INTERNATIONAL JOURNAL OF BUSINESS AND MANAGEMENT RESEARCH
P-ISSN: 1118-4256, E-ISSN:3034-4327
Vol. 5| No.3 | December 2024
Page No.: 190 - 215

FIRM PHYSIOGNOMIES AND FINANCIAL DISTRESS: EVIDENCE FROM LISTED CONSUMER GOODS FIRMS ON THE NIGERIAN EXCHANGE GROUP

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Abstract

This study considers how firm-specific characteristics such as firm size, liquidity, and profitability influence the financial distress of listed consumer goods firms on the Nigerian Exchange Group. This study used the Altman Z-Score model as a proxy for financial stability in conveying an idea of the financial robustness of the sector amidst the fluctuating economy of Nigeria. The results of panel data analysis, which covered the period from 2012 to 2023 for 16 Consumer Goods Firms, indicated that firm size and liquidity have a significant positive effect on financial stability; large and liquid firms demonstrate lower probabilities of distress. Profitability also had a positive effect on financial stability but with a smaller effect size. These findings underscore the critical role that firm physiognomies play in enhancing resilience against financial distress and point toward strategies that should emphasize the management of an increase in firm scale, liquidity management, and a focus on long-term profitability with a view to fostering financial stability.

Keywords: Financial Distress, Firm Size, Liquidity, Profitability, Nigerian Consumer Goods Firms

1.0 Introduction

The Consumer Goods sector is one of the strongest pillars of the Nigerian economy, being among those leading contributors to its Gross Domestic Product and a source of employment (KPMG, 2023). This involves food, beverages, household items, and personal care products manufacturing and distributing companies. Regardless of their significance, financial distress has often affected some firms operating in the consumer goods sector (Pirdam & Mustapha, 2024). The volatility of the economic conditions of Nigeria tends to keep the sector within the realms of financial stress due to dependency on oil prices as the nation's major export commodity (Igbinedion, 2019; Abanikanda & Dada, 2023). High inflation, currency depreciation, and a lack of predictability in government policy further complicate this operational environment and make it very difficult for consumer goods firms to maintain financial stability. This challenge pertains to the inability of a firm to meet its financial obligations. In this regard, financial distress has become one of the most sensitive issues facing consumer goods sectors. The situations of Leventis Foods, Savannah Sugar Company, and Stallion Group (Food Division) have underlined the vulnerabilities within the sector. Such conditions often result in job losses, decreased investor confidence, and other economic consequences (Pirdam & Mustapha, 2024). Secondly, financial distress may further disrupt supplies of essential commodities, which essentially fuels inflationary pressures in the economy. Understanding the determinants of financial distress among consumer goods firms in Nigeria will help in addressing these challenges.

Financial distress literature identifies a variety of firm-specific attributes or physiognomies that influence the financial stability of a firm; these include size, liquidity, and profitability. Firm size can be proxied either through total assets or market capitalization and may impact financial resilience due to the fact that larger firms may have better access to resources and

more substantial market power (Ramadani & Ratmono, 2023). Whereas liquidity is an indication of a firm's ability to meet its short-term obligations, profitability communicates the firm's ability to realize revenue above expenses (Edtiyarsih, 2023). According to recent literature in Nigeria, high leverage and poor liquidity have been linked with financial distress because high gearing takes advantage of firms during economic downturns which may lead the firms into cash flow problems exacerbating financial instability (Yusuf & Abudulkarim, 2020). A well-known measure of financial distress is the Altman Z-score, which determines the possibility of bankruptcy by integrating five key financial ratios: working capital to total assets, retained earnings to total assets, EBIT to total assets, market value of equity to book value of liabilities, and sales to total assets (Singh & Singla, 2023). A high Z indicates financial soundness, while a low Z-score characterizes distressed conditions (Singh & Singla, 2023). Understanding the relationship between firm attributes and the Altman Z-score can provide valuable insights into the assessment of financial distress risks of Nigerian consumer goods firms. The study, therefore, seeks to assess the extent to which firm size, liquidity, and profitability influence the Altman Z-score of listed consumer goods firms in Nigeria as a pressing need to devise strategies that enhance financial resilience in this sector.

Ideally, consumer goods firms in Nigeria are expected to work in perfect environment of good financial health; that is, stable profitability, efficient management of debts, and high liquidity, coupled with efficiency in the use of assets. This in return would provide the necessary stability for such firms to attract investment meant for operational expansion to contribute to the national economy through job creation and useful goods provision (Fredrick, 2018). Unfortunately, Nigeria's economic volatility, noticeable through fluctuating oil prices, inflation, and currency instability, presents a harsh business climate where several firms face financial distress (Igbinedion, 2019; Abanikanda & Dada, 2023). This is exacerbated by high operational costs, intense competition, and reliance on debt

financing, which precipitates poor profitability, liquidity constraints, and financial risk (Yusuf & Abudulkarim, 2020). Aside from that, poor corporate leadership and strategic mismanagement further make those firms weaker (Pirdam & Mustapha, 2024). Although various studies have considered profitability, leverage, and liquidity as the causes of financial distress, firm size remains an underexplored variable in the Nigerian context despite evidence available from other economies on its importance (Pirdam & Mustapha, 2024).

This study will attempt to fill these gaps by looking at the influence of firm size, liquidity, and profitability on the financial distress of Nigerian consumer goods firms using the Altman Z-Score model for current and contextual facts on the financial stability of the sector.

1.1 Objectives of the Study

1) To ascertain the extent to which firm size affects the Altman Z-Score of listed consumer goods firms in Nigeria.
2) To evaluate the degree to which firm liquidity affects the Altman Z-Score of listed consumer goods firms in Nigeria.
3) To determine the effect of firm profitability on the Altman Z-Score of listed consumer goods firms in Nigeria.

1.2 Research Hypotheses

1) H01: Firm size does not significantly affect the Altman Z-Score of listed consumer goods firms in Nigeria.
2) H02: Firm liquidity does not significantly affect the Altman Z-Score of listed consumer goods firms in Nigeria.
3) H03: Firm profitability does not significantly affect the Altman Z-Score of listed consumer goods firms in Nigeria.

2.0 Literature Review

2.1 Financial distress

Saputri and Asrori (2019) define financial distress as a state wherein a firm or organization is suffering severe problems or difficulties in its finances, which may jeopardize its capability to fulfil its financial obligations, whether these are debt servicing or operational expenses. Hamza, Alinoor, Abdi, Nyabuti and Okiro (2023) add that financial distress may appear in different forms, such as liquidity problems, reduced profitability, or lack of access to capital markets. The idea of financial distress is indispensable in this research as it serves as a premise to identify and assess the financial status of organizations (Wu et al., 2022; Atang et al., 2022; Boďa & Úradníček, 2016; Göktürk & Yalçinkaya, 2023). Financial distress involves a situation whereby an organization or a firm is experiencing severe and, on most occasions, debilitating financial challenges that put its existence at risk to perform its due financial obligations and duties (Marginingsih, 2022). These include the servicing of debts owed, meeting operation-related expenses, and honoring contractual obligations owed to stakeholders, among other financial duties. Financial distress is an important and broad indicator of the firm's financial health and its viability to continue as a going concern in the competitive world of business (Aviantara, 2023).

2.1.2 Altman Z-Score

Since its establishment by Edward I. Altman in 1968, the Altman Z-Score has undoubtedly been among the most renowned financial models used in predicting the possibility of a firm falling into financial distress (Marginingsih, 2022). This model incorporates multiple financial ratios combined into a singular score, each weighted appropriately. This score will then help to categorize a firm into distinct groups: "safe" or "distressed," as noted by Aviantara (2023) and Pramudita (2021). The study by Nanayakkara and Azeez (2015) suggested that certain financial indicators may signal distress long in advance. While the Altman Z-Score has undergone many modifications since its development, it was widely

accepted as a predictor of corporate bankruptcy (Raines et al., 2023). According to Mubarok (2023), the Z-Score was a statistical tool used to compare the stability and solvency position of a company. It mapped the general health of a firm by measuring certain financial ratios of a company. It contains a set of financial parameters to measure liquidity, profitability, leverage, solvency, and other relevant ratios in its formula (Olimsar et al., 2023). The grading system of the Z-Score ranges between 0 and 10. Any score less than 1.81 falls into the high probability of corporate insolvency, while a score greater than 2.99 falls into the low probability of corporate insolvency streams (Altman 1968).

Altman Z-Score is calculated thus:

$AZS = 1.2*X_1 + 1.4*X_2 + 3.3*X_3 + 0.6*X_4 + 1.0*X_5$ ……..…eqn i

Where:

X_1 = working capital to total assets ratio

X_2 = retained earnings to total assets ratio

X_3 = Profit before interest & tax to total assets

X_4 = market value of equity to book value of total liabilities

X_5 = Revenue to total assets

2.1.3 Firm Physiognomies as Determinants of Financial Distress

Firm physiognomies which can also be referred to as firm attributes is defined as inbuilt features or characteristics of the business entity, determining its behavior and performance, including how it interacts within the market environment. These characteristics represent the distinctive qualities or traits that distinguish one company from another and shape its identity and operations. Firm physiognomies denote the measurable characteristics or properties of a firm that affect its competitiveness, profitability, and resilience in the marketplace (Handoyo, Mulyani, Ghani & Soedarsono, 2023). The factors contributing to financial distress encompass a range of indicators that highlight a company's susceptibility to financial vulnerability (Anggraini & Verlandes, 2023). Mburu (2018) stated that these

factors may include high debt levels, declining profitability, ineffective asset utilization, and liquidity challenges. These determinants were used by Altman (1968) to formulate the Z-score model because they were early warning signs of financial distress. Many empirical studies focusing on the same determinants by scholars such as Mburu (2018), Restianti and Agustina (2018), Supriyanto and Darmawan (2018), Susanti et al. (2020), and Saputri and Asrori (2019) have been conducted in the past for different sectors and regions.

2.1.3.1 Firm Size and Financial Distress (Altman Z-Score)

Firm size is the scale or magnitude of a business and is one of the crucial determinants in the position or potential development of business ventures within an industry (Appah & Duoduo, 2024). It is determined through various financial and operational indicators, including the asset base, revenue, market capitalization, and the total population of employees within the firm. All these indicators present a view of the sum of a company's capacity to realize income, mobilize resources, and compete in the marketplace. A larger firm usually has wider operations, greater reach, and a more significant impact on the industry within which it operates. With its extensive resources, it could maintain wider market shares and contest on several fronts. Also, a small firm will have fewer resources but could compensate with higher adaptability and flexibility in its operations. The size of a firm is important in determining its strategic options. Large firms are typically very organized and can enjoy the advantages of economies of scale, where their size extends the benefits of discounted costs per unit owing to the bulk factor in production or purchasing. This could give them a competitive edge in the market by allowing them to sell goods or services at lower prices or with higher margins. Moreover, large firms are typically in a better position vis-a-vis access to capital markets, which allows them to obtain finance on better terms and reinvest it into for growth or innovation opportunities (Nanayakkara & Azeez, 2015). No matter the size of the firm measured in terms of assets, effective asset utilization is one of the cornerstones upon which the financial well-being and overall

operational effectiveness of a firm rest. This would serve to illustrate how efficiently a company can use their assets in generating revenue for sustaining profitability.

According to Nastiti et al. (2020), an important component of such efficiency may be drawn from the asset turnover ratio, which importantly and prominently serves in relation to the issues of financial stability and vulnerability to financial distress. The asset turnover ratio is a financial measure that scrutinizes the corporation's ability to make sales or revenue in relation to the value of its assets. If an organization experiences poor asset efficiency, a number of negative consequences do follow due to the fact that inefficient use of assets suggests that critical resources, including machinery, equipment, or even inventories, are not being put to full use (Al-Slehat, 2022). In addition, inefficient utilization of assets implies that sales and revenues could grow at relatively slow rates. Where the assets are not generating revenue, in a given firm, cash flows are likely to be relatively low; therefore, such firms may have problems trying to meet its financial obligations and invest in opportunities for growth. Where profits decline based on ineffective asset utilization, there is an immediate effect on the level of profitability of a firm (Aydin & Kulali, 2018).

Firm size is one of the critical determinants in ascertaining the financial stability of a firm and its eventual likelihood of distress, such as those computed by the Altman Z-score. The Z-score is an estimate of the financial situation of a firm based on profitability, leverage, liquidity, and efficiency of operations. Larger firms tend to have certain advantages, including economies of scale, easier access to capital, and diversified sources of income that will reduce the risk of financial stress. Recent studies have depicted mixed results on the firm size and financial distress relationship. For example, there is evidence by Appah and Duoduo (2024), which proves that though profitability positively influences financial stability, the size of firms does not significantly affect the level of distress experienced in Nigerian firms. On the other hand, while Kebede et al. (2024) did indicate that larger firms

show a low level of distress, they nevertheless pointed out that size, profitability, and liquidity are factors that have contributed to a reduction in financial distress among Ethiopian firms. The interplay between firm size and financial performance is an important one. Ordue et al. (2024) indicated that although the size of the firm was insignificant in affecting performance, larger firms could better absorb financial disturbances. This could be due to a reduced level of distress which results from the fact that larger firms can often absorb losses better than their smaller competitors. Still, Asmar and Farhood (2024) found that the associations between the firms' capital adequacy and firm size and their financial distress are significantly negative, confirming the better position of larger firms in terms of their capital structure.".

2.1.3.2 Company Liquidity and Financial Distress

Liquidity shortage is a critical financial risk significantly considered by the Z-Score of a company, which is one of the globally accepted measures showing the likelihood of a company falling into financial distress (Ramadani & Ratmono, 2023). Lower Z-Scores imply a firm's greater chance of facing financial distress or possible bankruptcy, while the vice versa condition suggests a reduced propensity of financial crisis. A liquidity crisis is considered a serious form of financial trouble that could have implications for the overall survivability and sustainability of the firm (Susanti et al., 2020). It occurs when a firm's short-term liabilities payables to suppliers, employees, or servicing of short-term debt become greater than the cash and near-cash assets of the company. In such a case, the company experiencing a liquidity crisis may find itself alarmingly close to financial distress or bankruptcy (Ramadani & Ratmono, 2023). Wisnu and Astuti's (2023) study, conducted in the agricultural sector in Indonesia, found the current ratio positively influential to financial distress. Yuliastari et al. (2022) arrived at the same conclusion. Going further, the study by Supriyanto and Darmawan (2018) found evidence that in the mining sector, the working capital ratio was positively affecting financial distress. That is

to say, the higher the level of liquidity (as represented by a high current ratio), the higher the possibility of financial distress within the mining industry. Conversely, in previous studies, research by Ramadani and Ratmono (2023) on Indonesian manufacturing firms shows that the current ratio influences the possibility of financial distress negatively. It may thus struggle to pay the suppliers, thereby inconveniencing some of them and jeopardizing their relations with the company, or making the supply process erratic. The servicing of short-term debt and access to further finance could be difficult, which would make the situation worse for the company. A low current ratio would prevent the enterprise from investing in any prevailing growth opportunities, making necessary capital expenditures, or meeting any sudden losses which may be caused by economic recessions or market disruptions, as suggested by Susanti et al. (2020). This would lead the company to become non-competitive and unable to adapt to dynamic market conditions.

2.1.3.3 Firm Profitability and Financial Distress

Profitability is considered the foundation upon which the vital force of a business exists, allowing the continuity of operations and diversification of business. It is one of the major financial indicators showing business capability in earning income to enable the fulfilment of the firm's financial objectives. Nonetheless, a sustained decline in profitability signals underlying financial breakdown and can be an indication of future problems (Wu et al., 2022). Profitability refers to different measures in finance that show a company's profit generation in relation to its cost and investments. Such indicators include profit margins, net income, ROA, ROE, and EBIT, among others; however, only return on assets was considered in this research. Low profitability may decrease investment opportunities in research and development, innovation, or expansion activities. Furthermore, a fall in profitability may hamper the attraction of investors or the acquisition of financing, which may limit capital availability for growth or debt servicing. Tran et al. (2023) stated that, in worst-case scenarios, sustained profitability declines can push an organization into

financial distress. This position is characterized by the inability of a firm to meet its financial obligations including interest payments on loans and working capital which might ultimately lead to bankruptcy or insolvency and thus threaten the survival of the firm (Permatasari et al., 2023).

However, low values of profitability ratios are a concern for firms since their potential impact might be seen in almost all aspects of the firm's financial health and stability. Lower profitability ratios mean that a firm would face problems in reaping sufficient earnings to match its costs and investments. The decline in profitability would then translate into a decline in the Z-Score. In extreme cases, reduced profitability can lead to net losses, where a company's expenses are greater than revenues. Net losses also not only eat away current profits but also the financial cushions of an enterprise, which in turn raise the likelihood or vulnerability to financial distress. According to Atang et al. (2022) and Mubarok (2023), net losses erode current and financial cushions, thus increasing the probability or vulnerability of an enterprise towards financial distress. Rivanda et al. (2023) show profitability had a positive significant impact on the financial distress risk prediction.

However, the findings from these studies lead to mixed results about profitability regarding financial distress. Permatasari et al. (2023) found that return on assets negatively correlated with financial distress. On the other hand, Edtiyarsih (2023) discovered that the influence of profitability negatively affected the Altman Z-score model but was non-significant. According to the study of Destriwanti et al. (2022), ROE negatively influenced financial distress. Besides, Restianti and Agustina (2018) revealed a significant negative influence of return on equity. However, other researchers found no significant influence. For instance, Wisnu and Astuti (2023) failed to observe the significant influence of profitability ratios on financial distress conditions in agricultural companies. Similarly, Pratiwi et al. (2022) did not find the significant effects of Earning Before Interest and Tax to Total Assets

on financial distress. Equally, Saputri and Asrori (2019) could not find a statistically significant influence of profitability on financial distress in mining firms. In light of these divergent findings, each business organization has to closely monitor profitability, identify the causative factors, and take corrective measures to ensure their financial stability and resilience in a competitive business world.

2.2 Theoretical Framework

2.2.1 Financial Distress Theory

Financial Distress Theory, as viewed by Purnanandam (2008), spells out the predictors and sequences of financial distress within firms. This theory postulates that a set of financial ratios reflecting efficiency, liquidity, leverage, and profitability can typically serve as an early warning system that may lead to the financial instability of an entity. According to Gordon (1971), drastic deviation in the values of such measures from the industrial median reflects high risk with regard to financial distress. For instance, this theory is manifested through the Altman Z-Score Model, which uses these ratios in predicting the likelihood of a firm running into financial distress (Restianti & Agustina, 2018). Some of the important factors are high leverage, whereby too much debt load diminishes cash flow and profitability, and inefficient asset utilization overextends a firm's financial resources (Yego & Koske, 2018; Ahmad, 2013). Recognizing these signs is crucial for averting crises, as firms can then take proactive measures to avoid insolvency, protecting shareholder value and stakeholder interests (Habib et al., 2020).

This theory is applicable to this study on consumer goods firms in Nigeria because the volatile economic conditions increases their financial vulnerability. This study will, therefore, try to utilize the financial ratios specified in the Z-Score model in identifying predictors of financial distress in these firms as a way of providing insight for stakeholders on ways to mitigate potential risks. Financial Distress Theory therefore provides a critical

framework for the understanding of the varied factors affecting financial health in this context.

2.2.2 Agency Theory

Agency theory, which underpins corporate governance, analyzes the conflicting relationships between principals and agents, with specific concentration on decision-making and performance. According to Saputri and Asrori (2019), an agency conflict generally occurs when managers decide to act in their best interests, not to increase shareholder value. This often reveals itself through financial metrics such as profitability, efficiency, and leverage ratios. For example, when agency problems result in managerial concentration on short-run profits, profitability measures such as ROA will reveal such an occurrence, therefore threatening the long-run viability of firms (Mburu, 2018). In addition, the agency problem may be reflected through over-leveraging in cases where the managers over-use debt financing in risky projects, anticipating high financial risks and signaling distress as indicated by the Altman Z-Score Model.

Agency Theory will be applied in this study to determine how management versus shareholder conflicts affect financial decisions impacting the firm's health. Through an examination of the components of the Z-Score, this study will demonstrate how agency implication decisions affect the financial aspects of Nigerian consumer goods firms and therefore will shed light on good governance and risk management practices.

2.3 Empirical Review

Appah and Duoduo (2024) evaluated firm attributes impinging on financial distress in the manufacturing section of Nigeria. They studied the aspects of profitability, leverage, tangibility, liquidity, operating capacity, and firm size using data between 2018 and 2022 for 30 listed firms. The Generalized Method of Moments regression showed that profitability positively affects distress, while leverage negatively influences it. Tangibility,

liquidity, size, and capacity exhibited insignificant effects, underlining the role of profitability and leverage.

Kebede, Tesfaye, and Erana (2024) explored financial distress determinants in Ethiopian insurance firms using the Altman Z-score model. Based on panel data from 2010 to 2021, they identified profitability, liquidity, size, earnings growth, and diversification as significant distress reducers. Conversely, inflation, claims ratio, leverage, and asset tangibility heightened distress risk. These insights guide managers and policymakers on the influence of firm-specific and economic factors in mitigating financial risks in the insurance sector.

Hammond and Opoku (2024) assessed going concern determinants in Ghanaian and Nigerian banks using financial ratios and binary logistic regression. Analyzing financial statements, they identified working capital and earnings before interest and tax as vital going concern predictors. Findings highlight the importance of adequate working capital and robust earnings to sustain bank operations. These observations lead bank management in terms of critical financial predictors that will provide stability and sustain operational continuity in the long term.

Mihelle and Lukman (2024) evaluated the impacts of profitability, liquidity, and leverage on financial distress in Indonesian insurance firms during COVID-19. Through regression analysis, they realized that both profitability and liquidity had a positive effect on financial stability, though leverage was not significant. This study therefore gives investors confidence on the strength of Indonesian insurance firms, underlining the vital roles that profitability and liquidity management play in maintaining firm stability in the face of adverse economic conditions such as the pandemic.

Atheru (2023) examined the effects of profitability, leverage, and efficiency on financial distress in Kenya State Corporations. The study found that whereas profitability and efficiency were significant, leverage was not. The study indicated the moderating effect of size since large firms managed distress better. These findings underline the importance of maintaining efficient operations and profitability, especially in state corporations, as a way of keeping them healthy and mitigating financial distress caused by volatile economic environments.

Kitheka (2023) investigated the effect of financial distress factors on MFBs in Kenya and reported that financial leverage significantly affects profitability, while liquidity inversely affects financial distress, though insignificantly. The findings underline leverage as one influential determinant of profitability dynamics and negative input evidenced by nonperforming loans in arriving at returns. This study presents to the MFBs various insights to manage the banks through leveraging and nonperforming loans to maintain their reported profits for long-term stability-a parameter to facilitating meaningful growth of the financial sector in Kenya.

Hamza et al. (2023) examined the impact of financial distress on risk hedging in Kenya's non-financial NSE firms. From their findings, liquidity has a significant impact on hedging, but leverage does not. Profitability further negatively impacts hedging decisions. What this study finds is that a hedging policy with a wide scope is adopted that leads to better management of liquidity and mitigation of a risk factor. Insights into risk management practices in Kenya's non-financial sector can be helpful for ensuring long-term financial sustainability and investor confidence.

Marsenne et al. (2023) investigated the impact of liquidity, leverage, and profitability on financial distress in small enterprises within Palangka Raya. They used logistic regression

through E-Views and found that liquidity and profitability were significant, but leverage was not. This research puts into perspective how important it is for a business to maintain its liquidity and profitability level in order to avoid financial distress, as this would leave smaller businesses at a disadvantage.

Ndinda studied the relationships of firm-specific factors with stability in Kenyan commercial banks in 2023. From among a number of variables looked at that included capital adequacy, credit size, operational efficiency, and earnings, credit size and earnings emerged as the significant predictors. This goes to imply that prudent lending and credit risk management are crucial in making Kenyan banks financially stable.

Kalash (2023) studied financial leverage and distress risk performance in Istanbul-listed firms and noted that leverage negatively affects the financial performance of such firms, especially at a high level of risk. This underlines the fact that at high distress risk, a firm needs to be careful with its leverage in order to ensure high performance.

Although previous studies have investigated several predictors of financial distress in consumer goods firms, few studies have examined the individual inputs of firm size, liquidity, and profitability to the Altman Z-Score in Nigeria. This study addresses these overlooked firm physiognomies, providing a deeper understanding of how these attributes impact financial stability in Nigeria's consumer goods sector.

3.0 Methodology

The study employed an ex-post facto research design, which was chosen due to the retrospective nature of the investigation, as the firm-specific characteristics and financial distress events have already occurred. The analysis examines firm size, liquidity, and profitability to assess their influence on the financial health, using the Altman Z-score, of

listed consumer goods firms. The study's population consists of all 21 consumer goods firms listed on the Nigerian Exchange Group (NGX) as of December 2023, with 16 firms purposively selected based on complete financial data from 2012 to 2023. Secondary data were sourced from the firms' annual reports available on the NGX and firm websites.

The Altman Z-score is the dependent variable, calculated using specific financial ratios (X1, X2, X3, X4, X5) to identify whether a firm is financially distressed ($Z < 1.81$) or non-distressed ($Z \geq 1.81$). For the analysis, panel data regression was employed in EViews 12, allowing both cross-sectional and longitudinal assessments of the firms over the study period. Descriptive statistics were generated to provide an overview of the central tendencies and variations in the data. To achieve the aim of this study, the researcher adopted and modified the linear regression model used by Dewianawati and Setiawan (2023). The model specification used for this study is stated as follows:

$$FDI_{it} = \alpha_0 + \beta_1 FSZ_{it} + \beta_2 LIQ_{it} + \beta_3 PRO_{it} + \mu_{it}$$

Where:

- FDI = Financial distress (Altman Z-Score),
- FSZ = Firm Size (Natural log of total assets),
- LIQ = Firm Liquidity (Current Ratio),
- PRO = Firm Profitability (Return on Assets),
- α_0 = Constant,
- β_1, β_2, β_3 = Coefficients,
- μ = Error term.

Table 1: Operationalization of Variables

Variable	Type	Measurement	Source
Financial Distress (FDI)	Dependent	Altman Z-Score (Z = 1.2*X1* + *1.4*X2 + 3.3*X3* + *0.6*X4 + X5)	Papadopoulos (2017)
Firm Size (FSZ)	Independent	Natural log of total assets	Ordue et al. (2024)
Firm Liquidity (LIQ)	Independent	Current Ratio = Current Assets / Current Liabilities	Wisnu & Astuti (2023)
Firm Profitability (PRO)	Independent	Return on Assets = Net Income / Total Assets	Susanti et al. (2020)

4.0 Data Analysis

4.1 Descriptive Analysis of Data

Table 2 Descriptive Statistical Analysis

	FDI	FSZ	LIQ	PRO
Mean	0.691686	7.569386	1.074051	0.038523
Median	1.000000	7.744169	1.040958	0.041340
Maximum	1.803791	8.901636	2.880813	5.816481
Minimum	0.000000	4.758056	0.005775	-3.012121
Std. Dev.	0.471130	0.923157	0.587404	0.523487
Skewness	-0.734919	-1.243485	0.474872	5.445687
Kurtosis	1.756944	4.525497	3.407941	86.64858
Jarque-Bera	29.64492	68.09727	8.547443	56925.65
Probability	0.000000	0.000000	0.013930	0.000000

Sum	132.8038	1453.322	206.2178	7.396368
Sum Sq. Dev.	42.39508	162.7736	65.90324	52.34139
Observations	192	192	192	192

Source: Eviews 12 Output (2024)

The descriptive statistics show that the Financial Distress Index (FDI) has a mean of 0.6917, indicating that most firms are non-distressed. A median of 1 supports this, with a left-skew (skewness of -0.7349) implying a higher concentration of non-distressed firms. Firm size (FSZ), with a mean log value of 7.5694, shows a leftward skew (-1.2435) as larger firms dominate. Liquidity (LIQ) averages 1.0741, implying balanced liquidity but slight rightward skewness (0.4749), showing some firms have higher liquidity.

Table 3 Data Analysis Summary

Test / Variable	Null Hypothesis	Test Statistic / Coefficient	p-Value
Heteroskedasticity	Residuals are homoskedastic	138.7628	0.0000
Cross-Sectional Dependence	No cross-sectional dependence in residuals	3.418079	0.0006
Multicollinearity	No significant multicollinearity (VIF ≤ 10)	VIF (all < 1.2)	-
Panel Data Regression	The model has explanatory power	R^2 = 0.9097, F-stat = 0.0000	0.0000
Hypothesis Tests		Coefficient	p-Value
Firm Size (H_{01})	Firm size does not significantly affect Altman Z-Score	0.1299	0.0000
Firm Liquidity (H_{02})	Firm liquidity does not significantly affect Altman Z-Score	0.3039	0.0000

Firm Profitability (H_{03})	Firm profitability does not significantly affect Altman Z-Score	0.0070	0.0453

The findings from this article suggest that firm size, liquidity, and profitability significantly impact the Altman Z-Score, with each variable showing a positive effect on financial stability. Firm size and liquidity exhibit strong effects, as indicated by highly significant p-values, suggesting that larger and more liquid firms are more financially stable. Profitability also positively influences financial stability, though its effect size is relatively small. These results indicate that firm characteristics play a critical role in the financial health of consumer goods firms, highlighting areas for management focus to improve financial stability.

5.0 Conclusion

This study investigated the extent to which firm-specific factors, such as firm size, liquidity, and profitability, influence the financial stability of quoted consumer goods firms in Nigeria, with the Altman Z-Score being used as a proxy for financial stability. The results from the robust panel data regression indicate that firm size and liquidity significantly positively affect financial stability, which, in other words, means that the bigger and more liquid an organization is, the better its position on the issue of avoiding financial distress. Profitability also has a positive impact, on financial stability. These findings suggest that firm physiognomies are important in enhancing financial robustness and distress limitation in Nigeria's consumer goods sector.

This study therefore recommends that, in the light of this evidence, consumer goods firms, especially smaller- and medium-sized firms, are better off implementing strategies to enhance their scale, since larger firms have demonstrated a capacity for withstanding financial distress through economies of scale and market presence. Secondly, management

should ensure sound liquidity management policies; such optimum levels of liquidity prepare firms better in times of financial distress, aiming to protect stability. Additionally, CEOs and operational managers should focus on long-term profitability strategies, optimizing efficiency and reducing costs to strengthen profit margins, which, while modestly impactful, contribute to overall financial health and enhance resilience against distress.

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