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Can Corporate Governance and Firm-Specific Factors Drive Sustainability of Consumer-Goods Industry in Nigeria? Uncovering the Moderating-Mediating Role of Environmental Dynamism

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Abstract

Over the years, numerous manufacturing companies in Nigeria have closed their doors due to the unstable environment in which they operate. It is worth noting that in response to the ever-changing business landscape, many companies have opted to downsize their operations or relocate to a more cost-effective country outside of Nigeria. This new information makes us wonder whether Nigeria's Consumer Goods Manufacturers (CGMs) can solve the problems impacting their sustainability through better corporate governance and other firm-specific variables. So, the study looked at how Corporate Governance (CG) and Firm-Specific Factors (FSF) affected the long-term viability of CGMs in Nigeria, and how Environmental Dynamism (EVD) mediated the relationship between CG, FSF, and CGM sustainability in Nigeria. The theories of stakeholders and dynamic capabilities serve as the foundation of the study. Data was collected from 432 CGM employees in Nigeria using a cross-sectional survey design. The three-way direct, mediation, and moderation hypotheses were tested using the data that was collected using the Partial least-square-structural equation model. The results demonstrate that the chosen CGMs' sustainability is significantly impacted by CG and FSF. EVD served as a moderator for the interaction between CG and sustainability and it was also determined that EVD mediated the interaction between FSF and sustainability. Findings from the study suggest that CGMs should focus on their CG strategy to boost stakeholder loyalty, keep their FSF setup flexible, and monitor the impact of environmental changes on meeting targets often. Then, management should take steps to ensure that their policies and actions are still in line with these goals.

Keywords: *Dynamic Capability theory, Environmental dynamism, Firm-Specific-Factors, Manufacturing companies, Stakeholder Theory, Sustainability.*

1. Introduction

Sustainability underscores the need for manufacturing companies to look beyond their profit motives to maintain their going concern. Given that a firm's goodwill should not only be based on fulfilling the wealth goals of shareholders; rather, how society perceives the firm in terms of social responsibility and environmental performance becomes a critical success factor that could guarantee the firm's going concern. Sustainability requires firms to maintain a certain level of activity over time. In a broader term, it emphasizes the ability to continuously meet current goals without jeopardizing the ability of future generations to meet theirs (Suleiman,

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Oyedokun, & Adeolu-Akande, 2021). Sustainability, as it relates to the corporate world, is balanced on three basic pillars (economic, social, & environmental), understanding that if any of these pillars are missing, then the sustainability of the entity concerned is threatened.

Globally, sustainability issues appear to be more centred around the environmental sustainability dimension. The 2020 global Environmental Performance Index (EPI) ranks Denmark as the number one most environmentally sustainable country in the world, with Luxembourg, Switzerland, and United Kingdom following at 2nd, 3rd, and 4th position respectively. The United States of America ranks 21 after Malta, Italy, and Canada, with Malta occupying the 20th rank, while Italy and Canada tie-up at the 18th position. Seychelles tops the list of the most environmentally sustainable sub-Saharan African countries, ranking 38 globally, followed by Gabon, Moraceous, and South Africa at the 76, 82, and 95 world rank positions. In West Africa, Burkina Fatso with 38.3 points, tops the West African list of the Global EPI, ranking 112 at the global position, Nigeria stands at the 151 position (out of 180 countries around the world) with 31.0 points (Wendling, Emerson, Sheribinin & Etsy, 2020). This statistic creates a concern for manufacturing activities in Nigeria and thus requires urgent attention.

Furthermore, being economically viable in the short and long run has become an enormous challenge for manufacturing companies in Nigeria, so the sustainability issues they face go beyond environmental concerns. According to Sasu (2022) and Kolawole (2022), the manufacturing industry was responsible for 13% of the country's GDP. The food, beverage, and tobacco sector had the highest contribution, accounting for 4.75 percent of the total 15.232 trillion Naira GDP and 4.42 trillion naira in real GDP for 2019, 2020, and 2021. However, this sector has faced numerous challenges over the years, limiting its contributions to the country's GDP. The list of challenges is long and includes things like not having enough money to buy raw materials, expensive transportation, high power generation costs, low purchasing power for commodities, problems getting funds, poor port administration, policy changes, increasing insecurity, and worldwide disruptions to supply chains caused by things like the coronavirus pandemic, the US-China trade war, and the Russia-Ukraine war (Adekoya, 2021; Atoyebi, 2019; Onamusi, 2020). The current body of research documents that all of these macroenvironmental events will have detrimental effects on the long-term viability of Nigerian manufacturing firms (Beckoff, 2022; Onamusi, 2021).

One example is the 322 private companies that went out of business in Nigeria between 2009 and 2014, as reported by Atoyebi in 2019. In addition, 196 manufacturing companies were found to have closed their doors in Nigeria between 2015 and 2017. To name just a few examples, there are the following businesses: Berec Batteries, Exide Batteries, Okin Biscuits, Oshogbo Steel Rolling Mills, Nigeria Sugar Company, Lyle Sugar Company, and Matches Manufacturing Company. For example, GlaxoSmithKline Consumer Nigeria Plc. announced its intention to shut down its Agbara production facility in the third quarter of 2021 (Olowookere, 2021; Onamusi, 2020), and some existing companies are also shrinking their firm size by closing some of their factories (Babalobi, 2021). In a similar vein, Anudu and Faminu (2018), Olawoyin (2018), and Onamusi, Adenekan, Ojo, and Owolabi (2021) all state that unfriendly government policies and high raw material import costs caused Procter & Gamble to close their US$300 million plant in Ogun State in 2017.

The development superimposes the need for a conscientious effort on the part of manufacturing companies at the corporate level to ensure sustainability through corporate governance and deploying internal organisation competencies contextualized as firm-specific

factors as strategies to cope with these macroeconomic factors hindering their sustainability. Thus, surviving these macroeconomic realities, warrant that manufacturing companies take strategic steps in governance and in capabilities; this argument is positioned on the strength of the resource-based perspective.

The relevance of corporate governance to firm sustainability is further buttressed by the stakeholder theory and by how leaders across the globe meet at the global level to engage in discussions bordering on corporate sustainability issues. Similarly, firm-specific factors are internal organizational factors that has the potential to enhance the performance of firms when deployed appropriately, aligned with the tenet of the resource-based view which is an inside-out perspective and corroborated by Onamusi et al. (2021). By this discussion therefore, can corporate governance and firm-specific factors be argued to be pivotal to the sustainability of manufacturing companies in Nigeria in the face of the current challenges? We looked through prior studies on sustainability to see whether the question raised has been addressed. What we found is that sustainability issues have been addressed significantly within developed and emerging economies however, what remained unexplored is how corporate governance and firm-specific factors interact to influence the sustainability of manufacturing companies in Nigeria. The closest literature found was by Suleiman et al. (2021) which established firm-specific factors-sustainability linkage within listed consumer goods manufacturing companies in Nigeria using secondary data; however, the study did not consider the boundary condition that brought about the firm-specific factors-sustainability linkage. Likewise, did not establish governance as critical to addressing sustainability nor provided the two-fold relevance of environmental dynamism. This gap in literature suggests that nothing concrete is known about these interactions hence the need for this study.

Furthermore, another argument proposed by this study is that the dynamic nature of the macroenvironment otherwise called environmental dynamism may hold two-fold relevance for the interaction between corporate governance, firm-specific factors, and sustainability. On one hand, it should stand as a boundary condition that explains how firm-specific factors affect sustainability- this is because the external environment offers the framework within which business operate and defines the boundaries they can and cannot go beyond. Literally, the argument is that without an environment no business can exist let alone thrive. On the other hand, environmental dynamism may act as an enabler of the functional relationship between corporate governance and sustainability. Nonetheless, it is important to empirically investigate the proposed roles played by the external environmental dynamism on the interaction between corporate governance, firm-specific factor, and sustainability of manufacturing companies in Nigeria given that extant literature is silent about the potential outcomes. This is another gap in literature that offers the opportunity to examine the intervening effect of environmental dynamism on the interaction between corporate governance, firm-specific factor, and sustainability of manufacturing companies in Nigeria.

2. Literature Review

Theory and Rational for the Hypothesis

The link between corporate governance, Firm-Specific Factors, Environmental Dynamism and firm sustainability derived its explanation from the assumptions of the Stakeholders Theory (ST), Resource-based view (RBV), and Dynamic Capability Theory (DCT). ST emphasizes the need for firms to recognise the right of those who have a stake in their existence, and by so

doing enjoy harmonious and more sustainable success. This theory has since become a key concept in the debate of business ethics arguing against theories which mainly focused on shareholder wealth maximization as a primary objective of a firm (Freeman, 2018). ST acknowledges that the going concern of an organization can be impacted by those who are either affected by the organization's activities or/and can affect the organization's activities by their actions or inactions - therefore advocates for firms to factor in the interest of stakeholders into their plans and strategies. The relevance of corporate governance to firm sustainability in this study derives its strength from the ST.

The RBV provides that an organization is made up of various resources which are both tangible and intangible (such as Knowledge, skills, experience, technology, information, and data), the combination of these resources gives birth to other specialised resources (Capabilities) which either individually or collectively create strategic capabilities that provide a sustainable competitive advantage to the organization (Kor, Mahoney, Siemsen & Tan, 2016; Onamusi, 2021). This suggestion of the RBV offers support to the relevance of firm-specific factors to firm sustainability in this study.

Following the shortcoming of the RBV in explaining how firms could establish sustained performance in the ever-changing environment, the DCT was employed to bridge this gap in establishing the relevance of environmental dynamism to the sustainability of firms (in this case, FMCG manufacturers in Nigeria). The DCT accentuates the need for a firm to be adaptive, absorptive, and innovative to mitigate the impact of turbulence in the business environment (Onamusi, 2021). The adaptive assumption considers the need for a firm to be able to swiftly organize its resources to address unprecedented environmental changes without distorting organizational performance level. The innovative capability addresses the need for the firm to bring in new ideas that translate to new products and processes. The absorptive capability centres on the ability of the firm to identify, acquire and utilize external knowledge to its favour (Kaur & Mehata, 2017).

The central ideas of the ST, RBV and DCT explain the interaction between the variables of this study. On the strength of the above discussion, this study hypothesized that corporate governance and firm-specific factors are corporate requirements for achieving firm sustainability. However, the relevance of corporate governance to sustainability is enhanced through considering environmental dynamism. Lastly, the relevance of firm-specific factors to sustainability is explained through taken advantage of the growth potential in environmental dynamism.

Corporate Governance and Sustainability

Various dimensions of corporate governance and their influence on sustainable development have been investigated in different parts of the world. In a systematic literature review carried out to investigate the integration of corporate governance with sustainability, the findings were that the interaction between corporate governance and sustainability is interpreted differently in different jurisdictions. Notably, the study also established that leadership, vision, and mission are the most significant drivers of sustainability framework in corporate governance. Also, the sustainability framework provides diverse options that aid in improving organizational efficiency (E-Vahdati, Zulkifi & Zakariya, 2018). In a later study, Utami, Cahyana, Nimran & Iqbal (2020) also found that Corporate Governance alongside increased strategic leadership, corporate culture, business infrastructure, and corporate alignment through corporate hospitality ensures a greater

level of Corporate Sustainability. Maali, Rakia & Khaireddine (2021) arrived at a similar conclusion with the findings that Corporate Governance exerts a positive effect on sustainability performance. These results are also corroborated by Antwi-Adjei, Kong, Kwame, & Antwi-Adjei (2020), and Lazaroiu, Ionesu, Andronie & Dijmarescy (2020) which established that Corporate Governance exerts a positive effect on sustainability performance. The functions and structure of the Board have also been researched in a study conducted in the United States of America on Companies listed on the S & P stock exchange which further found that the functions and structure of the Board do have a positive impact on the social, environmental, and economic dimensions of sustainability (Konadu, Ahniful & Owusu-Agyei, 2021).

Firm-Specific Factors and Sustainability

Using secondary sources, Suleiman, Oyedokun, and Adeolu-Akande (2021) studied the effect of company-specific variables on the long-term viability of publicly traded Nigerian consumer goods manufacturers. There was a negative and statistically significant relationship between firm size and operational efficiency and economic performance (profitability), but a positive and significant relationship between firm size and social performance (CSR) in the firms. It was also discovered that operational efficiency had no bearing on the firms' social performance. In a separate setting, research by Ammer, Alieden, and Alyahyu (2020) found that company size does impact environmental performance. Researching companies included in the TASI index (in Saudi Arabia), researchers discovered a favourable relationship between company size and environmental performance, suggesting that bigger companies are more likely to take environmental responsibility seriously. This finding lends credence to the conclusions drawn from a separate study that sought to determine the effect of company attributes on ecological sustainability. Through content analysis of 68 relevant articles published in 25 countries across the Americas, Europe, Asia, and Africa, the study aimed to develop a comprehensive understanding of organisational characteristics and their implications for environmental sustainability. The research was conducted over the last 25 years, from 1996 to 2020. Balasubramanian, Shukla, Mangla, and Chanchaichuit (2020) found that when it comes to environmental practices, bigger firms do better than smaller ones. According to a previous study by Andries & Stephan (2019), environmental performance has a positive relationship with smaller firms when it is carried out in response to customer demand, but it has a negative effect on larger firms when it is driven by regulation or an industry code of conduct.

A small amount of research has also focused on how company size predicts the economic sustainability factor. The results of a study by Conca, Manta, Morrone & Toma (2020) on the impact of ESG reporting on agricultural food sector listed companies in Europe corroborated those of Suleiman, Oyedokun & Adeolu-Akande (2021) in finding that bigger firms produce lower profitability (Return on Assets). Similarly, among the non-financial companies listed on the Indonesia Stock Exchange that were studied, Jumadi & Sjarief (2021) discovered that there is no significant effect of firm size on financial performance. Nevertheless, these results run counter to those of a French study that looked at what factors affect the growth and profitability of publicly traded companies in France (Makris, Charalabakis & Stavroyianni, 2021) and an Indonesian study that looked at how environmental performance, independent boards, and firm size affected the financial performance of publicly traded non-financial companies on the Indonesia Stock

Exchange (Ifada, Indriastuti, Ibrani & Stavroyianni, 2021), which found that larger firms performed better financially.

The Intervening Effect of Environmental Dynamism

There is a dearth of empirical research documenting the importance of environmental dynamism to the sustainability of corporations. Conducting research in China, Li, Chen, Ma, and Li (2021) found a connection between CEO empowerment and corporate entrepreneurship. The study goes on to examine how information elaboration in top management teams mediates this relationship and how environmental dynamism modifies it. The link between empowering leadership and information collaboration is moderated, according to the study, by environmental dynamism. The researchers did find that it moderated the connection between corporate entrepreneurship and information collaboration, though, in a negative way.

The impact of environmental dynamism on performance was also interrogated in a previous study conducted in Indonesia. The study purposively sampled manufacturing companies listed on the Indonesia Stock Exchange between the periods 2017 to 2018 and analysed data collected using multiple regression analysis. The study found that technological environmental factors are essential for optimal firm performance (Prawati & Setyawan, 2019). Prawati and Setyawan 2019 submission corroborated the findings of Onamusi, Asikhia, and Makinde (2019) concerning how environmental munificence enhance service firm performance in Lagos State. Moreover, Kumar and Bhatia (2021) found that environmental dynamism has a positive impact on Industry 4.0 to improve performance, the study also found that technological factors, as well as organizational factors, have a mediating effect on the interaction between environmental dynamism and industry 4.0.

The above empirical discussion suggests the importance of environmental dynamism to firm sustainable performance. A dynamic environment is one that is characterised by frequent changes in the level of technology, product preference or consumer taste, and competition (Petrus, 2019; Onamusi 2020), as well as the rate at which each of these components of the environment changes (Chen, et al., 2020). Such changes are often not predictable as they occur in an environment outside the organization (Zhang, O'Kane & Chen, 2020). It also concerns a possible shift in consumer preference or taste and how products easily become outdated, the frequency of industry technological advancement the predictability of changes in consumption patterns, and the corresponding reaction of competing firms within the industry (Rodrigues-Pena, 2021).

Petrus (2019) aligned with Onamusi (2020) to note that, the external environment presents both threats and opportunities. To take advantage of these opportunities and tackle the emerging threat, firms must engage in constant re-strategizing of their business models. Thus, as a result of these environmental dynamics, there is a constant adaptation of both products and technology employed by firms to rejig corporate strategies in the face of distorted projected profits, to ensure that the business is sustained. On the strength of the above submission, this study proposes that corporate governance and firm-specific factor will impact sustainability; that the effect of corporate governance on sustainability will be enhanced by environmental dynamism, and that the linkage between firm-specific factors and sustainability of FMCGs in Nigeria will be explained through environmental dynamism.

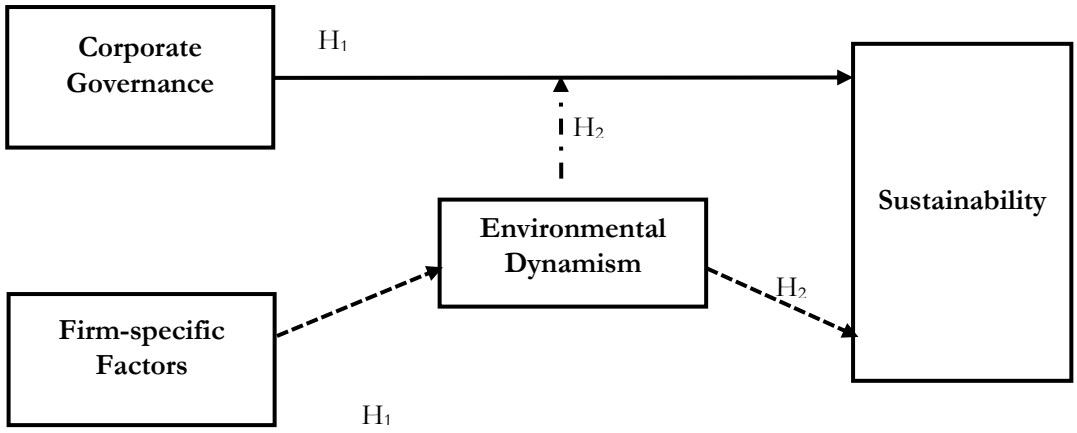

Figure 1. Conceptual Model: Corporate Governance, Firm-Specific Factors, Environmental Dynamism, and Sustainability.
Source: Researcher's Model (2023).

Figure 1 presents the conceptual model which shows the effect of corporate governance and firm-specific factors on sustainability of fast-moving consumer goods (FMCGs) manufacturing companies in Nigeria. It further shows the intervening role of environmental dynamism as a moderating variable on the interaction between corporate governance and sustainability; and as a mediating variable in the interaction between firm-specific factors and sustainability of the FMCGs manufacturers in Nigeria.

3. Methodology

The Study Context, Design, Sampling, and Data Collection

The population of the study comprised five thousand seven hundred and ten (5,710) staff of six (6) registered Fast-Moving Consumer Goods (FMCGs) manufacturers with their head office in Lagos State, Nigeria (Nestle Nigeria Plc., Procter & Gamble, PZ Cussons, Unilever Nigeria Plc., Cadbury, and Friesland Campina WAMCO Nigeria Plc). The population number was obtained from the company's human resource unit as of 21st November 2021. The FMCGs manufacturers selected are all registered firms that account for more than 85% of the market share of the consumer goods industry in Nigeria. The choice of Lagos State as the geographical setting for this study is because 70% of the CGMs have their head offices in the State (Euromonitor International, 2022).

The study adopted the cross-sectional survey design to assess how the interaction between corporate governance and firm-specific factors can aid the sustainability of consumer goods manufacturers in Nigeria. The sample size was computed using the Raosoft online sample size calculator for a finite population. From the Raosoft calculator, 360 is considered appropriate for a population of 5,710 employees. The decision is reached at a 5% margin of error critical to management studies and a 95% level of confidence. To address the issue of anticipated non-response, 20% (72) of the sample size was added to the computed sample of 360. The addition of the 72 is to address issues of anticipated non-response from the respondents and this procedure is in concomitance with existing literature (Onamusi, 2021). In addition, it will ensure that the scientifically determined sample (optimum sample size) is achieved at the end of the study. Therefore, the sample for the staff of selected CGMs in Nigeria is 432.

A structured questionnaire was adopted as the study instrument. The adapted questionnaire is a standardised scale that has been used by authors: E-Vahdati, Zulkifli, & Zakaria (2018); Chizema & Pogrebna (2019); Ackert, Church, Venkataraman, & Zhang (2019); Aderibigbe & Fragouli (2020); Yun, Ahmad, Jebran, & Muhammad (2020); Banerjee & Gupta (2021); Asikhia, Adewole, Onamusi & Makinde (2022), Onamusi, Asihkia & Makinde (2019) on the subject matter of this research in other countries, sectors, and in different industries. In line with extant literature, the response options provided in this study's questionnaire follow the 6-point Likert-type scale ranging from 1 very low extent to 6 very high extent. The researcher ensured that professionals and experts examined all the items measuring each variable in the Department of Management and Accounting Lead City University Ibadan to ensure they align with the literature and not ambiguous statements for respondents.

A total of four hundred and thirty-two (432) copies of questionnaire were administered by the researcher with the help of research assistants who put concerted efforts to regularly visit the respondents to request them to fill out the instrument, sometimes to clarify queries from the respondents and to prompt the respondents to fill the questionnaire. Four hundred and six (406) copies were returned. After sorting the questionnaires, 383 copies were certified as duly filled and considered usable. The useable questionnaire represented 88.65% response rate.

Variable Measurement and Analytical Technique

The independent variables are corporate governance (accountability, agile leadership and stakeholder management), and firm-specific factors (firm size and operational efficiency). The dependent variable is sustainability (social, environmental, and economic performance) the intervening variable which was employed as moderating variable between the interaction between corporate governance and sustainability and as a mediating variable between firm-specific factors and sustainability is environmental dynamism. In line with extant studies, scales in existing studies were adapted for this study. Corporate governance was measured using measures in E-Vahdati et al. (2018); Chizema & Pogrebna (2019); Ackert et al. (2019); and Aderibigbe & Fragouli (2020). Firm-specific factors were measured using the criteria in Yun et al. (2020); Banerjee, & Gupta (2021). While environmental dynamism was measured using standards in Asihkia, Adewole, Onamusi, & Makinde, 2022, and Onamusi et al. (2019).

Partial Least Square-Structural Equation Modelling (PLS-SEM) was adopted using the SmartPLS version 4.0 to test the hypotheses formulated in this study. The study used the PLS-algorithm's command which is appropriate for predicting effect-relationship, it ran the bootstrapping to ascertain the level of significance of the prediction and ran blindfolding to determine the predictive relevance of the structural model specified. Hence, the choice of PLS-SEM (via SmartPLS) is because it is a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated analysis using SPSS (Adeyemo, Adie, Onamusi., 2022). In addition, the SmartPLS statistical platform offers a more strict and robust analysis compared with the outcomes of SPSS (Asihkia et al., 2022). In all, three (3) null hypotheses were tested to meet the objectives of the study. Specifically, the effect of corporate governance and firm-specific factors on firm sustainability was examined; the moderating effect of environmental dynamism on the interaction between corporate governance and firm sustainability was determined, and the mediating effect of environmental dynamism in the interaction between firm-specific factors and firm sustainability was examined.

4. Result

Validity and Reliability

The validity and reliability of the instrument were carried out using the PLS-SEM algorithm. Measures of statistical validity and reliability carried out include Cronbach's alpha coefficient (CA), Composite reliability (CR), Average Variance Extracted (AVE), and Discriminant Validity via the PLS-SEM method. The statistics for the validity and reliability test carried out were found to be higher than the minimum required, thus the instrument was judged to be valid and reliable. The result of the test is shown in Tables 1 and 2.

Table 1: Validity and Reliability Test for Measured Items.

	Variables	CA	CR	AVE
Corporate Governance	Accountability	0.655	0.679	0.435
	Agile Leadership	0.644	0.809	0.591
	Corporate social responsibility	0.790	0.859	0.554
Firm-specific factors	Firm size	0.647	0.711	0.474
	Operational efficiency	0.847	0.886	0.568
Sustainability	Environmental performance	0.953	0.960	0.729
	Profitability	0.683	0.792	0.530
	Stakeholder management	0.729	0.782	0.485
Intervening variable	Environmental dynamism	0.813	0.870	0.579

Source: Researcher's Result via SmartPLS V.4.0 (2023**)**

Table 2: Discriminant Validity Using Heterotrait-Monotrait Ratio (HTMT).

Construct	ACT	AGL	CSR	EVD	ENV	FS	OE	PRT	SUS
Accountability									
Agile Leadership	0.9								
Corporate social responsibility	0.77	0.46							
Environmental dynamism	0.48	0.69	0.98						
Environmental performance	0.61	0.91	0.57	0.83					
Firm size	0.79	0.67	0.58	0.65	0.55				
Operational efficiency	0.53	0.8	0.31	0.65	0.59	0.54			
Profitability	0.9	0.99	0.7	0.74	0.99	0.81	0.8		
Stakeholder management	0.43	0.57	0.68	0.44	0.52	0.67	0.38	0.87	

Source: Researcher's Result Via SmartPLS V.4.0 (2023).

The result of the convergent and divergent validity is presented in Table 1 and that of the discriminant validity is presented in Table 2. AVE's value greater than 0.5 provided added proof of convergent validity, and the discriminate validity value for all the constructs below 1.00 on

the Heterotrait-Monotrait (HTMT) criterion provided additional evidence of construct validity for each of the measured variables. Both the AVE and discriminant validity values provided evidence of construct validity for all the variables under study. Furthermore, the reliability test is shown in Table 1. The result of the Cronbach's alpha coefficient (CA) which is revalidated using the composite reliability (CR) is within the accepted benchmark of > 0.7 but < 1 score. Therefore, the instrument is deemed reliable.

To test the direct, moderation and mediation hypothesis, PLS-Structural Equation Modelling (PLS-SEM) was adopted using the SmartPLS statistical platform version 4.0. The independent variable is corporate governance and firm-specific factors, sustainability constitutes the dependent variable and environmental dynamism is the intervening variable.

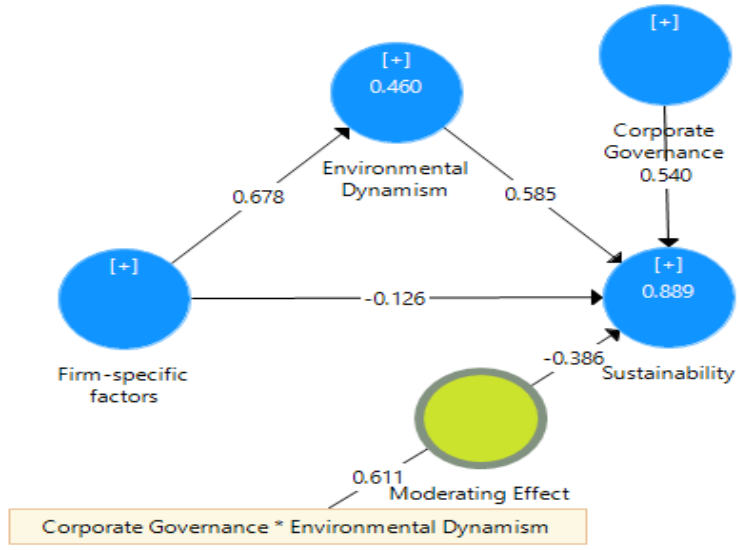

Figure 2: Path Analysis for Hypotheses 1 and 2.
Source: Researcher's Computation Via SmartPLS V4.0.

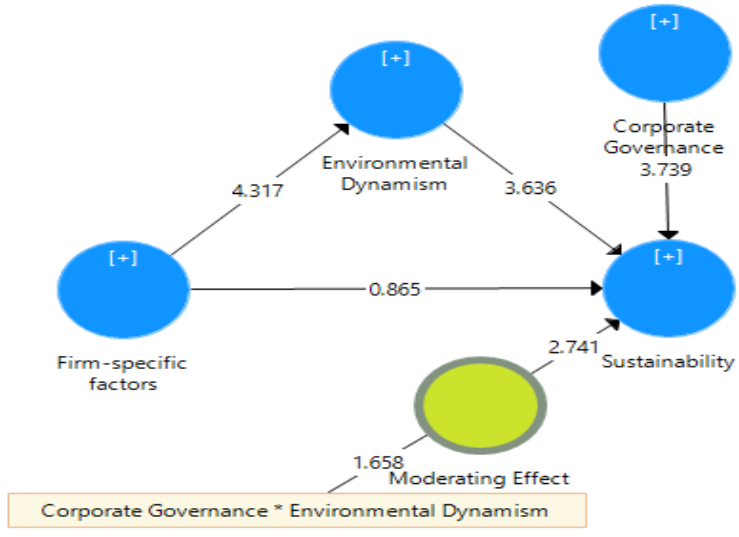

Figure 3: T-Statistics for Hypotheses 1 and 2.
Source: Researcher's Computation Via SmartPLS V4.0.

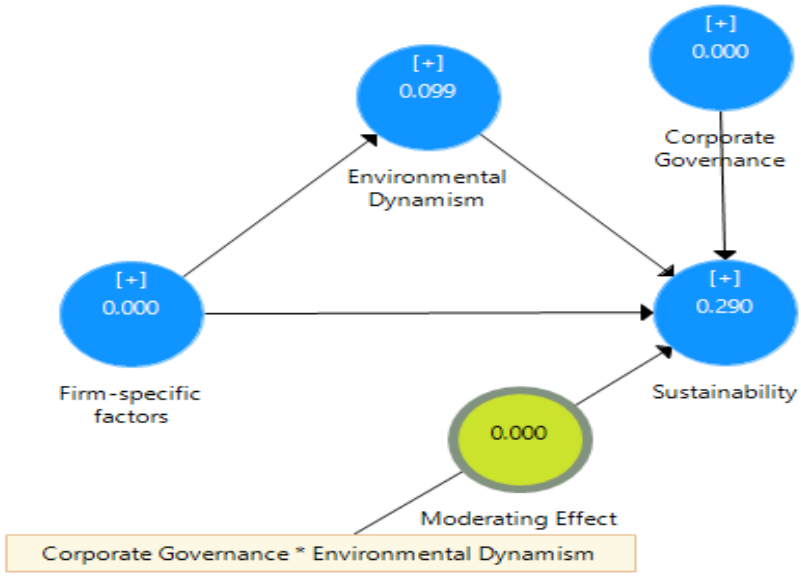

Figure 4: Q^2 Statistics for Hypotheses 1 and 2.
Source: Researcher's Computation Via SmartPLS V4.0.

Table 3: Summary of PLS-SEM Analysis for the Direct, Moderation and Mediation effect of Environmental Dynamism on the Interaction Between Corporate Governance, Firm-Specific Factors and Sustainability of Selected FMCG Manufacturers in Nigeria.

Path Coefficient	Original Sample(O)	Sample Mean(M)	T-Statistics	P-Values	Q^2
Model 1,2					
Corporate Governance → Sustainability	0.540	0.544	3.739	0.000	
Environmental dynamism → Sustainability	0.585	0.463	3.636	0.000	0.099
Firm-specific factors → Environmental dynamism	0.678	0.728	4.317	0.001	
Firm-specific factors → Sustainability	-0.126	-0.010	0.865	0.388	
CG*ENV → Sustainability	0.386	0.263	2.741	0.006	0.290
Specific Indirect Effect					
FSF → ENV → Sustainability	0.396	0.332	2.919	0.004	
	R^2	Adj. R^2			
Corporate governance and Firm-specific factor → Sustainability	0.889	0.878		0.000	

Note: CG- Corporate Governance, FSF- Firm-specific Factor, ENV- Environmental Dynamism.
Source: Researcher's Results via SmartPLS V4.0 (2023).

The sustainability of the selected FMCG manufacturers in Nigeria is significantly impacted by corporate governance and firm-specific factors, as shown in Figure 2, 3, 4, and Table 3, which are all derived from the PLS-SEM analysis. According to the adjusted coefficient of determination (Adj R^2) of 0.878, which was determined at a 95% confidence interval and a p value less than 0.05, 87.8% of the changes in sustainability were predicted by corporate

governance and firm-specific factors. The remaining 11.1% of the changes in sustainability were explained by external factors that were not considered in this study.

Table 3, Figures 2, and 3 show the outcomes of the PLS-SEM analysis for the moderating effect of environmental dynamism on the interaction between sustainability, firm-specific factors, corporate governance, and a subset of Nigerian fast-moving consumer goods companies.

A new variable called corporate governance *environmental dynamism should be created in a PLS-SEM in order to establish the moderating effect. If the p-value of the interaction term's coefficient is less than 0.05, we can say that this term significantly moderates the relationship between sustainability and the dependent variable. Notice how the moderating path result is prioritised in a moderation PLS-SEM analysis, while the Adj. R^2 and R^2 coefficients found in the SPSS moderation analysis output are given less weight. Figures 2, 3, and 4 show that the path coefficient of determination for the interaction term of corporate governance*environmental dynamism is 0.386. There is a positive and statistically significant moderating effect of environmental dynamism on corporate governance's impact on sustainability ($r=0.386$, $p=0.006$).

Figures 2, 3, and 4 show the outcomes of the PLS-SEM analysis that looked at how environmental dynamism mediated the relationship between sustainability and firm-specific factors for a few Nigerian FMCG manufacturers. To establish the mediating effect in PLS-SEM, the study followed the preconditions prescribed by a researcher; According to Baron and Kenny (1986), full mediation occurs when the direct interaction between an independent variable (firm-specific factors) and the dependent variable (sustainability) becomes insignificant at the introduction of a third variable (environmental dynamism) considered a mediator. In addition to Baron and Kenny, PLS-SEM via the SmartPLS offers the result for the specific indirect effect examined. The specific indirect effects from 'Firm-specific factors' → 'Environmental dynamism' → 'Sustainability' must be statistically significant (Adeyemo et al., 2022). If the impact is a full mediation, then the direct impact of firm-specific factors on sustainability of the selected FMCGs companies Nigeria from the path analysis will be statistically insignificant. However, if the indirect effect and the direct effects are significant from the path analysis then a partial mediation is established.

Given the above precondition, the PLS-SEM result in figure 2, 3, 4, and in Table 3 shows that the direct path (influence) from Firm-specific factors to sustainability of FMCGs firms is statistically insignificant ($\beta= -0.126$, $t= 0.865$, $p=0.388$). The path from Firm-specific factors to environmental dynamism is statistically significant ($\beta= 0.678$, $t= 4.317$, $p=0.000$). Lastly, the path from environmental dynamism to sustainability of the selected FMCG manufacturers is statistically significant ($\beta= 0.585$, $t= 3.636$, $p=0.000$). The implication of this result (in relation to the preconditions for the present of a mediation as postulated by scholars suggests that since the specific indirect effect (Firm-specific factors → environmental dynamism → operation performance) is significant across all the paths (see Table 3), then the study provides evidence to establish a mediating impact. More specifically, because the direct impact of Firm-specific factors on sustainability is insignificant while specific indirect path 'Firm-specific factors → environmental dynamism → operation performance' is significant, hence a full mediating effect is established. In other words, the result posits that the impact firm-specific factors have on sustainability is as a result of the environmental dynamism. More specifically, the effect firm-specific factors have on sustainability of the selected FMCGs companies in Nigeria is explained through taking advantage of opportunities in a dynamic environment.

In addition, the PLS-SEM provides the result of the specific indirect effect to reinforce the mediation analysis threshold positioned. According to Table 3, the result of the specific indirect effect shows a path analysis from Firm-specific factors → environmental dynamism → sustainability (β=0.396, t= 2.919, p= 0.004) proves that, as a whole, the indirect path is significant. On the strength of the moderated analysis (β =0.386; p< 0.006, Q^2 =0.290) and the mediation analysis (β =0.396, t= 2.919, p= 0.004, Q^2 =0.099), this study can conclude that environmental dynamism has two-folds relevance acting as a significant moderator between corporate governance-sustainability linkage and equally serving as the boundary condition (a full mediator) that explain the linkage between firm-specific factors and sustainability of the selected FMCGs companies in Nigeria.

5. Discussion, Conclusion, Implication, Recommendation, and Future Study

We looked at the role of corporate governance and firm-specific factors in ensuring the long-term viability of Nigerian consumer goods companies. Environmental dynamism was also assessed for its moderating and mediating roles between firm-specific factors and the sustainability of CMGs manufacturers, in addition to its moderating role between corporate governance and sustainability. Corporate governance and firm-specific factors had a positive and significant impact on the sustainability of CG manufacturers in Nigeria, according to the PLS-SEM result. Few empirical literatures have sought to examine the combined impact of corporate governance and firm-specific factors, via the same measures employed in this study or other pertinent dimensions. Utami et al. (2020), Maali, Rakia & Khaireddine (2021), Antwi-Adjei, et al. (2020), and Lazaroiu et al. (2020) are among the empirical studies that have previously supported the idea that corporate governance affects sustainability. In theory, companies that implement sound corporate governance practises are better able to ensure their long-term viability, which in turn improves their ability to attract and retain investors, boosts their bottom line (Zinkni, 2019), and encourages them to become more environmentally conscious (E-Vahdati, 2018).

The study's results also lend credence to the stakeholder theory viewpoint, which states that companies aiming for sustainable operations should design their plans and policies with stakeholders' interests in mind. This is necessary to foster and sustain a harmonious relationship with these diverse groups of people, since both the firm's and their actions can have an effect on each other. These theoretical viewpoints are supported by the findings of this study. One of the most important factors in a company's ability to turn a profit is its size, which is best understood as the optimal size for maximising efficiency (Sandhuja, n.d.; Gaio & Henriques, 2018). To get the most out of the resources you have and still reach your objectives, efficiency is king (Banton, 2022). Companies can improve their long-term viability by implementing a factor strategy that is tailored to their unique needs. Balasubramanian et al. (2020) and Makris, Charalabakis, and Stavroyianni (2021) are among the existing literature that has sought to examine the relationship between firm size and sustainability, and the positive effect of firm size on sustainability that this study found lends credence to that idea. Theoretically, RBV posits that organisations gain a sustainable competitive advantage through the combination of tangible and intangible resources, which in turn give rise to specialised resources called capabilities. This study strengthens RBV by demonstrating that firm-specific factors significantly and positively impact the sustainability of FMCG manufacturing companies (Madhani, 2010).

Environmental dynamism moderated the interaction between corporate governance and the sustainable performance of Nigerian fast-moving consumer goods manufacturers, according

to further analysis. This effect was positive and statistically significant. The reason behind this is that firms encounter both opportunities and threats from an ever-changing environment. To stay afloat, these firms must adapt to these changes by adjusting their corporate strategies in response to inflated profit projections (Petrus, 2019). Other empirical research in China has examined environmental dynamism's moderating role, specifically in relation to the interaction between empowering leadership and information collaboration; this research has shown that environmental dynamism has a positive moderating effect. According to the same research (Li, Chen, Ma, & Li, 2021), environmental dynamism acts as a moderator in the relationship between corporate entrepreneurship and information collaboration. Environmental dynamism, specifically technological environmental factors, was determined to be crucial for optimal firm performance in another Indonesian study (Prawati & Setyawan, 2019).

According to the results of this study, environmental dynamism determines the strength of corporate governance's impact on sustainability. This study argues, based on the dynamic capability theory, that fast-moving consumer goods (FMCG) manufacturers in Nigeria face an even more dynamic environment than average, which makes the relevance of corporate governance to their sustainable operation and performance all the more important. In addition, the study's results demonstrated that environmental dynamism had a positive and statistically significant mediating role. Andrade and Mendez (2019) imply that the degree to which a firm adapts to the realities of doing business is determined by how much the external environment changes. According to the results of this study, the opportunities and growth potential offered by the ever-changing environment are the most important firm-specific factors for the sustainability of fast-moving consumer goods manufacturers in Nigeria (Onamusi et al., 2019). This suggests that firm-specific factors have less of an impact on the sustainability performance of FMCG manufacturing firms in Nigeria when the firm is unable to take advantage of environmental generosity.

The results of this study also lend credence to the dynamic capability theory, which argues that companies can't help but adapt to their ever-changing business environments if they want to maintain a competitive advantage. Firm competitive advantage requires rapid resource allocation to deal with extraordinary environmental changes, the introduction of novel ideas that result in novel products and processes, and the identification, acquisition, and utilisation of external knowledge (Kaur and Mehata, 2017). For FMCGS in Nigeria, this study's results are practically relevant. Both the corporate governance strategy and the firm-specific factor configuration provide substantial sustainability performance to the organisation, so it is imperative that the executive management of FMCG manufacturing companies in Nigeria implement them.

Furthermore, the study took the macro environment into account, acknowledging that the government plays a significant role in establishing the framework for businesses to operate within through economic policies. In order to alleviate the problems of high production costs and corrupt practices within government agencies, which manufacturing entity operators face on a daily basis, this study gives the government empirical evidence to support the claim that the country's macroenvironment affects the sustainability of the manufacturing sector (fast-moving consumer goods manufacturers). The study's authors hope that this will lead to the formulation and implementation of policies that are beneficial to the sector. This study's results demonstrate to industry regulators that the capacity of Nigeria's consumer goods manufacturing companies to sustain themselves is significantly impacted by corporate governance strategies and firm-specific factors.

These results should, inferredly, help Nigeria's consumer goods industry regulators implement policies that will help the sector's manufacturers compete more effectively with their international peers and provide consumers with products of comparable quality. The study found that the consumer goods companies' sustainability was positively and significantly impacted by corporate governance and firm-specific factors. Moreover, in the sustainability-corporate governance and firm-specific factor links in Lagos State, Nigeria, environmental dynamism was a substantial moderator-mediator. Thus, we must work together to make sure that these companies' boards of directors are more responsible for long-term economic, social, and environmental sustainability. Similarly, in order to improve their sustainability, management should reinvest in growing the firm and making better use of limited resources, while also coming up with context-specific strategies to take advantage of growth opportunities presented by dynamic environments.

Even though the business climate is turbulent, management must maintain a system that assesses how new issues in the ever-changing environment affect the attainment of goals; formulate policies and take measures to keep performance aligned with goals. To the same extent that they actively position firm-specific factors to lessen the impact of the negative outcome and maximise the positive opportunity. Because the continued existence of CG companies in Nigeria and how they have responsibly used the environmental resources at their disposal are contingent upon achieving the SDGs with regard to industrialization, economic growth, and zero poverty for Nigeria and its citizens, it is imperative that these companies take seriously the strategic information provided by this study. This is part of the sustainability development goals. While this study has its limitations, it also has opportunities and recommendations for future research. The lack of evidence of long-term causality among the variables studied in this cross-sectional study suggests that future research should use a longitudinal design to address this issue. Due to the study's narrow focus on CGMs in Lagos State, Nigeria, future research could broaden its scope to include other sectors of the Nigerian economy, such as the metalworking, automotive, and hospitality industries as well as service providers like logistics companies, marketing agencies, and quick-service restaurants. This would allow for a more general application of the study's findings.

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