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Environmental Disclosure and Price-earnings Ratio of Manufacturing Companies Listed in Nigeria

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ABSTRACT: *A good price-earnings ratio is a result of excellent corporate performance; nevertheless, reaching a desirable price-earnings ratio in typical Nigerian manufacturing enterprises is complex and difficult. Meeting price-earnings ratio expectation of shareholder as companies were faced with complexities and unethical non-compliances issues. Studies have suggested that effective environmental disclosure has the capacity to enhance the price-earnings ratios in manufacturing companies. This study was to examine the effect of environmental disclosure on the price-earnings ratio of listed manufacturing companies listed in Nigeria. The study employed an ex-post facto research design. The population of the study was the 66 listed manufacturing companies listed on the Nigerian Exchange Group as of 31st December 2021. Using purposive sampling technique 29 manufacturing companies were selected. Validated data, covering a period of 16 years (2006 -2021) were extracted from published financial statements of the selected manufacturing companies. The reliability of the data was premised on the statutory audit of the financial statements. Descriptive and inferential (multiple regression) statistics were used to analyze the data at a 5% significant level. The findings revealed that environmental disclosure affected the price-earnings ratio of manufacturing companies in Nigeria (Adj.*R^2 *= 0.218,* $F(5, 458) = 22.87$*,* $p < 0.05$*) . The study recommended that the management of companies should embrace sustainable environmental disclosure to ensure an effective price-earnings ratio for manufacturing companies in Nigeria.*

KEYWORDS: environmental policies, environmental management, energy conservation, emission reduction, pollution control, price-earnings ratio

INTRODUCTION

Globalization has improved the lives of many individuals all around the world. We now have high-speed technology, and the increase in competitiveness has increased consumption and fueled economic growth (Acar et al., 2020; Jun et al., 2022). Despite these benefits, globalization has raised certain concerns impacting optimal corporate resources to attain desired earnings per share of average shareholders' expectations. The earnings of manufacturing companies in Nigeria are impacted by the rise in production and lower demands from consumers (United Nations, 2015; Dhar & Asharaful, 2021). Commodities are transported worldwide to customers, and research has revealed that transportation accounts for 75% of global trade emissions (Cristea et al., 2013; Hassan & Lahyani (2020). Several indicators of continuous climate change include an increase in temperature, variations in rainfall, rising sea levels, and melting of glaciers and snow.

To ensure acceptable and sustained price earnings, Nigerian manufacturing businesses must contend with issues such as a lack of infrastructure, poor and unstable power supplies, security threats that have escalated to kidnapping instances, a variety of levies, and a high cost of doing business in Nigeria. Beyond these issues, Nigeria's degree and extent of air and environmental pollution are worrying, pointing to a height of uncertainties, and the country's perception of environmental disclosure compliance is alarming. These need to be looked into so that all shareholders and other stakeholders have a shared understanding of the level of environmental pollution, compliance with environmental disclosure requirements, and responsiveness of manufacturing companies to the protection of the environment in Nigeria.

Reducing activities like burning fossil fuels and deforestation is necessary to combat climate change (EEA, 2017; Iliemena, 2020). To achieve sustainable growth, steps against climate change must be implemented (United Nations, 2015; Kurawa & Shuaibu, 2022, Aguguom & Ajayi, 2020). Companies have become big multinational enterprises due to globalisation and economic expansion, and as the adage goes, "with great power comes great responsibility." In the early 1980s, 20,000 tonnes of smelter sludge were allegedly dumped in the Arica region of Chile by the Swedish mining corporation Boliden, according to allegations made in September 2013. Boliden sold a Chilean company their waste; however, the material was neither safeguarded nor handled. A few years later, homes were constructed close by, and in 2009 the region was evacuated due to the continued contamination.

Since then, the locals have experienced health issues, including cancer and miscarriages, and significant quantities of arsenic have been discovered in their blood. The Chileans contend Boliden acted carelessly despite knowing the garbage may pose a severe health risk. The Arica victims seek 91 million SEK in damages, plus interest, although the matter has not yet been resolved (Kosich, 2013). In 2015, information surfaced on the National Mining Association (NMA) membership of the Swedish businesses Svenska Kullagerfabriken (SKF) and Volvo. As a lobbying group, NMA has attempted to undermine environmental policies by investing over $100 million in the debunking of wind and solar energy. This revelation is alarming because both businesses work with the World Wildlife Fund. Swedish Television contacted SKF, who said their membership in NMA would be terminated the next day (Aguguom, 2020; Carnini-Pulino et al., 2022). Swedish businesses have achieved considerable advancements in sustainability reporting, and Sweden is regarded as a pioneer in this area (Burritt et al., 2019). Since 2005, Boliden has released independent sustainability reports, and since 2007 Volvo has done the same (Bellucci et al., 2019; Iliemena, 2020).

While a good number of studies have considered environmental disclosure from various angles, however, fewer of these studies have focused on the possible effect of environmental disclosure on the price-earnings ratio among the listed manufacturing companies in Nigeria. Notwithstanding the prior studies, the level of environmental disclosure among the listed has not improved, suggesting more empirical studies to drive home the importance of environmental protection and adequate disclosure of efforts in this regard. In bridging the gap in the literature, this study is motivated by the significance of a clean environment to humanity and the benefit of adequate environmental disclosure to corporate earnings and sustainable growth of manufacturing companies in Nigeria. Consequently, this study examined the effect of environmental disclosure on the price-earnings ratio of manufacturing companies listed in Nigeria. In addressing the study, the research objective, research question and hypothesis were formulated as follows:

Research Objective: Examine the effect of environmental disclosure on the price-earnings ratio of manufacturing companies in Nigeria.

Research Question: How does environmental disclosure affect the price-earnings ratio of manufacturing companies listed in Nigeria?

Hypothesis Ho1: Environmental disclosure does not significantly affect the price-earnings ratio of manufacturing companies listed in Nigeria.

The rest of the study was fashioned in this manner: In section 2, the study provided the literature review and theoretical framework. In section 3, the methodology was considered and in section 4, the conclusion and recommendations were provided in the study.

LITERATURE REVIEW AND THEORETICAL REVIEW

Conceptual Review

Price-earnings Ratio: The price-earnings ratio measures the relationship between a company's share price and its earnings per share. The ratio is employed to evaluate businesses and determine if they are over or undervalued (Tang et al., 2018). The volume of trade activities has been linked to the effective performance of an organization and the possible number of stocks outstanding at the close of the stock trading. Qian and Horisch (2020) defined the price-earnings ratio as multiple measures of how much a stock is worth in relation to its profits per share (EPS). One of the most well-liked stock valuation metrics is the PE ratio. It indicates whether a stock is pricey or inexpensive in the present market. Pien (2020) noted that the price-earnings ratio is significant as an indicator of corporate stock performance. The market responses and market participants' reactions tend to reflect on the possible price-earnings ratio and the extent of information bad news or otherwise about the companies' stock and effective corporate performance (Tadros & Magnan, 2019). Vogt et al. (2017) reported that managers are concerned about this and that they go the extra in ensuring that they avoid all scandals and unethical practices that will put the company in a bad spot. From the perspective of the researcher, the earnings ratio, commonly known as the Price to Earnings Multiple, is the ratio of a stock's share price to its earnings per share (EPS). One of the most often-used stock valuation metrics is the PE ratio. It indicates whether a stock is costly or inexpensive at its present market price.

Environmental Disclosure: Environmental disclosure is concerned with the expected responsibility of corporate bodies to adequately report their deliberate action in protecting the environment and reporting such efforts for the knowledge and awareness of society (Murdifn et al., 2019). According to McGuire (2014), environmental disclosure is a form of corporate obligation to the stakeholders and the society as a whole the knowledge required of the companies, of their responsiveness in the management and control of their wastes in the course of their operational activities. Environmental disclosure is also defined as the transparency and accountability of environmental-sensitive companies in fulfilling the societal information needs of stakeholders (investors, shareholders, customers, the government, employees, and others who have a vested interest in the fortunes and corporate existence of the companies (Welbeck et al., 2017; Wijsman et al., 2019). Yao and Liang (2019) revealed that environmental disclosure and effective environmental accounting are fundamental for strong corporate competitiveness among companies in meeting adequate reporting requirements enhancing corporate reputations, and improving corporate product legitimacy.

Environmental Policies

Environmental policies are environmental legal and regulatory frameworks put in place by the environmental regulatory standards to secure and protect the environment. According to Giangrande et al. (2019), environmental policies are meant to guide environmental-sensitive corporate organizations to voluntary or mandatory compliance with environmental laws and regulations. Leung and Snell (2019) argued that environmental policies are the environmental protection commitments of individuals and companies to laws, regulations, and other related procedural mechanisms concerning environmental matters. These matters generally include water protection, effective waste disposals, and management, required ecosystem management, effective management of biodiversity, requirements for adequate management of extraction of natural resources, plant and deforestation protection, and wildlife and aquatic endangered species preservations (Martinico ez et al., 2018).

E**nvironmental Management:** Environmental management has been defined in various ways based on the various understanding of some studies. For instance, Qian and Chen (2020) reported that environmental management is the consideration of the pragmatic structure and function of the earth system and the ways by which human being relates to their environment. In addition, Seles et al. (2019) defined environmental management as the prescribed methodology to monitor, control protect environmental changes and the ability to forecast possible future changes with measures to minimize damage to the environment in order to enhance and improve environmental benefits as well as reducing environmental degradation result from business operational activities.

Energy Conservation: Energy conservation is concerned with procedures set out to prevent the wastage of energy. Energy conservation is one of the measures of environmental disclosure in this study. Many studies have made various attempts to define and explain energy conservation in many ways. According to Badingatus and Ukhti (2021), energy conservation is the deliberate effort and practice of using lesser energy at home and at the workplace. Emeka et al. (2020) stated that energy conservation is the prevention of wasteful use of energy. While Ezejiofor et al. (2016) noted that energy conservation is closely correlated with environmental protection and that companies are required to adequately disclose the efforts of the management toward this direction. Igbekoyi et al. (2021) indicated that energy conservation is an effort by individual, private and corporate organizations to always reduce the consumption of energy by using lesser energy.

Emission Reduction: Emission reduction is concerned with the efforts of individual or corporate entities to achieve a reduction of air pollution and the improvement of a clean environment. According to Mohammad et al. (2020), emission reduction is defined as the measures geared to mitigating greenhouse emissions or airborne contamination emissions. Nguyen and Tran (2019) reported that several things have been suggested in the literature as ways to ensure environmental pollution and companies have been sensitized to the benefits of environmental disclosure one of such include the case of emission reduction and greenhouse gas emission control. Greenhouse gas emissions can be reduced by making power sources from non-smoking processes, and the adoption of zero-emission policies by regulating energy-producing through gas emissions like generating plants.

Pollution Control: Pollution control is another explanatory variable identified as one of the measures of environmental disclosure. According to Nwanna and Glory (2017), pollution control is defined as one of the environmental control processes to decrease the extent of pollutants in the environment. Oguaon and Ekpulu (2020) posited that pollution must be monitored and controlled otherwise the environment becomes uninhabitable. Waste discharged into the air, water, and land must be carefully monitored by environmental regulatory standards. Pollution control mechanisms could be achieved by regulating pollution by avoiding pollution assurances and controlling the already occurring pollution. Ong et al. (2016) reported that pollution control requires a strong strategic effort of companies to reduce the volume of water, air, land pollution, and forest degradation.

Theoretical Framework

Green Accounting Theory: This study was underpinned using green accounting theory. The green accounting theory was developed by a renowned economist, Prof. Peter Wood in the years 1980 (Tontiset & Kaiwinit, 2018), According to Wen and Moehrle (2016), the green accounting theory is likened to environmental accounting theory, and both theories are concerned with considering the preservation and protection of the environment by corporate entities in pursuance of business activities. The green accounting theory suggested that there are other interests outside the business and that corporate organizations should consider the protection of the environment in pursuit of profit and wealth (Venturelli et al., 2018). In addition, Uyar and Kilic (2012) commented that green accounting arose because there is a general and universal concern about environmental protection and the land left unguarded could damage the environment.

Societal protection, wild animals, and aquatic animals as well desire protection and purity of the natural environment. Continuous natural resources extraction and waste disposal should be carried out without violating the environment or polluting the water, air, land, and plant by individuals, private or corporate organizations. Green accounting theory further posited that since businesses could encourage possible pollution and waste, they are expected to fashion out modalities, and regulations aimed at protecting and preserving the environment and management of wastes to avoid polluting the environment (Cho & Patten, 2013). According to Falcone (2018), green accounting theory also suggested that it has become compulsorily expedient that corporate organizations sensitive to pollution should formulate guidelines to ensure adequate and effective waste management and pollution prevention, and where necessary policies are clearly stated how pollution will be controlled or management when it happens (Talbot & Boiral, 2018).

Therefore, according to Sutherland et al. (2018), green accounting theory requires a promotion of pollution control and monitoring measures on a continuous basis, hence, strategic decisions and plans of companies should not focus only on profits maximization but should also consider environmental protection and adequate environmental reporting format in line with regulatory standards to inform the public such efforts of managing and preservation of the environment.

Empirical Review

Environmental Disclosure and Price-earnings Ratio

Carnini-Pulino et al. (2022) investigated the effect of environmental disclosure from the perspective of environmental, social, and governance disclosure on the price-earnings ratio and corporate firm performance of some large and multinational companies operating in the European market. The study employed a benchmark of the Italian environmental pillars of economic, social, and governance based on the environmental directive of 254/2016 as the regulatory guideline in assessment. The study covered a period of 11 years spanning from 2011 to 2020. The study applied panel regression analysis. The result of the analysis showed a positive effect and that the price-earnings ratio increases when there is evidence of stakeholders' legitimacy and investors' investment decisions are enhanced when there is evidence of environmental disclosure reporting. The study of Carnini-Pulino et al. (2022) is similar when compared with the study done by Dhar and Ashraful (2021). The study found that environmental accounting had a positive effect on the return on assets (ROA), earnings per share (EPS), and profit margin of the manufacturing companies tested in the study. Conversely, Carnini-Pulino et al. (2022)'s report is not similar to the result derived from Ndukwe and Nwakanma (2018) who revealed that there was a negative and insignificant association between environmental disclosures and return on assets of the selected companies investigated.

Kurawa and Shuaibu (2022) examined the effect of environmental disclosure on the corporate share market value as well as the performance of some selected companies from the non-financial sector. The study employed data extracted from the financial statement of 76 selected non-financial companies listed in Nigeria. The study employed descriptive and inferential statistics for the data regression. The study employed environmental Disclosure checklist based on Global Reporting Initiative for the measure of the environmental disclosure while earning per share and Tobin's Q was employed to measure corporate performance. The regression analysis revealed that there was a positive association between environmental disclosure indices and share market value aligning with corporate performance proxies. In addition, the study found that environmental disclosure had a positive effect on the corporate performance of non-financial listed companies in Nigeria.

In the study of Kurawa and Shuaibu (2022), it was observed that there is a correlation between their study and that of (Jun et al., 2022). The study panel regression conducted found that economic, social, and governance disclosures had a positive effect on the intangible scores of the companies for the period sampled. On the other hand, the result obtained from the study of Kurawa and Shuaibu (2022) has no correlation with the study of (Igbekoyi et al., 2021). The study found that environmental reporting had a negative insignificant effect on environmental sustainability reporting and financial performance.

Jun et al. (2022) studied the effect of environmental disclosure considering economic, social, and governance on corporate share market value performance from the perspective of the improvement of intangible capital. The study employed an expo facto research design, using secondary data from the financial statements of the selected companies sampled in the study. The study panel regression conducted found that economic, social, and governance disclosures had a positive effect on the share market value and intangible scores of the companies for the period sampled. Jun et al. (2022)'s report is in compliance with the report given by Pedron et al. (2021) in their study. The study also found that environmental disclosure had a positive significant impact on Tobin's Q as a measure of performance. Whereas, the study of Jun et al. (2022) is not in compliance with the work of Uyar and Kilic, (2012) who reported that leverage had no positive significant influence on the voluntary disclosure level of financial ratio.

Giannopoulos et al. (2020) studied the global environmental crisis and disclosure dilemma and its effect on volume activities and corporate performance of companies from the perspective of economic, social, and governance (ESG) guidelines. The study considered selected listed firms in Norwegian for a period of 10 years spanning from 2010 to 2019. The corporate performance was measured using return on assets (ROA), and Tobin's Q. The result of the panel regression analysis revealed mixed results: A strong association between ESG initiatives, price-earnings ratio and financial performance was established. However, the study further revealed that ESG had a negative effect on return on assets (ROA) and on Tobin's Q. The study of Giannopoulos et al. (2020) is in the same opinion as (Igbekoyi et al., 2021). The study found that environmental reporting had a negative insignificant effect on environmental sustainability reporting and financial performance. In opposition to this result, Dhar and Ashraful (2021) are of the opinion that environmental accounting had a positive effect on the return on assets (ROA), earnings per share (EPS), and profit margin of the manufacturing companies tested.

Moses et al. (2020) considered an empirical examination of the sustainability reporting quality and corporate governance performance as well as the price-earnings ratio that could result in the adequate financial performance of the selected listed companies. The study obtained sustainability reporting data from the financial statements of the companies that were involved in economic, social and governance-related reporting issues. The study formed a regression analysis and the result showed that adequate sustainability reporting was lacking. It further revealed that sustainability reporting had a negative significant effect on the corporate performance of the companies sampled in the study. Moses et al. (2020)'s result of their study is in tandem with the result obtained by (Ezeagba et al., 2017). The study found that environmental accounting had a negative significant effect on the corporate performance of the companies. Contrarily, the study of Moses et al. (2020) is not in tandem with the research work of (Pedron et al., 2021). The study found that environmental disclosure had a positive significant impact on Tobin's Q as a measure of performance.

METHODOLOGY

In consideration of the effect of environmental disclosure on the price-earnings ratio, this study employed an e*x-post facto* research design. The population of the study was the 66 listed manufacturing companies on the Nigerian Exchange Group as of 31st December 2021. Using purposive sampling technique 29 manufacturing companies were selected. Validated data, covering a period of 16 years (2006 -2021) were extracted from published financial statements of the selected manufacturing companies. The reliability of the data was premised on the statutory audit of the financial statements. Descriptive and inferential (multiple regression) statistics were used to analyze the data at a 5% significant level.

Model Specification

$$PER_{it} = \beta_0 + \beta_1 ENPOL_{it} + \beta_2 ENMGT_{it} + \beta_3 ENGC_{it} + \beta_4 EMR_{it} + \beta_5 PLCTR_{it} + \mu_{it}$$

Where

PER = Price-earnings ratio, ENPOL = Environmental policy, ENMGT = Environmental management, ENGC – Energy conservation, EMR = Emission reduction, PLCTR = Pollution control, β = Coefficients of the Model, μ - Errors, *i*=cross-section, *t* = Time series

DATA ANALYSIS, RESULT AND DISCUSSION

This first regression focused on the impact of environmental disclosure on the price-earnings ratio of the selected listed manufacturing companies in Nigeria. A multiple panel regression approach is used, where Price-earnings Ratio (PER) is considered as the dependent variable and Environmental Policies (ENPOL), Environmental Management (ENMGT), Energy Conservation (ENGC), Emission Reduction (EMR), Pollution Control (PLCTR) were considered as independent variables.

Table 1: Environmental Disclosures and Price-earnings Ratio

Estimation Techniques	**Pooled OLS Regression with Cluster**			
Dependent Variable: PER	**Coeff.**	**Std. Err**	**T-Stat**	**Prob.**
Constant	47.03	10.06	4.67	0.00
ENPOL	-146.06	43.26	-3.38	0.00
ENMGT	-159.13	39.34	-4.04	0.00
ENGC	-418.89	53.79	-7.79	0.00
EMR	-9.03	46.84	-0.19	0.84
PLCTR	967.37	94.45	10.24	0.00
Adjusted R^2	0.218			
F-stat	$F_{(5, 458)} = 22.87$ (0.00)			
Hausman Test	$Chi^2_{(4)} = 1.33$ (0.93)			
BPLM Test	$Chi^2_{(1)} = 0.00$ (1.00)			
Heteroskedasticity Test	$Chi^2_{(1)} = 1280.67$ (0.00)			
Serial Correlation Test	$F_{(1,15)} = 4.618$ (0.04)			

Source**: Researcher's Work (2023),* ***Note**: PER = Price-earnings ratio, ENPOL = Environmental Policies, ENMGT = Environmental Management, ENGC = Energy Conservation, EMR = Emission Reduction and PLCTR = Pollution Control* ***@Chosen Significant level of 5%

Interpretation of Diagnostic Test for the Model

Hypothesis one was used to determine the impact of environmental disclosure on the price-earnings ratio of quoted manufacturing companies in Nigeria. The Fixed Effect and Random Effect models were estimated alongside the Hausman test to access which of the model is appropriate. From the Hausman test as shown in Table 1, the value is 1.33 with a probability value of 93 per cent. This suggested that the random effect is more appropriate because of the non-significance of the Hausman test. To validate the use of the random effect model, the Breusch and Pagan Lagrangian Multiplier test for random effect was conducted and the result presented in Table 1 showed that the alternative hypothesis that the random effect model is inefficient and inconsistent, thus, the null hypothesis of pooled OLS is appropriate for the model, this was because the Breusch and Pagan Lagrangian Multiplier test statistic of 0.000 with probability value of 100 per cent is statistically insignificant at 5 per cent level.

The model was tested for heteroskedasticity, and serial correlation to examine the robustness of the model. The heteroskedasticity test helped to examine whether the variations in the residuals of the model are constant over time or not; the null hypothesis states that the residuals are constant over time, with the alternative as the non-constancy of the residuals. This test was carried out using the Breusch-Pagan/Cook-Weisberg test and the null hypothesis assumption homoscedastic residuals could not be rejected because the test statistic of 1280.67 is statistically significant at 1 per cent level, thus, the alternative hypothesis that the residuals are heteroscedastic could not be rejected.

Also, a serial correlation test was carried out to determine the existence of autocorrelated residuals of the estimated model. According to Baltagi, (2021), the autocorrelation problem causes the standard errors of the coefficients to be smaller than their actual value and the coefficient of determination (R-squared) to be higher than normal. The null hypothesis of the test stated that there was no serial correlation, against the alternative hypothesis of serial correlation. The test is carried out using the Wooldridge test and the result of the serial correlation test statistic of 4.618 with a probability value of 4 per cent is statistically significant at 5 per cent level. Therefore, the study concluded that the estimated models were not free from autocorrelated residuals.

Conclusively, to correct for autocorrelation and heteroscedasticity the Pooled OLS regression with cluster estimates is used to estimate the effect of environmental disclosure the on price-earnings ratio of selected manufacturing companies listed in Nigeria.

Regression Equation Results for Model 1

$$PER_{it} = \beta_0 + \beta_1 ENPOL_{it} + \beta_2 ENMGT_{it} + \beta_3 ENGC_{it} + \beta_4 EMR_{it} + \beta_5 PLCTR_{it} + \mu_{it}$$
$$PER_{it} = 47.03 - 146.06ENPOL_{it} - 159.03ENMGT_{it} - 418.89ENGC_{it} - 9.03EMR_{it} + 967.37PLCTR_{it}$$

From the results for model one in Table 1, which examined the effect of environmental disclosure on the price-earnings ratio of selected listed manufacturing companies in Nigeria, the results showed evidence that pollution control had a positive relationship with the price-earnings ratio of the selected manufacturing companies listed in Nigeria. This implied that increases in pollution control will lead to an increase in the price-earnings ratio. Conversely, environmental policies, environmental management, energy conservation, and emission reduction have a negative relationship with the price-earnings ratio of the selected manufacturing companies listed in Nigeria. This implied that increases in environmental policies, environmental management, energy conservation, and emission reduction will lead to a decrease in the price-earnings ratio.

Concerning the magnitudes of the estimated parameters a percentage change in pollution control will lead to 967.37 increases in the price-earnings ratio of the selected listed manufacturing companies in Nigeria respectively, while a percentage change in environmental policies, environmental management, energy conservation, and emission reduction will lead to 146.06, 159.13, 418.89, and 9.03 decrease in the price-earnings ratio of the selected listed manufacturing companies in Nigeria.

In addition, there was evidence that environmental policies, environmental management, energy conservation and pollution control have a significant relationship with the price-earnings ratio of the selected listed manufacturing companies in Nigeria. From the results, the individual parameter of the model showed different reactions. For instance, the environmental policy had a negative but significant effect, while environmental management exerted negative insignificant, energy and conservation negatively insignificant, emission reduction negatively insignificant and pollution control exhibited positive significance (ENPOL = -146.06, t-test = -3.38, $p < 0.05$; ENMGT = -159.13, t-test = -4.04, $p < 0.05$; ENGC = -418.89, t-test = -7.79, $p < 0.05$; and PLCTR = 967.37, t-test =10.24, $p < 0.05$) respectively. Also, in consideration of the magnitude of each parameter of the estimated coefficients of the regression of each variable in the model, this further suggested that a percentage change in environmental policy, environmental management, energy and conservation, and emission reduction would lead to a decrease of 146.06, 159.13, 418.89 and 9.03 in the price-earnings and a percentage change in pollution control would lead to 967.37 in the price-earnings ratio of selected manufacturing companies in Nigeria, Also, this implies that environmental policies, environmental management, energy conservation and pollution control were significant factors influencing changes in the price-earnings ratio of the selected listed manufacturing companies in Nigeria. In sharp contrast, there is evidence that emission reduction has no significant relationship with the price-earnings ratio of the selected listed manufacturing companies in Nigeria (EMR = -9.03, t-test =-0.19, $p > 0.05$) This implies that emission reduction is not a significant factor influencing changes in the price-earnings ratio of the selected listed manufacturing companies in Nigeria.

The Adjusted R^2 which measured the proportion of the changes in the price-earnings ratio as a result of changes in environmental policies, environmental management, energy conservation, emission reduction, and pollution control explains about 22 per cent changes in the price-earnings ratio of the selected listed manufacturing companies in Nigeria, while the remaining 78 per cent were other factors explaining changes in the price-earnings ratio of the selected listed manufacturing companies in Nigeria but where not captured in the model. The Adjusted R^2 result appeared low with only 22 per cent, this was found consistent with some Nigeria studies using similar Nigerian data (Ogunode & Adegbie, 2022; Emeke et al., 2021). For instance, the study by Ogunode and Adegbie (2022) revealed that 22% and 11% were reported as the Adj.R^2 figures in two regression analyses in their study. Similarly, Emeke et al. (2021) reported 11% and 6% as reported Adj.R^2 respectively. There is the likelihood of high environmental disclosure non-compliance among manufacturing companies in Nigeria, as well as possible non-mandatory and weak environmental disclosure enforcement posture in Nigeria.

The model's overall fit was indicated by the *F*-test statistic, which tested the null hypothesis that all coefficients in the model are zero. In this case, the *F*-test is significant at the 1% level, indicating that the model as a whole is a good fit for the data. Alternatively, the *F*-test statistic of 22.87 with a probability value of 0.000 implies that environmental policies, environmental management, energy conservation, emission reduction, and pollution control are joint significant factors influencing changes in the price-earnings ratio of the selected listed manufacturing companies in Nigeria. The *F*-test Statistic of 22.87 with a probability value of 0.000 and the degree of freedom $F_{(5, 458)}$ is significant at a 5 per cent level, this implies that the null that there is no significant effect of environmental disclosure on a price-earnings ratio of selected listed manufacturing companies in Nigeria was rejected and the alternative hypothesis that there is a significant effect of environmental disclosure on a price-earnings ratio of the selected listed manufacturing companies in Nigeria was accepted.

DISCUSSION OF FINDINGS

The study investigated the effect of environmental disclosure on sustainable stock returns in selected manufacturing companies listed in Nigeria. The study analysis revealed mixed results based on the reaction of the individual member variables in the model tested. The results revealed that environmental disclosure has a significant effect on the price-earnings ratio of selected manufacturing companies in Nigeria. This result is in tandem with the results of prior studies (Strandberg & Grahame, 2020; Carnini-Pulino et al., 2022; Mohammad et al., 2020; Etim et al., 2020; Bellucci et al., 2019; Burritt et al., 2019; Gnanaweera & Kunori, 2018; Gibassier & Alcouffe, 2018; Yaya et al., 2018; Kumar & Firoz, 2017; Carballo et al., 2017). For instance, Carnini-Pulino et al. (2022) investigated the effect of environmental disclosure from the perspective of environmental, social, and governance disclosure on price-earnings ratio and corporate firm performance of some large and multinational companies operating in the European market and the result of the analysis showed a positive effect and that price-earnings ratio increases when their evidence of stakeholders’ legitimacy and investors’ investment decisions are enhanced when there is evidence of environmental disclosure reporting.

On the contrary, the study results in this model seemed inconsistent with the results of the studies (Moses et al., 2020; Ndukwe & Nwakanma, 2017; Sukhdev-Singh, 2017; Dike & Micah, 2018; Yaya et al., 2018; Ezeagba et al., 2017; Djuminah et al., 2017; Egbunike & Okoro, 2018). For instance, Moses et al. (2020) considered an empirical examination of the sustainability reporting quality and corporate governance performance as well as the price-earnings ratio that could result in the adequate financial performance of the selected listed companies and the result revealed that sustainability reporting had a negative significant effect on corporate performance of the companies sampled in the study.

CONCLUSION AND RECOMMENDATIONS

The study investigated the effect of environmental disclosure on the price-earnings ratio. The study based on the regression analysis found that joint statistics had a positive significant effect on the price-earnings ratio. Consequently, the study conclusively reveals that environmental disclosure affects the price-earnings ratio of manufacturing companies listed in Nigeria. Based on these findings, the study recommends the following:

i. Shareholders should insist on obtaining adequate and credible information in relation to environmental protection, from the perspective of environmental policies effectiveness and environmental management compliance.
ii. The study recommends that the shareholders should prevail on the boards of the selected manufacturing companies investigated in this study to adhere to environmental policies and adhere to specific compliance requirements to avert possible regulatory sanctions, and potential litigations that could arise for flouting environmental requirements, as well as possible contingent liabilities or fines against such companies where they had invested.
iii. Policymakers should make and ensure the enforcement of environmental disclosure compliance requirements in Nigeria. It is believed that adequate environmental disclosure would guide the shareholders in making useful investment decisions of planning, portfolio diversifications and other investment decisions in manufacturing companies.

Contribution to future research: In contributing to knowledge, the study provided the significance of sustainability reporting in enhancing corporate performance of the manufacturing companies towards meeting price-earnings ratio of the companies.

REFERENCES

Acar, M., & Temiz, H. (2020). Empirical analysis on corporate environmental performance and environmental disclosure in an emerging market context. *International Journal of Emerging Markets, 15*(6), 1061–1082.

Aguguom, T. A., Ajayi, A. (2020). Voluntary or Mandatory Disclosure of Financial

Information by listed Corporate Entities in Nigeria: The Stakeholders' perspectives. *European Journal of Business, Economics, and Accountancy*, *8*(2), 73-86. *ISSN 2056-6018. http://*www.idpublications.org.

Aguguom, T. A. (2020). Cash Flow Optimality and Investment Returns: Investors Expectations in listed Manufacturing Firms in Nigeria. *Asian Journal of Economics, Business, and Accounting***.** *16*(4), 39-50, Article no. AJEBA.59499. ISSN: 2456-639X. DOI: 10.9734/AJEBA/2020/v16i430247

Badingatus. S., & Ukhti, M. (2021) Factors influencing environment disclosure quality and the moderating role of corporate governance. *Cogent Business & Management, 8*(1), 187-206.

Bellucci, M., Biagi, S., & Manetti, G. (2019). Dialogic accounting and stakeholder engagement through social media: the case of top-ranked Universities. *Review of Higher Education, 42*(3), 1145–1184.

Carnini-Pulino, S., Ciaburri, M., Magnanelli, B. S., & Nasta, L. (2022). Does ESG disclosure influence firm performance? *Sustainability*, *12*(2), 14-34.

Cho, C. H., & Patten, D. M. (2013). Green accounting: Refections from a CSR and environmental disclosure spective. *Critical spectives on Accounting, 24*(6), 443–447.

Cristea, A., Hummels, D., Puzzello, L., & Avetisyan, M. (2013), Trade and the greenhouse gas emissions from international freight transport. *Journal of Environmental Economics and Management, 65*(1), 153-173

Dhar, S., & Asharaful, M., (2021). Impact environmental accounting practices on financial performance: evidence from banking sector of Bangladesh. *International Journal of Asian Business and Information Management, 12*(1), 24-42.

Djuminah, O., Wuruyani, M., Kurniawati, S. B., & Satyanovi, V. A. (2017). Firms characteristics and environmental disclosure: A comparative study of hospitality industry of Indonesia, Malaysia and Thailand. *Review of Integrative Business and Economics Research*, *6(*4), 364-376.

EEA (2017). ENER 016 - Final energy consumption by sector and fuel. Available at: https://www.eea.europa.eu/data-and-maps/indicators/use-of-freshwater-resources-3/eea-2017. Accessed 25th August 2022.

Egbunike, A.M., & Okoro, G.E., (2018). Does green accounting matters to profitability of Firms in Nigeria: A Canonical Assessment. *Original scientific pa*, *20*(1), 17-26

Emeka, L., O., Nwezu,A.U., & Nwadiolor, E.,O.,(2020). Effect of social and environmental dislosures on performance of non-financial firms in Nigeria. *Journal of Accounting and Financial Management*, *6*(1), 40-58

Emeke, E., Olaoye, S. A., & Ogundajo, G. O. (2021). Effect of social and environmental disclosure on the performance of listed consumer goods producing companies in Nigeria. *International Journal of Applied Economics, Finance and Accounting*, *11*(1), 35-47.

Ezeagba, C.E., Racheal, J.C & Chiamaka, U. (2017). Environmental accounting disclosures and financial performance: A study of selected food and beverage companies in Nigeria (2006-2015). *International Journal of Academic Research in Business and Social Sciences, 7*(9), 162-174.

Ezejiofor, R. A., Racheal, J.C., & Chigbo, B. E. (2016). Effect of sustainability organizations, environmental cost accounting on financial performance of Nigerian corporate *International Journal of Scientific Research and Management, 4*(8), 4536-4549.

Falcone, P. M. (2018). Green investment strategies and bank-firm relationship: A firm-level analysis. *Economic. Bulletin, 3*(8), 2225–2239.

Giangrande, N., White, R. M., East, M., Jackson, R., Clarke, T., Salof Coste, M. (2019). A competency framework to assess and activate education for sustainable development: Addressing the UN sustainable development goals 4.7 challenge. *Sustainability, 11*(10), 2832.

Giannopoulos, G., Renate, V. K., Mahmoud, E., & Hossain, A. M. (2022). The ESG disclosure and the financial performance of Norwegian listed firms. *Journal of Risk and Financial Management, 15*(3), 211-237.

Hassan, M. K., & Lahyani, F. E. (2020). Media, independent non-executive directors and strategy disclosure by non-financial listed firms in the UAE. *Corporate Governance, 20*(2), 216–239.

Igbekoyi, O..E., Ogungbade, O.I., & Olaleye, A.G. (2021). Financial performance and *European Journal of Accounting, Auditing and Finance Research, 10(*2), 31-51.

Iliemena, R., O. (2020). Environmental accounting practices and corporate performance: study of listed oil and gas companies in Nigeria. *European Journal of Business and Management, 12*(22), 58-70.

Jun, W., Shiyong, Z., & Yi, T. (2022) Does ESG disclosure help improve intangible capital? evidence from a share listed companies. *Frontiers in Environmental Science, 5*(3), 1-21.

Kumar, P., & Firoz, M. (2017). The impact of voluntary environmental disclosure on cost of equity capital: Evidence from Indian firms. *The Journal of Contemporary Management Research, 11*(1) 1-26.

Kurawa, J. M., & Shuaibu, K. (2022). Environmental disclosure and financial performance of listed non-financial companies in Nigeria. *European Journal of Accounting, Auditing Research, 10*(2), 31-51.

Leung, T.C.-H., & Snell, R. S. (2019). Strategies for social and environmental disclosure: The case of multinational gambling companies. *Journal of business ethics, 49*(2), 1–21.

Martinico-ez, M. F. G., Schandl, H., Fishman, T., & Tanikawa, H. (2018). The socio-economic metabolism of an emerging economy: Monitoring progress of decoupling of economic growth and environmental pressures in the Philippines. *Ecological Economics, 147*(5), 155–166.

McGuire, W. (2014). The effect of ISO 14001 on environmental regulatory compliance in China. *Ecological Economics, 105*(5), 254–264.

Mohammad, S., D., Bala, A., and Hassan (2020). Determinants of corporate social and environmental disclosure in the Nigerian oil and gas industry; An empirical investigation. *International Journal of Auditing and Accounting Studies*, *2*(2), 2020: 129-153.

Moses, E., Che-Ahmad, A., & Abdulmalik, S. O. (2020). Board governance mechanisms and sustainability reporting quality: A theoretical framework. Cogent Business & Management, 7(1), 1771075.

Murdifn, I., Pelu, M. F. A., dana, A. A. H., Putra, K., Arumbarkah, A. M., Muslim, M. (2019). Environmental disclosure as corporate social responsibility: Evidence from the biggest nickel mining in Indonesia. *International journal of Energy Economics and policy, 9*(1), 115.

Ndukwe, E. O. D. & Nwakanma, G. N. (2018). Corporate sustainability reporting and firm profitability: A survey of selected quoted companies in Nigeria. *The Nigerian Accountant, 51*(2), 18 – 26.

Nwanna, I., & Glory, I., (2017). Effects of Financial Leverage on Firms's performance: A Study of Nigerian Banks. *International Journal of Recent Scientific Research, 8*(7), 18554-18564.

Oguaon, S., and Ekpulu, G., A., (2020). Environmental reporting and operational of performance: a study of listed manufacturing companies in Nigeria. *International Journal intellectual disclosure, 3*(1), 1-17.

Ogunode,O. A., & Adegbie, F. F. (2022). Environmental disclosure practices and sustainable performance of quoted manufacturing companies in Nigeria. *Asian Journal of Economics, Business and Accounting, 22*(23), 455-469.

Ong, T.T., Tho, H.S., Goh, H.H., Thai S.B. & Teh B.H. (2016). The Relationship between Environmental Disclosure and Financial performance of Public Listed Companies in Malaysia. *International Business Management, 10*(4), 461-467.

Pien, C.P. (2020). Local environmental information disclosure and environmental non-governmental organizations in Chinese prefecture-level cities. *Journal of Environmental Management, 27*(5), 1-5.

Qian, W., & Chen, X. (2020). Corporate environmental disclosure and political connection in regulatory and leadership changes: The case of China. *The British Accounting Review, 10(*9), 12-35.

Seles, B. M. R. P., de Sousa, L., Jabbour, A. B., Jabbour, C. J. C., Latan, H., & Roubaud, D. (2019).Do environmental practices improve business performance even in an economic crisis? extending the win-win spective. *Ecological Economics, 163(7),* 189–204.

Strandberg, T., & Grahame, K. S. (2020). An audit of literature reviews published in Australian social work (2007–2017). *Australian Social Work, 73*(1), 18-31.

Sukhdev-Singh, R. I. S. C. (2017). Empirical study on determinant of environmental disclosure: Approach of selected conglomerates. *Managerial Auditing Journal, 32*(4/5), 1-31.

Sutherland, K., Davis, C., Terton, U., Visser, I. (2018). University student social media use and its influence on offline engagement in higher educational communities. *Studies of Success, 9*(6), 13–24.

Tadros, H., & Magnan, M. (2019). How does environmental performance map into environmental disclosure? *Management and Policy Journal: Sustainability Accounting, 5*(2), 1-25.

Talbot, D. & Boiral, O. (2018). GHG Reporting and impression management: an assessment of sustainability reports from the energy sector. *Journal of Business Ethics. 147,* 367–383.

Tang, Y., Miao, X., Zang, H., & Gao, Y. (2018). Information disclosure on hazards from industrial water pollution incidents: Latent resistance and countermeasures in China. *Sustainability*, *10*(5), 1475.

Tontiset, N., & Kaiwinit, S. (2018). The Factors affecting financial reporting reliability: an empirical research of public listed companies in Thailand. *Journal of Accounting and Audit, 14*(5), 291–304.

United Nations (2015). United Nations Sustainable Development Summit 2015 Available at: https://sustainabledevelopment.un.org/post2015/summit Sourced 21 Augustien 2022.

Uyar, A., & Kilic, M. (2012). The influence of firm characteristics on disclosure of financial ratios in annual reports of Turkish firms listed in the Istanbul stock exchange. *International Journal of Accounting and performance Evaluation, 8*(2), 136- 156.

Venturelli, A., Cosma, S., & Leopizzi, R. (2018). Stakeholder engagement: An evaluation of European banks. *Corporate Social Responsibility and Environmental Management, 25*(4), 690–703

Vogt, M., Hein, N., Rosa, F. S., & Degenhart, L. (2017). Relationship between determinant factors of disclosure of information on environmental impacts of Brazilian companies. *Estudios Gerenciales*, *33*(142), 24–38.

Wen, H., & Moehrle, S. (2016). Accounting for goodwill: An academic literature review and analysis to inform the debate. *Research in Accounting Regulation*, 54(7), 1- 11.

Welbeck, E. E., Owusu, G. M. Y., Bekoe, R. A., & Kusi, J. A. (2017). Determinants of environmental disclosures of listed firms in Ghana. International journal of corporate social responsibility, 2(1), 11-25.

Wijsman, J., Troost, K., Fang, J., & Roncarati, A. (2019). Global production of marine bivalves. Trends and challenges. *Goods and services of marine bivalves , 5*(2), 7–26). Cham: Springer.

Yao, S., & Liang, H. (2019). Analyst following, environmental disclosure and cost of equity: Research based on industry classification. Sustainability, 11(2), 300.

Yaya, R., Wibowo, S. A., Ulfaturrahmah, & Jalaludin, D. (2018). Environmental disclosure practices after mandatory disclosure policy in Indonesia. *Journal of Business and Retail Management Research (JBRMR), 12*(4), 14-25.