

FEMALE DIRECTORS AND CORPORATE SUSTAINABILITY OF QUOTED CONGLOMERATES IN NIGERIA

Udo, Chinwoke Uchechukwu¹; Oraka, Augustine O¹; Amahalu, Nestor Ndubuisi¹

¹ Department of Accountancy, Nnamdi Azikiwe University Awka, Anambra State, Nigeria

IJMSSSR 2022

VOLUME 4

ISSUE 1 JANUARY - FEBRUARY

ISSN: 2582 - 0265

Abstract: This study ascertained the nexus between Female Directors and Corporate Sustainability of quoted Conglomerates in Nigeria from 2006-2020. Specifically, this study determined the relationship between Female Directors and Environmental Sustainability; Female Directors and Social Sustainability; Female Directors and Economic Sustainability. Panel data were used in this study, which were obtained from the annual reports and accounts of the six (6) quoted conglomerates for the periods 2006-2020. *Ex-Post Facto* research design was employed. Descriptive statistics of the dataset from the sampled firms was employed to summarily describe the mean, standard deviation, minimum and maximum values of the data for the study variables. Inferential statistics using Pearson correlation coefficient, Multicollinearity test, Heteroscedasticity test and Panel least square regression analysis were employed to test the hypotheses of the study. The results showed that there is a significant and positive relationship between Female Directors and Environmental Sustainability; Female Directors and Social Sustainability; Female Directors and Economic Sustainability of quoted Conglomerates in Nigeria. at 5% level of significance respectively, The study recommended *inter alia* the recruitment of an ample number of females in the top-notch positions of the board to create a gender-diverse management team to reap the benefits of leadership styles of both genders.

Keywords: Female Directors, Environmental Sustainability, Social Sustainability and Economic Sustainability.

Background to the Study

In the modern business world, the sense of responsibility toward key stakeholders is an essential element and serves as a sensitive strategic element. The policies and overall management of norms, morals values, and ethical culture are the main ingredients for companies to continue their project in the medium term and long term. Therefore, such companies must devise plans, policies, and systems that include all stakeholders without any biases. The board is the most influential decision-making unit of an organization, with responsibilities ranging from making key financial and strategic decisions to choosing the company's top executive leadership. Given the level of expertise and the amount of information needed to understand and govern today's complex businesses, it is unrealistic to expect an individual director to be knowledgeable and informed about all phases of business. This is where the concept of board diversity comes into play. Corporations are increasingly under pressure to ensure diversity within their boardrooms, and many academic research works have reported findings consistent with the view that boards perform better when they include a diverse range of people. Mbonu and Amahalu (2021b) described board diversity as a demographic phenomenon entailing age, gender, and ethnicity. There are no specific legal requirements for gender diversity in the Nigerian legal system except for regulations issued by the Central Bank of Nigeria (CBN), the Securities and Exchange Commission (SEC) Code of Corporate Governance, and the 2018 Nigerian Code of Corporate Governance (CCG). CBN regulations mandate a minimum of 30 percent female representation on boards of Nigerian commercial banks, the SEC Code recommends that publicly listed companies consider gender when selecting board members and the CCG encourages the board to set diversity goals and to be mindful of them when filling board vacancies. However, the SEC and CCG codes do not prescribe gender quotas.

Sustainability is the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability is the avoidance of the depletion of natural resources in order to maintain an ecological balance. Boards of directors play a very significant role in ensuring the sustainability of companies not only from the economic aspect but also from the environmental and social aspects (Okudo, & Ndubuisi, 2021). It is believed that a company is no longer judged by its economic success but also on its environmental and

social success. Therefore, a board of directors as major decision makers is collectively responsible and accountable for the sustainability of companies to a wider range of stakeholders. There is a plethora of literature with conflicting results on the relationship between female directors and corporate sustainability. Arguments have been presented both favoring and opposing the idea of increasing female representation. Chebbia, Aliedanb and Alsahlawic (2020); Oshiole, Elamah and Amahalu (2020) proved that companies with high female representation on their boards tend to have stronger corporate governance than those with few or no women on the board of directors. Zaid, Seaman, Mauricio, Al-Haddad and Marashdeh (2020); Wang (2020) documented that men are more trustworthy and collaborative than women, and this can improve board dynamics. Romano Cirillo, Favino and Netti (2020) found that male employees at Cadbury Nigeria Plc often rejects female managers while workers at Cadbury (UK) Plc. see female managers as normal managers as the male managers. Mbonu and Amahalu (2021a) reported that women are more 'communal' and men more 'agentic' hence companies with agency problems are firms that have homogenous boards. It is against this back drop that this study sought to examine the nexus between female directors and corporate sustainability of quoted conglomerates in Nigeria.

Objectives of the study

The main objective of this study is to examine the relationship between female directors and corporate sustainability of quoted conglomerates in Nigeria.

The specific objectives of this study were to:

- i. Determine the relationship between Female Directors and Environmental Sustainability of quoted Conglomerates in Nigeria.
- ii. Evaluate the relationship between Female Directors and Social Sustainability of quoted Conglomerates in Nigeria.
- iii. Ascertain the relationship between Female Directors and Economic Sustainability of quoted Conglomerates in Nigeria.

Research Hypotheses

The following propositions were hypothesized in a null form:

H₀₁: There is no significant relationship between Female Directors and Environmental Sustainability of quoted Conglomerates in Nigeria.

H₀₂: There is no significant relationship between Female Directors and Social Sustainability of quoted Conglomerates in Nigeria.

H₀₃: There is no significant relationship between Female Directors and Economic Sustainability of quoted Conglomerates in Nigeria.

Conceptual Review

Female Directors

Female Directors are elected women on board that represent shareholders. Female directors are also responsible for helping a corporation set broad goals, supporting executive duties, and ensuring the company has adequate, well-managed resources at its disposal. Boards guide the success or failure of a company by steering the overall corporate direction, setting policies, choosing executives, and ensuring that major decisions are ethical and prudent. They make a commitment to building the mission and vision of the company, ensuring that it is carried through all areas of the organization. Board gender diversity is a significant aspect of corporate governance; it is defined as the presence of female directors on the board of directors of corporations (Okegbe, Eneh, & Amahalu, 2019).

Corporate Sustainability

Sustainability is skilled positioning of the organization in the economic reality, taking account of the social and economic challenges, environmental opportunities and threats. The awareness that the organization functions within a broader framework, amid complex interrelations with many stakeholder groups, allows it to get ready and make use of the opportunities linked with sustainability. Corporate sustainability is an approach aiming to create long-term stakeholder value through the implementation of a business strategy that focuses on the ethical, social, environmental, cultural, and economic dimensions of doing business. The strategies created are intended to foster longevity, transparency, and proper employee development within business organizations (Amahalu, Ezechukwu & Obi, 2017).

Environmental Sustainability

Environmental sustainability is defined as responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for long-term environmental quality. The practice of environmental sustainability helps to ensure that the needs of today's population are met without jeopardizing the ability of future generations to meet their needs (Marni, 2020). Environmental sustainability is the rates of renewable resource harvest, pollution creation, and non-renewable resource depletion that can be continued indefinitely. If they cannot be continued indefinitely then they are not sustainable (Iliemena, Goodluck & Amahalu, 2019). Environmental sustainability is concerned with whether environmental resources will be protected and maintained for future generations.

Social Sustainability

Social sustainability is a process for creating sustainable successful places that promote wellbeing, by understanding what people need from the places they live and work. Social sustainability combines design of the physical realm with design of the social world – infrastructure to support social and cultural life, social amenities, systems for citizen engagement, and space for people and places to evolve. Social sustainability occurs when the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and livable communities (Ezeokafor & Amahalu, 2019). The ability of a community to develop processes and structures which not only meet the needs of its current members but also support the ability of future generations to maintain a healthy community.

Economic Sustainability

Economic sustainability refers to practices that support long-term economic growth without negatively impacting social, environmental, and cultural aspects of the community. Economic sustainability is the ability of an economy to support a defined level of economic production indefinitely (Omojolaibi, Okudo & Shojobi, 2019). Economic sustainability occurs when a political unit, such as a nation, has the preferred percent of its population below its preferred minimum standard of living level. Economic sustainability can refer either to the continued success of an economy over time or more recently to the way an economy operates in a sustainable manner, protecting social and environmental elements (Courtneil, 2019). Economic sustainability is understood to be economic development that does not have a negative impact on ecological or social sustainability. An increase in economic capital must therefore not be at the expense of a reduction in natural capital or social capital. Economic sustainability is equated with economic growth, which is considered sustainable as long as the total amount of capital increases. Increased economic capital can thus be allowed at the expense of a reduction of other assets in the form of natural resources, ecosystem services or welfare (Ecowas. Omojolaibi, Oladipupo & Okudo. 2019).

Female Directors and Corporate Sustainability

Colakoglu, Eryilmaz and Martínez-Ferrero (2020) reported that environmental problems have many effects on the economic systems as well as on people's lives. Prior research offers evidence that society is highly asking firms to pay greater attention on environmental and social issues instead of focusing only on financial self-interest (El Ghoul, Guedhami, Nash & Patel, 2019; Amahalu, Okoye & Obi, 2018) showed that stakeholders are demanding more transparency about environmental, social and governance disclosure. To sustain their competitive advantages and acceptability in society, the firms recognize that addressing environmental concerns is an

important key. To this end, environmental sustainability is a significant issue for firms that need to be addressed at the board level (Okudo, Omojolaibi & Oladele, 2021).

Theoretical Framework

Agency Theory

Agency theory has a long, rich history dating back to the formative economics-based works of Jensen and Meckling (1976). Agency theory is a principle that is used to explain and resolve issues in the relationship between business principals and their agents. Most commonly, that relationship is the one between shareholders, as principals, and company executives, as agents. An agency, is any relationship between two parties in which one, the agent, represents the other, the principal, in day-to-day transactions. The principal or principals have hired the agent to perform a service on their behalf (Amahalu & Obi, 2020b). The agency relationship is a ubiquitous feature of economic life and exists in many contexts, such as between politicians/voters, brokers/investors, lawyers/clients, and even editors and authors of an invited article. Within business and management, the relationship most commonly considered from an agency perspective is between the manager(s) and owner(s) of the firm. Generally, the principal (i.e., the owner) hires or contracts work to the agent (i.e., the manager), who is then expected to act according to the agreement and in the best interests of the principal (Jensen & Meckling, 1976).

Stakeholder Theory

Stakeholder theory was propounded by Edward Freeman in 1984. Stakeholder theory upholds that firms have accountability towards a broad range of stakeholders, apart from shareholders, that is customers, suppliers, employees, government, community, environment, lenders and future generation. The traditional definition of a stakeholder is any group or individual who can affect or is affected by the achievement of the organization's objectives (Freeman 1984). The general idea of the stakeholder concept is a redefinition of the organization. In general the concept is about what the organization should be and how it should be conceptualized. Friedman and Miles (2006) state that the organization itself should be thought of as grouping of stakeholders and the purpose of the organization should be to manage their interests, needs and viewpoints. This stakeholder management is thought to be fulfilled by the managers of a firm. The managers should on the one hand manage the corporation for the benefit of its stakeholders in order to ensure their rights and the participation in decision making and on the other hand, the management must act as the stockholder's agent to ensure the survival of the firm to safeguard the long term stakes of each group (Amahalu & Obi, 2020a).

Empirical Review

Wang, Deng, Álvarez-Otero, Sial, Comite, Cherian, Oláh (2021) investigated the impact of women and independent directors on corporate social responsibility (CSR) and financial performance. The study used the fixed effect regression model as a baseline methodology. The data set included information from 2010 to 2019 regarding Chinese non-financial companies, from which yearly information were used. The study used a two-stage least square (TSLS) regression model to control the possible problem of endogeneity. The empirical results showed that gender diversity on boards significantly and positively affects CSR reporting. The study did not find an effect due to non-executive directors on CSR reporting. The presence of non-executive directors on a board is mostly trivial in the case of China, as they do not have much influence with regard to decision making, especially related to CSR reporting. The control variables, such as board size, board member meeting frequency and leverage, were also found to have a significant effect on CSR reporting.

Pareek, Sahu & Gupta (2021) evaluated and established the relationship between gender diversity (GD) on the board and corporate sustainability performance. A sample of 212 non-financial companies listed on the National Stock Exchange, India has been considered for a period of 2013–2014 to 2018–2019. The study conducted the static panel data model analysis. The study, from its analysis, interpreted that GD or the proportion of women directors in the company plays a significant role in the decisions related to the sustainability performance of the company. Alongside GD, the profitability of the company, measured in terms of Tobin's Q, and firm size are also seen to have a positive impact on the sustainability performance of the company.

Cicchello and Fellegara (2021) investigated the influence of organisations' board gender diversity on the adoption of the United Nations sustainable development goals (SDGs) and on the use of external assurance. The study combined data from the Global Reporting Initiative's Sustainability Disclosure Database and the Orbis database from Bureau van Dijk. The study used logit models based on a sample of 366 large Asian and African companies which have addressed the SDGs in their sustainability reports published in 2017. The results revealed that board gender diversity is positively associated with sustainability reporting and the involvement of an external assurance provider.

Methodology

Research Design

Ex-post facto research design was employed in this study.

Population of the Study

The population of this study consisted of the six (6) conglomerates listed on the floor of the Nigerian Stock Exchange (NSE) from 2010 to 31st December 2019. The conglomerates include: A.G. Leventis Nigeria Plc; Chellarams Plc; John Holt Plc; SCOA Nigeria Plc; Transnational Corporation of Nigeria Plc; UACN Plc.

Sample Size and Sampling Method

Consequent upon the fact that the entire population size was utilized as the sample size, then there is no need for sampling method.

Source of Data

Primarily, this study made use of secondary data. The data were sourced from publications of the Nigerian stock exchange (NSE), fact books and the annual report and accounts of the sampled quoted conglomerates.

Table 1 Variable Description

Variable	Proxies	Acronym	Measurement
Independent Variable			
	Female Directors	FEMD	$\frac{\text{Number of Female Directors}}{\text{Number of the Board of Directors}}$
Corporate Sustainability (Dependent Variable)			
	Environmental Sustainability	ENVSUS	$\frac{\text{Total Environmental Disclosure Score}}{\text{Maximum Environmental Disclosure Score Possible for a Firm}}$
	Social Sustainability	SOSUS	$\frac{\text{Total Social Disclosure Score}}{\text{Maximum Social Disclosure Score Possible for a Firm}}$
	Economic Sustainability	ECOSUS	$\frac{\text{Total Economic Disclosure Score}}{\text{Maximum Economic Disclosure Score Possible for a Firm}}$
Control Variables			
	Leverage	LEV	Total Debt/Total Assets
	Firm Size	FSIZE	Natural logarithm of Total Assets

Model Specification

This study adapted the model of Triana and Asri (2017):

$$Q_{it} = \beta_0 + \beta_1 FDIR_{it} + \beta_2 FAGE_{it} + \beta_3 LEV_{it} + e_{it}$$

Where:

Q_{it} = Tobin's Q ratio of firm i at time t.

$FDIR_{it}$ = Female Directors of firm i at time t.

$FAGE_{it}$ = Firm Age of firm i at time t.

LEV_{it} = Leverage of firm i at time t.

e_{it} = the error term which account for other possible factors that could influence Q_{it} that are not captured in the model

β = coefficient which represents the slope of variables

Thus, in line with the study objectives, the following panel least square regression models would be constructed:

$$ENVSUS_{it} = \beta_0 + \beta_1 FEMD_{it} + \beta_2 LEV_{it} + \beta_3 FSIZE_{it} + \mu_{it}$$

Model 1

$$SOSUS_{it} = \beta_0 + \beta_1 FEMD_{it} + \beta_2 LEV_{it} + \beta_3 FSIZE_{it} + \mu_{it}$$

Model 2

$$ECOSUS_{it} = \beta_0 + \beta_1 FEMD_{it} + \beta_2 LEV_{it} + \beta_3 FSIZE_{it} + \mu_{it}$$

Model 3

Where:

β_0 = Constant term (intercept)

β_{it} = Coefficients of Corporate Sustainability to be estimated for conglomerate i in period t

μ_{it} = Error term/unexplained variable(s) of conglomerate i in period t

$ENVSUS_{it}$ = Environmental Sustainability of conglomerate i in period t

$SOSUS_{it}$ = Social Sustainability of conglomerate i in period t

$ECOSUS_{it}$ = Economic Sustainability of conglomerate i in period t

LEV_{it} = Leverage of conglomerate i in period t

$FSIZE_{it}$ = Firm Size of conglomerate i in period t

Presentation and Analysis of Data

Table 2: Pearson Correlation Analysis

	ENVSUS	SOSUS	ECOSUS	FEMD	LEV	FSIZE
ENVSUS	1.0000	0.3884	-0.1524	0.4051	-0.1703	-0.6239
SOSUS	0.3884	1.0000	-0.0372	-0.0606	-0.2162	-0.0707
ECOSUS	-0.1524	-0.0372	1.0000	-0.2174	0.2906	0.1922
FEMD	0.4051	-0.0606	-0.2174	1.0000	0.1398	0.1022
LEV	-0.1703	-0.2162	0.2906	0.1398	1.0000	0.3295
FSIZE	-0.6239	-0.0707	0.1922	0.1022	0.3295	1.0000

Source: E-Views 10.0 Output, 2021

The Pearson correlation result in table 2 shows that there is a positive relationship between ENVSUS and FEMD (0.4051); a negative relationship between SOSUS and FEMD (-0.0606); a negative relationship between ECOSUS and FEMD (-0.2174).

Table 3: Multicollinearity Test

Variance Inflation Factors

Date: 10/30/21 Time: 07:37

Sample: 2006 2020

Included observations: 15

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.095969	89.65725	NA
FEMD	3.176912	6.945071	1.023623
LEV	0.000538	8.672965	1.136336
FSIZE	0.001154	98.00895	1.125895

Source: E-Views Output, 2021

The general rule of thumb is that VIFs exceeding exceeding 10 are signs of serious multicollinearity requiring correction. But from the resulting output in table 3, it is observed that the Centered VIF for the study variables are all less than 10.

Table 4 Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.663035	Prob. F(3,11)	0.2319
Obs*R-squared	4.680473	Prob. Chi-Square(3)	0.1967
Scaled explained SS	0.956372	Prob. Chi-Square(3)	0.8118

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 10/30/21 Time: 07:45

Sample: 2006 2020

Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015804	0.024305	0.650233	0.5289
FEMD	-0.184198	0.139842	-1.317186	0.2146
LEV	0.003521	0.001819	1.935200	0.0791
FSIZE	-0.000996	0.002665	-0.373601	0.7158
R-squared	0.312032	Mean dependent var		0.011774
Adjusted R-squared	0.124404	S.D. dependent var		0.010624
S.E. of regression	0.009942	Akaike info criterion		-6.161016
Sum squared resid	0.001087	Schwarz criterion		-5.972203
Log likelihood	50.20762	Hannan-Quinn criter.		-6.163027
F-statistic	1.663035	Durbin-Watson stat		2.389653
Prob(F-statistic)	0.231942			

Source: E-Views 10.0 Output, 2021

From table 4 it could be deduced that the t- t-Statistic for FEMD (0.2146), LEV (0.0791). and FSIZE (0.7158) with associated p-values more than 0.05 (5%), which is an indication of non-significant relationship. Furthermore, the

overall significant level; Prob(F-statistic) = 0.231942 > 0.05, is greater than 5% level of significance. This resulting output, suggest there is no presence of heteroscedsticity in the model, therefore fit to carry out a regression model.

Test of Hypothesis I

H₀₁: There is no significant relationship between Female Directors and Environmental Sustainability of quoted Conglomerates in Nigeria.

H₁: There is significant relationship between Female Directors and Environmental Sustainability of quoted Conglomerates in Nigeria.

Table 5 Panel Least Square Regression analysis testing the relationship between FEMD and ENVSUS

Dependent Variable: ENVSUS

Method: Panel Least Squares

Date: 10/30/21 Time: 09:03

Sample: 2006 2020

Periods included: 15

Cross-sections included: 6

Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.148263	0.321806	3.568178	0.0006
FEMD	1.636121	0.786348	2.080656	0.0404
LEV	-2.860571	1.293925	-2.210770	0.0297
FSIZE	-0.056132	0.032641	-1.719670	0.0891
R-squared	0.252740	Mean dependent var		0.538272
Adjusted R-squared	0.219696	S.D. dependent var		0.245633
S.E. of regression	0.243202	Akaike info criterion		0.053576
Sum squared resid	5.086649	Schwarz criterion		0.164678
Log likelihood	1.589098	Hannan-Quinn criter.		0.098379
F-statistic	3.238494	Durbin-Watson stat		1.546511
Prob(F-statistic)	0.026055			

Source: E-Views 10.0 Regression Output, 2021

Interpretation of Regression Analysis

The resultant output in table 5 reveals that:

$$\text{ENVSUS} = 1.148263 + 1.636121 \text{ FEMD} - 2.860571 \text{ LEV} - 0.056132 \text{ FSIZE}$$

This model infers that holding other factors constant, a unit increase in FEMD will exert 1.636121 units increase in ENVSUS, while, a unit increase in LEV and FSIZE will cause ENVSUS to reduce by 2.860571 units and 0.056132 units respectively. Table 5 shows that there is a significant positive relationship between FEMD and ENVSUS of quoted conglomerates. This can be observed from the beta coefficient (β_1) of 1.636121 with p value of 0.0404 which is significant at 5%. This indicates that female directors have a positive influence on environmental sustainability of quoted conglomerates in Nigeria. Overall, the combined and the overall effect of the regressors – FEMD, LEV and FSIZE on ENVSUS of quoted conglomerates in Nigeria, is shown on the

model probability summary of the regression results; the F-statistic of 3.238494 with an associated Prob(F-statistic) of 0.026055 is statistically significant at 5%, which reveals that the model is well fitted, while the coefficient of determination adjusted R^2 of 0.219696, explains the individual variation of the dependent variable (ENVSUS) as a result of the changes in the independent variables (FEMD, LEV and FSIZE). It can be said that FEMD, LEV and FSIZE have combined predictive power of 22% in affecting ENVSUS of quoted conglomerates in Nigeria, while the remaining 78% is accounted for by other factors which are not captured in the model.

Decision

Since the P-value of the test = 0.026055 is less than 0.05 (5%)., this study upholds that there is significant positive relationship between Female Directors and Environmental Sustainability of quoted Conglomerates in Nigeria. at 5% level of significance.

Test of Hypothesis II

H₀₂: There is no significant relationship between Female Directors and Social Sustainability of quoted Conglomerates in Nigeria.

H₂: There is significant relationship between Female Directors and Social Sustainability of quoted Conglomerates in Nigeria.

Table 6 Panel Least Square Regression analysis testing the relationship between FEMD and SOSUS

Dependent Variable: SOSUS

Method: Panel Least Squares

Date: 10/30/21 Time: 09:03

Sample: 2006 2020

Periods included: 15

Cross-sections included: 6

Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.380348	0.364246	3.789601	0.0003
FEMD	0.089958	0.036946	2.434854	0.0170
LEV	-0.018085	0.014007	-1.291170	0.2001
FSIZE	-0.115550	0.269771	-0.428327	0.6695
R-squared	0.090924	Mean dependent var		0.404699
Adjusted R-squared	0.059212	S.D. dependent var		0.283806
S.E. of regression	0.275275	Akaike info criterion		0.301336
Sum squared resid	6.516773	Schwarz criterion		0.412438
Log likelihood	-9.560101	Hannan-Quinn criter.		0.346139
F-statistic	2.867189	Durbin-Watson stat		1.541042
Prob(F-statistic)	0.041208			

Source: E-Views 10.0 Regression Output, 2021

Interpretation of Regression Analysis

The resultant output in table 6 reveals that:

$$\text{SOSUS} = 1.380348 + 0.089958 \text{ FEMD} - 0.018085 \text{ LEV} - 0.115550 \text{ FSIZE}$$

This model infers that holding other factors constant, a unit increase in FEMD will exert 9% increase in SOSUS, while, a unit increase in LEV and FSIZE will cause SOSUS to reduce by 1.81% and 11.55% respectively. Table 4.6 shows that there is a significant positive relationship between FEMD and SOSUS of quoted conglomerates. This can be observed from the beta coefficient (β_1) of 0.089958 with p value of 0.0170 which is significant at 5%. This indicates that female directors have a positive influence on social sustainability of quoted conglomerates in Nigeria. Overall, the combined and the overall effect of the regressors – FEMD, LEV and FSIZE on SOSUS of quoted conglomerates in Nigeria, is shown on the model probability summary of the regression results; the F-statistic of 2.867189 with an associated Prob(F-statistic) of 0.041208 is statistically significant at 5%, which reveals that the model is well fitted, while the coefficient of determination adjusted R^2 of 0.259212, explains the individual variation of the dependent variable (SOSUS) as a result of the changes in the independent variables (FEMD, LEV and FSIZE). It can be said that FEMD, LEV and FSIZE have combined predictive power of 25.92% in affecting SOSUS of quoted conglomerates in Nigeria, while the remaining 74.08% is accounted for by other factors which are not captured in the model.

Decision

Since the P-value of the test = 0.041208 is less than 0.05 (5%), this study upholds that there is significant positive relationship between Female Directors and Social Sustainability of quoted Conglomerates in Nigeria. at 5% level of significance.

Test of Hypothesis III

H₀₃: There is no significant relationship between Female Directors and Economic Sustainability of quoted Conglomerates in Nigeria.

H₃: There is significant relationship between Female Directors and Economic Sustainability of quoted Conglomerates in Nigeria.

Table 7 Panel Least Square Regression analysis testing the relationship between FEMD and SOSUS

Dependent Variable: ECOSUS

Method: Panel Least Squares

Date: 10/30/21 Time: 08:59

Sample: 2006 2020

Periods included: 15

Cross-sections included: 6

Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.579295	0.102010	5.678796	0.0000
FEMD	0.437803	0.171730	2.549364	0.0126
LEV	-0.028197	0.013955	-2.020583	0.0464
FSIZE	0.005117	0.023136	0.221150	0.8255
R-squared	0.334713	Mean dependent var		0.148928

Adjusted R-squared	0.301040	S.D. dependent var	0.172470
S.E. of regression	0.172380	Akaike info criterion	-0.634803
Sum squared resid	2.555482	Schwarz criterion	-0.523700
Log likelihood	32.56613	Hannan-Quinn criter.	-0.590000
F-statistic	3.030970	Durbin-Watson stat	1.695357
Prob(F-statistic)	0.033661		

Source: E-Views 10.0 Regression Output, 2021

Interpretation of Regression Analysis

The resultant output in table 7 reveals that:

$$\text{ECOSUS} = 0.579295 + 0.437803 \text{ FEMD} - 0.028197 \text{ LEV} + 0.005117 \text{ FSIZE}$$

This model infers that holding other factors constant, a unit increase in FEMD and FSIZE will respectively exert 43.78% and 0.512% increase in ECOSUS, while, a unit increase in LEV will cause ECOSUS to reduce by 2.82%. Table 7 shows that there is a significant positive relationship between FEMD and ECOSUS of quoted conglomerates. This can be observed from the beta coefficient (β_1) of 0.437803 with p value of 0.0126 which is significant at 5%. This indicates that female directors have a positive influence on economic sustainability of quoted conglomerates in Nigeria. Overall, the combined and the overall effect of the regressors – FEMD, LEV and FSIZE on ECOSUS of quoted conglomerates in Nigeria, is shown on the model probability summary of the regression results; the F-statistic of 3.030970 with an associated Prob(F-statistic) of 0.033661 is statistically significant at 5%, which reveals that the model is well fitted, while the coefficient of determination adjusted R^2 of 0.301040, explains the individual variation of the dependent variable (ECOSUS) as a result of the changes in the independent variables (FEMD, LEV and FSIZE). It can be said that FEMD, LEV and FSIZE have combined predictive power of 30.10% in affecting ECOSUS of quoted conglomerates in Nigeria, while the remaining 69.90% is accounted for by other factors which are not captured in the model.

Decision

Since the P-value of the test = 0.033661 is less than 0.05 (5%)., this study upholds that there is significant positive relationship between Female Directors and Economic Sustainability of quoted Conglomerates in Nigeria. at 5% level of significance.

Findings, Conclusion and Recommendations

Findings

Based on the analysis of data, the following findings emerged:

- i. There is a significant and positive relationship between Female Directors and Environmental Sustainability of quoted Conglomerates in Nigeria. at 5% level of significance.
- ii. There is a significant and positive relationship between Female Directors and Social Sustainability of quoted Conglomerates in Nigeria. at 5% level of significance.
- iii. There is a significant and positive relationship between Female Directors and Economic Sustainability of quoted Conglomerates in Nigeria. at 5% level of significance.

Conclusion

This study assessed the nexus between female directors and corporate sustainability of quoted conglomerates in Nigeria. This study obtained data from annual reports and account and publications from Nigeria stock exchange for

the Conglomerates that operated during 2006-2020 periods. In addition, the nexus between specific sustainability measures such as environmental sustainability, social sustainability, economic sustainability and female directors were assessed. To determine the relationship that exists amongst the variables, Pearson correlation coefficient, multicollinearity test, heteroscedasticity test and Panel least square regression estimate were employed. This study revealed that there is a significant and positive relationship between Female Directors and Environmental Sustainability; Female Directors and Social Sustainability; Female Directors and Economic Sustainability of quoted Conglomerates in Nigeria. at 5% level of significance respectively,

Recommendations

The following recommendations were made in line with the findings and conclusion of this study:

- i. Considering the fact that there is a positive relationship between female directors and environmental sustainability, the presence of female directors in firms should be increased to foster value creation and improvement of financial and environmental performance.
- ii. Since the results showed that a larger proportion of female directors affects social sustainability, then gender diversity should be increased for an enhanced social performance.
- iii. Consequent upon the fact that female directors on board significantly increases economic performance, this study thus recommends the recruitment of an ample number of females in the top-notch positions of the board to create a gender-diverse management team to reap the benefits of leadership styles of both genders.

References

1. Amahalu, N.N, Okoye, P.V.C & Obi, J.C. (2018). Effect of sustainability Reporting on Economic Value Added of Quoted Brewery Firms in Nigeria. *Journal of Accounting, Jos*, 7 (1):1-20
2. Amahalu, N.N., & Obi, J.C. (2020a). Effect of financial statement quality on investment decisions of quoted deposit money banks in Nigeria. *International Journal of Management Studies and Social Science Research*, 2(4), 99-109.
3. Amahalu, N.N., & Obi, J.C. (2020b). Effect of audit quality on financial performance of quoted conglomerates in Nigeria. *International Journal of Management Studies and Social Science Research*, 2(4), 87-98.
4. Amahalu, N.N., Ezechukwu, B. O., & Obi, J.C. (2017). Corporate social responsibility and financial performance of quoted deposit money banks in Nigeria. *Asian Journal of Science and Technology*, 08(12), 7183-7191.
5. Chebbia, K., Aliedanb, M.M., & Alsahlawic, A.M. (2020). Women on the board and environmental sustainability reporting: Evidence from France. *International Journal of Innovation, Creativity and Change*, 14(11), 231-257.
6. Cicchiello, A.F., & Fellegara, A.M. (2021). Gender diversity on corporate boards: How Asian and African women contribute on sustainability reporting activity. <https://www.emerald.com/insight/1754-2413.htm>
7. Colakoglu, N., Eryilmaz, M., & Martínez-Ferrero, J. (2020). Is board diversity an antecedent of corporate social responsibility performance in firms? A research on the 500 biggest Turkish companies. *Soc. Responsib. J.* 2020.
8. Courtneil, J. (2019). Economic sustainability for success: What it is and how to implement it. https://www.process.st/economic-sustainability/#economic_sustainability_business. Accessed 28/01/2020.
9. Ecowas. J.A., Omojolaibi, A.O., Oladipupo, A.G., & Okudo. A.G. (2019). Fragility and macroeconomic outcomes. *Journal of Economics Library* 6 (1), 11-34.
10. El Ghoul, S., Guedhami, O., Nash, R., & Patel, A. (2019). New evidence on the role of the media in corporate social responsibility. *J. Bus. Ethics*, 154, 1051–1079.
11. Ezeokafor, F.C., & Amahalu, N.N. (2019). Effect of sustainability reporting on corporate performance of quoted oil and gas firms in Nigeria. *Journal of Global Accounting*, 6(2), 217-228.
12. Freeman, R.E. (1984). *Strategic management: a stakeholder approach*. Boston, MA: Pitman
13. Friedman, A.L. & Miles, S. (2006). *Stakeholders: theory and practice*. Oxford University Press.
14. Iliemena, R.O., Goodluck, H., & Amahalu, N.N. (2019). Human capital efficiency as a paradigm for improved bank performance in Nigeria. *Journal of Global Accounting*, 6(3), 46-57

15. Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, 3, 305-360.
16. Marni, E. (2020). What is environmental sustainability? <https://www.thebalancesmb.com/what-is-sustainability-3157876>. Accessed 30/01/2021
17. Mbonu, C.M., & Amahalu, N.N. (2021a). Effect of firm characteristics on capital structure of insurance companies listed on Nigeria stock exchange *International Journal of Management Studies and Social Science Research*, 3(5), 217-228
18. Mbonu, C.M., & Amahalu, N.N. (2021b). Effect of board diversity on borrowing cost of listed conglomerates in Nigeria. *American Research Journal of Humanities Social Science (ARJHSS)*, 04(10), 62-73.
19. Okegbe, T.O., Eneh, O.M., & Amahalu, N.N. (2019). Effect of firm characteristics on capital structure of deposit money banks listed on Nigeria stock. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 9(2), 198–210.
20. Okudo, A.G., & Ndubuisi, A.N. (2021). Corporate governance and carbon disclosure practices of quoted manufacturing firms in Nigeria. *International Journal of Contemporary Research and Review*, 12 (07), 20409
21. Okudo, A.G., & Ndubuisi, A.N. (2021). Corporate governance and carbon disclosure practices of quoted manufacturing firms in Nigeria. *International Journal of Contemporary Research and Review*, 12 (07), 20409
22. Okudo, A.G., Omojolaibi, J., & Oladele, M. (2021). Impact of waste recycling on environmental quality and revenue generation: Case Study of University Of Lagos, Nigeria *International Journal of Contemporary Research and Review* 12(8), 20211-20227.
23. Omojolaibi, J.A., Okudo, A.G., & Shojobi, D.A.. (2019). Are women financially excluded from formal financial services? Analysis of some selected local government areas in Lagos State, Nigeria. *Journal of Economic and Social Thought*, 6(1), 16-47.
24. Oshiole, S., Elamah, A.F., & Amahalu, N.N. (2020). Effect of environmental cost disclosure on profitability of listed oil and gas firms in Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences* 10(2), 157-170.
25. Pareek, R., Sahu, T.N., & Gupta, A. (2021). Gender diversity and corporate sustainability performance. <https://www.emerald.com/insight/0973-1954.htm>. Retrieved 11/09/2021
26. Romano, M., Cirillo, A., Favino, C., & Netti, A. (2020). ESG (environmental, social and governance) performance and board gender diversity: The moderating role of CEO duality. *Sustainability*, 12(9298), 1-16.
27. Triana, & Asri, M. (2017). The impact of female directors on firm performance: evidence from Indonesia. *Journal of Indonesian Economy and Business*, 32(1), 19 ± 32.
28. Wang, C., Deng, X., Álvarez-Otero, S., Sial, M.S., Comite, U., Cherian, J., Oláh, J. (2021). Impact of women and independent directors on corporate social responsibility and financial performance: Empirical evidence from an Emerging Economy. *Sustainability*, 13, 6053.
29. Wang, Y.W. (2020). Does board gender diversity bring better financial and governance performances? An empirical investigation of cases in Taiwan. *Sustainability*, 12(3205), 1-10.
30. Zaid, S., Seaman, C., Mauricio, S., Al-Haddad, L., & Marashdeh, Z. (2020). Female directors, family ownership and firm performance in Jordan. *International Journal of Financial Research*, 11(1), 206-219.