Oyegoke: Board Gender Diversity and Troubled Firms' Profitability Evidence from Listed Manufacturing Firms in Nigeria

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ABSTRACT

This study aims to understand the weightiness of female board representation in facilitating the optimum performance of troubled firms toward their long-term sustainability. It examined BFGD as the fraction of female board members to the overall number of members on board. Data for the study were sourced from the audited financials of the selected troubled manufacturing firms from 2012 to 2022. Classification of firms into troubled was ascertained using the Altman Z scoring for manufacturing firms and analysed using the panel data regression method. The outcome of this study signified that the proportion of the female gender on board has an optimistic, albeit insignificant, influence on selected troubled firms' performance indicator- ROA. This further buttresses the fact that BFGD is not a propelling force for enhancing troubled firms' performance in Nigeria. Hence, this study recommended that female representation on board should not be merely symbolic or in conformity with societal inclusivity but instead be based on expertise, skills, experience, qualification, and exposure.

Keywords: Board Female Gender Diversity, Performance, Altman Z, Troubled Firms
JEL Classification: G34

1. INTRODUCTION

With <7% representation on Indian corporate boards, 3% in major United States business circles, 2% in Europe, and <1% across Italy and other countries, female board representation has been at its lowest across countries. However, with globalisation, gender equality, and diversity, the narrative has steadily been transiting positively, with more and more countries embracing gender quota with progressive demand for greater inclusion (Milojevic et al., 2023; Onatuyeh and Akpokerere, 2023; Ozordi et al., 2020; Oluwagbade et al., 2024). Norway is the first country globally to implement a board gender diversity policy with a minimum of 40% representation (Alfuma et al., 2021), with Spain, Leland, and France enacting regulations in that direction (Ilaboya and Ashakofo, 2021).

In Nigeria, the female gender constituted about 50% of the population and 60% of its voting population (UN Women, 2019). The National Gender Policy, established in 2006 with its implementation framework in 2008, calls for a minimum of 35% female gender representation in political nomination and election positions (Aladejebi, 2021). Fraught with many shortcomings, which include the propensity to treat the policy merely as a "woman's issue," the policy was revised in 2021 to the 2021-2026 national gender policy. This revised policy is based on the pillars of gender equality, empowerment, and inclusion, thus aiding continuous engagement to ensure that Nigeria has a living policy. Considering the values of gender equality and inclusiveness, the female gender is now central to Nigeria's transformative agenda as a fundamental human right, aid to poverty reduction, enhanced living standards, sustainable economic growth, and effective and

accountable governance (Federal Republic of Nigeria National Gender Policy, 2021). Based on the Global Gender Gap Index rating across key dimensions (economic participation and opportunity, educational attainment, health and survival, and political empowerment), Nigeria currently ranks 125th out of 146 countries, improving its 2023 score by +1.3%. With 65% overall gender parity, it indicated positive changes in the four key dimensions. However, across the sub-Saharan region, it ranked 29th, falling much behind Namibia, South Africa, Mozambique, Burundi, and Rwanda, which occupied the first five spots regarding gender parity (World Economic Forum, 2024).

The infusion of heterogeneity into board composition has been advocated to reduce the gender divide for fairness, equity, and inclusiveness, thereby fostering corporate performance and sustainability. However, in Nigeria, cultural perception has consistently confronted the move towards enhancing gender diversity, with the "glass ceiling syndrome" being a patriarchal society (Ozordi et al., 2020). The 2018 Nigerian Code of Corporate Governance, though not absolute on requirements regarding board gender diversity, is subject to competence, independence, and integrity consideration as regards gender diversity representation on corporate organizations' boards.

The shift towards women's inclusion in boardrooms is one of the most important trends over the past two decades. McKinsey Global Institute (2020) posited that organizations with female board representation are 25% more likely to have their profitability enhanced above the average. Thus, increasing female representation and participation on board could result in better firm performance (Ernst and Young, 2009). An all-inclusive gender-based board is credited with different perspectives, experiences, and networks. Innovative and creative decision-making is more often than not associated with a well-diversified boardroom, which ultimately promotes a positive firm performance. The existence of female gender on organizations' boards has been credited with increasing board activism and frequency, which are critical requirements of board power. They are considered more effective in their monitoring role with a low tolerance for creative accounting as they are often risk-averse, unlike their male counterparts (Kirsch, 2018; Upadhyay and Hongchao, 2014; Lakhal et al., 2015). Brahma et al. (2020) posit that the presence of gender diversity results in a lasting sustainable transformation in the workspace, responsive governance, and competitiveness in the market at a global level.

However, scholars disagree with these assertions (Perryman et al., 2016). While Dobija and Kravchenko (2017), Khan and Subhan (2019), and Ogboi et al. (2018) all found improvement in business performance, Fernández-Temprano and Tejerina-Gaite (2020) failed to find any.

The increased demand for gender equality, diversity, and inclusiveness has continued to attract a considerable academic spotlight. Despite the volume of research on gender diversity, a scarcity exists of academic literature regarding their influence (if any) on troubled firms' performance, especially in a developing economy like Nigeria. Moreover, findings on studies of BFGD have primarily been mixed and inconclusive (Milojevic et al.,

2023; Duppati et al., 2020; Kweh et al., 2019; Aftab and Ousama, 2021; Owolabi et al., 2021). Accordingly, this study plugs the identified literature gap by answering the question- does gender diversity really matter to troubled firms' performance in Nigeria? This study adopts the Altman Z score for identifying troubled listed manufacturing firms on the Nigeria Exchange Group (NGX).

This paper is orderly fashioned to cover the relevant literature review, methodology, analysis, findings, conclusion, recommendation, and areas for further studies.

2. REVIEW OF LITERATURE

2.1. Theoretical Framework
This research work is anchored on resource dependency theory. It focused on the external resources imported into the organization by the board members due to their diverse expertise, experiences, knowledge, skills, and qualifications, amongst others. It acknowledges the probability of an influx of resources resulting from board diversity. The more diversified a board is, the better the organization's corporate performance, as these entities bring their collaborative resources to bear on the firm's activities. This theory asserts that organizations will have access to resources, financial and otherwise, stemming from the collaboration of these diverse board members. From the standpoint of RDT, organizations operate as an interactive system and depend largely on their environments in obtaining needed resources for their sustainability in the long run, thus creating a synergetic connection between firms and external units (Pfeffer and Salancik, 2003). This dependency is expected to yield positive outcomes for the firm's well-being.

2.2. Empirical Reviews
El-feky (2023) explored the influence of board gender diversity on financial performance using data from 88 firms on the Egyptian exchange (EGX) from 2010 to 2017. Findings from the descriptive and OLS data analysis prove that a surge in the population of female representation on the board progressively influences firm performance.

Aftab and Ousama (2021) examined the correlation between board measures and profitability. Using regression analysis on data gathered from 42 firms in 2018, the study found that the presence of female representation had a direct remarkable relationship with ROA and ROE. In addition, board meetings and independent directors had significant associations with ROA.

Milojevic et al. (2023) studied board characteristics' influence on Serbia banks' profitability from 2017 to 2021. The study using panel regression revealed that the population of directors positively influenced bank profitability in the COVID-19 epidemic phase, unlike before the pandemic. In addition, women's participation and inclusion show no statistical improvement in the banks' ROE and ROA before or during the pandemic. Women's participation as CEOs negatively impedes ROE and ROA before and during the COVID-19 pandemic.

Abu and Bamidele (2023) explored board characteristics and ROA of healthcare firms in Nigeria. Secondary data spanning

over 7 years (2015-2021) from purposively selected firms were analysed using descriptive, correlation matrix, and diagnostic tests. Findings indicated that all employed board characteristics show a negatively insignificant correlation.

Ozordi et al. (2020) assessed gender diversity and sustainability responsiveness of Nigerian banks from 2013-2016. Their findings show that all female inclusivity indicators (director, workforce, and management team) have an insignificant association with sustainability responsiveness.

Aladejebi (2021) investigated the relationship between board gender diversity and the performance of banks in Nigeria from 2015 to 2019. Findings from their correlation analysis showed a weak, inverse relationship between female gender percentage and earnings per share of the banks.

Taleatu et al. (2020) assessed how upper echelons' demographic characteristics affect the earnings management of delisted firms in Nigeria. Analysis of structural equation modeling using AMOS SPSS revealed that middle-aged females, better educated with short-tenured Chief Financial Officers, exhibit a lower tendency towards earnings smoothing.

3. METHODS

The expost facto research design is used for this study. The population of the study comprises the entire 42 quoted manufacturing firms on the NGX as of 2023, sectorized into consumer goods (21), industrial goods (13), and health services (8). The criteria-based sampling technique was employed in selecting troubled firms. These criteria are:
- Firms must have been in existence as of 2012
- Must have complete and reliable data for the period under consideration
- Must not have been delisted at any point in time for the period under consideration

- The selected firms must fall within the distress zone ($Z < 1.81$). To achieve this criterion, the Altman Z formula, $(1.2 \times P_1) + (1.4 \times P_2) + (3.3 \times P_3) + (0.6 \times P_4) + (0.999 \times P_5)$, was applied using 2019 as the base year. Where
  P_1 is working capital/total assets,
  P_2 is retained earnings/total assets,
  P_3 is earnings before interest and task payment/total assets,
  P_4 is equity market value/total assets, and
  P_5 is total sales/total assets,

Firms with an Altman Z score <1.81 are in the 'Distress Zone and classified as troubled.

The study examined eight troubled firms out of the nine identified. This sample size was arrived at in alignment with Ozordi et al. (2020) based on the application of Krejcie and Morgan's postulation that a well-informed inference can be arrived at using 5% of a clearly defined population. These eight troubled firms represent 89% of the total troubled firms, making it acceptable for generalization. For empirical analysis, the descriptive pointers depicting the measures of central tendencies, the correlation analysis, and the random panel model regression were employed (Table 1).

The study employed descriptive statistics and pooled the ordinary least square method in its analysis.

Model specification

$$ROA_{it} = \beta_0 + \beta_1 BFGDIR_{it} + \beta_2 FIRMSIZE_{it} + \beta_3 LEV_{it} + e_{it} \qquad (1)$$

Where:
ROA_{it} represents a return on asset of firms in time t
$BFGDIR_{it}$ connotes board female gender diversity of firms in time t
$FIRMSIZE_{it}$ connotes the size of firms in time t
LEV_{it} connotes debt to equity of firms in time t.
$\beta_0, \beta_1, \beta_2, \beta_3$ connotes estimated parameters
e_{it} is the error term of firms in specified time t.

Table 1: Measurement of variables

Variables	Proxies	Measurement
Dependent	Return on asset	Proportion of profit after interest and tax to total assets
Independent	Board female gender diversity	Proportion of female members on board

Source: Authors compilation (2024)

Table 2: Descriptive statistics

Variables	ROA	BFGDIRV	LOG_TOT_A	LEV
Mean	0.862750	14.11000	7.082125	1.415500
Median	1.725000	12.50000	6.980000	1.480000
Maximum	36.64000	45.45000	8.760000	202.9000
Minimum	−26.37000	0.000000	5.310000	−253.8300
Standard Deviation	8.850340	11.76112	1.000659	37.28376
Skewness	0.153196	0.363246	0.062995	−2.055764
Kurtosis	6.180051	2.253136	2.091237	39.12784
Jarque-Berra	34.02200	3.618655	2.805746	4407.085
Probability	0.000000	0.163764	0.245890	0.000000
Sum	69.02000	1128.800	566.5700	113.2400
Sum Sq. Dev	6187.953	10927.59	79.10414	109816.2
Observations	80	80	80	80

Source: Authors compilation (2024)

4. RESULTS AND DISCUSSION

4.1. Descriptive Indicators

Findings from the descriptive statistics in Table 2 shows firms' profitability (ROA) with a mean value of 0.8628 across the sampled troubled firms and minimum to maximum level ranging between −26.37 and 36.64. This is a clear indication that some of the firms have negative ROA. Furthermore, the explained variable (FBGD) and the control variables (LOGTA, LEV) show an average value of 14.11, 7.08, and 1.42, respectively. This shows that only about 14% of female representation across troubled firms sampled exists on board, with an average asset growth rate and a debt-to-equity ratio of 7% and 1.42%, respectively.

4.2. Correlation Analysis

The summary of the presence or absence of multicollinearity between the explained and explainable variables is captured in Table 3. This Table 3 depicts a linear association between the variables. An issue of collinearity comes into play only when the pair-wise correlation constant exceeds 0.80. The Table 3 shows the

Table 3: Correlation matrix

Variables	Roa	Bfgdirv	Log_Tot_Asset	Leverage
Roa	1.000000	0.296207	0.378999	-0.068790
Bfgdirv	0.296207	1.000000	0.578296	0.044848
Log_Tot_Asset	0.378999	0.578296	1.000000	0.150066
Lev_	-0.068790	0.044848	0.150066	1.000000

Source: Authors compilation (2024)

absence of collinearity and a non-significant association between the explained variables: BFGD, LOGTA, and LEV.

4.3. Hausman Test

The Hausman test was deployed to establish the ideal model for the panel regression. Using the parameter of if the P < 0.05, the fixed effect model (FEM) is employed, and the alternate hypothesis is rejected, and vice versa; Table 4 indicates a P = 0.0001 <5% significant level. Hence, the acceptance of the null hypothesis and the FEM applied for the panel regression.

4.4. FEM Panel Regression Analysis

For suitability in providing a robust explanation of the link among the constructs, the FEM was deployed. Accordingly, the FEM clearly provides that the constructs suitably explain about 38% of troubled firm's performance. By implication, the regressor (explained) construct can only predict 38% of the ROA and the balance proportion assigned to factors outside this study. Furthermore, the Fisher ratio P = 4.26 is >5%, indicating that the null will be accepted.

Table 4 depicts the FEM utilized in testing the link, if any, between the variables of interest. From the analysis table, BFGD is statistically inconsequential with a t-statistic of 0.22 at a P = 0.83. This outcome infers that BFGD directly influences the ROA of sampled troubled firms by 0.032, while the extent is ignored as it is not considered significant. A unit upsurge in the proportion of BFGD will generate a 0.22 increase in ROA. This indicates that the physical existence of a female on board, though enhancing,

Table 4: Hausman test

Correlated Random Effects-Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq Statistic	Chi-sq. d.f	Prob.
Cross-section random	20.780011	3	0.0001

** WARNING: estimated cross-section random effects variance is zero
Cross-section random effect test comparisons.

Test cross-section random effects			
Variable	Fixed	Random	Var (Diff.)	Prob
BFGDIRV	0.032465	0.081219	0.014421	0.6848
LOG_TOT_ASSET	-6.213829	2.964504	0.000055	0.0102
LEV	-0.053452	-0.029418	12.762601	0.0012

Cross-section random effect test equation			
Dependent variable: ROA			
Method: Panel Least Square			
Variable	Coefficient	Std error	t-stat	Prob
C	44.48744	25.56536	1.740145	0.0863
BFGDIRV	0.032465	0.148538	0.218563	0.8276
LOG_TOT_ASSET	-6.213829	3.720274	-1.670261	0.0994
LEV	-0.053452	0.023928	-2.233895	0.0287

Effect Specification			
Cross-section fixed (dummy variables)			
R-Squared	0.381901	Mean dependent Var.	0.862750
Adjusted R-squared	0.292321	SD dependent Var	8.850340
S.E of regression	7.445229	Akaike info criterion	6.980104
Sum of squared resid.	3824.769	Schwarz Criterion	7.307633
Log_ likelihood	-268.2042	Hannan-Quinn Criterion	7.111420
F-statistic	4.263255	Durbin-Watson stat	2.187316
Prob. (F-statistic)	0.000124		

Source: authors compilation (2024)

is insufficient to maximize firms' profitability significantly. This conclusion is consistent with the works of Aladejebi (2021), Saleh and Islam (2020), Provasi and Harasheh (2020), Khan et al. (2023), Ozordi et al. (2020), who opined the existence of an insignificant connection between the variables.

Control variables of log total assets and lev both show negative though inconsequential log of total asset, which is consequential for lev concerning profitability (ROA) of the selected firm category. This is reinforced by the t-statistics quotient of −1.67, −2.23, and a P = 0.099 and 0.0287 for both the log of assets and LEV, respectively. This implies that the capital intensity connoted by the log of assets has an adversely insignificant effect on the profitability of troubled firms. Moreover, the debt-to-equity ratio (LEV) contributes significantly negatively to the profitability of the firm's categories. This is more so considering that they are already in financial distress. Additional debts are likely to add further negative weight to their profitability.

5. CONCLUSION

This research work carried out an in-depth exploration of the weighty consequences of incorporating the female gender on the board of troubled firms in Nigeria. The outcome shows that BFGD has contributed insignificantly to the profitability of the troubled manufacturing firms selected. Despite the inconsequential connection, this paper recommends increasing diversity across troubled firms' boards, especially as it relates to gender inclusivity, as it would, to a certain extent, affect the ROA of troubled firms.

There is scanty literature on the subject matter, particularly on troubled firms within the Nigerian context. This study, therefore, bridges this identified gap by providing insight into the relevance of diversity, particularly female gender, to enhancing profitability, most especially in facilitating the recovery of troubled firms, thereby preventing their eventual collapse and associated attendant negative consequences. The limitation attached to this study lies in its entire focus on troubled firms in the Nigerian Exchange Group (NGX). Hence, it does not include nor consider firms outside the floor of the NGX, thus limiting the extent of generalizing the findings. However, delisted distressed firms can be examined by future researchers to provide a more robust outlook.

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