The Moderating Effect of Profitability on the Relationship between Sustainability Reporting and Value of Environmentally Sensitive Firms in Nigeria

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Abstract

This study examined the moderating effect of profitability on the relationship between sustainability reporting and firm value. The dataset encompasses 60 environmentally sensitive companies listed on the Nigerian Exchange Group (NGX), the study employed census sampling technique utilizing panel data over a five-year span from 2018 to 2022, the data were analyzed using multiple regression analyses with help of STATA software version 14. The results revealed that sustainability reporting has a positive and significant effect on firm value. Conversely, profitability shows a positive and significant effect on firm value. Also, the result revealed that profitability has positive and significant moderating effect on the relationship between sustainability reporting and the value of environmentally sensitive firms in Nigeria. The study concludes that high level of profitability tends to strengthen the relationship between sustainability reporting and value of listed environmentally sensitive firms in Nigeria. The study recommends that, listed environmentally sensitive firms in Nigeria should improve their sustainability reporting compliance and prioritize it relevance and quality, aligning it with stakeholder interest, integrating it into core business strategy, and implementing continuous monitoring and feedback mechanisms. Although, initial gains might be limited, there is a possibility of long-term benefits.

Keywords: *Environmentally Sensitive Firms; Firm value; Profitability; Sustainability reporting; Tobin's Q.*

Introduction

In order to survive in a complex business environment, the management of the firm must organize its resources to achieve corporate goals by raising the company's value, which is the primary goal of every company's existence. Nowadays, as a result of global expansion and the emergence of numerous businesses, the level of competition is becoming more intense; therefore, managers must support themselves with tactics and innovative ideas in order to compete with other businesses, sustain business operations and increase the firm's worth. Although the global market's rivalry for and consumption of scarce resources places enormous challenges on business managers' efforts to maximize shareholder wealth.

The valuation of a firm can also be impacted by a number of factors, such as profitability, market dynamics, company-specific factors, and macroeconomic conditions. Furthermore, there is an increased understanding of the significance of sustainability performance and many investors and customers are focusing to businesses that show a commitment to decreasing social and environmental issues and promoting sustainability since it has the potential to generate value.

Though, organizations pay little attention, relating to sustainability issues, particularly in emerging nations (Hongming, Ahmed, Hussain, Rehman, Ullah & Khan, 2020). Since they are anxious about the legality of corporations' participation in social and environmental issues, as well as the risk of misappropriating and misallocating business resources (Jensen, 2011 and Margolis & Walsh, 2013). It's crucial to remember that profitability is a critical component for businesses because it is one of the primary reasons for their existence.

Companies are now regularly assessed on the basis of their sustainability stewardship in addition to their ability to earn profit in the growing global economy, where the Internet, news media, and information revolution have thrown light on business activities throughout the world. Past research works have shown that sustainability reporting and profitability affects firm value (e.g. Machmuddah, Sari & Utomo, 2020; Indriawati, Nurlis & Yanti, 2021; Kurniawati, Riwayati & Firdaus, 2022 and Megananda & Prastiwi, 2022), despite decades of academic literatures, largely from developed markets, there has been no agreement or consensus on the competing theoretical approaches to sustainability reporting in relation to firm value. Hence, need for further investigation in various aspects in emergence economy like Nigeria to validate the results

Furthermore, most of the previous studies identified, analyzes direct link between sustainability reporting, profitability and firm value. However, these studies failed to consider the possibility of a moderating variable on the relationship between sustainability reporting and firm value. Based on the proceedings this study aimed to examine the moderating effect of profitability on the relationship between sustainability reporting on value of environmentally sensitive firms in Nigeria. Specifically, the study intends to assess the: impact of sustainability reporting on firm value and impact of profitability on firm value. The results of this study is expected to contribute to the existing hypotheses on sustainability reporting and firm value which is used to identify research gaps and provide a reference for future research in the field of sustainability reporting policy.

Literature Review

Concept of firm value

Firm value is the anticipated purchase and trade worth of a company by voluntary buyers and sellers who has complete information about the company and free from any complications. This demonstrates the need of studying corporate value in all the facets of business (Bali, 2003). Existing and potential investors consider value to be the most important factor in deciding whether to invest in a company or not. Stock prices are crucial indicators of a company's worth. As a result, the value connected to them is extremely important to both existing and potential stock market investors. The stock market uses a variety of elements to determine stock prices, ranging from accounting to non-accounting data (Idris & Bala, 2015).

2.2 Concept of sustainability reporting

Sustainability reporting is a concept within the academic literature that has no single definition that is widely accepted. The concept of sustainability reporting encompasses a wide variety of topics, including economic, social and environmental protection, workplace health and safety, product quality and safety, corporate philanthropy initiatives, and stakeholder relations. Sustainability reporting, according to Ighosewe, (2021), is an unbiased report on a company's economic, social, and environmental performance in a way that ensures its success and long-term existence. It can also be characterized as a company's ongoing commitment to act ethically and volunteer to economic prosperity while also enhancing the lives of its employees and their families, as well as the local community and society at large (World business council for sustainable development, 2001).

2.3 Concept of profitability

Profitability refers to the comparison of results measured against intended goal and objectives of organizations. In a broader sense, the term "profitability" relates to how successfully a company's overall objectives are being fulfilled or have been achieved. It's used to track a company's long-term aims and goals, as well as to compare similar organizations in the same industry or industries or sectors as a whole (Harelimana, 2017). A company's profitability is a metric that assesses how well it is allocating its resources to the advancement and improvement of the company. The most important factor is shareholder satisfaction, since it is directly tied to how much a shareholder is worth at the conclusion of a period compared to the beginning (Sadiq & Sher, 2016).

Empirical review

Sustainability Reporting, Profitability and Firm Value

Indriawati, Nurlis, and Yanti (2021) studied the impact of corporate sustainability reporting, profitability, and liquidity on firm value in non-financial enterprises listed on the Indonesian Stock Exchange for three years, from 2016 to 2018. The study's sample consists of 19 listed non-financial firms in Indonesia. The hypothesis was tested using multiple linear regression analysis. The study's findings show that sustainability and liquidity have no effect on company value, while profitability has a positive and significant impact on value of listed non-financial enterprises in Indonesia.

Kurniawati, Riwayati and Firdaus (2022) investigated effect of sustainability report disclosure on firm value and the effect of sustainability report on firm value with profitability as a moderating variable. The study investigated the relevance of sustainability report disclosure in manufacturing sector companies listed on the Indonesia Stock Exchange for the period 2016-2020. The study data were collected from 11 manufacturing sector companies that met the predetermined sample criteria. The results of the result of the study empirically prove that sustainability report disclosure affect firm value and profitability strengthening the positive effect of the sustainability report on firm value.

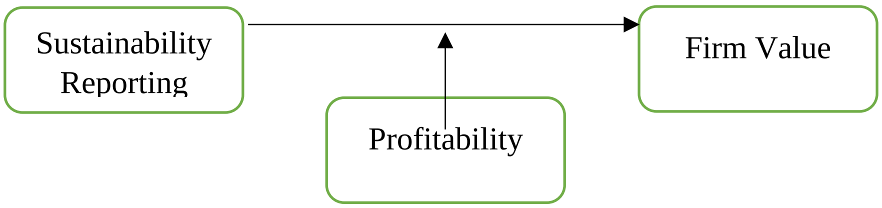
Megananda and Prastiwi (2022) Examined the consistency of the effects of environmental disclosure on firm value and investigate profitability as a moderating variable. The samples in this study were companies that won the Sustainability Reporting Award (SRA) and the Asia Sustainability Reporting Rating (ASRAT) presented by the National Center for Sustainability Reporting (NCSR) for 2014-2020 period. A total of 82 companies were sampled. The multiple regression equation model was analyzed using IBM SPSS 20 software. The study documented that environmental disclosure had a positive and significant effect on firm value when profits were high. There findings provided evidence that the differences in results on the relationship between environmental disclosure and firm value are due to a conditional factor, namely profitability. Based on the stakeholder theory, fulfilling stakeholder interests has a positive effect if the company has good financial performance.

Theoretical Review

Stakeholder Theory

The theory that best explain the study objectives and also address the research problem is the stakeholder. Thus, this study aims to contribute to existing theoretical perspectives by moderating the stakeholder theory and overcoming limitations identified in the empirical review by providing empirical evidence on the relationship between sustainability reporting, profitability, and firm value specifically from Nigerian environmentally sensitive firms, using panel data from 2018 to 2022. Because panel data can give a more comprehensive picture of the factors that drive industry sustainability. The stakeholder idea was first applied by Ansoff (1965), and it was popularized by Freeman (1984). The goal of the stakeholder theory is to refocus management attention on strategic multiple stakeholders rather than just shareholders. Stakeholders include consumers, employees, creditors, the government, suppliers, and public interest groups, and are defined as any individual who is directly affected by the achievement of the firm's financial and non-financial objectives (Freeman, 1984). As a result, at the corporate planning stage, organizations must design a model of strategic analysis that addresses the needs of all stakeholders. The theory's point of view is on how organizations might collaborate with a set of stakeholders so as enhance trade value. As a result, management's attention should be directed beyond profit maximization, even though stockholders should be given priority. Among the aforementioned theories, the theory that best explain the study objectives and also address the research problem is the stakeholder.

Conceptual Framework



Methodology

The study employed causal effect research design was used. This design is useful because it explains the cause-and-effect relationship between variables and helps to determine which variable is the cause and which is the effect, as well as the nature of the causal relationship. Moreover, the study population, consists of all environmentally sensitive firms listed on the Nigerian Exchange Group (NGX) as of 31st December 2023. The sample of the study consists of 60 firms listed across 8 environmentally sensitive industries in Nigeria, includes (Agriculture, Construction and real estate, Consumer goods, Health care, ICT, Industrial goods, Natural resources and Oil and gas industries). The sampling technique used was census sampling which consider all the element within the study population. The data for the study were extracted from the annual reports of the sample firms for the period of 5 years, from 2018 to 2022, resulting in 300 firm-year observations. The data were analyzed using descriptive statistics, correlation and multiple regression analysis. The study variables are firm value which is the dependent variable is proxy by Tobin's Q as used by Machmuda, Sari & Utomo (2020).

Tobin's Q = $\frac{MVE+DEBT}{TA}$

Where: MVE = Market value of equity: Debt = Total debt: TA = Total assets
The sustainability reporting which is the independent variable is proxy by GRI framework and standard disclosures as used by Sucuahi & Cambarihan, (2016).
SR = Content analysis according to GRI frameworks and standards disclosures: GRI = $\frac{\sum X}{Nj}$
Where: X = Number of items disclosed by the company and Nj Number of disclosures items based on GRI (G4) 26 items.
And Profitability which is moderating variable is proxy by ROA
ROA = Profit after tax/Total Assets *100
The study model specifications are as follows

$TQ_{ti} = \beta_{0ti} + \beta_1 SR_{ti} + \beta_2 FS_{ti} + \beta_3 FG_{it} + \beta_4\ CR_{it} + \varepsilon_{ti}$.. ***(1)***

$TQ_{ti} = \beta_{0ti} + \beta_1 ROA_{ti} + \beta_2 FS_{ti} + \beta_3 FG_{it} + \beta_4 CR_{it} + \varepsilon_{ti}$.. ***(2)***

$TQ_{ti} = \beta_{0ti} + \beta_1 SR_{ti} + \beta_2 ROA_{ti} + \beta_3 (SR_{ti} * ROA_{ti}) + \beta_4 FS_{it} + \beta_5 FG_{it} + \beta_6 CR_{it} + \varepsilon_{ti}$............ ***(3)***

Results and Discussion

Descriptive Statistics

From all the observations, statistical data such as mean, minimum, maximum and standard deviation are calculated, as contained in the Table 4.1.

Table 4.1: Descriptive Statistics

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Firm Value	300	1.056167	.6006231	.1	4.11
Sustainability Reporting	300	.3158	.125209	0	0.81
Profitability	300	.0331	.1320917	-0.78	.37
Firm Size	300	7.365967	1.051793	3.67	9.79
Firm Growth	300	.1868	1.03668	-.79	12.35
Liquidity	300	1.4248	1.350143	0.13	15.35

Source: *Generated by the researcher using STATA version 14*

The result of the descriptive statistics presented in Table 4.1 describes dependent, moderating, and explanatory variables. A total of 300 firm-year observations were recorded. The table shows the mean, standard deviation, and minimum and maximum values of the dependent, moderating, explanatory and control variables. The mean firm value is about 1.056, which is greater than 1. The standard deviation of 0.601 shows that there is no significant dispersion in the market value of listed environmentally sensitive firms in Nigeria. The minimum value of 0.1 and the maximum value of 4.11.

The sustainability report shows a mean value of 0.316, the standard deviation of 0.125 indicates with a minimum value is 0 and the maximum value is 0.81. In the same vein, profitability shows a mean value of 0.033, the standard deviation of 0.132. The minimum value of -1 and maximum value of 0.37. Furthermore, the firm size, which is measured by the natural logarithm of total assets, shows a mean value of 7.367, with a standard deviation of 1.052. The minimum and maximum values are 3.67 and 9.79, respectively. More so, the firm growth shows a mean value of 0.187 and a standard deviation of 1.037. with minimum and maximum values of -0.79 and 12.35, respectively. As for liquidity, the mean value is 1.425, with a standard deviation of 1 and a minimum and maximum value of 0 and 15.35 respectively.

Correlation

The result of the correlation between the dependent, independent and moderating variables are presented in Table 4.2.

Table 4.2: Model Correlation Results

Variable	TQ	SR	ROA	FS	FG	CR	VIF
TQ	1.0000						--
SR	0.3016	1.0000					1.07
ROA	0.1928	0.2178	1.0000				1.08
FS	-0.1392	0.1076	0.1105	1.0000			1.06
FG	0.0284	0.0567	0.0932	0.1685	1.0000		1.04
CR	0.0565	-0.0666	0.0870	-0.1003	0.0581	1.0000	1.03

Source: *Generated by the researcher using STATA version*

The correlation results in Table 4.2 show the correlation results of the dependent variable firm value (TQ), the independent variable sustainability reporting (SR), and the moderating variable profitability (ROA), as well as the control variables firm size (FS), firm growth (FG), and liquidity (CR). The correlation coefficient of sustainability reporting is 0.302, indicating a positive and weak correlation with the firm, the relationship between profitability and value is also positive and weak, with a correlation coefficient of 0.193. This means that, all things being equal, the higher the sustainability reporting and profitability, the higher the value of listed environmentally sensitive firms in Nigeria.

Similarly, the correlation coefficient of Firm Size is -0.139 suggest a weak and negative relationship with firm value. Additionally, the relationship between firm growth and firm value is positive and weak with a correlation coefficient of 0.0284 and finally, the relationship between liquidity and value of environmentally sensitive firms in Nigeria is weak and positive with a correlation coefficient of 0.0565.

Model I: Direct effect Sustainability Reporting and Firm Value

Table 4.3: Model Regression Results: RE robust

Variables	**Model I (Unmoderated)**		
	Coefficient	t	P>|t|
Sustainability Reporting (SR)	1.585033***	3.71	0.000
Firm Size (FS)	-.1505506*	-2.20	0.028
Firm Growth (FG)	-.0261329	-0.85	0.396
Liquidity (CR)	.007795	0.49	0.623
CONSTANT	1.65834***	3.21	0.001
Prob > F	0.0005		
F	20.04		
R^2 Overall	0.1124		
Observations	300		

Source: *Generated by the researcher using STATA 14*

In analyzing the model, as shown in Table 4.3, the regression results show that sustainability reporting has a positive and significant effect on firm value. This can be explained by observing the positive coefficient of 1.585033, t-value of 3.71 and P-value of 0.000 at the 1% level of significance. This coefficient indicates the mean increase in value of listed environmentally sensitive firms in Nigeria for every additional unit of compliance with the global reporting initiative framework for sustainability reporting. This means that the listed environmentally sensitive firms moderately comply with the Global Reporting Initiatives for sustainability reporting.

Test of Hypotheses One

H_{01} Sustainability reporting has no significant impact on the value of listed environmentally sensitive companies in Nigeria

Since the p-value of 0.000 of Sustainability Reporting is less than 0.05 the null hypothesis (H_{01}) is rejected and conclude that sustainability reporting has significant impact on the value of listed environmentally sensitive companies in Nigeria.

Model II: Direct effect Profitability and Firm Value

Table 4.4: Model Regression Results: RE robust

Variables	**Model I (Unmoderated)**		
	Coefficient	T	P>|t|
Profitability (ROA)	1.097282**	3.04	0.002
Firm Size (FS)	-1.1602717**	-2.15	0.032
Firm Growth (FG)	-0.0358396	-0.98	0.328
Liquidity (CR)	0.0052396	0.28	0.779
CONSTANT	0.5849227***	3.76	0.000
Prob > F	0.0009		
F	18.61		
R^2 Overall	0.0549		
Observations	300		

Source: *Generated by the researcher using STATA 14*

In analyzing the model, profitability, has a positive and significant effect on firm value. This can be justified by observing the positive coefficient of 1.097282, t-value of 3.04, and the P-value of 0.002 at the 5% level of significance. This coefficient represents, an increase in the mean of value of listed environmentally sensitive firm in Nigeria for every additional one unit of profitability while other variables remain constant.

Test of Hypotheses Two

H_{02} Profitability has no significant impact on the value of listed environmentally sensitive companies in Nigeria

Since the p-value of 0.002 of Profitability is less than 0.05 the null hypothesis (H_{02}) is rejected and conclude that profitability has significant impact on the value of listed environmentally sensitive companies in Nigeria.

Model III: Interactive effect Sustainability Reporting, Profitability and Firm Value

Table 4.5: Model Regression Results: RE robust

Variables	**Model I (Moderated)**		
	Coefficient	T	P>|t|
Sustainability Reporting (SR)	1.278371***	3.53	0.000
Profitability (ROA)	-0.9846467	-1.31	0.191
Sustainability Reporting*Profitability (SR*ROA)	5.541845*	1.99	0.047
Firm Size (FS)	-0.1456282*	-2.42	0.015
Firm Growth (FG)	-0.0317966	-1.11	0.269
Liquidity (CR)	0.0017466	0.11	0.910

CONSTANT	1.683365***	3.63	0.000
Prob > F	0.0000		
F	42.12		
R^2 Overall	0.1826		
Observations	300		

Source: *Generated by the researcher using STATA 14*

In analyzing the model, as shown in Table 4.5, the regression estimates show that profitability has a positive and significant moderating effect on the relationship between sustainability reporting and firm value of listed environmentally sensitive firms in Nigeria. This can be explained by observing the positive coefficient of 1.278371, a t-value of 3.53, and a p-value of 0.000 at the 1% level of significance. This implies that the relationship between sustainability reporting and the value of environmentally sensitive firms in Nigeria is significantly influenced by the level of profitability.

Test of Hypotheses Three

Decision Criteria

Probability test of significance (p-value) of the parameters are employed in the research to verify the statistical significance of the estimates. All computations were done at 1, 5 and 10 percent (%) level of significance. If the probability (p-value) is less than or equal to 0.05 (p-value ≤ 0.05) the null hypothesis will be rejected and alternate hypothesis will be accepted, given that, the estimates are statistically significance. However, if the p-value is greater than 0.05 (p-value > 0.05) the null hypothesis had failed to be rejected.

Conclusion

1. Sustainability reporting has positive and significant impact on the value of listed environmentally sensitive firms in Nigeria. Thus, the study validates the overall assumptions that sustainability reporting creates value for companies. Thus, investment in sustainability reporting has direct bearing with the value of environmentally sensitive firms in Nigeria.
2. Profitability has positive and significant impact on the value of listed environmentally sensitive firms in Nigeria. This evidence underscores a significant effect of profitability on the value of listed environmentally sensitive firms in Nigeria. This outcome also aligned with the conventional assumptions and highlight the intricate nature of factors affecting firm value.
3. Profitability has positive and significant moderating effect on the relationship between sustainability reporting and value of listed environmentally sensitive firms in Nigeria. The study underscores the significant role of profitability as a moderator in the complex relationship between sustainability reporting and firm value.

Recommendations

1. The study recommends that, listed environmentally sensitive firms in Nigeria should improve their sustainability reporting compliance and prioritize it relevance and quality, aligning it with stakeholder interest, integrating it into core business strategy, and implementing continuous monitoring and feedback mechanisms. Although, initial gains might be limited, there is a possibility of long-term benefits.

2. The listed environmentally sensitive firms in Nigeria should strive to improve in the activities that has the potential to enhance profitability. Since it is a key driver for determining shareholders value which will enhance its competitiveness, attract investors and drive sustainable business growth and create long term value.

3. The study also recommended that these firms prioritize their efforts to strengthen both sustainability reporting practice and profitability by actively developing strong and simultaneously enhancing their commitment to transparent sustainability reporting and compliance. This dynamic interaction has the potential to yield a substantial improvement in the overall firm value, thereby presenting a valuable avenue for strategic growth and differentiation in the competitive landscape.

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