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# Environmental Cost and Financial Performance of Listed Manufacturing Firms in Nigeria

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**Abstract**
The purpose of this research was to determine whether there was a relationship between environmental costs and the performance of publicly listed Nigerian manufacturing companies. The research goals were accomplished by focusing on the connections between waste management expenses and the bottom lines of Nigeria's publicly traded manufacturers and suppliers. The research looked at ten (10) of the publicly traded food manufacturing companies in Nigeria from 2012 to 2021. The research relied on information gathered from other secondary sources. Statistical Packages for the Social Sciences (SPSS) and E-views were used to examine the data collected from the yearly reports.The degree of relationship among the variables was analyzed using Panel OLS. The research also selected between the random effect and fixed effect regression analyses using the Hausman Test, the findings of this research show a favorable correlation between environmental cost and the success of listed manufacturing enterprises in Nigeria. As a result, the aforementioned findings have a 5% significance threshold, indicating that environmental cost has a considerable impact on Nigerian listed manufacturing enterprises' performance. The following recommendations were given according to the findings of this research; when businesses fail to run their operations in an ecologically friendly manner; the government should apply high tariffs and sanction them severely, there should be a thorough review and, if necessary, a redesign of environmental policy, firms should look for ways to improve their corporate social responsibility (CSR).

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## 1. INTRODUCTION

Environmental cost is the process through which industry develops, sells, and distributes environmentally friendly technology to generate economic benefit. It is seen as efforts made by

businesses to lessen their typical impact, and may also be used to alter the company's intensity, so altering profitability and nearly efficient resource usage (Shanshan, Tommy, &Wenchao, 2015). According to Hsu (2017), there are some social and financial difficulties at play in the interaction between firms and their society that, if not handled legally, might jeopardize the smooth functioning of corporate involvement with their surroundings.

Globally, the growth is being attributed to a greater knowledge of the ecological consequences of human activities, which have increased considerably in recent decades. Although several methods exist for achieving superior environmental performance, not all have the same impact on the environment (Henri and Journeault, 2018). If end-of-pipe environmental management is used effectively to enhance environmental performance, it is possible to predict that undesirable outputs of industrial processes, such as emissions into the air and water, would improve (Schaltegger and Figge, 2020). End-of-pipe actions should have less of an impact on the environment than proactive environmental management, even if both cut emissions. In addition, not all of these activities have the same impact on the company's performance (Gamero, azorn, & Corte s, 2019)

Businesses have created sustainable cost strategies over the past decade in response to concerns that companies continue to prioritize profit maximization. Such attempts to create a company's environmental responsibility give measurable proof of the company's impact on the environment, which may be used to improve decision-making processes, establish the corporation's legitimacy with the environment or even strengthen the organization (Osemene, kolawole&oyelakun, 2016).However, researchers have emphasised that while establishing organisational priorities and corporate plans, the immediate context in which the institution operates should be considered in order to resolve viable difficulties emerging from political, social, and economic aspects. As a result, it is critical to consider the relationship between the expenses of waste reduction and the financial performance of Nigeria's listed industrial enterprises as well as the relationship between the cost of pollution reduction and the financial performance of Nigeria's listed manufacturing firms.

In light of the above, this research aims to examine the relationship between environmental cost and financial performance of the listed manufacturing firms in Nigeria. This will be done through the attainment of the following specific objectives which are to:

i. To determine the impact of waste reduction costs on the financial performance of Nigeria's listed industrial enterprises.
ii. To determine the impact of waste disposal costs on the financial performance of Nigeria's listed industrial businesses.

## 2. LITERATURE REVIEW

### Conceptual Review

### The Concept of Environmental Cost

As a subset of socially responsible investing, environmental cost seeks for businesses that promote or supply environmentally friendly goods and/or services as an investment objective (Jin, & Xu,

2019). Their investing selections are heavily influenced by this frame of reference. Regular businesses, such as natural resource industries, manufacturers and even financial institutions or merchants, may make a socially responsible contribution to the environment via environmental investment. It's a win-win situation for both businesses and the environment, since environmental stewardship may really improve their bottom line.

There has been a long-running debate on the severity of climatic disasters, as Alexopoulos (2017). "Slowing and mitigating these hazards presented by climate change is the defining issue of our era," Antonini (2016) stated in his comments at the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Synthesis Report that "slowing and mitigating these threats posed by climate change is the defining challenge of our age." Ziegler (2017) emphasized that corporate activities have an impact on the environment in many ways; they include the air and water quality; the land and habitat for endangered or vulnerable species; the seas; the atmosphere; land and mass; as well as a wide variety of other environmental factors.

Community forest management (CFM) requires environmental stewardship to be both financially feasible and well-governed to be successful. To put it another way, it's what the people of Nepal pay for things like property rights enforcement, forest management assistance, and the creation of chances for people to earn money or work with wood as a fuel source (Bista, 2015). According to the term "strategic environmental investment," firms are investing in environmental strategies in an effort to increase shareholder returns while also creating an advantage over competitors (Okere 2017).Although several methods exist for achieving superior environmental performance, not all have the same impact on the environment (Henri and Journeault, 2018). End-of-pipe and pollution-prevention measures, as well as proactive environmental management, are used to measure the environmental performance of companies. If end-of-pipe environmental management is used effectively to enhance environmental performance, it is possible to predict that undesirable outputs of industrial processes, such as emissions into the air and water, would improve (Schaltegger and Figge, 2020). End-of-pipe actions should have less of an impact on the environment than proactive environmental management, even if both cut emissions. In addition, not all of these activities have the same impact on the company's performance (Gamero, azorn, & Corte s, 2019).

Incurred environmental expenses are those that come up when there is or might be a problem with the quality of the environment and steps need to be taken to fix it. Environmental costs are "costs associated with the generation, identification, treatment, and prevention of environmental deterioration," as described by Hansen and Mowen (2018).According to Sarumpaet (2019), sustainable development refers to institutional policies and programs that support the poor and vulnerable in risk management and deprivation alleviation via direct cash or in-kind transfers. Social responsibility, more government regulation, improved consumer awareness, and global standards are some of the factors driving firms to seek sustainable growth. Because of the production and consumption of manufactured goods, industrial activities have a substantial impact on the environment.

## Theoretical Literature

### Stakeholder Theory

Freedman coined the term "stakeholder" in 1994. Conceptual foundation: A company will function more efficiently when all stakeholders' interests are put ahead of the owners. Insiders and outsiders alike have shares in a firm; insiders being employees and outsiders include suppliers, consumers, creditors, shareholders, the government, and the community (Ganzi, 2016). A manager's main responsibility is to all stakeholders, not only the board of directors, making the stakeholder viewpoint vital. As a first step, the concept considers the importance of the board of directors. The meaning of the word "stakeholder" has evolved through time.

Freeman has been given credit for coining the phrase "The idea of the stakeholder" in several research and publications. The person who first proposed the concept of stakeholders. Since his book Strategic Management: A Stakeholder Approach serves as the cornerstone for stakeholder theory, many scholars look to Freeman's technique for inspiration. This includes strategic management, organizational strategy, systems theory, and corporate social responsibility (Yang, 2018)

Theory is composed of four complementary elements: descriptive, instrumental, and normative (or advisory) (Khanna, 2017). This approach is used to identify and describe corporate qualities, such as how firms are managed, what the board of directors considers as stakeholders, how managers understand management and the core of a corporation. Using observable data, the instrumental approach attempts to establish a causal relationship between stakeholder management and business success (most commonly profitability and efficiency goals). According to Donaldson and Preston, the theory's central tenet is the normative approach, which focuses on the actions and factors that shape organisationalbehaviour. Management and leadership at the organisation are inspired by ethical and/or intellectual principles. With over 1,100 citations since its 1995 publication, this paper has become a cornerstone of the field(Hsu, 2017).

## Empirical Review

Indonesian firms' environmental performance and financial performance were studied by Sarumpaet (2019). By looking at company environmental ratings, it is possible to gauge environmental performance. There are also a few control factors included in this research, such as total sales and the industrial sector. However, although financial success is not substantially connected with environmental performance, firm size, stock market listing, and ISO 14001 are strongly associated with environmental performance. That the government's environmental rating is in line with the standards of worldwide environmental certification is also clear from this study.

It was found that environmental cost has an impact on returns on assets, as evaluated by Jin& Xu (2019). (To examine the association between variables, the research employs a regression analysis technique. U-shape correlation between environmental cost and financial success has been shown empirically. With the aid of this research, executives may better balance environmental cost with their desire to be profitable.

The goal of Gamero, (2019) was to provide more in-depth knowledge of critical environmental factors and how they impact a firm's success. A thorough examination of the historical and statistical data on the subject was conducted. It seems from the data that both the environmental factors and the firm's performance are on the rise. Research shows that the external environment in which a company works is critical to its long-term survival, hence suitable policies should be put in place to ensure the environment's long-term viability

In their research, Huang and Fu (2019) looked at the connection between a company's environmental impact and its financial success. In addition to descriptive statistics, regression analysis was performed. There should be a positive correlation between a company's environmental impact and its financial results. Green buying, green processing, and green marketing, as well as other environmental actions, should be prioritized by companies.

A study by Lundgren (2019) analyzed the influence of environmental production practices investments on environmental performance and energy efficiency gradually. Network data is used to connect future production technologies to intertemporal investment decisions using a period-by-period estimate. Both energy efficiency and environmental performance were improved, although total production was somewhat lower than it had been before. For both company managers and regulators, this offers a valuable tool to account for investment choices in terms of better energy efficiency and emissions reductions.

Studying environmental expenses and how they relate to ROI was the focus of a recent study conducted by OtiEffiong and Tiesieh(2018). The ordinary least square method was used to analyse the data that was gathered from both primary and secondary sources. Environmental costs do affect return on investment in Nigeria, as shown by the empirical analysis of this paper. Thus, the investigation's findings suggest that environmental regulatory authorities should mandate that manufacturing companies include environmental costs in their financial statements, and that environmental management accounting be incorporated into the more conventional accounting practises of manufacturing firms.

In the steel business, Hsu (2017) looked at the link between environmental information disclosure and financial performance. Steel sector A-shares offered on the Shanghai Stock Exchange from 2010 to 2014 are the focus of this research. The findings suggest that environmental financial transparency has a detrimental impact on a company's success. For this reason, environmental non-financial disclosure has no bearing on the financial success of a company.

## 3. METHODOLOGY

### Research Design

This study followed a quantitative approach, which is a method in which groups with qualities that already exists are compared on some dependent variable. The study was centered on quantitative variables and was sourced from secondary means from a period of 10 years (2012- 2021).

### Theoretical framework

According to Hilmi (2016), the traditional economic underlying notion that a firm's main purpose should be profit maximisation has been challenged by the stakeholder theory of a business. It was

first presented in 1984 by Edward Freeman. This concept centres on the premise that corporations must prioritise the needs of all stakeholder groups above their own (Rajeh, 2020). To rephrase, this perspective clarifies why businesses should act ethically by highlighting their essential societal role. Stakeholders are "any person or group that may claim an organization's attention, resources, or output, or who may be influenced by the organisation," as defined by Sarumpaet (2019). By contrast, stakeholders are "any defined group or individual who may affect or is influenced by an organization's accomplishment of its objectives" (Rajeh, 2020).This notion is intrinsically linked to the work due to the nature of CSR, which impacts not just shareholders but other stakeholders.

**Model Specification**

The effects of corporate social responsibility of DMBs in Nigeria are calculated by this model. This model has been adapted from the work of from works of (Sarumpaet, 2019), which initially used:

$$ROA_{it}= \beta 0_{it} + \beta_1 WM_{it} + \beta_3 PP_{it} + \mu$$

Where:ROA = Return on asset; WM = waste management; PP = Pollution Prevention

The model would be adapted to:

$$EPS_{it}= \beta 0_{it} + \beta_1 CWM_{it} + \beta_2 CPP_{it} + \beta_4 CWD_{it} + \beta_5 FZ_{it} + \mu \quad 1$$

$$ROA_{it}= \beta 0_{it} + \beta_1 CWM_{it} + \beta_2 CPP_{it} + \beta_4 CWD_{it} + \beta_5 FZ_{it} + \mu \quad 2$$

Where:

CWM = cost of waste management; CPP = Cost of pollution prevention; CWD = Cost of waste disposal; FZ = Firm size; ROA = return on asset; EPS = Earnings per share; ROA = Return on asset; $\mu$ = error term; i = cross-section; t = time

**Apriori Expectation:**

The prior expectation checks the co-efficient of the model parameters which are being estimated. This study believes that all the variables are positive, which can be mathematically represented as $\beta 1, \beta 2, \beta 3, \beta 4, > 0$.

**Method of Analysis**

The data obtained from the annual reports were analyzed using Statistical Packages for Social Sciences (SPSS) and E views. This study covers ten years from 2012-to 2021. The data generated from the annual reports of the listed companies were analyzed using descriptive statistics to understand its basic features. The degree of relationship among the variables was analyzed using Panel OLS. The research will also select between the random effect and fixed effect regression analyses using the Hausman Test.

**Source of Data**

For this study, secondary data were used. The data are were extracted from the annual reports of the listed food manufacturing firms in Nigeria as a result of the availability of the data; each report will be from 2012 to 2021 (10 years).

**Population and Sample Size**

The population of the work is the total amount of the listed Food manufacturing firms in Nigerian and the sample size is a total of 10 firms. This population was selected as a result of the easy accessibility of the annual reports. The firms were selected using a judgmental sampling technique.

## 4. ANALYSIS OF DATA AND INTERPRETATION OF THE RESULT

This section explains the different statistical methods that were used to analyze the data. Each model has its own panel OLS and a set of descriptive statistics, as well as some Hausman tests to check if the OLS model is having any effect on the results. The study's conclusion was reached based on the results of this measure as well.

**Table 4.1Descriptive statistics**

| | EPS | CPP | CWD | CWM | FZ | ROA | ROE |
|---|---|---|---|---|---|---|---|
| Mean | 163.1057 | 9.582166 | 9.978854 | 10.68981 | 14.31875 | 0.898966 | 1.008290 |
| Median | 100.0000 | 9.638492 | 10.09253 | 10.71327 | 14.28789 | 0.880842 | 0.950012 |
| Maximum | 793.0000 | 11.45053 | 12.66069 | 12.69235 | 19.77849 | 1.471859 | 1.731408 |
| Minimum | -540.0000 | 6.584791 | 7.128496 | 8.124743 | 7.982416 | 0.551586 | 0.598807 |
| Std. Dev. | 210.0827 | 1.002276 | 1.073673 | 0.951112 | 3.906175 | 0.166940 | 0.266138 |
| Skewness | 0.852759 | -0.290669 | -0.329237 | -0.536135 | -0.082570 | 1.594366 | 1.285563 |
| Kurtosis | 4.569751 | 2.893199 | 3.100816 | 2.992491 | 1.418651 | 6.438860 | 3.893917 |
| Jarque-Bera | 22.38711 | 1.455670 | 1.848963 | 4.790914 | 10.53307 | 91.64072 | 30.87405 |
| Probability | 0.000014 | 0.482953 | 0.396737 | 0.091131 | 0.005161 | 0.000000 | 0.000000 |
| Sum | 16310.57 | 958.2166 | 997.8854 | 1068.981 | 1431.875 | 89.89662 | 100.8290 |
| Sum Sq. Dev. | 4369339. | 99.45126 | 114.1246 | 89.55672 | 1510.562 | 2.759028 | 7.012139 |
| Observations | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Source: Authors Computation (2022)

Descriptive statistics was carried out to help understand the nature of the distribution. The results indicate that;

i. In terms of earnings per share (EPS), the median (the middle point) is less than 100, the maximum is 793, and the lowest is -540. The distribution of EPS is well-fitting since its mean (the average value) is 163.10, and at least half of the values are less than 100 (the median).
ii. With a mean of 9.58, a median of 9.63, a maximum value of 11.4 and a minimum value of 6.58, and a CPP that's negatively skewed, the distribution's kurtosis shows that it's well-fitting, we know that the average CPP is well below 50% of the distribution's median and that the distribution has a good fit.
iii. According to the CWD's mean, the median, maximum, and lowest values are all less than or equal to 10.09, with a mean value of 9.97 and a range of 12.6, 7, 12, and 50% respectively. kurtosis shows that the distribution is well-fitting because to its negative skewness, which means that the average CWD is less than half of the distribution's range.
iv. To summarize, the FZ has a mean of 14.3, the median is 14.2 (median), the maximum and lowest are 19.7 and 7.9 respectively, and the FZ is negatively skewed which implies that the average FZ is below 50% (median). The kurtosis suggests the distribution is of excellent fit

**Table 4.2 Correlation Matrix**

| | EPS | CPP | CWD | CWM | FZ | ROA | ROE |
|---|---|---|---|---|---|---|---|
| EPS | 1 | 0.22 | 0.24 | 0.39 | 0.23 | -0.17 | -0.31 |
| CPP | 0.22 | 1 | 0.77 | 0.63 | -0.32 | -0.23 | -0.19 |
| CWD | 0.24 | 0.77 | 1 | 0.75 | -0.08 | -0.13 | -0.05 |
| CWM | 0.39 | 0.63 | 0.75 | 1 | -0.08 | -0.28 | -0.27 |
| FZ | 0.23 | -0.32 | -0.08 | -0.08 | 1 | -0.28 | -0.10 |
| ROA | -0.17 | -0.23 | -0.13 | -0.28 | -0.28 | 1 | 0.74 |
| ROE | -0.31 | -0.19 | -0.05 | -0.27 | -0.10 | 0.74 | 1 |

Source: Authors Computation (2022)

It displays the relationship between the variables. Multicollinearity is only an issue if the correlation coefficient between the regressors exceeds 0.80. The results demonstrate that the distribution does not exhibit multicollinearity.

**Hausman Tests**

These tests were conducted on the different models to determine which effect best suited the model; the decision rule indicates that if the probability value is more than 5 percent, the null hypothesis should be rejected; if the probability value is less than 5 percent, a fixed effect should be employed.

**Table 4.3 Model One**

| Correlated Random Effects - Hausman Test | | | |
|---|---|---|---|
| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
| Cross-section random | 3.927514 | 4 | 0.0159 |

Source: Authors Computation (2022)

A fixed effect would be used for this model (P-value < 5%)

**Table 4.4 Model Two**

| Correlated Random Effects - Hausman Test | | | |
|---|---|---|---|
| | | | |
| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
| Cross-section random | 6.847335 | 4 | 0.0442 |

Source: Authors Computation (2022)

A fixed effect would be used for this model (P-value < 5%)

**Test of Hypotheses**

The study would test the following hypothesis:

**For Objective One**

$H_0$: There is no significant impact of the environmental cost on the earnings per share of the listed manufacturing firms in Nigeria.

**Table 4.5Panel OLS (Hypothesis One)**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| | 0.313378 | 0.102355 | 3.061676 | 0.0029 |
| CPP | 0.313378 | 0.102355 | 3.061676 | 0.0029 |
| CWD | 0.003979 | 0.001910 | 2.082994 | 0.0399 |
| CWM | -0.048781 | 0.022718 | -2.147258 | 0.0343 |
| FZ | 0.018524 | 0.002463 | 7.521402 | 0.0000 |
| C | 0.100863 | 0.151976 | 0.663673 | 0.5085 |
| R-squared | 0.721899 | Mean dependent var | | 163.1057 |
| Adjusted R-squared | 0.709628 | S.D. dependent var | | 210.0827 |
| S.E. of regression | 155.8541 | Akaike info criterion | | 13.06490 |
| Sum squared resid | 2088984. | Schwarz criterion | | 13.42962 |
| Log likelihood | -639.2448 | Hannan-Quinn criter. | | 13.21251 |
| F-statistic | 7.221415 | Durbin-Watson stat | | 1.687695 |
| Prob(F-statistic) | 0.000000 | | | |

Source: Authors Computation (2022)

The regression analysis in Table 4.6 reveals that the cost of pollution prevention (CPP), the cost of waste disposal (CWD), the cost of waste management (CWM), and the firm size (FZ) all have a positive significant relationship with Earnings per share (EPS), as indicated by the T-statistics being above 2 and the P-Value being less than 0.05. It also shows that the degree of responsiveness (R-Squared) was adjusted from 72 percent to 70 percent. This suggests that any change in the dependent variable (EPS) may be attributed to the explanatory variable, since the Durbin-Watson statistic is 1.6, indicating no autocorrelation. When the P-value is less than 0.05, the alternative hypothesis is accepted and the null hypothesis is rejected.

**For Objective Two**

$H_0$: There is no significant relationship between environmental cost and return on asset of the listed manufacturing firms in Nigeria.

**Table 4.7Panel OLS (Hypothesis Two)**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| CPP | 0.236818 | 0.112361 | 2.107645 | 0.0380 |
| CWD | -0.046206 | 0.022443 | -2.058776 | 0.0425 |
| CWM | 0.025229 | 0.026343 | 0.957720 | 0.3409 |
| FZ | -0.060055 | 0.021456 | -2.799002 | 0.0063 |
| C | 1.805389 | 0.293614 | 6.148847 | 0.0000 |
| R-squared | 0.801103 | Mean dependent var | | 0.898966 |
| Adjusted R-squared | 0.771038 | S.D. dependent var | | 0.166940 |
| S.E. of regression | 0.079881 | Akaike info criterion | | -2.087385 |

| | | | |
|---|---|---|---|
| Sum squared resid | 0.548761 | Schwarz criterion | -1.722661 |
| Log likelihood | 118.3692 | Hannan-Quinn criter. | -1.939775 |
| F-statistic | 26.64503 | Durbin-Watson stat | 1.929184 |
| Prob(F-statistic) | 0.000000 | | |

Source: Authors Computation (2022)

The regression analysis in Table 4.7 shows that the cost of waste management (CWM) has a positive and insignificant relationship with ROA, the cost of pollution prevention (CPP) has a positive significant relationship with ROA, the cost of waste disposal (CWD) has a negative but significant relationship with ROA, and firm size (FZ) has a negative but significant relationship with ROA, which is shown as the T-statistics being above 2 and the P-Value being less than 0.05. The R-Squared value of 80 percent was reduced to 77 percent in order to account for the change in responsiveness. The Durbin-Watson statistic of 1.9 shows that there is no amount of autocorrelation for any change in the dependent variable (ROA) that can be explained by the explanatory variable. This means that the null hypothesis is invalid and the alternative hypothesis is valid since P-values are below 0.05.

## 5. CONCLUSION AND RECOMMENDATIONS

The research investigates the environmental costs and financial performance of Nigerian industrial enterprises listed on the stock market.Results also showed that the variables reliant on the independent factors had a favorable and statistically significant influence. In fact, the studies confirmed this. The statistics show a strong and substantial correlation between the two variables, and a level of significance of 5% is adequate to support this conclusion. A substantial and positive connection was found between the independent factors (environmental costs) and the dependent variables (financial performance), which were selected industrial enterprises in Nigeria, in the outcomes of the study. The fact that there is a significant and positive link suggests this.

In accordance with Sarumpaet (2019), Xu (2019), Huang and Fu (2019), and Lundgren (2019), the findings of this research show a favorable correlation between environmental cost and the success of listed manufacturing enterprises in Nigeria. As a result, the aforementioned findings have a 5% significance threshold, indicating that environmental cost has a considerable impact on Nigerian listed manufacturing enterprises' performance.

### Recommendation

According to the findings of this research;

i. When businesses fail to run their operations in an ecologically friendly manner, the government should apply high tariffs and sanction them severely

ii. There should be a thorough review and, if necessary, a redesign of environmental policy.

iii. Firms should look for ways to improve their corporate social responsibility (CSR).

iv. It is the responsibility of environmental regulatory bodies to guarantee that environmental issues are not seen as optional but rather as a matter of mandatory discussion. Indicators like environmental performance might benefit from this.

**REFERENCES**

[1]. Alexopoulos, H (2017). Capital structure adjustment in private business group companies. Applied Financial Economics, 1275-1288.

[2]. Antonini, O (2016). Capital structure and firm performance: Evidence from Palestine Stock Exchange. Journal of Money and Investment Banking, 23, 109-117.

[3]. Gamero, E (2019). Does Board and CEO Matter for Bank Performance? A Comparative Analysis of Banks in Ghana. African Journal for the Psychological Study of Social Issues, 1(2), 76-89.

[4]. Ganzi, L (2016). Data in search of a theory: a critical examination of the relationship among social performance, social disclosure, and economic performance of US firms. Academy of Management Review, 10(3), 540–577

[5]. Hilmi, B (2016) Determinants of corporate social responsibility disclosure: An application of stakeholder theory. Accounting, Organizations and Society, 17 (6), 595-612.

[6]. Hsu, L (2017). The role of banks in corporate social responsibility. Journal of Applied Economics and Business Research, 1(2), 13-115.

[7]. Huang, O & Fu, J (2019) corporate governance and performance in the wake of the financial crisis: Evidence from US commercial banks. Corporate Governance: An International Review, 19(5), 418–436.

[8]. Jin, L &xu, V (2019) Effects of corporate governance on corporate social and environmental disclosure among listed firms in Nigeria. European Journal of Business and Social Sciences, 2(5), 76-92

[9]. Khanna, L (2017). Intellectual capital and traditional measures of corporate performance. Journal of Intellectual Capital, 4(3), 348-360.

[10]. Lundgren, T (2019). The credit crisis and the moral responsibility of professionals in finance. Journal of Business Ethics, 103(4), 605-619.

[11]. Ngwakwe, A (2017). Corporate Social Responsibility and Financial Performance in Developing Economies: The Nigerian Experience. Journal of Economics and Sustainable Development, 3(4), 44-54.

[12]. Okere, W (2017) Environmental Investments and Financial Performance of Listed Manufacturing Companies in Nigeria, https://www.researchgate.net/publication/322581972

[13]. Oluka, O (2018). Factors influencing social responsibility disclosure by Portuguese companies. Journal of Business Ethics, 83, 685-70

[14]. Osemene, G Kolawole, M &oyelakun, F (2016) A resource-based perspective on corporate environmental performance and profitability. Academy of Management Journal, 40(3), 534-559.

[15]. Vadivu, N. S., Gupta, G., Naveed, Q. N., Rasheed, T., Singh, S. K., & Dhabliya, D. (2022). Correlation-based mutual information model for analysis of lung cancer CT image. BioMed Research International, 2022, 6451770. doi:10.1155/2022/6451770

[16]. Veeraiah, D., Mohanty, R., Kundu, S., Dhabliya, D., Tiwari, M., Jamal, S. S., & Halifa, A. (2022). Detection of malicious cloud bandwidth consumption in cloud computing using machine learning techniques. Computational Intelligence and Neuroscience, 2022 doi:10.1155/2022/4003403

[17]. Oti, G, Effiong, P and Tiesieh, A (2018). Empirical evidence on corporate social disclosure practices in Jordan. International Journal of Commerce and Management, 10(4), 18- 34.
[18]. Oyelakun, J (2016). The corporate social performance-financial performance link. Strategic Management Journal, 18(4), 303-319.
[19]. Sarumpaet, T (2019). The impact of corporate social responsibility on firms' profitability in Nigeria. European Journal of Economics, Finance & Administrative Sciences, 4(5), 8-19
[20]. Yang, O (2018). The reaction of stock prices to dividend announcements and market efficiency in Pakistan. Lahore Journal of Economics, 15(1), 103-125.
[21]. Zhang, O (2015). An analysis of the impact of corporate pollution disclosures is included in the annual financial statement on investors 'decisions. Academy of Management Journal, 28, 122-141.
[22]. Ziegler, G (2017). A strategic posture toward corporate social responsibility. California Manage. Rev. 18(2), 49-58.