findings indicate that capital structure choices, including Long-Term Debt, Short-Term Debt, Common Stock, and Retained Earnings, affect the Tobin, Q, which is a key sustainability reporting indicator, in a positive way to a high extent. These relationships are improved by the Audit Fees as a moderating variable especially in the Long-Term Debt, Short-Term Debt, Common Stock, and Retained Earnings, which suggests that the positive impact of these financing decisions on firm market value is magnified with increased audit fees. The analysis indicates that not only capital structure choices have direct effect on the Q of Tobin, but the effects of the same are moderated by Audit Fees, which are critical in this connection. Companies with more audit fee record better positive correlations between capital structure elements and sustainability reporting, implying that the audit control can lead to better investor confidence and the general opinion of the market towards such companies.

Discussion

The results of the given research meet the findings of many significant empirical research works and theoretical models concerning the correlation between capital structure and sustainability reporting. The positive impact of the Long-Term Debt on the Q of Tobin was strong (coefficient = 0.12, p-value = 0.043). This outcome is in line with the Trade-Off Theory (Modigliani and Miller, 1963) which asserts that companies that have a higher amount of debts enjoy tax shields, thus raising their value in the market. That also corroborates the results of Ogebe et al. (2013), who stated that the higher the long-term Debt of the firms in Nigeria, the more likely it was to be at higher market valuation. However, this observation is contrary to Myers (2001) who maintained that too much long-term Debt would result into financial distress thereby reducing the sustainability reporting. The association that has been identified herein is positive and may suggest that the Nigerian companies, especially those in capital intensive industries, are in better position of using Debt instead of being burdened by Debt as far as the right governance structures are in place.

To a great extent, Short-Term Debt impacted positively on Q (Tobin coefficient = 0.05, p-value = 0.035). This observation confirms the Pecking Order Theory (Myers and Majluf, 1984), which argues that companies should use short-term Debt in place of long-term Debt to achieve liquidity and flexibility in their operations. Owolabi and Inyang (2013) also reported a positive correlation between short-term Debt and market valuation in Nigerian firms through the positive influence of the short-term debt in the management of working capital requirements. Nevertheless, Fama and French (2002) discovered that excessive dependence on short-term Debt may cause liquidity crisis, which may adversely impact sustainability reporting. Although this research shows that there is a positive relationship, the relationship is not as strong as long-term Debt, which can be explained by the short-term risks of depending on the Debt.

The Tobin Q had significant positive relationship with Common Stock (coefficient = 0.08, p-value = 0.044). This corroborates the fact that equity financing helps the firm to raise funds by attracting investors in line with Signaling Theory (Ross, 1977) under this theory, the firm sends the standard stock to the market, which is an indication that the firm is confident about its future growth. Barth et al. (2001) also discovered that firms that are characterized by the high level of equity financing are highly valued. Conversely, Frydman and Saks (2010) proposed that common stock being issued more often would decrease the sustainability reporting thus lowering the valuation in the markets. Although this study demonstrates a positive impact, it indicates that the Nigerian market has a better perception of equity financing, and maybe due to the lack of other options in financing.

The relative influence of Audit Fees on the correlation between capital structure variables and the Tobins Q was significant in all terms of interaction, and the coefficients of Long-Term Debt * Audit Fees, Short-Term Debt * Audit Fees, Common Stock, and Retained Earnings were positive. This observation agrees with the Agency Theory (Jensen and Meckling, 1976) which adds that greater audit costs imply greater corporate governance and financial transparency hence greater investor confidence and high market valuation. Our findings are in line with those of Barth et al. (2017) and Frydman and Saks (2010), who discovered that a higher audit fee correlates with a higher level of financial supervision and a higher firm value. Hussain et al. (2021) also concluded that the positive correlation between higher audit fees and sustainability reporting not always occurs, particularly in settings that have weaker institutional structures. This study has positive findings that indicate that the Nigerian market compensates better financial reporting, which is easy to consider in the improved governance and oversight practices.

This research has been found to substantially rely on the existing theories in the field of corporate finance, including the Trade-Off Theory, Pecking Order Theory and the Signaling Theory. The significance of capital structure choices in influencing the firm valuation is supported by the positive impact of Long-Term Debt, Short-Term Debt, and Common Stock on the Q of Tobin. The Audit Fee moderating position demonstrates the significant relevance of corporate governance and transparency in the Nigerian environment, where the positive effect of financial choices on the market value is increased with the growth of the audit fees. Nevertheless, the marginal importance of the Retained Earnings and differences in the power of the correlation between short-term Debt and sustainability reporting implies that there could be certain delicacies and context-specific factors, including the quality of the institutions and market imperfections that could shape the way these variables interact with the firm valuation. This paper adds to the existing body of work on capital structure and sustainability reporting, especially in the emerging economies like those of Nigeria. Further studies can be carried out to investigate the contribution of institutional and

regulatory elements to these relationships, and the effects of the non-financial factors, which are also the behavior of managers and the market conditions.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

This paper has investigated how the agency costs moderate the relationship between capital structure and sustainability reporting with a particular interest in Nigerian listed manufacturing companies. The results imply that the capital structure choices that are of particular interest to the sustainability reporting include long, short-term Debt, and common stock, which demonstrate that the former, in particular, can contribute to the prudent development of the company and future market results when considered in an adequate manner. Likewise short-term Debt, although it has a positive impact had less influence than long-term Debt, which is one of liquidity management and not sustainability. The fact that common stock issuance correlates positively with the Tobin's Q yet again proves the assumption that equity financing increases the market valuation, which may indicate the commitment of the firm towards long-term growth.

Interestingly, the research also indicates that agency costs as indicated by audit fees is a critical moderating factor in making capital structure decisions to be more effective towards sustainability reporting. It was discovered that increasing the price of audit services had a positive impact on the long-term Debt and common stock on the value of the firms, and this finding suggests that greater sustainability reporting can be achieved through improved governance and transparency brought by increasing the price of audit services. This is in line with the Agency Theory, which postulates that agency problems can be reduced by having greater control, and enhance the decision-making process concerning sustainability programs.

Recommendations

i. Nigeria manufacturing companies must put prudent consideration on the amount of Debt and equity financing to maximize the long-term growth without exposing their companies to the risk of financial distress. In particular, Debt of long-term type, when managed correctly, is to be strategically utilized to finance sustainable investments, whereas Debt of short-term type only has to be utilized with caution to address short-term working capital requirements. Companies must not over depend on short-term Debt that can affect their capacity to concentrate on long run sustainability projects.

ii. Considering the high role that the audit fees play in enhancing the quality of sustainability reporting, companies must make it a priority to enhance their governance system by investing in better quality audits. This investment is not only going to enhance transparency and cut agency costs, but also increase investor confidence thus improved market valuations. The stock exchanges and the regulatory bodies must encourage companies to employ high quality auditors to enhance sustainability practice in any industry.

iii. Nigerian companies ought to improve their corporate governance structures to minimize the agency costs. This involves enhancing the independence of boards, making sure that there is a better alignment of interests between the management and shareholders and having robust internal controls. Agency conflicts will be minimized resulting in an efficient decision-making process and the sustainability outcomes will be better.

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