FUDMA JOURNAL OF ACCOUNTING AND FINANCE RESEARCH [FUJAFR]
VOLUME 2, ISSUE 1; ISSN: 2992-4693 (ONLINE); 2992-2704 (PRINT)

Natural Capital Accounting and Profitability of Listed Manufacturing Firms in Nigeria

Fadheela Uba Jahun[1]
Muhammad Liman Muhammad[2]
Zaharaddeen Salisu Maigoshi[2]
Moses Babatunde Olanisebe[3*]

[1]*Accounting and Finance Department, Transmission Company of Nigeria, Kumbotso, Kano State, Nigeria*
[2]*Department of Accounting, Bayero University, Kano, Nigeria*
[3]*Bursary Department, University of Maiduguri, Borno State, Nigeria*
**Correspondence Email : walemose@gmail.com*

https://doi.org/10.33003/fujafr-2024.v2i1.80.75-91

Abstract

This study examines the impact of natural capital accounting on profitability of listed manufacturing firms in Nigeria and it adopts correlational research design. The population of the study consists of sixty-four manufacturing firms listed on the Nigerian Exchange Group (NGX) for thirteen years between 2010- 2022. The study used the purposive sampling method, to obtain a sample of forty-nine manufacturing firms that meet the criteria. Return on Asset (ROA) is considered as proxy of profitability while natural capital accounting index (scores) were generated using 7 items in line with International Initiative on Integrated Reporting Council (IIRC). Data for the study was extracted from the annual reports and accounts of the sampled firms for the period under study, and analyzed using multiple regressions. The result revealed that natural capital accounting has significant and positive effect on return on asset (ROA). Based on these findings, this study therefore, concludes that natural capital accounting influence profitability of listed manufacturing firms in Nigeria. This study recommends among others that, listed Nigerian manufacturing firms should emphasize more on reporting their natural capital accounting as it is capable of improving their profitability. This can be achieved through proper and accurate reporting of their environmental information, because it affects profitability significantly. Also, in line with global best practices, regulatory agencies in Nigeria should issue reporting standards that would make reporting of all sustainable capital items and particularly environment/natural capital accounting mandatory.

Keywords: Natural Capital Accounting, Profitability, Listed Manufacturing Firms, Nigeria.

1.0 Introduction

Over the years, profitability has been seen as an indicator of a survivor for an organization. It can be viewed in terms of how economically, efficiently, and effectively the resources of the organization have been used to achieve its goals (Nwaimo, 2020). Many factors may have affected firm profitability in both developing and developed countries and there are many factors that can affect profitability over time. In other words, there are situations of poor profitability caused by many factors and the causes of this fall in profitability which persistently affected the operations of the companies. In other to curb this situation and increase profitability, some of the most commonly factor is natural capital accounting reporting. This is currently a global issue because of the need for sustainability and preservation of natural resources and the minimization of the externalities associated with the exploration and exploitation of bio-sphere assets (Etim et al., 2022). Natural capital accounting reporting has been suggested as some of the solutions that could at least mitigate the situation, at least on the short term (Adewoye et al., 2018).

Natural capital accounting is a method that seeks to assign economic value to the benefits that ecosystems provide to society. According to EU (2013), natural capital is the most fundamental of the core forms of capital since it provides basic conditions such as fertile soil, multifunctional forests, productive land and seas, quality freshwater, and clean air for human existence. Put in a business perspective, natural capital is the inventory of mined, stored, or produced natural resources held by companies, such as water, gold, natural gas, silver, or oil (Lambe et al., 2022). Natural capital explorers and refiners should adhere to environmental regulations which may include rules on exploration conditions and production locations to limit risk to the environment. In reality, companies that are explorers and producers of natural capital spend a substantial amount of their expenses on recovery and protection measures which creates an expense level that affects the profitability of the company.

Companies' activities bear primary responsibility for climate change and global warming with their attendant disastrous consequences. In response to these pressures, environmental issues are increasingly considered in firms' activities (Kalash, 2020). As a result, society and the government are mounting pressure on firms to disclose more environmental information, and to adopt a production strategy that improves environmental performance, provides low-carbon products, and reduces greenhouse gas emissions and environmental pollution (Lu & Abeysekera, 2014). Hence, natural capital accounting of firms needs to be priority in order to maximize financial performance. More research is needed to fully understand the impact of natural capital accounting on profitability, because natural capital accounting can contribute to environmental conservation while also generating economic benefits.

Natural capital accounting discloses environmental, social, and governance (ESG) as it affects a firm's performance, society, and the economy (Kalash, 2020). Such reporting according to them enhances firms' reputation, reduces information asymmetry, and reduces agency costs and cost of capital. All these benefits encourage managers to be forthcoming and to present good environmental behaviour. According to Etim et al. (2022) environmental or natural capital reporting drives pricing and profitability, assists decision-makers to target cost reduction, reduces waste, and improves eco-efficiency. This implies that natural capital reporting can enhance a firm's reputation and stakeholder trust, leading to increased customer loyalty and improved financial performance.

Based on the aforementioned, there is need for both local and international companies to engage fully in activities that will improve the well-being of their host communities and the society in general and such activities should be reported and disclosed so that the society will know the extent and the level of the companies' commitment toward environment. The disclosure of such information may have impact on the profitability of the companies involved because natural capital reporting suggests that a good relationship with employees, suppliers and customers are necessary for the survival of the company and when a company increases its cost by improving natural capital reporting in order to increase competitive advantages, such natural capital reporting activities can enhance company reputation, decreasing the level of information asymmetry between a firm and its investors, thus lowering firm risk and increasing financial performance in the long run (Kurawa & Shuaibu, 2022).

However, these are submissions that must be empirically subjected to testing to determine the effect of these factors on the profitability of manufacturing firms in Nigeria. In those firms, environmental factors such as climate change, environmental disclosure, natural capital accounting, sustainability reporting, natural disasters, or resource scarcity can impact profitability by increasing costs or disrupting supply chains. While the literature on the impact of natural capital accounting on profitability is still relatively limited, there have been some studies that suggest that natural capital accounting can have positive

effects on financial performance. Kalash (2020) asserted that corporate environmental performance has become a more important issue to stakeholders because of the harmful impact of a firm's operations on the environment. Industrial activities bear primary responsibility for climate change and global warming with their attendant disastrous consequences.

Manufacturing firms are firms that their activities have an impact to the society as such there is a need to take care of their environmental issues and how they are addressed in their annual report and account, Secondly the seven sectors (that is agricultural, conglomerates, consumer goods, industrial, healthcare, oil and gas and natural resources firms) are sector that engage in industrial process that led to environmental risks to the society such as greenhouse global warming, gas emissions, environmental pollution, atmospheric pressure, and contribute greatly in the economic development. Disclosure of information related to natural capital accounting may affect manufacturing profitability. According to Etim et al. (2022) and Lindgreen et al. (2012), when firms are unable to provide the community with an adequate assessment of the actions taken to address environmental destruction, it is likely for the society to lower their demand for the firms' services, which in turn can lead to low firm productivity and profitability. However, most companies do not correctly report environmental problems. Even the reporting companies are not clear whether disclosure has a direct effect on the financial performance of industrial and consumer goods firms (Hans et al., 2021).

Numerous research studies have been explored influence environmental reporting and environmental/natural capital reporting on financial performance in both advanced and developing nations. Some notable studies include those by Kolawole et al. (2023), Etim et al. (2022), Obiora et al. (2022), Kurawa and Shuaibu (2021), Oyedokun et al. (2019) and Osemene et al. (2016). However, these empirical studies have produced conflicting results, particularly concerning the impact of natural capital accounting reporting on financial performance levels. While some, like Etim et al. (2022), Obiora et al. (2022), Charles and Muyiwa (2022), Igbekoyi et al. (2022) and Ngozi and Ike (2019), found a significant link between natural capital reporting on financial performance, others showed no substantial relationship between natural capital reporting on financial performance. This inconsistency highlights a research gap in understanding the connection between natural capital accounting on profitability. The variations in data analysis, sample size, and research methodologies could contribute to these conflicting findings.

Extensive review of previous literature showed a population gap as studies focused mainly on multinationals and conglomerates. Hence, the present study changed the domain focus to listed manufacturing firms in Nigeria, which were rarely considered by previous studies. Furthermore, researchers such as Gamayuni and Urbanski (2020), Osemene et al. (2016) and Makori and Jagongo (2013) did not consider Nigerian experience and hence, their findings are inapplicable in Nigeria. Also, the studies of Egbunike and Okoro (2018) and Out et al. (2018) are not up to date, while the studies of Iheduru and Chukwuma (2019), Chinedu et al. (2019) and Agbiogwu et al. (2016) did not consider the long run effect of natural capital accounting on the performances of firms. Similarly, Kolawole et al. (2023) concluded that environmental research and development, and environmental waste management could adversely affect financial performance if not well managed.

In line with aforementioned studies which have conducted locally and internationally, who have pointed out that sustainable capital (environmental/natural, social, human and intellectual) accounting and reporting is an important ingredient of corporate success and that it can contribute more to firm's

profitability. Researchers have also observed that, environmental or natural capital reporting improves pricing and profitability, assist managers in targeting cost reduction, reduces wastes and improves eco-efficiency. An attempt was also made to update the environmental literature to 2024 and to consider the long run effects of natural capital accounting on profitability of listed manufacturing firms in Nigeria. The main objective of this study is to examine the effect of natural capital accounting on profitability of listed manufacturing firms in Nigeria. The remainder of this paper is structured as follow; the next section presents the literature; section 3 provides the methodology. The results and findings are reported in section 4 and section 5, conclusion and recommendation.

2.0 Literature Review and Hypotheses Development

The Concept of Profitability

Profitability is a key financial metric that refers to a company's ability to generate profit which is mostly measures the efficiency of the managers and the firms' returns/profit for their investors (Etim et al., 2022). Profitability measures provide an insight to the degree of success or otherwise in achieving its primary objective. It is an important concept in business and finance, and has been widely defined. Profitability measures the extent to which a business generates profit from the factors of production namely capital, entrepreneur, labour and land. Four useful measures of profitability are the rate of Return on Assets (ROA), the rate of Return on Equity (ROE), Operating Profit Margin (OPM) and Net Income Margin (NIM) (Etim et al., 2022, Obiora et al., 2022; and Hansen & Mowen, 2005). According to Ibrahim et al. (2023), Return on Asset (ROA) indicates the level of profit of a company when comparing the income from operations to the total assets used to generate the income. In this study, ROA explains how efficient a company is in utilizing its available assets to generate profit. It calculates the percentage of profit a company earns against per naira of assets, the higher the value of ROA the better the performance (Weston & Brigham, 1977). This has been used by previous studies such as Korolo and Korolo (2023), Olanisebe et al. (2023) and Razaq et al. (2023) that individually used ROA as a proxy for profitability.

The Concept of Natural Capital Accounting

Natural capital accounting is a method for valuing the benefits that ecosystems provide to society, and has been gaining attention in recent years as a way to integrate environmental and economic decision-making (Nor et Al., 2016). Although, environmental accounting practice is a concept that has received attention in recent times especially after the world experienced the adverse effect of environmental abuse. Udo (2016) opined that environmental capital reporting is a framework for organizations to identify and account for past, present environmental assets, costs and benefits as well as provisions for contingent liabilities and assets to support managerial decision-making control and for public disclosure.

In order to measure the firm natural capital accounting, the study adopted the International Integrated Reporting Initiative (2013) index. The IIRC (2013) provides guidelines to firms in reporting on economic, environmental, social aspects, intellectual and human capitals and of the activities, products and services, and is the internationally accepted standard for any sustainable capital reporting. Dummy (1 or 0) of environmental disclosures of carbon emissions, energy consumption per energy source, quantity of waste, ecological accidents, recycled waste, environmental protection investment and animals/specimens purchased for trials which comprise of energy, water, biodiversity, emission, effluent and waste, products and services, environmental impact disclosure and compliance to environmental laws and regulations. A firm is assigned 1 if any of the above is disclosed in annual report of a company, otherwise, 0. The unweighted sustainable disclosure index is calculated as:
Unweighted disclosure index equal to each company's disclosed items divided by total number of items expected to be disclosed by the company. This index has been adopted in studies in countries like Nigeria

(Kolawole et al., 2023; Etim et al., 2022; Lambe et al., 2022 and Obiora et al., 2022), Indonesia (Zamil & Hassan, 2019), Malaysia (Nor et Al., 2016), Bangladesh (Ullah et al., 2013), and the United States of America (Razeed, 2010) among others.

Empirical Review

Academic researchers have been engaging in different studies on how natural capital accounting. Some relevant empirical studies relevant to the study are reviewed as follows: Kolawole et al. (2023) investigated the effect of environmental accounting practices on the financial performance of Nigerian aviation firms, with a specific focus on their environmental research and development, environmental pollution control policy, and environmental waste management. An ex-post facto research design was used in the study. The population comprised the five aviation firms listed on the Nigeria Exchange Group as of 31st December 2021. A census sampling technique was used which automatically made the five firms the sample size of the study. Data were obtained from secondary sources through the published annual reports of the firms covering the period of 2016 – 2021. Data collected was analyzed using descriptive statistics and ordinary least squares (OLS) regression analysis. Findings revealed that environmental research and development, and environmental waste management had a negative and significant effect on return on assets; while environmental pollution control policy positively and significantly affect the return on assets of Nigeria aviation firms.

Similarly, Etim et al. (2022) examined the effects of environmental/natural capital reporting on profitability of manufacturing firms in Nigeria. Twenty-three (23) firms engaged in industrial and natural resources processing were selected for the study. Ex-post facto research design was adopted in the study involving generation of data from the annual reports of these firms using content analysis checklist. The study period was from 2009 to 2018. The environmental/natural capital index (scores) were generated using 7 items in line with International Initiative on Integrated Reporting Council (IIRC). Data obtained were analysed using descriptive and simple linear regression of the ordinary least squares (OLS) technique. The profitability of manufacturing firms was proxy by Return on Assets (ROA). Results revealed environmental/natural capital reporting (ER) have significant negative effect on ROA. This implies that most of the studied companies have not engaged in the reporting of environmental/natural capital with an average reporting index of less than 5%.

Obiora et al. (2022) assessed the impact of environmental accounting disclosure on profitability of quoted firms in Nigeria from 2017 to 2021. Environmental disclosure index was employed as the independent variable while financial performance measures such as return on assets, return on equity and return on capital employed were employed as the dependent variable. Related conceptual, theoretical and empirical literatures were reviewed. The study was anchored on stakeholders' theory. Ex post facto research design was employed. Five firms from different sectors of the economy were sampled. The data used in this study were sourced from annual reports and statement of accounts of the selected firms. Descriptive statistics, correlation analysis and ordinary least square regression were employed in analyzing the data. The study found that environmental accounting disclosure has a significant impact on return on assets of quoted firms in Nigeria. Environmental accounting disclosure was also found to have significant impact on return on equity of quoted firms in Nigeria. However, environmental accounting disclosure was found to have an insignificant impact on return on capital employed of quoted firms in Nigeria. The study concludes that environment accounting disclosure has significant impact on financial performance.

Kurawa and Shuaibu (2021) examined the influence of environmental disclosure (ED) on financial performance of listed non-financial companies in Nigeria from 2013-2020. Explanatory research designed was adopted in the study to find out the influence of ED on financial performance. A sample of seventy-six (76) companies listed as non-financial was drawn from the population of one hundred and thirteen (113) companies. The analysis was done using descriptive statistics and multiple regressions. Variables used include the ED measured using ordinal coding scheme based on GRI guidelines (G4) focusing on environmental prevention Expenditure Disclosure (EN40), Waste disposal, emission treatment and remediation cost disclosure (EN41), Prevention and environmental management cost disclosure (EN 41) used as proxies for independent variable and financial performances' accounting and market-based measures proxy by earnings per share and Tobin's Q was used as the dependent variable. The study revealed that there is positive significant relationship between EPED, WDCD, PMCD and EPS while negative with TQ of listed Nigerian non-financial companies.

The study conducted by Uniamikogbo and Ali (2021) on environmental accounting disclosure and the financial performance of manufacturing firms in Nigeria revealed that environmental accounting disclosure has a significant effect on the share price, return on assets, and return on equity of manufacturing firms in Nigeria. Their results are similar to the findings of Oyedokun et al. (2019), Osemene et al. (2016) and Bassey et al. (2013). However, Charles and Muyiwa (2022), Igbekoyi et al. (2022) and Ngozi and Ike (2019) found a negative and insignificant relationship between environmental accounting disclosure and return on an asset but a positive effect on earnings per share, when they investigated accounting disclosure and financial performance of listed multinational firms in Nigeria.

Similarly, Hwerien (2021) evaluated environmental accounting, financial reporting, and profitability in six Nigerian oil and gas companies out of twelve (12) companies listed in Nigeria Exchange. Data were extracted from the annual reports of the firms and explored panel and data pool, ordinary least square, and multiple regressions to analyze the data. He found out that there is no significant relationship between environmental accounting and return on asset and leverage of oil and gas companies in Nigeria. A significant relationship exists between environmental accounting disclosure and return on equity while capital employed and net profit margin has a negative relationship with environmental accounting disclosure in the study conducted by Charles et al. (2017) to investigate the relationship that exists between environmental accounting disclosure and financial accounting performance of selected food and beverage companies in Nigeria.

Amaegbu and Onyali (2021) examined the effect of environmental cost on corporate performance of selected listed manufacturing firms on Nigerian Stock Exchange. The ex-post facto research design was used in this study. The population and sample size of the study comprises of sixteen manufacturing firms in the industrial goods and natural resources sectors of the Nigerian Stock Exchange. The main variables of the study were Return on Investment used to proxy firm performance, the dependent variable; and environmental costs, the independent variable. Data for the sixteen firms were extracted from their annual reports from 2012 to 2019 financial years and analyzed using descriptive statistics and the Panel Least Squares Regression statistical techniques. Findings revealed that cost relating to the prevention of environmental degradation, management and education have negative effect on financial performance while cost on environmental damage was found to be positive and significant in determining performance.

Worimegbe (2021) investigate the impact of environmental costs on the profitability of quoted manufacturing companies from 2007 to 2017. The study used the ex-post facto research design. Twenty

mentioned manufacturing companies were purposively drawn from the population of sixty manufacturing companies listed on the floor of the Nigerian Stock Exchange. The study variables were sourced from the annual reports and accounts as well as the stand-alone environmental information of the selected companies over eleven years from 2007-2017. The cost incurred on environmental initiatives to the community and training of employees on environmental concerns was used as proxies for environmental cost. The findings from the panel random-effect regression analysis showed that environmental costs significantly affect the profitability of quoted manufacturing companies in Nigeria. Budiono and Dura (2020) assessed the impact of green accounting on company profitability. The green accounting was measured by the company Performance Rating Program in Environmental Management (PROPER) on the level of profitability with the ROA (Return on Assets) indicator. The research method used is quantitative research methods. The population selected in the study of 100 Kompas Index companies for two (2) years (2018-2019) using the purposive sampling method, to obtain a sample of 24 companies that meet the criteria. Data were analyzed using simple regression. The results of this study indicate that the application of green accounting has a significant effect on the profitability of the Kompas100 Index company.

Sanni and Kolawole (2019) examined the impact of environmental accounting on the profitability of pharmaceutical companies in Nigeria. The study employed secondary data which was obtained from the financial statements of all listed pharmaceutical companies in Nigeria. Panel data regression analysis was used to achieve the objectives of the study. Results of the study revealed that there was a positive relationship between measures of environmental accounting reports (such as community development and expenses incurred on employees' welfare) on performance. The study concluded that environmental accounting positively influenced the performance of pharmaceutical companies in Nigeria.

Udo (2019) examined Environmental Accounting Disclosure Practice (EADP) in annual reports of listed oil and gas companies in Nigeria. Ex-post facto research design was adopted in the study. The ten (10) oil and gas companies listed on the floor of the Nigerian Stock Exchange (NSE) was the population of the study. An environmental disclosure index with 40 items in line with Global Reporting Initiative (2013) was developed and environmental data from the annual reports of the companies from 2009-2018 were captured using content analysis. Data obtained were analysed using descriptive and inferential statistics. Findings revealed that the studied oil and gas companies were disclosing very inadequate financial and non-financial environmental information in their annual report at the minimum disclosure practice of 0.0283 and maximum of 0.2727, with overall average of 11.67%. Although, the study was novel, it focuses only on extent of disclosure without examining the lineage between the environmental/natural resources (capital) and performance of the studied firms. Also, the study looked at only the oil and gas sector with no spread of industries. These short comings, this study seek to address by looking the manufacturing sector as a whole which covers the agriculture, conglomerate, consumer goods, industrial goods, healthcare, oil and gas as well as the natural resources sectors.

However, Ahmed, et al. (2018) studied the relationship between environmental accounting and financial performance of firms listed on Pakistan Stock Exchange. Data collected from the annual reports of the companies for the period 2006-2016, were analysed using regression analysis technique. The empirical analysis showed a significant positive relationship between environmental accounting practices and firm's size, whereas earning per share and return on capital employed statistically turned out to be insignificant. Therefore, companies which were big in size spend more resources for social welfare in

terms of environmental pollution protection. This study evaluated environmental accounting practices with no emphasis on environmental capital and how it impacts corporate performance.

In the same vein, Yahaya (2018) examined the influence of environmental reporting practices on firm financial performance in Nigeria. The study adopted longitudinal panel research design. Fifty-one (51) listed environmentally-sensitive firms constituted the population and sample of the study, covering the financial years 2000 to 2016. The data were sourced from the annual reports and accounts of the firms. Using return on assets as proxy for financial performance and environmental disclosure practices were measured by green reporting index, which is a product of environmental capital reporting both quality and quantity; extracted through contact analysis and computation of required ratios. Descriptive and inferential statistics were used to analysed the data. The regression results showed that environmental capital reporting has positive and significant effect on financial performance of the studied firms. It was concluded that environmental disclosure practices are important considerations in the determination of corporate financial performance. Similarly, Agbiogwu et al. (2016) examined the impact of environmental and social costs on performance of Nigerian manufacturing companies using secondary data, sourced from ten (10) randomly selected firms annual report and financial summary the sampled firm for a period of five years (2010-2014). The study makes use of t-test of SPSS version 20 for the analysis of collected data. Finding from the analysis shows that the sample companies environmental and social cost significantly affect Net profit margin, Earnings per share and return on capital employed of manufacturing companies.

Grigoris et al. (2016) examined the impact of Environmental, Social and Governance (ESG) reporting on the financial performance of the United States (US) companies. In particular, the impact of corporate social, environmental and governance disclosures on financial performance was investigated in terms of involvement in socially and environmentally responsible initiatives. The environmental, social and governance disclosure scores as calculated by Bloomberg was used as a proxy for corporate involvement in socially responsible initiatives. Fixed effects regression was employed to estimate the relationship and effects between the extent of Corporate Social Disclosures (CSD) and financial performance using the data of listed companies on the standard and Poor's 500 firms during the period 2009-2013. The results suggested that the involvement in social and environmental initiatives have a significantly positive effect on financial performance. In addition, the control variables, such as total compensation to directors, Chief Executive Officer (CEO) duality and women presence on board were statistically significant to financial performance.

In summary, the literature on the impact of natural capital accounting on profitability is still relatively limited; these studies suggest that natural capital accounting has the potential to contribute to environmental conservation and economic growth. As more firms and organizations adopt natural capital accounting practices, it will be important to continue studying the impact of these practices on profitability and other key performance indicators. A review of previous studies revealed that most of existing literature focused on manufacturing sub-sectors like food and beverages as well as oil and gas firms (Sanni & Kolawole 2019; Amaegbu & Onyali, 2021 and Agbiogwu et al., 2016). None of the related works were found to jointly study natural capital accounting in the manufacturing sectors in Nigeria. A critical evaluation of the above-mentioned past studies showed that the studies were conducted by different authors, who applied different theories and models, conducted their studies in different countries at different periods of time, on different forms of company and different natural capital accounting such as environmental accounting disclosure or performance relating with financial performance variables was measured, which resulted in varying findings. However, the manufacturing

companies have not received much attention as compared to other companies. It is against this challenge that this research intends to study how natural capital accounting practices affect profitability in manufacturing in Nigeria. The hypothesis of the study was stated as follows:

Ho_1: Natural capital accounting has no significant effect on profitability in manufacturing in Nigeria.

Theoretical Review

There are various theories in the literature that explain Natural capital accounting in relation to firm profitability, this study anchored on legitimacy theory as this was chosen as the most applicable theory for the investigation. Legitimacy theory was first proposed by Suchman in 1995. It suggests that organizations attempt to maintain legitimacy and social acceptance by conforming to societal norms and expectations. Legitimacy is an interrelated factor between companies and society. The company tries to ensure that its operational activities can run, but still according to the norms that apply in the community. In the perspective of legitimacy theory, the company must provide information by the activities carried out by the company voluntarily if the report is indeed expected by the community (Kuswiratmo, 2016). The theory of legitimacy depends on the contents of the social contract between the company and the community, which is a must that the company must continue to operate (Mardiyanto, 2009). The social contract is related to the provisions that are the community's expectations regarding how the company runs its business properly. Social expectations have a dynamic nature according to environmental conditions and over time (Ulum, 2017). In the context of natural capital accounting reporting, legitimacy theory suggests that firms may disclose environmental information in order to maintain their legitimacy with stakeholders and the public. In summary, legitimacy theory suggests that organizations attempt to maintain legitimacy and social acceptance by conforming to societal norms and expectations. Based on this, the company must be responsive and sensitive regarding the environmental impacts caused by the company continuing to operate.

3.0 Methodology

This study uses correlational research design and is carried out based on historical panel data. The design is used to explore causal relationship among the variables. The population of the study comprise of all the 64 manufacturing companies listed on the Nigerian Exchange (NGX) as at 31st December, 2022, in the agriculture, conglomerate, consumer goods, industrial goods, healthcare, oil and gas and natural resources sectors for a period of ten years from 2013 to 2022. Hence, for a company to qualify as a sample for the study, the following criteria were to be met: (i) the companies must be listed on the NGX market for the entire period of the study (2013-2022), (ii) none of them would have been delisted during the period 2013-2022; and (iii) the companies must have the requisite or complete set of data covering the study period. The essence of these filters is for the purpose of getting complete set of data for the period covered in the study. Thus, following the filters fifteen (15) firms were no qualified to be part of samples size see in (Appendix A).

Model Specification

The model used in this study was adapted from Enekwe et al. (2023), Kolawole et al. (2023), Etim et al. (2022), Obiora et al. (2022), Lambe et al. (2022), Etim and Idorenyin (2021), Zamil and Hassan (2019) and Nor et Al. (2016) with some modifications. In order to determining the effect of natural capital accounting on profitability of listed manufacturing firm in Nigeria, the model captures contribution of explanatory variables on profitability. The functional and econometric forms of the model are stated as:

ROA = f (NCA, FA, FS and LEV) ……..…….……..…. (1)

The following is the regression model that was used in this study:

$ROA_{it} = \alpha_{0it} + \alpha_1 NCA_{it} + \alpha_2 FA_{it} + \alpha_3 FS_{it} + \alpha_3 LEV_{it} + e_{it}$ ……...…….. (2)

Where:
ROA_{it} = Return on Assets for company i at time t; a_0 = Regression intercept for company i at time t; NCA = Natural Capital Accounting for company i at time t; FA = Firm Age for company i at time t; FS = Firm Size for company i at time t; LEV = Leverage for company i at time t; a_1 - a_4 = Regression coefficient of the independent variables for company i at time t. e = an error term

Variables of the Study and their Measurements
The means by which the various variables adopted in this study are measured or computed are shown in Table 1.

Table 1: Summary of Variables Definition and Measurements

Variables	Class	Acronym	Measurement	Sources
Profitability	IV	ROA	Profit before tax divided by total assets	Enekwe et al. (2023), Kolawole et al. (2023), Olanisebe et al. (2023), Etim et al. (2022), Obiora et al. (2022), Etim and Idorenyin (2021).
Natural Capital Accounting	DV	NCA	Unweighted disclosure index = Each company's disclosed items/ Total no. of items expected to be disclosed by the company	Etim et al. (2022), Lambe et al. (2022), Zamil and Hassan (2019), Nor et Al. (2016), Ullah et al. (2013), and Razeed (2010).
Firm Age	CV	FA	Number of years since firms incorporated in Nigeria.	Worimegbe (2021) and Yahaya (2018).
Firm Size	CV	FS	Log of Total Assets	Kolawole et al. (2023), Odusina (2023), Kurawa and Shuaibu (2022) and Worimegbe (2021).
Leverage	CV	LEV	Total Debt Bearing Interests to Total Assets	Razaq et al. (2023), Kurawa and Shuaibu (2022) and Sanni and Kolawole (2019).

Note: DV (Dependent Variable), IV (Independent Variable) and CV (Control Variable).

4.0 Results and Discussion

The data generated for analysis in this study is presented, interpreted and discussed in this section.

Descriptive Statistics
In order to understand the distinctive characteristics of the data in terms of mean, standard deviation, minimum and maximum values descriptive statistics was used. The summary statistics of the variables are presented in Table 2.

Table 4: Descriptive Statistics of the Variables of the Study

Variables	Obs.	Mean	Std. Dev.	Min	Max
ROA (%)	637	0.0558	0.1562	-0.994	0.793
NCA (%)	637	0.1085	0.2420	0	1
FA	637	46.2433	18.0929	5	99
FS	637	10.1512	0.8188	8.201	12.425
LEV (%)	637	0.3329	0.1471	0.075	0.799

Source: STATA 14.0 Outputs.

It indicates from the Table 2 that sampled of manufacturing companies in Nigeria have an average return on assets of 0.0558 (6%), with minimum and maximum values of -0.994 (-99%) and 0.793 (79%). This shows a high variation in return on assets of the sampled companies as portrayed by the standard deviation of 0.1562 (16%) which is much higher than the mean value. The negative minimum value indicates that, some sampled of manufacturing companies incurred loss at a particular period. Similarly, result in Table 2 shows mean of 0.1085, standard deviation of 0.2420, minimum value of 0.000 and maximum value of 1 for natural capital accounting which indicates that the natural capital accounting disclosure information of the firms is within the range of normal distribution. Furthermore, the average firm age is approximately 46 years. This shows that on the average the sampled of manufacturing firms is 46 years with a standard deviation of 18 years and minimum and maximum values of 5 and 99 years respectively. This indicates that, whereas some of the manufacturing firms are incorporated Nigeria in 2005 (Dangote Sugar Plc.), some manufacturing firms are incorporated since 1923 (Unilever Plc.), and this gives an insight as to whether being incorporated earlier will result in higher profit or otherwise.

Firm size was measured as logarithm of total assets, has a mean of 10.1512 with a minimum of 8.201 and maximum of 12.425. The standard deviation of 0.8188 suggests a lower level of dispersion in the total assets among the sampled of manufacturing firms in Nigeria. Leverage of the sampled of manufacturing firms in Nigeria on the other hand, stands at an average of 33%, with minimum and maximum values are 8% and 88% respectively. The standard deviation of 15% suggests that, there is a wide dispersion of the leverage ratio among the sampled manufacturing firms in Nigeria. It is also noteworthy that, some manufacturing firms in Nigeria have total debts to total assets ratio as low as 8%. The correlation result is presented in Table 3.

Table 3: Correlation Matrix

Variables	ROA	NCA	FA	FS	LEV	VIF
ROA	1.0000					
NCA	0.1752	1.0000				1.20
FA	-0.0266	0.1715	1.0000			1.05
FS	0.2829	0.0577	-0.0585	1.0000		1.19
LEV	-0.1846	-0.0477	0.0580	-0.1463	1.0000	1.02

Source: Stata Version 14 Output.

The correlation analysis Table 3 shows that NCA has a positive but low relationship with ROA with correlation co-efficient of 0.1752. Also, a very weak negative relationship exists between FA and ROA evidenced by correlation co-efficient of -0.0266. A weak and positive relationship exists between FS and ROA represented by correlation value of 0.2829 whereas financial leverage has a weak negative correlation value of -0.1846. In the same vein, to determine the presence of Collinearity problem, a

Variance Inflation Factor (VIF) Tolerance test was carried out, the results of which provide evidence of the absence of Collinearity. This is because the results of the VIF test ranges from a minimum of 1.02 to a maximum of 1.20.

Regression Analysis

The regression result showing the impact of the independent variable on dependent variable as shown in Table 4 below:

Table 4: Regression Results: Impact of Natural Capital Accounting on Profitability

Panels Corrected Standard Errors (PCSE)				
	Coef.	**Std. Err.**	**Z**	**P>/z/**
NCA	0.0582	0.0084	6.95	0.000
FA	-0.0002	0.0003	-0.56	0.573
FS	0.0435	0.0080	5.41	0.000
LEV	-0.1547	0.0439	-3.53	0.000
_CONS.	-0.3327	0.0850	-3.92	0.000
R-squared	0.1078			
Number of Obs.	637			
Prob > chi²	0.0000			
Hettest	0.0000			
Hausman Test	Prob>chi2 = 0.0000			

Source: Stata Output 14.0 Based on Data Generated from Annual Report of Sample firms (2010-2022).

Table 4 presents summary result of the effect of natural capital accounting on profitability of the listed manufacturing firms in Nigeria. From the results, a regression R-square (R^2) coefficient of determination of 0.1078 was obtained, which means that 11% was the overall contribution of natural capital accounting on profitability, this gives cumulative effect of explanatory variables jointly on the dependent variable. This means that 11% of the total variation in return on assets of listed manufacturing firms in Nigeria is caused by natural capital accounting, firm age, firm size and leverage while the remaining 89% of the total variation in the return on assets is caused by other variables not included in the model. Similarly, from Table 4, the multiple linear regressions equation becomes:

$$ROA_{it} = -0.3327 + 0.0582NCA_{it} - 0.0002FA_{it} + 0.0435FS_{it} - 0.1547LEV_{it} + \varepsilon_{it} \quad \text{..... (3)}$$

From Table 4 outcome of the result revealed a positive and significant association between NCA and ROA evidenced with coefficient value of 0.0582 with p-value 0f 0.000. This signifies that natural capital accounting has positive and significant impact on profitability of the listed manufacturing firms in Nigeria. This signifies that the null hypothesis should be rejected. The result of the study is in consonance with the outcomes of Obiora et al. (2022), Uniamikogbo and Ali (2021), Oyedokun et al. (2019), Osemene et al. (2016) and Bassey et al. (2013) who also establish a positive connection between natural capital accounting and profitability while in contrary, Kolawole et al. (2023), Etim et al. (2022), Udo (2019), Nor et al. (2016) and Makori and Jagongo (2013) found a negative connection between natural capital accounting and profitability. However, Korolo and Korolo (2023), Charles and Muyiwa (2022), Igbekoyi et al. (2022) and Ngozi and Ike (2019) found a negative and insignificant relationship between environmental accounting disclosure and return on an asset. Also, firm size and leverage have significant impact on profitability while firm age shows insignificant impact on profitability.

5.0 Conclusion and Recommendations

The variables influencing profitability have been the subject of several researches in both developing and developed countries. Hence, this study was carried out to examine the effect of natural capital accounting on profitability of listed manufacturing firms in Nigeria. The result of the regression analysis shows that natural capital accounting affect profitability of listed manufacturing firms in Nigeria positively.

Based on the conclusion of this study, it is recommended that listed manufacturing firms in Nigeria should emphasize reporting more on their natural capital accounting information as it is capable of improving their profitability. This can be achieved through proper and accurate reporting of their environmental information, because it affects profitability significantly. Also, regulatory authorities for corporate reporting framework should as a matter of urgency come up with mandatory reporting framework for all companies with natural capital accounting to meet a minimum reporting benchmark in line with global best practices and this will increase their profitability level. Lastly, in line with global best practices, regulatory agencies in Nigeria should issue reporting standards that would make reporting of all sustainable capital items and particularly environment/natural capital mandatory.

References

Adewoye, J. O., Olaoye, C. O., & Ogundipe, A. A. (2018), Corporate social responsibility and Profitability of oil and gas industry in Nigeria. *EKSU Journal of the Management Scientists,* 2(1), 97-106.

Agbiogwu, A. A., Ihendinihu, J. U., & Okafor, M. C. (2016). Impact of environmental and social costs on performance of Nigerian manufacturing companies. *International Journal of Economics and Finance,* 8(9), 173-180.

Amaegbu, C. E., & Onyali, C. I. (2021). Environmental cost accounting and corporate performance of listed manufacturing firms on Nigerian Stock Exchange. *Research Journal of Management Practice*, 1(7), 42-55.

Bassey, E. B., Sunday, O. E., & Okon, E. E. (2013). The impact of environmental accounting and reporting on organization performance of selected oil and gas companies in Niger Delta region of Nigeria. *Research Journal of Finance and Accounting,* 4(3), 57-73.

Budiono, S., & Dura, J. (2020). The effect of green accounting implementation on profitability in companies compass Index 100. *International Journal of Educational Research & Social Sciences*, 2(3), 27-37.

Charles, E. E., John-Akamelu, C. R., & Umeoduagu, C. (2017). Environmental accounting disclosure 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.

Charles, S. I., & Muyiwa, E. A. (2022). Environmental accounting and financial performance of listed family-owned companies in Nigeria. *International Review of Business and Economics,* 6(1), 71-82.

Enekwe, C. I., Ugwudioha, O. M., & Uyagu, B. D. (2023). Effect of environmental costs on the financial performance of listed oil and gas companies in Nigeria. *International Journal of Accounting Research,* 8(1), 31-36.

Etim, E. O., Effiong, I. H., & Umoffong, N. J. (2022). Effects of environmental/natural capital reporting on profitability of manufacturing firms in Nigeria. *International Journal of Social Science, Humanity & Management Research (IJSSHMR),* 1(1), 25-34.

European Commission (2013). Green Infrastructure – Enhancing Europe's Natural Capital. Group of Experts on Protected Areas and Ecological Networks, 5th meeting 18 September 2013, Strasbourg. Milena Novakova, European Commission, DG Environment Unit B.2 Bio-diversity.

Hans, B. C., Luzi, H., & Christian, L. (2021). Mandatory CSR and Sustainability reporting. *Economic Analysis and Literature Review,* 26, 1176-1248.

Hansen, R., & Mowen, M. (2005). Management Accounting (7 Ed.). Singapore: South-Western.

Hwerien, R. I. (2021). Evaluation of environmental accounting, financial reporting and profitability of oil and gas firms in Nigeria. *Journal of Accounting and Management*, 11(1), 154-162.

Ibrahim, R., Ibrahim, Y. K., & Hussain, M. S. (2023). Environmental reporting and financial performance of listed industrial and consumer goods firms in Nigeria. *FUDMA Journal of Accounting and Finance Research [FUJAFR],* 1(2), 123-140. https://doi.org/10.33003/fujafr-2023.v1i2

Igbekoyi, O., Solanke, F. T., Adeusi, S. A., & Alade, M. E. (2022). Environmental accounting disclosure and financial performance of listed multinational firms in Nigeria. *Global Journal of Management and Business Research,* 21(2), 1-18.

Kalash, I. (2020). Environmental disclosure: Determinants and effects on financial performance? Empirical evidence from Turkey. *Sosyoekonomi*, *28*(46), 95-115.

Kolawole, J. S., Igbekoyi, O. E., Ogungbade, O. I., & Dagunduro, M. E. (2023). Environmental accounting practice and financial performance of listed aviation firms in Nigeria. *Asian Journal of Economics, Business and Accounting*, 23(13), 70-80. https://doi.org/10.9734/AJEBA/2023/v23i13996

Korolo, E. O., & Korolo, A. S. (2023). Corporate sustainability reporting and financial performance of DMBs in Nigeria. *FUDMA Journal of Accounting and Finance Research [FUJAFR],* 1(3), 75-86. https://doi.org/10.33003/fujafr-2023.v1i3.63.75-86.

Kurawa, J. M., & Shuaibu, K. (2021). Environmental disclosure and financial performance of listed non-financial companies in Nigeria. *European Journal of Accounting, Auditing and Finance Research,* 10(2), 31-51. https://doi.org/10.37745/ejaafr.2013

Kuswiratmo, B. A, & Sih, M. (2016). Benefits & Risks of Being a Director, Commissioner and Shareholder. Visimedia

Lambe, I., Ame, J. O., & Dzugwahi H. (2022). Intellectual & natural capital and financial performance: Evidence from listed multinational companies in Nigeria. *International Journal of Economics, Commerce and Management,* x (11), 157-192.

Lingreen, A., Kotler, p., Vanhamme, j. & Moan, F. (2012). A stakeholder Approach to corporate social responsibility. [0nline] Available at https://books.google.com.my/book

Lu, Y. & Abeysekera, I. (2014). Stakeholders' power, corporate characteristics, and social and environmental disclosure: Evidence from China. *Journal of Cleaner Production*, *64*, 426-436.

Makori, D., & Jagongo, K. (20113). Environmental accounting and firm profitability: An empirical analysis of selected firms listed in Bombay Stock Exchange, *India. International Journal of Humanities and Social Sciences,* 3(18), 248-256.

Mardiyanto, H. (2009). The Essence of Financial Management. Grasindo

Ngozi, G. I., & Ike, R. C. (2019). Effect of environmental and social cost on performance of manufacturing companies in Nigeria. *International Journal of Accounting & Finance Review*, 4(2), 5-12.

Nor, N., Bahari, N., Adnan, N., Qamaral, S., Kamal, A., & Ali, I. (2016). The effects of environmental disclosure on financial performance in Malaysia. *Procedia Economics and Finance,* 35, 117-126.

Nwaimo, S.C. (2020). Effect of environmental cost on performances of quoted firms in Sub – Saharan Africa. *European Journal of Accounting, Auditing and Finance Research*, 8(7), 97-120.

Obiora, F., Onuora, J. K. J., & Ezeogidi, C. S. (2022). An assessment of the impact of environmental accounting disclosure on profitability of firm in Nigeria. *International Journal of Innovative Finance and Economics Research,* 10(1), 92-103.

Odusina, A. O. (2023). Corporate taxation, capital investment decisions and firm performance of quoted non-financial firms in Nigeria. *FUDMA Journal of Accounting and Finance Research [FUJAFR],* 1(2), 61-70. https://doi.org/10.33003/fujafr-2023.v1i2.33.61-70

Olanisebe, M. B., Abdullahi, S. R., & Dandago, K. I. (2023). Managerial Ownership and Tax Avoidance of Listed Companies in Nigeria with Profitability as Mediating Variable. FUDMA Journal of Accounting and Finance Research [FUJAFR], 1(1), 1-26. *https://doi.org/10.33003/fujafr-2023.v1i1.2.1-26*

Osemene, O. F., Kolawole, K. D., & Oyelakun, O. (2016). Effects of environmental accounting practices and sustainable development on the performance of Nigerian listed manufacturing companies. *Journal of Sustainable Development in Africa,* 18(2), 127-143.

Oyedokun, G. E., Egberio, Y. E., & Abiola, T. (2019). Environmental accounting disclosure and firm value of industrial goods in Nigeria. *IOSR Journal of Economics and Finance*, 10(1), 7-27.

Razaq, A. G., Alhassan, A., & Ame, J. (2023). Effect of corporate attributes on sustainability reporting of listed non-financial firms in Nigeria. *FUDMA Journal of Accounting and Finance Research [FUJAFR]*, *1*(2), 156–170. https://doi.org/10.33003/fujafr-2023.v1i2.46.156-170

Sanni, M., & Kolawole, K. K. (2019). Influence of environmental accounting on the performance of pharmaceutical companies in Nigeria. *Entrepreneurial Journal of Management Sciences,* 6(1), 27-40.

Tiamiyu, M. A., Oyedokun, G. E., & Adeyemo, K. A. (2021). Environmental accounting disclosure and financial performance of listed manufacturing companies in Nigeria. *Benin Journal of Accounting, Finance and Forensic Science Research*, 1(1), 113-130.

Udo, E. J. (2016). Companies' Financial Attributes and Environmental Accounting Practices of the Oil and Gas Industry in Nigeria. *AKSU Journal of Management Sciences, (AJOMAS)*, 1(2), 60-74.

Udo, E. J. (2019). Environmental Accounting Disclosure Practices in Annual Reports of Listed Oil and Gas Companies in Nigeria. *International Journal of Accounting and Finance (IJAF),* 8(1), 2-21.

Ullah, Md. H., Yakub, K. M., & Hossain, Md. M. (2013). Environmental reporting practices in annual report of selected listed companies in Bangladesh. *Research Journal of Finance and Accounting,* 4(7), 45-58.

Ulum, I. (2017). Intellectual Capital: Measurement Model, Disclosure Framework & Organizational Performance. UMMPress.

Uniamikogbo, E., & Ali, P. I. (2021). Environmental accounting disclosure and financial performance of manufacturing firms in Nigeria. *Journal of Economics and International Business Management,* 9(2), 71-81.

Weston, J. F., & Brigham, E. F. (1977). Essentials of managerial finance, Illinois. The Dryden Press, Weston.

Worimegbe, T. M. (2021). Impact of environmental cost on the profitability of quoted manufacturing companies in Nigeria. *Independent journal of management & production (IJM&P)* 12(5), 1518-1536. https://doi.org/10.14807/ijmp.v12i5.1428

Yahaya, O. A. (2018). Environmental reporting practices and financial performance of listed environmentally-sensitive firms in Nigeria. *Journal of Environmental and Social Sciences,* 24(2), 403-412.

Zamil, G. M. S., & Hassan, Z. (2019). Impact of environmental reporting on financial performance: Study of global fortune 500 companies. *Indonesian Journal of Sustainability Accounting and Management*, *3*(2), 109–118. https://doi.org/10.28992/ijsam.v3i2.78

APPENDIX: A

Table 1: Population of the Study as at 31st December, 2022

S/No.	Company Name	Sector	Listing Date	Sample Size
1	FTN Cocoa Processors Plc.	Agricultural	2008	1
2	The Okomu oil Palm Plc.	Agricultural	1997	2
3	Presco Plc.	Agricultural	2002	3
4	Ellah Lakes Plc.	Agricultural	1993	4
5	Livestock Feeds Plc.	Agricultural	1978	5
6	Chellarams Plc.	Conglomerates	1977	6
7	John Holt Plc.	Conglomerates	1974	7
8	SCOA Nigeria Plc.	Conglomerates	1977	8
9	Transnational Corporation of Nigeria Plc.	Conglomerates	2006	9
10	UAC of Nigeria Plc.	Conglomerates	2013	Nil
25	Cadbury Nigeria Plc.	Consumer Goods	1976	10
13	Champion Breweries Plc.	Consumer Goods	1983	11
12	Dangote Sugar Refinery Plc.	Consumer Goods	2007	12
11	DN Tyre and Rubber Plc.	Consumer Goods	1961	Nil
18	Flour mills Nigeria Plc.	Consumer Goods	1979	13
14	Golden Guinea Breweries Plc.	Consumer Goods	1979	Nil
15	Guinness Nigeria Plc.	Consumer Goods	1965	14
19	Honeywell Flour mills Plc.	Consumer Goods	2009	15
16	International Breweries Plc.	Consumer Goods	1995	16
20	McNichols Plc.	Consumer Goods	2009	Nil
21	Multi-Trex Integrated Foods Plc.	Consumer Goods	2010	Nil
22	NASCON Allied Industries Plc.	Consumer Goods	1992	17
26	Nestle Nigeria Plc.	Consumer Goods	1979	18
17	Nigerian Breweries Plc.	Consumer Goods	1973	19
27	Nigerian Enamelware Plc.	Consumer Goods	1979	20
23	Northern Nigeria Flour mills Plc.	Consumer Goods	1978	21

29	PZ Cussons Nigeria Plc.	Consumer Goods	1974	22
30	Unilever Nigeria Plc.	Consumer Goods	1973	23
24	Union Dicon Salt Plc.	Consumer Goods	1993	Nil
28	Vita form Nigeria Plc.	Consumer Goods	1978	24
43	Ekocorp Plc.	Healthcare	1994	25
44	Union Diagnostic and Clinical Services Plc.	Healthcare	2014	Nil
45	Morison Industries Plc.	Healthcare	1978	26
46	Fidson Healthcare Plc.	Healthcare	2008	27
47	Glaxo Smith Line Consumer (Nig.) Plc.	Healthcare	1977	28
48	May and Baker Nigeria Plc.	Healthcare	1994	29
49	Neimeth International Pharmaceutical Plc.	Healthcare	1979	30
50	Pharma-DEKO Plc.	Healthcare	1979	31
31	Austin LAZ and Company Plc.	Industrial Goods	2012	Nil
32	Berger Paints Nigeria Plc.	Industrial Goods	1974	32
33	Beta Glass Plc.	Industrial Goods	1986	33
34	BUA Cement Plc.	Industrial Goods	2020	Nil
35	CAP Plc.	Industrial Goods	1978	34
36	Dangote Cement Plc.	Industrial Goods	2010	35
37	Lafarge Africa Plc.	Industrial Goods	1979	Nil
38	Meyer Plc.	Industrial Goods	1979	36
39	Premier Paints Plc.	Industrial Goods	1995	37
40	Curtix Plc.	Industrial Goods	1987	38
41	Greif Nigeria Plc.	Industrial Goods	1979	39
42	Notore Chemical Industrial Plc.	Industrial Goods	2018	Nil
61	B.O.C Gases Plc.	Natural Resources	1979	Nil
62	Aluminium Extrusion Industries Plc.	Natural Resources	1987	40
47	Industrial & Medical Gases Nigeria Plc.	Natural Resources	1979	41
63	Multiverse Mining and Exploration Plc.	Natural Resources	2008	42
64	Thomas WYATT Nigeria Plc.	Natural Resources	1978	43
51	Ardova Plc.	Oil and Gas	1987	44
52	Capital Oil Plc.	Oil and Gas	1990	Nil
53	Conoil Plc.	Oil and Gas	1989	45
54	Eterna Plc.	Oil and Gas	1998	46
55	Japaul Gold and Ventures Plc.	Oil and Gas	2005	47
56	MRS Oil Nigeria Plc.	Oil and Gas	1978	48
57	Oando Plc.	Oil and Gas	1992	Nil
58	RAK Unity Pet. Comp. Plc.	Oil and Gas	1982	Nil
59	Seplat Energy Plc.	Oil and Gas	2014	Nil
60	Total Energies Marketing Nigeria Plc.	Oil and Gas	1979	49

Source: Nigerian Exchange Group Website 31st December, 2023.