GREEN ACCOUNTING PRACTICES, FIRM SIZE AND BUSINESS SUSTAINABILITY OF LISTED FIRMS IN NIGERIA

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Abstract
High profile corporate failures have necessitated examining the sustainability of businesses. Studies have shown that reporting practices de-emphasizes the safety, waste management, environmental protection, pollution prevention and green restoration practice of organizations with their environment which to a large extent influence their sustainability. Studies exist on the effect of Green Accounting Practices (GAP) on short term financial performance but with little attention to business sustainability. Hence, this study examined the effect of GAP on business sustainability (Leverage (LEV)) of listed manufacturing firms in Nigeria. Ex-post-facto research design was adopted for this study with population of 56 manufacturing companies listed in Nigeria. Purposive sampling technique was adopted to select a sample size of 37 based on the criterion that they have consistently published green reports within the period of 11 years (2010–2020). Data were analyzed using descriptive and inferential statistics. Findings revealed that GAP exerted significant effect on LEV (Adj.R^2 = 0.028, F(5, 401) = 11.450, p < 0.05) of listed manufacturing firms in Nigeria and firm size significantly moderated this effect (Adj.R^2 = 0.061, F(6, 401) =12.940, p < 0.05). The study concluded that GAP affected business sustainability of listed manufacturing firms in Nigeria and firm size moderated this effect. It was recommended that firms should adopt global best practices in accounting for green activities as they have a long-term effect on business sustainability.

Keywords: Business sustainability, Firm size, Green accounting practices, Green restoration practices, Waste management practices

1.0 Introduction

In contemporary times, an organization is sustainable in the long term when it not only maximizes the value of the firm for the benefit of shareholders but maximizes the value of the firm for all stakeholders. According to Nireshi and Silva (2018), an organization is kept viable and sustainable in the long run when the value of all stakeholders is maximized. KPMG (1999), in its survey on corporate social responsibility reporting (then sustainability reporting), discovered that at the time, only about 35% of world's largest companies reported on sustainability. By 2011, this had increased to 95% (KPMG, 2011). Unlike before, when green accounting practice was done by some specific industries like oil and gas, mining, banking etc., green accounting has now been practiced by virtually all industries at varying levels.

Green sensitivity, or an individual's capacity to receive and absorb information about their environment, is becoming more and more of a focus of the movement for sustainable development practices (the capacity to anticipate the future from events in the present) (Ezeagba, John-Akamelu & Umeoduagu, 2017). Since the immediate environment has an impact on business operations, environmental information at the corporate level must be collected in a way that allows the impact on those operations

to be assessed (Oraka & Egbunike, 2016). There is a chance that environmental influences will occasionally have a detrimental impact on an organization. Due to this understanding, businesses now recognize their obligations to the community and the environment in which they operate (Adediran & Alade, 2013). Even though accounting practice has had an impact on various disclosures, Adegbie, Ogidan, Siyanbola, and Adebayo (2020) claim that investors' decisions have not been influenced by qualitative or quantitative environmental factors because environmental accounting practices have not been implemented in business. Instead, companies now freely engage in social and environmental disclosure policies. According to Elkington (2004), green accounting procedures entail integrating and accounting for an organization's economic, social, and environmental disclosure or performance initiatives and including them in the corporate report. More recently, focus has also been on the commitment of the management to stable and sustainable practices and the extent of the responsibility of the management towards their environment at all levels (Aggarwal, 2013).

According to Johari and Komathy (2019), some of the most important justifications for using green accounting techniques include measuring a firm's performance, enhancing financial outcomes, and informing stakeholders of the company's continued viability. Several initiatives have been put in place to support the practice of accounting in order to ensure business sustainability such as the introduction of sustainability reports and, more recently, the Global Reporting Initiative (GRI, 2019), which is widely used and is the most acceptable measure of sustainability. The improvement in organizations' commitment to maintaining consistency in the disclosure of economic, social, and environmental problems, despite limitations, is at the heart of the GRI's introduction (Willis, Campagnoni & Gee, 2015). Green practices have been the subject of numerous research, and the G4 has been used to measure these practices.

According to Uwaloma et al. (2018), no business organization exists alone without a rapport with its immediate environment. Environmental happenings in recent times, such as global warming has proved that the day-to-day activities of business organizations can have an adverse effect on the environment and therefore, the need for sustainable objectives far beyond the mere maximization of shareholder's wealth. These recent happenings are pointers to the fact that all over the world, the relevance of the inclusion of sustainable reports in the practice of green accounting cannot be overemphasized in corporate strategy to have a competitive advantage (Nnamani, Onyekwelu &Ugwu, 2017). As no business organization can exist without its environment, emissions, waste, unfair treatment of employees etc. must be eliminated to the barest minimum for survival. Disclosure on waste management, safety related practices, green restoration, environmental protection, and pollution prevention practices (GRI, 2021) is therefore vital to the sustainability of manufacturing firms.

Some studies on green accounting practices and the effect it has on several proxies of performance have been conducted globally in the past. However, findings show a lack of consistent evidence. Results of previous studies are mostly inconsistent as some authors have reported negative, positive or no relationship between green accounting practices and proxies of performance, so there are no clear motivations for firms to appreciate environmental reporting. For example, Ezeagba, John-Akamelu, and Umeoduagu (2017), Yahya (2018), Sanusi and Sanusi (2019), Menike (2020), Olowokere, Adeniran and Onifade (2021) and Al-Naser, Riyadh and Albalaki (2021) reported a positive and significant effect, Nor, Bahari, Adnan, Kamal and Ali (2016), Nobanee and Ellili (2018) and Akor and Okey (2021) showed no significant effect and Omodero and Ihendinihu, (2016) reported a negative impact. These mixed findings show that there is no uniform conclusion on the subject matter, which serves as a basis for this study to be undertaken.

Furthermore, Baregheh, Rowley and Hemsworth (2016) opined that there are some features in every organization that determines business sustainability and performance and one of such is firm size. In the case of large organizations like manufacturing firms that are usually subjected to scrutiny by stakeholders, it is important to consider how firm size moderates the effect of green accounting practices on business sustainability of quoted manufacturing firms and in this case, examining firm size from the standpoint of logarithm of total asset.

Therefore, the main objective of this study is to determine the effect of Green Accounting Practices on the sustainability of quoted Nigerian firms while moderating with firm size. The specific objectives are to:

1. Assess the effect of Green Accounting Practices on Leverage of quoted firms and
2. Examine the moderating effect of Firm Size on the effect of Green Accounting Practices on Leverage of quoted firms.

The following research questions were answered in this study:

1. What is the effect of Green Accounting Practices on Leverage of companies listed on the Nigerian Stock Exchange?
2. To what extent does Firm Size moderate the effect of Green Accounting Practices on Leverage of companies listed on the Nigerian Stock Exchange?

2.0 Literature Review

2.1 Concept Review

Business Sustainability

According to Hernadi (2012), several factors determine the economic sustainability of businesses such as its ability to uphold the continuity principle, experiences no long-term liquidity issues and generates additional earnings on top of the owners' profit expectation (return requirement) in addition to covering fixed costs. This coupled with intangible assets (knowledge, reputation, and corporate culture) that support financial capital must be incorporated into the model for the organization to have long-term viability (Kaldschmidt, 2011). Economic factors like boosting shareholders' value, boosting product profitability, or cutting costs are the core drivers of the operation of traditional for-profit companies. In other words, it is necessary to maximize economic gains while also considering the fundamentals of sustainable development (Nwaobia, Odunlade & Adeleye, 2022).

Leverage

Leverage, which is a measure of risk, is mostly caused by the usage of debt. Variations in the return on equity serve as indicators of financial leverage, which typically takes the form of a debt. The total leverage of a firm is given by a firm's utilization of both fixed operational expenditures and debt costs. This suggests that business risk plus financial risk make up a firm's total risk. Brealey, Myers, and Allen (2008) claim that financial leverage can increase earnings per share (EPS) in a good economy but can also decrease EPS in a bad economy. When earnings before interest and taxes (EBIT) are negative, the negative impact of financial leverage on EPS is worse with greater debt in the capital structure. Like this, a company's financial leverage can both boost shareholders' returns and their risk.

Scholars are interested in sustainability because of its role in the survival of businesses cannot be overemphasized. The existing interest of scholars in sustainability and the possibility of business survival cannot be overemphasized. Researchers such as Bitok, Cheboi and Kemboi (2019) have also claimed that one of the ways by which an institution can grow bigger and be more stable is through their ability to be financially sustainable. These brings to bear the importance of leverage. Furthermore, Berger and Di Patti (2006) opined that financial leverage and financial sustainability are closely related. It is on this premise that it is believed that the extent of leverage of a company is the same as its ability to remain sustainable and relevant in the future.

Financial leverage has been found to react positively and significantly to carbon emission innovations, an aspect of green accounting practices and due to the reciprocal cause and effect, leverage could lead to economic and financial instability (Zhao, Yang & Li, 2020). A company needs capital to run its business and one of the ways this capital can be raised is by issuing debt securities and engaging in the sales of common stock. Therefore, financial leverage is defined as the extent to which a company's financial

structure consist of fixed income securities and preferred stock (Adkins, 2021). The value of financial leverage is realized and its ability to guarantee the sustainability of a firm is confirmed when the assets that are purchased with debt capital earn more than the cost of debt itself.

Because of the importance of financial leverage to sustainable businesses, it is therefore important to research into factors that can affect the leverage of manufacturing firms in Nigeria.

Green Accounting Practices

Green accounting also referred to as environmental accounting is a system of practices that aims at achieving sustainable development, maintaining a favorable relationship with the community and pursuing effective and efficient environmental conservation activities. The interest towards the green practices has increased during the past decade and more and more environmental practices are now being discussed under this domain and the people across the world have increased awareness of green accounting practices.

Green accounting practices has been considered from several angles such as disclosure practices, cost incurred and the environmental accounting checklist. Makori and Jagongo (2013) opined that green accounting practices involves the disclosure of the cost emanating from the effect of production on the environment and the costs incurred in bridging the gap between social and private cost in the annual report and accounts of the firm. Researchers have advised that to increase the corporate responsiveness of firms and in the determination of performance, green costs should be disclosed in financial statement at the end of the period (Jeroh & Okoro, 2016).

Green accounting practices may positively or negatively affect the sustainability of businesses. Some studies such as Melnyk et al (2003) and Zhu and Sarkis (2004) empirically proved that green practices have a positive impact on businesses while, others (Wagner et al., 2002; Hamilton, 1995; Gilley et al., 2000) found a negative relationship between green practices and business sustainability. Therefore, there is a valid reason to investigate the effect and impact of green accounting practices on business sustainability while measuring business sustainability with leverage.

Therefore, for the purpose of this study, green accounting was measured with safety related practices' disclosure, waste management practices' disclosure, environmental protection practices' disclosure, pollution prevention practices' disclosure, green restoration practices' disclosure as discussed in this paper.

Firm Size

Several researchers have defined firm size from the perspective of the log of total number of assets, total number of employees, net sales, number of employees, market capitalization and others. Baregheh, Rowley and Hemsworth (2016) opined that, there are some features in every organization that determines business health and in more specific terms, performance and one of such is firm size. Furthermore, in the consideration of firm boundaries and what determines the boundary of an organization, Dang, Li and Yang (2018) opined that firm size has been considered a major determinant. According to the review of extant literature, the most used measures of firm size are total asset, total sales and market value of equity (Ogunwale, 2022). In the case of large organizations like manufacturing firms that are usually subjected to scrutiny by stakeholders, it is important to consider how firm size moderates the effect of green accounting practices on business health of listed manufacturing firms and in this case, examining firm size from the standpoint of logarithm of total asset of the firms under consideration.

2.2 Theoretical Review

Stewardship Theory

The tenets and assumptions of stewardship theory was brought forth from the criticisms and limitations of the agency theory and stakeholder theory. The establishment of this theory is widely accredited to Davis, Schoorman and Donaldson (1997). They defined stewardship theory as the process where stewards protect and maximize shareholders wealth through improved firm's performance, because by doing so, the stewards believed, that his utility function is maximized, and the business entity is stable and sustainable. According to Nnamani, Onyekwelu and Ugwu (2017), this theory highlights the good, reasonable, unselfish part of human beings. In stewardship theory, stewards' interests do not clash with that of the owners or the organization. Instead, their interest is to ensure that the organization meet the objectives of expectations of the stakeholders. Thus, they should be given the freedom and opportunity to head organizations. In essence, the green practices that would be undertaken by a firm can be entrusted to the stewards of the firm, as they would implement such practices that would improve the sustainability of the firm. Stewardship theory highlights the fact that there are good agents and managers who can work to ensure that the objectives of the organization are met, and their business health, improved on.

This theory is relevant to the study in that it accepts the fact that green activities when entrusted into the hands of good stewards would improve the sustainability of a firm. Also, the assumption of the theory concerning CEO duality is much relevant to the study because it is used by a lot of firms to improve their business sustainability. This theory places emphasis on the fact that it is possible to have good stewards who can align the objectives of the organization and the interests of shareholders, which ultimately

improves their business sustainability. In essence, there is a link between green practices and the business sustainability of a firm based on the stewards to which these functions are entrusted to.

2.3 Empirical Review

Green Accounting Practices and Leverage

With data from 231 manufacturing companies, Hurdle (1974) examined the relationship between leverage, risk, market share, and profitability. He found that firms with a high market share and relatively low risk (measured by the standard deviation of annual profits) prefer lower debt in their capital structures because their attention is skewed toward stable profits. Here, the findings unequivocally demonstrate that increased company performance is not always a result of the usage of financial leverage. It is possible to perform better without using too much loan capital.

Ebaid (2009) studied data from companies ranging from year 1997-2005 to analyze the relationship between financial leverage and corporate performance in the Egyptian context and it was concluded that the influence of financial leverage differs across different financial performance proxies. Salim and Yadav (2012) examined the connection between capital structure and company performance for 237 listed Malaysian Firms. When performance was measured using Return on Assets (ROA) and Return on Equity (ROE), it was discovered that there was a negative relationship between financial leverage and performance. However, when performance was measured using Tobin's Q, there was a positive relationship. In the study of Enerson and Adegbie (2021) on environmental accounting practices and environmental capacity for sustainable development, ex-post facto research design was employed, and five manufacturing firms were purposively selected. Findings revealed a significant and positive relationship between economic sustainability, environmental disclosures, and performance. The study concludes that environmental disclosures significantly affect the sustainability of manufacturing firms and in the long run their going concern.

Dike and Leyira (2018) collected data from 34 companies who had been reporting on environmentally related activities so as to find out the relationship between environmental accounting practices and sustainable development in Nigeria and recommended that stakeholders should request management to produce goods at lower prices and at the same time not have a negative effect on the environment and that, focus should be on enhancing sustainable development through the reduction of environmental impact. Ogbonna, Onuoha, Igwe and Ojeaburu (2020) concluded that during the period of the study, environmental accounting has not fully influenced sustainability development in Nigeria.

Green Accounting Practices, Firm Size and Leverage

Antara, Putri, Ratnadi and Wirawati (2020) opined that larger firms produce more green disclosures and better disclosures compared to smaller firms and in the long run, the sustainability of such firms is guaranteed because larger firms have also been confirmed to perform better than smaller ones. This is in line with the findings of Ali, Mustafa, and Mohamad (2009) who equally concluded that firm size is a significant factor in explaining green disclosures on the internet. The practice of green accounting has also been said to raise awareness for the concerns that has to do with sustainability, formulation of policies and evaluation (Rounaghi, 2019). This is also in line with the findings of Alareeni and Hamdan (2020) that ESG disclosures is higher and better achieved with firms with higher assets and going forward, firm size affects the effect that green disclosures have on financial leverage. Furthermore, in the study conducted on the effects of environmental disclosures on the market value of 84 Nigerian listed firms between 2011and 2016 revealed that firm size adequately moderates the effect of environmental disclosures on the value of firm which is a pointer to the ability of the firm to remain sustainable (Okpala & Iredele, 2019). These studies are a pointer to the fact that firm size adequately moderates the effect of green disclosures on the leverage of listed firms which is evidence that a firm can be sustainable and remain a going-concern.

3.0 Methodology

The research design used for this study was the *ex-post facto*. The population of the study consists of the 56 companies quoted as manufacturing companies in the Nigerian Stock Exchange. 37 out of the 56 companies were purposively chosen as the sample size. These companies were purposively chosen because they have been in operation throughout the period of study and that they have consistently reported on their green activities. The period of study is eleven years spanning 2010-2020. It is important to examine this trend to arrive at an accurate finding on the green reporting practices of the firms. With the eleven years period of observing 37 companies, this makes up a total of 407 observations. Content analysis of the financial statement was used to gather information about the green reporting practices of the sampled firms while the EPS value was gotten from the financial statement. The multiple regression technique would be used to analyze data and arrive at a decision on whether to accept or reject the hypothesis. It is expected that when p value is less than the chosen 5% which is 0.05 significant level, there is a significant effect of the independent variable on the dependent variable.

Method of Data Analysis and Model Specification

$$LEV_{it} = ß_0 + ß_1 SRPD_{it} + ß_2 WMPD_{it} + ß_3 EPPD_{it} + ß_4 PPPD_{it} + ß_5 GRPD + {}_{it}€_{it}$$

$$LEV_{it} = ß_0 + ß_1 SRPD_{it} + ß_2 WMPD_{it} + ß_3 EPPD_{it} + ß_4 PPPD_{it} + ß_5 GRPD + ß_6 FS + {}_{it}€_{it}$$

Where dependent Variables (BH) are:

LEV = Leverage

Independent Variables are Green Accounting Practices (GAP):

SRPD = Safety Related Practices' Disclosure; WMPD = Waste Management Practices' Disclosure; EPPD = Environmental Protection Practices' Disclosure; PPPD = Pollution Prevention Practices' Disclosure; GRPD = Green Restoration Practices' Disclosure

Moderating Variable

FS = Firm Size

The intercept of the variables are:

$ß_0$ = Regression Intercept which is constant; $ß_1$ = Coefficients of explanatory variables

The error term is $€_{it;}$ The panel data will consist of; $_i$ = cross sectional variables; $_t$ = time series variable; Reject H_0 and accept H_1 if $p<0.05$; Accept H_0 and reject H_1 if $p>=0.05$

Therefore, the a-priori expectation of the study is that H_01 to H_06: $\beta = 0$. Alternately stated as H_01 to H_06: $\beta > 0$ = positive. It is therefore expected that the regression coefficients of all the explanatory variables will be statistically significant and positive.

4.0 Results and Discussion

Descriptive Statistics

Table 1: Descriptive Statistics of the Variables

Variable	Mean	Std. Dev	Min	Max
LEV	59.89	25.17	4.28	224.11
SRPD	0.57	0.22	0	1
WMPD	0.18	0.38	0	1
EPPD	0.05	0.16	0	1
PPPD	0.09	0.28	0	1
GRPD	0.05	0.22	0	1
FS	7.18	0.91	5.23	9.31

Source: Researcher's Computation (2022)

***Source: Data Analysis, 2022. Where LEV** is Leverage, **SRPD is** Safety Related Practices Disclosure, **WMPD is** Waste Management Practices Disclosure, **EPPD is** Environmental Protection Practices Disclosure, **PPPD is** Pollution Prevention Practices Disclosure, **GRPD is** Green Restoration Practices Disclosure.*

Interpretation

From the descriptive analysis table 1, maximum and minimum values for leverage were 224.11 and 4.28 respectively. While the mean and standard deviation stood at 59.89 and 25.17 respectively. The standard deviation valued at 25.17 shows a moderate dispersion from the series mean of the companies listed on the Nigerian Stock Exchange indicating moderate level of the leverage level.

Safety related practices disclosure (SRPD) on the other hand had a mean value of SRPD is at 0.57, with minimum and maximum values of 0 and 1 respectively and a standard deviation of 0.22. The standard

deviation score indicates an averagely low level from the series mean. On the other hand, the mean score of 0.57 indicates a moderate disclosure level of safety related practices as measured in this study. The mean score implies that on the average, manufacturing firms reported 57% of the relevant safety disclosure items in their financial statements. Also, the range of values of 0 and 1 shows the level of disclosure ranging from no disclosure at all (0) to a high level of disclosure (1).

Waste management disclosure practices (WMPD) had a mean of 0.18 with minimum and maximum values of 0 and 1 respectively. The standard deviation (0.38) shows a wide dispersion from the series mean. For environmental protection practices disclosure (EPPD), its mean value stands at 0.05, with minimum and maximum values of 0 and 1 respectively. The standard deviation (0.16) shows a wide dispersion from the series mean. Furthermore, the mean value of PPPD is 0.09, with minimum and maximum values of 0 and 1 respectively. Its standard deviation of 0.28 shows a wide dispersion from the series mean. Finally, the GRPD mean value is 0.05, with minimum and maximum values of 0 and 1 respectively. Its standard deviation of 0.22 shows a wide dispersion from the series mean.

Test of Hypotheses One and Two

H_{01}: Green Accounting Practices has no significant effect on the Leverage of companies listed on the Nigerian Stock Exchange

H_{02}: The moderating effect of Firm Size on Green Accounting Practice has no significant effect on the Leverage of companies listed on the Nigerian Stock Exchange.

Table 2: Test of Hypotheses One and Two

	Model one				**Model two**				**Difference**	
Dependent variable: LEV	**Random-effects GLS regression with Robust standard errors**				**Random-effects GLS regression with Robust standard errors**				**Coeff.**	**Prob**
Variable	**Coeff.**	**Std. err**	**T-stat**	**Prob.**	**Coeff.**	**Std.**	**T-stat**	**Prob.**		
Constant	57.25	7.23	7.92	0.000	101.50	29.57	3.43	0.001		
SRPD	6.48	11.61	0.56	0.577	12.00	13.05	0.92	0.358	+/+. Inc	Insig/Insig
WMPD	-3.97	3.73	-1.06	0.288	-3.79	3.72	-1.02	0.309	-/-. Dec.	Insig/Insig
EPPD	-26.32	8.78	-3.00	0.003	-30.25	9.72	-3.11	0.002	-/-. Inc.	Sig/Sig
PPPD	9.52	5.22	1.82	0.068	13.86	6.09	2.27	0.023	+/+. Inc.	Insig/Sig
GRPD	1.46	3.74	0.39	0.696	1.47	3.68	0.40	0.689	+/+. Inc.	Insig/Insig
FS					-6.64	4.05	-1.64	0.101		
Adj. R^2	0.028				0.0613					
F-Stat/Wald	$chi^2_{(5)}$ = 11.45 (0.04)				$chi^2_{(6)}$ = 12.94 (0.04)					
Hausman Test	$chi^2_{(5)}$ = 5.58 (0.35)				$chi^2_{(6)}$ = 5.77 (0.45)					
Testparm	$chi^2_{(1)}$ = 115.01 (0.00)				$chi^2_{(1)}$ = 98.56 (0.00)					
Heteroskedastic	$chi^2_{(1)}$ = 8.40 (0.00)				$chi^2_{(1)}$ = 70.98 (0.00)					
Serial	$F_{(1, 36)}$ = 0.901 (0.35)				$F_{(1, 36)}$ = 0.99 (0.33)					
Cross-Sect.	0.663 (0.51)				1.46 (0.14)					

Source: Researcher's Computation (2022)

Interpretation

The Hausman test is used to determine the appropriate model for examining this hypothesis between the fixed effect and random effect. The Hausman test was not significant at 5% level of significance, indicating that the Random effect model (RE) is the appropriate and suitable model for this test. To further ascertain the superiority of our choice, the random effect is further examined with the pooled LS (PLS) using the Breusech-Pagan LM test, whose probability value was 0.00, thereby affirming the support for the RE choice of test. From the above assertions, model one will be empirically tested using the random effect model.

Furthermore, the estimated model suffered from heteroscedasticity as indicated by the significant probability value of the chi-square of 0.000 which is lesser than the 5% threshold for this study, indicating that the residuals of the estimated random effect for this model is suffering from variance spread. Meanwhile, the estimated random effect is not suffering from serial correlation, as the probability value of the serial correlation test of 0.35 is above the 0.05 threshold assigned for this study, hence we categorically state that the study's residuals do not have serial correlation.

Model One

LEV = ß$_0$ + ß$_1$ SRPD $_{it}$ + ß$_2$ WMPD $_{it}$ + ß$_3$ EPPD $_{it}$ + ß$_4$ PPPD $_{it}$ + ß$_5$ GRPD + $_{it}$ € $_{it}$ .... Model 1

$$LEV_{i,t} = 57.25 + 6.48SRPD_{i,t} - 3.97WMPD_{i,t} - 26.32EPPD_{i,t} + 9.52PPPD_{i,t} + 1.46GRPD_{i,t} + \varepsilon$$

LEV = ß$_0$ + ß$_1$ SRPD $_{it}$ + ß$_2$ WMPD $_{it}$ + ß$_3$ EPPD $_{it}$ + ß$_4$ PPPD $_{it}$ + ß$_5$ GRPD +ß$_6$ FS $_{it}$ + € $_{it}$ .... Model 2

LEV = 101.50 + 12.00SRPD $_{it}$ -3.79WMPD $_{it}$ -30.25EPPD $_{it}$ + 13.86PPPD $_{it}$ + 1.47GRPD $_{it}$ -6.64FS $_{it}$ + € $_{it}$

The regression equations one and two were estimated using the probability of T-test and the sign and values of the coefficients of each of the measures of green accounting indicating the significance of the effect, the direction, and the magnitude of the effect. The equation one of the studies examined the effect of green accounting, measured as Safety Related Practices Disclosure (SRPD), Waste Management Practices Disclosure (WMPD), Environmental Protection Practices Disclosure (EPPD), Pollution Prevention Practices Disclosure (PPPD), and Green Restoration Practices Disclosure (GRPD) leverage (LEV), while equation two was formulated by introducing firm size to equation one. The probabilities of the t-test revealed that the explanatory variables behave in same manner in the two models. SRPD having probabilities of 0.577 and 0.358 exerting non-significant effect on LEV; likewise, WMPD with probabilities of 0.288 and 0.309 exerted non-significant effect on LEV. Contrarily, EPPD having probabilities of 0.003 and 0.002 exerted significant effect on LEV; PPPD with probabilities of 0.068 and 0.023 exerting significant effect on LEV on model 2 after the introduction of FS; and GRPD with

probabilities of 0.696 and 0.689 have a non-significant effect on LEV. The firm size introduced in Model two has probability value of 0.101 which implies that firm size has non-significant effect on leverage.

Based on the coefficients of the explanatory variables, SRPD positively affects LEV before and after the inclusion of firm size, that is models one and two (6.48 and 12.00), this means that the more the SRPD disclosed, the LEV would improve by 6.48 and 12.00 in thousands respectively. WMPD and EPPD has coefficients of -3.97 and -3.79; -26.32 and -30.25 respectively indicating that an increase in the volume of WMPD and EPPD disclosed would lead to thousands' decrease in LEV by 3.97 and 3.79; 26.32 and 30.25. Similarly, GRPD with almost similar coefficients of 1.46 and -1.47 in both models; this means that GRPD has positive effect on LEV, and it implies that an increase in the volume of GRPD disclosed, there would be thousands increase in LEV by 1.46 and 1.47 respectively. PPPD has a coefficient of 9.52 and 13.86 which implies that an increase in the volume of PPPD disclosed would lead to a thousand increase in LEV by 9.52 and 13.86. The coefficient of firm size being negative, -6.64 implies that larger firms are less productive than smaller ones as firm size increases, LEV would decrease by 6.64 thousand.

The coefficient of determination explains the combined effect of all the measures of explanatory variables, on dependent variable. For model one, the value of the R^2 of 0.028 measuring the magnitude of the joint effect reveals that joint variation in the explanatory variables would lead to 2.8% changes in LEV while the remaining changes in LEV of 97.2% could be resulted from other factors beyond the scope of model. Also, the value of F-statistics of 11.45 with probability value of 0.04 implies that the joint effect of all the five explanatory variables on LEV is significant; this means that green accounting practices significantly affect the LEV of listed manufacturing companies in Nigeria.

Decisions

Based on the value of the F-Stat of 11.45, and having five independent variables in the model; with probability of F-Stat of 0.00, that is 0 percent, which is less than the 5% chosen significant level, this study rejected the null hypothesis which states that "Green Accounting Practices has non- significant effect on leverage of companies listed on the Nigerian Stock Exchange" while the alternate hypothesis which states that "Green Accounting Practices has significant effect on leverage of companies listed on the Nigerian Stock Exchange" was accepted.

Similar results were obtained after the inclusion of firm size into the model which led to the formulation of model two, however, the inclusion of FS enhances the strength of effect of SRPD, PPPD and GRPD, reduced the magnitude of the effect of WMPD and EPPD remains the same both before and after the inclusion of firm size. The firm size also has non-significant negative effect on LEV. The overall result

showed that firm size significantly controls the effect of green accounting disclosures on LEV. This reflects in the changes in the reported overall R-squared before and after the introduction of the control variable. Prior to the inclusion of FS in the model, the overall R-squared was 0.028 but result of the after-effect gave overall R-squared of 0.0613, resulting to increase of 0.0333, that is an additional 3.33% increase variation in LEV due to the inclusion of FS into the model.

5.0 Discussion of Findings

The objective of this study was to examine the effect of Green Accounting Practice on the leverage of companies listed on the Nigerian Exchange. The result of the empirical analysis revealed that green accounting practice as well as firm size explains business sustainability of manufacturing firms measured by leverage. Specifically, the independent variables jointly explained the improvement in leverage of the sampled companies. The results showed that some of the explanatory variables (SRPD, PPPD and GRPD) significantly influenced leverage. On the other hand, WMPD and EPPD had negative coefficients. The results of the study were in tandem with the results of Hurdle (1974) which also reveal that the practice of green accounting exerted positively on the financial leverage of the companies.

The results of the study also align with the findings of Ebaid (2009) who also found similar results. The reasons for this can be attributed to the appropriate disclosures of these practices in the companies which has significantly improved their leverage over the years. Other factors can be adduced to the fact that these companies operate in a conducive environment, and it can be said that Government policies were favorable to the carrying out of their operations. Findings also reveal that the introduction of firm size to the model to moderate the explanatory variables was also found to be insignificant though the coefficient of variables increased which shows that firm size played an insignificant moderating role to the improvement of leverage of the sampled firms which agreed with the results and findings of Salim and Yadav (2012). The reasons could be that in these set of companies, firm size was not an important factor to the improvement of leverage and regardless of their firm size either large or small was not very important.

Furthermore, findings revealed that disclosure on environmental protection practices and pollution prevention practices significantly affect the leverage of listed manufacturing firms. However, for safety related practices, waste management practices and green restoration practices showed a non-significant effect of disclosure practices on leverage of listed firms. Also, an increase in the disclosure of safety related practices, green restoration practices and pollution prevention practices will lead to an increase in leverage of listed firms in Nigeria. Whereas, for firm size, waste management practices' disclosure and

environmental protection practices' disclosure, an increase in their disclosure practices will lead to a decrease in leverage.

These discoveries show that the disclosure of waste management practices (such as effluent reduction, reparation, and avoidance efforts) and environmental protection practices (such as environmental impact, product and services and biodiversity to their stakeholders) has little to no effect on the leverage of companies. The knowledge of existence of recycling firms, separation of waste and disposal of waste from recycling site, initiatives to increase separate collection of hazardous wastes, declaration of waste for disposal in landfills in a company calls for more investment opportunities, thereby enhance the equity level of the firms. This outcome corroborates with the findings of Ebaid (2009) that a positive relationship exists between waste management practices disclosure and firm's stability. These findings are in line with the result of the regression studies carried out by Ezekwesili and Ezejiofor (2022) on waste management, leverage, and firm size of Nigerian listed conglomerate companies. Findings revealed that there is a non-significant influence of leverage and firm size on waste management and that leverage, and firm size insignificantly influenced the environmental performance of firms of the sector under study. The estimation results further revealed that environmental protection practices disclosure has a negative effect on leverage. This outcome upheld the findings of Nguyen and Tran (2019) and Idamoyibo (2021). Findings gathered from their study revealed that there is no significant relationship between environmental accounting and ROA.

Also, this discovery is a pointer to the fact that waste management practices disclosure has no potency to significantly influence leverage of firms listed on the Nigerian stock exchange. It is negative probably because avoidance or ineffective waste reduction or waste avoidance tend to maximize cost in the organization, thereby resulting in low performance and sustainability. Empirically, this outcome affirmed the findings of Egbunike and Okoro (2018), Odo, Igberi and Anoke (2016). They reported a negative impact of green accounting component on business health of firms. Disclosure on safety practices and green restoration practices also affects leverage and in the long run sustainability of firms in a non-significant manner. Findings from our study apparently support the argument that firms with high leverage also environmentally conscious and therefore do not incur much expense on waste management and this is in line with the findings of Kiswanto, Woro and Ulupui (2020) and Lamidi, Adesola and Tariro (2020).

6.0 Conclusions and Recommendations

Empirical findings of the study revealed that for leverage, safety related practices, pollution prevention practices, and green restoration practices all have a significant effect on the leverage of the firm which is

a measure of the firm's sustainability. On the other hand, waste management and environmental practices have non-significant influence on business sustainability measured by leverage. It is therefore recommended that firms should exert more effort in the disclosure of these practices to boost the confidence of stakeholders in the fact that the firm is sustainable and worth investing in. Furthermore, policy makers should make policies that will make these green accounting practices disclosure mandatory for manufacturing companies in Nigeria. Also, management of firms should ensure that there is adequate disclosure of green accounting practices of the firm coupled with the maintenance of firm size, through the adequate use of its asset to bring about business sustainability.

For further research, other measures of business sustainability can be considered. Also, the variables used to measure business sustainability can be further increased to arrive at more robust results and findings. Furthermore, future researchers may consider other sectors of the economy not captured in this study.

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