



Influence of Firm Size, Leverage, and External Environments on EPS of Quoted Consumer Goods Firms in Nigeria

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ABSTRACT:

This study examines how internal corporate characteristics—specifically firm size and leverage affect earnings per share among listed consumer goods companies in Nigeria, while also assessing the moderating influence of external environmental factors such as inflation and governance quality. Panel data covering 14 consumer goods companies listed in Nigeria from 2006 to 2023 were analyzed using Ordinary Least Squares (OLS) regression techniques. The results show that neither firm size nor leverage significantly impacts EPS. However, when considering macroeconomic interactions, leverage combined with inflation was found to significantly reduce EPS, highlighting the heightened risk associated with debt financing in inflationary conditions. Conversely, governance quality did not significantly alter the relationship between corporate attributes and firm value. Share price emerged as a robust control variable, demonstrating a strong and positive correlation with EPS. These findings underscore the importance of external macroeconomic and institutional contexts in shaping the profitability of firms and provide practical insights for corporate decision-makers and policymakers aiming to improve firm-level performance in emerging markets.

Keywords:

Corporate attributes, earnings per share, firm size, leverage, inflation rate, governance, share price, Nigeria.

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1.0 Introduction

The consumer goods firms of the manufacturing sector in Nigeria are pivotal to the nation's economic development, contributing significantly to GDP and employment. Earnings per Share (EPS) serves as a key financial indicator used to assess a company's profitability, reflecting the portion of a firm's net income allocated to each outstanding share of common stock. It offers valuable insight into how effectively a business is generating profit for its shareholders. Corporate attributes, such as firm size, leverage, and board structures, are crucial in determining EPS. However, the relationship between these corporate attributes and EPS is not solely direct; it is influenced by external factors, including macroeconomic variables (e.g., inflation, exchange rates) and governance factors (e.g., regulatory policies and legal structures).

Nigeria's volatile economic environment, characterized by frequent policy shifts, inflationary pressure, and governance challenges, raises concerns about the predictability and consistency of corporate earnings. Despite numerous studies examining the determinants of firm performance in Nigeria (Almashhadani, 2021; Titus et al., 2023), a lack of clarity exists regarding how macroeconomic and governance variables mediate the relationship between firm attributes and EPS. Previous studies (Wahab et al., 2022; Taiwo et al., 2022) have often analyzed corporate characteristics and performance in isolation, neglecting the broader economic and governance contexts. This oversight limits your ability to fully understand the driving forces of profitability in a dynamic and challenging business environment like Nigeria. Despite its economic importance, Nigeria has limited empirical evidence on this subject.

Hence, understanding how macroeconomic and governance variables mediate the relationship between corporate attributes and EPS is vital to addressing these concerns and enhancing firm performance. Therefore, this research bridges this gap by investigating the mediating role of macroeconomic and governance variables in the association of corporate attributes and EPS. The research is guided by the following key objectives: First, to determine the association between corporate attributes and EPS of quoted consumer goods firms in Nigeria. Second, investigate the intermediary function of the inflation rate on the relationship between corporate attributes and EPS. Next, examine how governance variables mediate the relationship between corporate attributes and EPS. This research adds to the existing literature by providing empirical evidence on the mediating role of macroeconomic and governance factors in the relationship between corporate attributes and EPS. It also broadens the understanding of the performance among listed consumer goods companies in Nigeria and offers policy recommendations aimed at improving firm performance through stronger governance and macroeconomic stability.

2.0 Literature Review

2.1 Corporate Attributes

2.1.1 Firm Size

Firm size has long been seen as a significant predictor of a company's financial performance. Larger firms are often seen as having more resources, better access to capital markets, economies of scale, and established reputations, which can positively influence their financial outcomes, including earnings per share (EPS). Several recent studies have empirically validated the association between the size of a firm and productivity metrics, including EPS (Bui et al., 2023; Odoemelam et al., 2019; Alarussi & Gao, 2023; Efuntade & Akinola, 2020).

Larger firms tend to have greater operational efficiencies and market power, enabling them to generate higher revenues and profits. These factors, in turn, translate into higher earnings per share for their shareholders. Also, larger firms can often diversify their risks more effectively than smaller firms, contributing to more stable and potentially higher earnings. Bui et al. (2023) explored how firm size influences earnings per share (EPS) within emerging market economies. The study findings revealed a statistically significant result in a favourable direction, indicating that larger firms had a higher EPS than smaller firms.

Jain and Kumar (2023) conducted a study on the manufacturing sector in India and found that larger companies had the best EPS in terms of economies of scale and bargaining power in procurement and sales. Alarussi and Gao (2023) analyzed Chinese firms and identified a strong positive correlation between firm size and EPS, attributing it to enhanced financial and operational stability in larger firms, which often leads to more robust earnings performance. Efuntade and Akinola (2020) examined how firm size affects financial performance in Nigeria. Their findings indicated that larger firms tend to experience higher profitability, which they attributed to benefiting from increased resource availability and more effective financial management.

In light of the theoretical framework and prior empirical findings, the study puts forward the following hypothesis:

H1: There is a statistically significant and positive relationship between firm size and earnings per share (EPS) among listed consumer goods firms in Nigeria

2.1.2 Leverage

Leverage, on the other hand, affects risk exposure and financial stability, influencing investor returns (Bui et al., 2023). Leverage is as much as a firm uses debt financing in its capital structure. It is commonly assessed by calculating the proportion of a company's debt relative to its equity or total assets. A substantial body of research has examined the relationship between leverage and financial performance, with a particular focus on earnings per share (EPS). While some studies suggest that leverage can enhance profitability by providing firms with additional resources for investment and growth, others argue that excessive leverage can lead to higher financial risk, which may erode profits.

Firms that take on moderate levels of debt can increase profitability, including EPS, because interest expenses on debt can be deducted from taxable income. However, excessive leverage can increase financial risk, particularly if firms face difficulties meeting debt obligations, which can negatively impact profitability and EPS. Gill et al. (2011) examined how leverage influences the financial outcome of publicly quoted companies in the United States. The result revealed a positive yet non-linear association, where moderate levels of leverage enhance EPS, but higher levels reduce it due to the heightened risk of financial instability.

Zouaouid (2023) explored the leverage-EPS relationship in emerging economies and identified a notable negative correlation between leverage and EPS, particularly when leverage exceeds optimal levels. They concluded that excessive debt increases financial risk, which can lead to declining profitability. Shaik & Sharma (2021) examined Saudi Arabian firms and found that leverage negatively affects EPS. Their study suggests that Saudi Arabian firms, particularly in the banking sector, should be cautious about over-reliance on debt. Evbayiro-Osagie & Enadeghe (2022) and Fosu (2013) analyzed the impact of leverage on financial performance in African markets and found mixed results. While moderate leverage

improved EPS by leveraging tax shields, high leverage levels negatively impacted EPS due to rising interest payments and credit risk (Farooq et al., 2024).

Drawing from theoretical perspectives and insights from recent empirical research, the hypothesis is formulated thus:

H2: A significant negative association exists between leverage and earnings per share (EPS) of listed consumer goods companies in Nigeria.

2.2 Macroeconomic Variable

2.2.1 Inflation Rate

Studies by Ogundare (2024) highlight how inflation is an intervening variable between corporate characteristics and organizational performance. Inflation rate, a macroeconomic factor representing the general increase in price levels, can significantly influence firms' operations and financial performance (Tarkom&Ujah, 2023). When inflation is high, the prices of goods and services increase, which may squeeze profit margins, affect purchasing power, and ultimately impact earnings per share (EPS). The connection between company size and performance may also be moderated by inflation rates because larger firms, with greater financial resources and operational flexibility, may be better equipped to manage inflationary pressures than smaller firms (Tarkom&Ujah, 2023; Ahmed et al., 2024).

There is the tendency of inflation affecting corporate performance positively and negatively. Larger firms may benefit from inflation due to their ability to pass increased costs onto consumers, hedge against inflation, or negotiate better terms with suppliers. On the other hand, smaller firms might struggle to absorb rising costs, leading to a decline in profitability and EPS. The moderating effect of inflation on the firm size-EPS relationship has been examined in prior studies, with mixed results. In some cases, larger firms are found to outperform smaller ones during inflationary periods, while in other cases, the adverse effects of inflation reduce the benefits associated with firm size.

Maria and Hussain (2023) analyzed how inflation affects the financial performance of banks in India. Their findings indicated that banks were better equipped to handle inflation-related costs, reinforcing the positive link between inflation expectations and accounting-based measures of bank performance. Similarly, Makaya (2018), in a study of companies operating in high-inflation settings, observed that larger firms showed greater resilience, while smaller firms experienced a significant drop in earnings per share (EPS) during inflationary periods. This implies that inflation may influence the strength of the relationship between firm size and EPS. Furthermore, Akbar and Putri (2024), in their study of 30 firms listed on the Jakarta Islamic Index, found that inflation plays a moderating role in the connection between firm value and share price. Building on these insights, the following hypothesis is proposed:

H3: Inflation rate moderates the relationship between firm size and earnings per share (EPS) of quoted consumer goods firms in Nigeria.

Leverage, typically measured as the ratio of debt to equity or total assets, is a key determinant of a firm's capital structure (Alipour et al., 2015; Shaik & Sharma, 2021). The relationship between leverage and EPS has been studied extensively (Elangkumaran&Nimalathan, 2013; Ikilidih&Dibua, 2023), and it can be both positive and negative depending on various contextual factors, including macroeconomic conditions such as inflation. The inflation rate, which reflects the general rise in prices over time, can play a moderating role in how leverage

affects firm performance, particularly in environments where inflation volatility is high (Titus et al., 2023). When inflation is low or moderate, firms may benefit from debt financing, as the real value of debt payments decreases over time, reducing the financial burden. However, in high-inflation environments, the cost of servicing debt may increase if interest rates rise in tandem, leading to financial distress and a decline in EPS. This moderating effect of inflation on the leverage-EPS relationship has been explored in recent studies, particularly in emerging markets where inflation is often more volatile (Titus et al., 2023). Under high inflation conditions, the costs of financial distress may increase, as rising interest rates and unpredictable economic conditions could elevate debt servicing costs, particularly for firms with higher leverage. Conversely, in periods of stable or low inflation, firms may use leverage to their advantage by reducing the real value of their debt payments over time, thus enhancing their profitability and EPS.

Cheong and Hoang (2021) investigated the interaction between inflation and leverage in developed markets and found that inflation significantly weakened the positive effect of leverage on firm performance. They concluded that high inflation leads to rising borrowing costs, which can erode the potential benefits of leverage on profitability, including EPS. Titus et al. (2023) studied firms in high-inflation emerging economies and found that inflation had a strong moderating effect on the leverage-EPS relationship. In environments of high inflation, the relationship between leverage and EPS was significantly negative, as debt servicing became more expensive. Egbunike & Okerekeoti (2018) explored the impact of inflation on the financial performance of highly leveraged firms in developing countries and found that during periods of high inflation, firms experienced reduced profitability due to the increased cost of debt. Their study suggests that firms with high leverage are particularly vulnerable in inflationary environments.

Titus et al. (2023) examined Nigerian consumer goods companies and found that inflation exacerbated the negative impact of leverage on firm performance (proxied by return on assets). They noted that in a high-inflation context, firms with high leverage struggled to maintain profitability due to increasing interest rates and rising operational costs. Based on the above theoretical insights and empirical findings, the following hypothesis is proposed:

H4: Inflation rate moderates the relationship between leverage and earnings per share (EPS) of quoted manufacturing firms in Nigeria, such that the negative effect of leverage on EPS is stronger when the inflation rate is high.

2.3 Governance

2.3.1 ACRRC (regulatory quality, rule of law, and control of corruption)

Firm size is often associated with economies of scale, market power, and resource advantages that can contribute positively to a firm's performance, including EPS (Ahmed Sheikh et al., 2013). However, the relationship between firm size and EPS is not always straightforward, as it can be influenced by external factors such as the regulatory environment, the rule of law, and levels of corruption. In this context, ACRRC can act as a moderating variable that affects how accounting earnings information translates into financial performance, especially in emerging markets like Nigeria (Odoemelam & Wobo, 2024).

The institutional theory posits that firms operate within a broader institutional framework that can either facilitate or hinder their performance (Handoyo & Anas, 2024). High regulatory quality, strong adherence to the rule of law, and effective control of corruption can enhance the ability of larger firms to leverage their size for better financial outcomes, such as

improved EPS. Whereas, in weak institutional environments where regulatory inefficiencies, corruption, and legal uncertainties prevail, larger firms may face significant operational and financial challenges that erode the benefits typically associated with firm size (Odoemelam & Wobo, 2024; Liu, 2022). In well-regulated economies with strong governance structures, larger firms tend to benefit more from their scale because they can operate efficiently, access markets with minimal bureaucratic impediments, and protect their assets through legal channels. These factors positively affect profitability and EPS. However, in environments where regulatory quality is low, the rule of law is weak, and corruption is prevalent, larger firms may face greater exposure to risks such as legal uncertainties, increased costs from corruption, and regulatory inefficiencies. Hence, the positive association between firm size and EPS may be weakened or even become negative (Martins et al., 2020).

Magerakis and Tzelepis (2023) argue that firms in countries with high corruption levels and poor regulatory environments are less likely to benefit from economies of scale because of the high business costs, which include bribery, legal challenges, and unpredictability in enforcing contracts. Choi et al. (2015) studied the effects of governance quality on firm performance in emerging markets and found that firms operating in countries with strong regulatory frameworks and low corruption levels had a stronger positive relationship between size and profitability. Odoemelam and Wobo (2024) examined the impact of regulatory quality, rule of law, and corruption on business performance in various economies and concluded that these institutional factors moderated the size-performance relationship. Larger firms had better financial outcomes in countries with high regulatory quality and low corruption. Duru et al. (2020) investigated firms (banks) that were better able to improve their financial statements (such as EPS value relevance) in regions where the rule of law was strong and regulatory institutions were effective. However, larger firms saw diminished financial performance in areas with high corruption due to higher operational costs and regulatory burdens. Titus et al. (2023) explored how institutional quality affects firm performance in Nigeria and found that firm size positively impacted profitability and EPS when regulatory quality was strong. However, in regions with weak governance structures, the positive effects of firm size on financial performance were significantly reduced. Based on these theoretical insights and empirical findings, the following hypothesis is proposed:

H5: ACRRC moderates the effect of firm size on EPS of quoted consumer goods firms in Nigeria.

Leverage, representing a firm's use of debt financing, has significant implications for profitability, as reflected in earnings per share (EPS). However, the impact of leverage on EPS can be influenced by external governance factors such as regulatory quality, the rule of law, and control of corruption (ACRRC). These governance indicators are crucial in shaping the business environment, particularly in emerging markets where weak governance structures can exacerbate the risks associated with high leverage (Magerakis & Tzelepis, 2023). ACRRC provides an important moderating context in financial relationships (Odoemelam and Wobo, 2024; Magerakis & Tzelepis, 2023). Strong regulatory frameworks and the enforcement of laws contribute to transparent financial practices, reduced risks of default, and better access to capital markets. On the other hand, weak governance, lack of law enforcement, and pervasive corruption can undermine firm performance, especially for highly leveraged firms, by increasing operational inefficiencies, legal risks, and costs of borrowing.

The agency theory and institutional theory offer insights into how external governance factors moderate the relationship between leverage and EPS (Ahmed et al., 2023; Bagh et al., 2023).

The agency theory suggests that leverage may help mitigate agency problems between managers and shareholders by incentivizing managers to improve performance under debt pressure. However, in weak governance environments characterized by corruption or lax law enforcement, managers might misuse debt, leading to poor financial performance, thus eroding EPS.

Similarly, the institutional theory emphasizes the role of external institutions, including regulatory frameworks and governance quality, in shaping organizational behaviour. In countries with strong legal systems and low corruption, firms with high leverage may perform better as they operate in more stable and predictable environments, minimizing risks. In contrast, weak governance institutions can increase the costs and risks associated with debt, ultimately lowering EPS. Price et al. (2011) demonstrated that stronger legal systems and better regulatory quality positively affect firm performance by reducing corruption and enhancing financial transparency. Firms in environments with better governance were found to handle debt more effectively, leading to improved financial outcomes, including higher EPS. Kyere and Ausloos (2021) and Jensen and Meckling (1976) argued that the agency costs of leverage are reduced in contexts with high regulatory quality and strong rule of law, where creditors are better protected, and debt is utilized more efficiently, benefiting firms' performance. Ullah et al. (2023) investigated the impact of governance quality on the relationship between financial leverage and profitability in developing economies. They found that in countries with weak control of corruption and poor regulatory quality, leverage had a stronger negative effect on EPS. Poor governance increased borrowing costs and operational inefficiencies, negatively affecting leveraged firms. Titus et al. (2023) studied Nigerian firms and observed that leverage had a more pronounced negative effect on EPS in regions with weak governance indicators, such as low regulatory quality and high corruption. In contrast, firms operating in regions with stronger regulatory frameworks and the rule of law were better able to manage debt and sustain profitability. Based on the theoretical underpinnings and empirical evidence, the following hypothesis is proposed:

H5: ACRRC moderates the relationship between leverage and EPS of quoted consumer goods firms in Nigeria.

2.4 Control variable

2.4.1 Share Price

Corporate attributes such as firm size, leverage, and other internal characteristics play a significant role in determining a company's financial performance, often reflected in earnings per share (EPS). EPS is a commonly used indicator of profitability, providing insight into how much profit is generated per outstanding share. However, the relationship between corporate attributes and EPS can be influenced or even confounded by external market factors, including share price. Share price is a critical market factor that reflects investor perception of the firm's future earnings potential, growth opportunities, and risk. The value placed on a company by the market can directly or indirectly influence corporate financial outcomes, including EPS. When share prices are high, companies may find it easier to raise capital through equity, improving their financial flexibility and allowing for growth and better earnings potential. In contrast, lower share prices may indicate investor concerns about the firm's fundamentals, potentially dampening financial performance.

The market valuation theory suggests that a firm's share price captures market perceptions of its overall health, growth prospects, and earnings potential. As such, share price can influence how corporate attributes such as firm size and leverage relate to EPS. For instance, large

firms with high share prices may benefit from increased investor confidence, leading to lower borrowing costs, more access to capital, and better growth opportunities, which can enhance their EPS. On the other hand, firms with high leverage and declining share prices may face increased financial risk, making it harder to sustain high EPS. In addition, signaling theory suggests that firms with higher share prices signal strong performance and future profitability to the market, which can positively impact investor behaviour and overall financial performance. Conversely, declining share prices may signal underlying financial or operational issues, negatively impacting firm performance and, ultimately, EPS. Agrawal & Bansal (2021) found that market valuation and share prices significantly impact the financial performance of firms, including EPS. They noted that firms with strong corporate attributes and high share prices tend to report higher EPS, as they enjoy better market conditions and investor confidence. Etukudo et al. (2022) examined the interaction between corporate attributes, such as firm size and leverage, and financial outcomes. Edokpa et al. (2024) studied the moderating role of share price in the relationship between leverage and dividend payout in Nigerian firms. Based on the theoretical and empirical insights, the following hypothesis is proposed:

H6: Share price controls the relationship between corporate attributes (such as firm size and leverage) and EPS of quoted consumer goods firms in Nigeria, such that corporate attributes have a stronger positive impact on EPS when share prices are high.

2.4 Theoretical Framework

This study is anchored on agency theory, which posits that effective corporate governance mechanisms help to align the interests of shareholders and management, thus reducing agency conflicts and enhancing overall firm performance. Agency theory suggests that managerial actions should be monitored and controlled to ensure that they work towards maximizing shareholder wealth rather than pursuing personal goals (Jensen & Meckling, 1976). By implementing governance structures like board oversight and accountability measures, firms can mitigate potential misalignments and reduce inefficiencies, leading to better financial outcomes, including higher earnings per share (EPS) (Fama & Jensen, 1983; Shleifer & Vishny, 1997).

In addition, the study draws on the resource-based theory (RBT), which posits that a firm's internal resources—such as size, financial structure, and other corporate attributes—can be strategically leveraged to create a competitive advantage and drive superior performance (Barney, 1991). According to RBT, firm size is an asset that, when effectively managed, provides firms with economies of scale, increased market power, and greater financial stability, which can all contribute positively to EPS (Wernerfelt, 1984; Penrose, 1959). Larger firms often have better access to capital, stronger market positions, and more diversified operations, which enhance their ability to weather economic fluctuations and optimize financial performance (Peteraf, 1993). Prior studies affirm that larger firms tend to exhibit better financial outcomes, including EPS, due to these resource advantages, particularly in developing economies where external challenges require robust internal capabilities (Demsetz & Villalonga, 2001; Barney & Arikan, 2001).

Hence, integrating agency and resource-based theories, this study provides a dual theoretical framework to examine how governance and macroeconomic variables and firm resources jointly impact the relationship between corporate attributes and EPS in the Nigerian consumer goods sector. This approach aligns with recent studies that emphasize the importance of both governance mechanisms and resource optimization in enhancing firm

performance under dynamic economic conditions (Hillman & Dalziel, 2003; Sirmon et al., 2007).

This study is anchored on agency theory, which posits that effective corporate governance mitigates conflicts between shareholders and management, thus enhancing firm performance. Resource-based theory also underpins the argument that firm size and corporate attributes serve as resources that can be leveraged to improve EPS.

3. Methodology

This study employed a quantitative research design, utilizing secondary data from financial statements of quoted consumer goods firms in Nigeria between 2006 and 2023. Macroeconomic data was sourced from the Central Bank of Nigeria (CBN) and the National Bureau of Statistics (NBS). Following Odoemelam & Wobo (2024), Governance data were collected from the World Bank's Global Governance Indicators (WGI). The analysis involved panel data regression to test the mediating effects of macroeconomic (inflation rate) and governance variables.

3.1 Operationalization of Variables

3.1.1 Earnings Per Share (EPS): Earnings Per Share (EPS) is a commonly utilized financial metric that indicates the portion of a company's profit allocated to each outstanding share of common stock. It is calculated by dividing net income by the total number of shares in circulation. EPS is an essential gauge of shareholder value and serves as a key measure of a company's financial health and performance (Pandey, 2015). The formula for calculating EPS is:

$$\text{EPS} = (\text{Net Income} - \text{Preferred Dividends}) / \text{Average Outstanding Shares}.$$

3.1.2 Firm Size (FS): Firm size can significantly impact EPS as larger firms generally have greater resource access, diversified operations, and potentially lower risks, all of which may affect profitability (Demsetz & Villalonga, 2001). Firm size is often measured through the natural logarithm of total assets to adjust for scale effects.

3.1.3 Leverage (LEV): Leverage refers to the extent of a firm's debt compared to its equity and is critical in understanding financial risk and performance outcomes, particularly EPS (Jensen, 1986). Higher leverage can increase earnings variability, impacting shareholder returns. Leverage is measured by the Debt-to-Equity Ratio = Total Liabilities / Total Shareholders' Equity. It was sourced from balance sheets and income statements.

3.1.4 Inflation Rate (INFRATE): The inflation rate represents the overall increase in price levels within the economy, which can influence firm profitability and asset values (Fama, 1981). A high inflation rate can erode real earnings and impact corporate profitability and, consequently, EPS. It is measured as the annual inflation rate as reported by the Central Bank of Nigeria or the Nigerian Bureau of Statistics.

3.1.5. Governance Quality (ACRRC): The governance environment can significantly influence corporate outcomes, as quality governance and legal frameworks help ensure fair practices and protect investor rights (Kaufmann et al., 2009; Shleifer & Vishny, 1997). This variable is represented as a composite index of the rule of law, regulatory quality, and control of corruption, as provided by the World Bank's Worldwide Governance Indicators (WGI), measured as the average composite score from the WGI database on the rule of law, regulatory quality, and control of corruption.

3.1.6 Share price: According to Odoemelam et al. (2019), share price (SP) represents the current market valuation of a single share of a company's stock. This price fluctuates in response to various influencing factors, such as the firm's earnings performance, investor sentiment, and broader market conditions. Share price is typically measured as the market value of a single share of a company's stock at a specific point in time. It is most commonly observed as the closing price at the end of a trading day. This metric reflects investor perceptions of a company's value, influenced by various factors such as earnings reports, market conditions, investor sentiment, and broader economic indicators (Fama, 1970).

3.2. Model Specification

To investigate the association between firm attributes and earnings per share and also the moderating effect of macroeconomic and governance variables on the relationship between firm characteristics and earnings per share, the following model is formulated:

$$EPS_{it} = \alpha_i + \beta_1(FS_{it}) + \beta_2(LEV_{it}) + \beta_3(INFRATE_{it}) + \beta_4(ACRRC_{it}) + \beta_5(FS_{it} * INFRATE_{it}) + \beta_6(LEV_{it} * INFRATE_{it}) + \beta_7(FS_{it} * ACRRC_{it}) + \beta_8(LEV_{it} * ACRRC_{it}) + \beta_9 SP_{it} + e$$

Where EPS is the earnings per share, FS is firm size, LEV is leverage, INFRATE is the inflation rate, ACRRC is the average composite of the rule of law index, regulatory quality and control of corruption, and SP is share price.

4 Results and Discussion

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics for the variables under study: Earnings Per Share (EPS), Firm Size (FS), Leverage (LEV), Inflation Rate (INFRATE), Governance (ACRRC), and Share Price (SP), based on 340 observations.

Earnings Per Share (EPS) with a mean of 3.14 suggests that on average, the manufacturing firms in the sample earn ₦3.14 per share. The median of 0.95 indicates that half of the firms earn less than ₦0.95 per share, while the other half earn more. The difference between the mean and median suggests that a few firms have significantly higher EPS values, which is confirmed by the high maximum of 61.77 and standard deviation of 7.90, indicating considerable variability in EPS across the firms, which means that profitability levels differ substantially. Firm Size (FS) had a mean of 9.73 suggesting that the firms have, on average, a size of ₦9.73 billion. The median of 9.29 is quite close to the mean, indicating a relatively symmetric distribution of firm size. While standard deviation of 0.96 shows relatively low variability in firm size across the sample, suggesting that most firms are similar in size. Leverage (LEV) with a mean of 0.55 suggests that, on average, the firms have moderate leverage, with liabilities making up around 55% of their capital structure. On the other hand, a median of 0.63 indicates that half of the firms have leverage below 0.63, while half have leverage above this level. The standard deviation of 0.25 suggests moderate variability in leverage, with firms using different levels of debt. Inflation Rate (INFRATE) had a mean value of 12.04, indicating that the mean inflation rate over the study period is 12.04%. The median of 12.10 suggests that inflation was relatively stable over the study period. A standard deviation of 3.49 shows that inflation varied moderately during the period.

Governance (ACRRC) with a mean of 16.06 suggests a moderate level of governance quality across the firms. The median of 15.87 is close to the mean, indicating that most firms have similar governance characteristics. A standard deviation of 1.91 suggests relatively low variability in governance quality. Share Price (SP) with a mean value of 47.78 suggests that, on average, the share price of firms in the sample is ₦47.78. The median of 12.67 indicates

that most firms have relatively low share prices, with a few firms having extremely high prices, as evidenced by the maximum value of 1,487.00. A standard deviation of 148.62 shows substantial variability in share prices, indicating that firms in the sample have widely varying market valuations. The high variability in EPS, coupled with the positive skewness and high kurtosis, suggests that while most firms exhibit moderate profitability, there are extreme outliers that are either highly profitable or struggling significantly. This aligns with findings from prior studies in emerging markets, where a wide performance gap among firms is common due to differences in efficiency, governance, and market conditions (Avotra et al., 2021). The firm size (FS) distribution shows that most firms in the sample are of similar size, with only a few large firms dominating. This is consistent with the findings of Omeje et al. (2024), who noted that Nigerian manufacturing firms are generally medium-sized, but a few large conglomerates have a significant influence on industry performance. Leverage (LEV) shows moderate variability, with some firms operating with very low debt levels and others with higher leverage. The negative skewness indicates that more firms prefer lower leverage, possibly due to the high cost of borrowing or fear of financial distress in a volatile macroeconomic environment, as suggested by the findings of Paseda & Obademi (2020). The inflation rate (INFRATE) was relatively stable during the study period, with a moderate standard deviation and a slight positive skew. This is in line with previous research on macroeconomic conditions in Nigeria, where inflation fluctuates but remains within a predictable range, impacting firms differently (Egbunike & Okerekeoti, 2018). The governance (ACRRC) variable exhibits low variability and a near-normal distribution, suggesting that all firms adhere to similar governance. The share price (SP) has an extremely skewed distribution, with a few firms having very high market valuations compared to the majority of firms with low share prices. This could indicate that a few high-performing firms dominate the market, while others lag, as supported by a study on the Nigerian stock market by Akinmade et al. (2020).

The descriptive statistics provide important insights into the corporate attributes, macroeconomic conditions, and governance practices of Nigerian manufacturing firms. The high variability in key variables such as EPS, leverage, and share price suggests that firms in this sector face diverse challenges and opportunities. These findings underscore the need for further analysis to explore the relationships between these variables and how macroeconomic factors and governance practices mediate firm performance. The presence of outliers and non-normal distributions, particularly in EPS and share price, suggests that future studies should consider the potential impact of these extreme values on regression results and model interpretation.

| | Variable | Obs | Mean | SD | Min | Max |
|--|----------|-----|--------|--------|--------|---------|
| | EPS | 340 | 3.141 | 7.897 | -6.160 | 61.770 |
| | FS | 340 | 9.731 | 0.962 | 8.100 | 11.220 |
| | LEV | 340 | 0.546 | 0.246 | 0.110 | 0.880 |
| | INFRATE | 340 | 12.043 | 0.246 | 5.390 | 18.850 |
| | ACRRC | 340 | 16.058 | 1.091 | 14.40 | 16.058 |
| | SP | 340 | 47.779 | 148.62 | 0.200 | 1487.00 |

Table I. Descriptive statistics of the manufacturing sector

Notes: EPS, earnings per share; FS, firm size; LEV, leverage; ACRRC, regulatory quality, rule of law and control of corruption; SP, share price

4.2 Correlation

The correlation matrix in Table 2 presents the Pearson correlation coefficients (r) between the dependent variable (Earnings Per Share, EPS) and the independent variables: Firm Size (FS), Leverage (LEV), Inflation Rate (INFRATE), Governance (ACRRC), and Share Price (SP). The matrix also includes p -values to assess the statistical significance of these correlations.

EPS is positively correlated with firm size (FS) ($r = 0.371$, $p < 0.01$). This suggests that larger firms tend to have higher earnings per share, which aligns with prior studies, such as Reschiwati et al. (2020), which found that larger firms benefit from economies of scale, leading to better financial performance. EPS is also positively correlated with leverage (LEV) ($r = 0.312$, $p < 0.01$), indicating that firms with higher debt levels tend to have higher EPS. This supports the findings of Saeed et al. (2021), who highlighted that judicious use of leverage can enhance profitability if the cost of debt is lower than the return on investment. A significant positive correlation is observed between EPS and inflation rate (INFRATE) ($r = 0.375$, $p < 0.01$). This implies that higher inflation may lead to better earnings for some firms, possibly due to price adjustments or increased revenue in nominal terms. This finding contradicts Alalade et al. (2024), who reported an insignificant effect of inflation on EPS.

EPS has a strong positive correlation with governance (ACRRC) ($r = 0.368$, $p < 0.01$). This suggests that firms with better governance structures (e.g., regulatory quality, rule of law, and control of corruption) perform better financially. There is a very strong positive correlation between EPS and share price (SP) ($r = 0.548$, $p < 0.01$). This finding indicates that firms with higher earnings per share tend to have higher share prices, consistent with classical financial theories, such as the dividend discount model (Gordon's model).

FS shows extremely strong correlations with leverage ($r = 0.925$, $p < 0.01$), inflation rate ($r = 0.955$, $p < 0.01$), and governance ($r = 0.992$, $p < 0.01$). This suggests that larger firms are more likely to have higher leverage, be more affected by inflation, and have better governance structures. The strong relationship between firm size and governance may be due to larger firms having more resources and incentives to invest in robust governance systems. Interestingly, FS has a moderate correlation with share price ($r = 0.313$, $p < 0.01$), suggesting that larger firms tend to have higher share prices, which supports findings by Coe (2024) that larger firms generally command a premium in stock markets due to their stability and profitability.

LEV has a strong positive correlation with the inflation rate ($r = 0.867$, $p < 0.01$) and governance ($r = 0.909$, $p < 0.01$). This indicates that firms with higher leverage are more exposed to macroeconomic factors such as inflation and also tend to have better governance practices, possibly due to the regulatory scrutiny imposed on highly leveraged firms. LEV also correlates moderately with share price ($r = 0.313$, $p < 0.01$), suggesting that leveraged firms tend to have a higher share price, potentially due to the use of debt to finance growth and expansion.

INFRATE is highly correlated with governance ($r = 0.963$, $p < 0.01$), implying that better governance is often observed in firms operating in inflationary environments. This may suggest that firms with robust governance mechanisms are better able to navigate periods of inflation. There is also a moderate positive correlation between INFRATE and share price ($r = 0.281$, $p < 0.01$), which may reflect that inflationary pressures affect stock prices, particularly for firms able to pass on costs to consumers.

ACRRC shows a moderate positive correlation with share price ($r = 0.302$, $p < 0.01$), suggesting that firms with better governance tend to have higher stock prices, which aligns with Core et al. (1999), who found that strong governance is associated with better market valuation. Share price is positively correlated with all other variables, with the strongest relationship observed with EPS ($r = 0.548$, $p < 0.01$). This shows that share prices are influenced by multiple corporate attributes, including firm size, leverage, and governance. These findings are consistent with Jensen & Meckling (1976), who identified firm fundamentals, including earnings, as primary determinants of stock prices

The correlation matrix provides valuable insights into the relationships between earnings per share, firm size, leverage, inflation rate, governance, and share price. Most of the variables are positively correlated, with firm size, leverage, and governance being particularly interrelated. These results suggest that larger firms, better governance, and strategic financial management (e.g., leverage) are associated with higher EPS and share prices, supporting existing literature. However, while these correlations highlight important associations, they do not imply causality. Hence, multivariate regression analysis and other advanced econometric techniques were employed to further explore the causal effects and address any potential multicollinearity among the predictors.

| Variables | | (1) | (2) | (3) | (4) | (5) | (6) |
|-------------|----------|-------|-------|-------|-------|--------|-------|
| (1) EPS | <i>r</i> | 1.000 | 0.371 | 0.312 | 0.375 | 0.3683 | 0.548 |
| | <i>P</i> | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| (2) FS | <i>r</i> | | 1.000 | 0.925 | 0.955 | 0.992 | 0.313 |
| | <i>P</i> | | | 0.000 | 0.000 | 0.000 | 0.000 |
| (3) LEV | <i>r</i> | | | 1.000 | 0.867 | 0.909 | 0.313 |
| | <i>P</i> | | | | 0.000 | 0.000 | 0.000 |
| (4) INFRATE | <i>r</i> | | | | 1.000 | 0.963 | 0.281 |
| | <i>P</i> | | | | | 0.000 | 0.000 |
| (5) ACRRC | <i>r</i> | | | | | 1.000 | 0.302 |
| | <i>P</i> | | | | | | 0.000 |
| (6) SP | <i>r</i> | | | | | | 1.000 |
| | <i>P</i> | | | | | | |

Table 2 Correlation matrix
Notes: EPS, earnings per share; FS, firm size; LEV, leverage; INFRATE, inflation rate; ACRRC, regulatory quality, rule of law and control of corruption; SP, share price; *r*, coefficient; *p*, probability value (*p-value*)

4.3 Variance Inflation Factors (VIF)

The Variance Inflation Factor (VIF) is a tool used to assess multicollinearity in regression models. Multicollinearity arises when two or more independent variables in a model exhibit a high degree of correlation with one another, which can inflate the standard errors of the coefficients and make the regression results unreliable. The centered VIF is calculated after centering the variables (i.e., subtracting their means) and is the standard measure to assess multicollinearity. A general rule of thumb is that $VIF < 5$ implies there is no significant multicollinearity. VIF for FS is 1.277, which is well below the threshold of 5. This suggests that firm size does not exhibit multicollinearity with the other variables in the model. Leverage (LEV), the VIF for leverage is 1.285, indicating that leverage is not highly collinear with other variables. Inflation Rate (INFRATE), the VIF for the inflation rate is 1.079, which

is also below the threshold, suggesting no multicollinearity issues. Share Price (SP), the VIF for share price is 1.012, which is very close to 1, indicating no sign of multicollinearity. Governance (ACRRC), the VIF for governance is 1.077, which is quite low, indicating no multicollinearity.

The centered VIFs for all the variables in the model are below the critical value of 5, meaning that no significant multicollinearity is present in the model. This indicates that the predictor variables in the regression model are not highly correlated, and the regression estimates are likely to be stable and reliable. This finding is consistent with prior studies that have examined corporate attributes, macroeconomic factors, and governance variables. For example, Sulaiman et al. (2019) found similarly low VIFs in their study of Nigerian manufacturing firms, indicating that their variables were appropriately chosen and did not suffer from multicollinearity. Moreover, Baltagi&Baltagi (2008) emphasized the importance of assessing multicollinearity in financial models, as it can distort the interpretation of the relationship between predictors and the outcome variable (e.g., earnings per share).

In this study, the low VIFs suggest that the relationships between corporate attributes, macroeconomic variables, and governance are independent enough to provide meaningful insights into their impact on earnings per share (EPS). This confirms the robustness of the regression model used for analysis.

Table 3: Multicollinearity Analysis

Variance-Inflation Factors
Date: 10/14/24 Time: 16:30
Sample: 1 340
Included observations: 340

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|----------|-------------------------|-------------------|-----------------|
| C | 47.21922 | 345.6591 | NA |
| FS | 0.188730 | 132.1127 | 1.277210 |
| LEV | 2.898187 | 7.616830 | 1.285300 |
| INFRATE | 0.012173 | 14.00389 | 1.079221 |
| SP | 6.28E-06 | 1.117483 | 1.012526 |
| ACRRC | 0.124037 | 235.2235 | 1.077751 |

Dependent variable: EPS

4.3 Regression

The results in Table 4 present an Ordinary Least Squares (OLS) regression analysis, exploring the impact of corporate attributes (firm size, leverage), macroeconomic variables (inflation rate), and governance variables (ACRRC) on the EPS of quoted consumer goods companies in Nigeria. Additionally, the table examines the moderating effects of macroeconomic (inflation rate) and governance (ACRRC) variables on the relationship between corporate attributes and EPS. Below is a detailed discussion of the results, taking cognizance of prior studies:

Considering the firm size (FS) had a positive coefficient (5.574), indicating that an increase in firm size is associated with a higher EPS. However, the result is not statistically significant ($p = 0.3851$). This implies that firm size does not directly and significantly impact EPS in the sample of listed consumer goods firms. Prior studies, such as Nguyen et al. (2023), similarly found that while larger firms tend to have more resources and market power, their influence

on profitability metrics like EPS is not always significant in the presence of external factors like market conditions and management inefficiencies.

Also, revealed in Table 4, was a negative coefficient (-6.914), suggesting that higher leverage reduces EPS, but this effect is also statistically insignificant ($p = 0.7935$). This aligns with some previous studies (Zinal., 2024), which found that while higher debt levels may strain a firm's financial position, the direct impact on profitability may not be statistically significant due to firms' ability to manage their debt structure effectively.

On the other hand, Table 4 shows that the inflation rate (INFRATE) has a positive but statistically insignificant coefficient (0.697, $p = 0.5284$). This indicates that inflation does not have a direct significant effect on EPS. This finding contrasts with some studies, such as Yiğenoğlu et al., (2024), which found that inflation rates generally exert pressure on firm profitability due to increased costs. The non-significance in this study may suggest that manufacturing firms have strategies to mitigate inflationary pressures, such as passing costs onto consumers. Similarly, governance (ACRRC) has a positive coefficient (2.584), indicating that good governance practices, such as board oversight and regulatory compliance, are positively associated with EPS. However, this relationship is not statistically significant ($p = 0.4806$). Studies like Feyisa et al. (2022) have argued that good governance practices tend to improve firm performance, but the lack of significance here might be due to other overriding factors in Nigeria's governance landscape, such as weak enforcement of governance policies (Odoemelam & Wobo, 2024).

The moderating effects of macroeconomic (inflation rate) and governance variables on the relationship between corporate attributes and earnings per share in Table 2, showed interesting results. First, the interaction between firm size and inflation rate (FS*INFRATE) is positive (0.017) but statistically insignificant ($p = 0.8881$). This suggests that inflation does not significantly moderate the relationship between firm size and EPS, meaning that larger firms do not have a distinct advantage in coping with inflationary pressures on profitability. Second, the interaction between leverage and the inflation rate is significant (coefficient = -1.174, $p = 0.0207$). This negative interaction implies that higher leverage exacerbates the negative effect of inflation on EPS. In periods of high inflation, firms with high debt levels may struggle more, as debt repayments and operating costs rise, reducing profitability. This finding is consistent with prior studies, such as Titus et al. (2023), which demonstrated that inflation heightens the financial strain on highly leveraged firms, particularly in emerging markets like Nigeria. Third, the interaction between firm size and governance (FS*ACRRC) (Firm Size is negative (-0.335) and statistically insignificant ($p = 0.4134$). This suggests that governance practices do not significantly enhance the positive impact of firm size on EPS. It reflects the possibility that governance metrics (regulatory quality, rule of law and control of corruption) in Nigeria are not strong enough to capitalize on the advantages of larger firms, an issue noted in governance studies (Odoemelam & Wobo, 2024). Fourth, the interaction between leverage and governance is positive (1.083) but statistically insignificant ($p = 0.5224$). This suggests that governance practices do not significantly moderate the relationship between leverage and EPS. This finding implies that while good governance can improve a firm's operations, it does not mitigate the negative effects of high leverage on profitability.

The share price (SP) is highly significant ($p = 0.0000$) with a positive coefficient (0.0266). This implies that share price changes are strongly associated with EPS, highlighting the relevance of stock market performance as a direct indicator of firm profitability. This finding

aligns with existing literature (Edeling et al., 2021) that points to a robust relationship between market valuation and earnings performance.

The R-squared (R^2) value of 0.2816 indicates that approximately 28.16% of the variance in EPS is explained by the independent variables in the model. While this may seem modest, it is consistent with studies of this nature, where numerous external factors also influence firm performance. The F-statistic (14.373, $p = 0.0000$) shows that the overall model is statistically significant at the 1% level, meaning the combination of corporate attributes, macroeconomic variables, and governance factors collectively has a significant effect on EPS.

The results are consistent with previous findings in emerging markets, where the impact of corporate attributes on EPS is often moderated by external macroeconomic factors. The significant negative interaction between leverage and inflation ($LEV*INFRATE$) aligns with studies (e.g., Titus et al., 2023; Sucipto et al., 2022) that demonstrate the heightened risk for leveraged firms in inflationary environments.

However, the study's insignificance of firm size, governance, and their interactions reflects the unique challenges faced by Nigerian consumer goods firms, where governance structures may not be fully effective and macroeconomic instability prevails (Odoemelum & Wobo; Titus et al. 2023). The significant relationship between share price and EPS underlines the importance of market performance in reflecting firm profitability, consistent with findings from Edeling et al., (2021).

Table 4: OLS Regression of EPS on Corporate Attributes and Moderating Effects of Macroeconomic and Governance Variables

| Variables | $EPS_{it} = \alpha_1 + \beta_1(FS_{it}) + \beta_2(LEV_{it}) + \beta_3(INFRATE_{it}) + \beta_4(ACRRC_{it}) + \beta_5(FS_{it}*INFRATE_{it}) + \beta_6(LEV_{it}*INFRATE_{it}) + \beta_7(FS_{it}*ACRRC_{it}) + \beta_8(LEV_{it}*ACRRC_{it}) + e$ | | | | |
|-------------------|--|---------|-------|---------|------|
| EPS | Coef. | t-value | SE | p-value | Sig. |
| FS | 5.574 | 0.869 | 6.409 | 0.3851 | |
| LEV | -6.914 | -0.261 | 26.39 | 0.7935 | |
| INFRATE | 0.697 | 0.631 | 1.105 | 0.5284 | |
| ACRRC | 2.584 | 0.706 | 3.660 | 0.4806 | |
| FS*INFRATE | 0.017 | 0.140 | 0.122 | 0.8881 | |
| LEV*INFRATE | -1.174 | -2.325 | 0.505 | 0.0207 | ** |
| FS*ACRRC | -0.335 | -0.818 | 0.410 | 0.4134 | |
| LEV*ACRRC | 1.083 | 0.640 | 1.691 | 0.5224 | |
| SP | 0.0266 | 10.611 | 0.002 | 0.0000 | *** |
| R^2 | 0.2816 | | | | |
| R-Adjusted | 0.262 | | | | |
| F-statistic | 14.373 | | | | |
| Prob(F-statistic) | 0.0000 | | | | *** |

Notes: EPS, earnings per share; FS, firm size; LEV, leverage; INFRATE, inflation rate; ACRRC, governance; FS*INFRATE, the interaction of FS and INFRATE; LEV*INFRATE, the interaction of leverage and inflation rate; FS*ACRRC; firm size and governance; LEV*ACRRC, interaction leverage and governance; share price; **, significance at 5% level; ***, significance at 1% level.

5. Conclusion

While firm size and leverage directly influence EPS, their effects are significantly moderated by macroeconomic conditions, particularly inflation. The role of governance, though positive, is not as pronounced, reflecting potential challenges in governance enforcement. This study provides valuable insights into the interaction between corporate attributes and external factors in determining firm performance in Nigeria's manufacturing sector. Future research

could explore other macroeconomic and governance variables or investigate industry-specific effects to further refine these insights.

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