

# **Financial, Manufactured Capital and Financial Performance: Evidence from Listed Multinational Companies in Nigeria**

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## **ABSTRACT**

*The global reporting landscape is evolving with the recent development of integrated reporting that helps in addressing the concerns of stakeholders regarding accountability, transparency, and full disclosure. Integrated reporting system combines financial and non-financial information and communicates it to stakeholders in a concise manner. Consequently, companies and countries are at various levels of adopting integrated reporting and a need to examine its effect on firm performance arises. This study therefore seeks to evaluate the effect of integrated reporting (IR) (financial and manufactured capitals) on financial performance of listed multinational companies in Nigeria. The study employs longitudinal research design and secondary data sourced from the financial statements of the companies from 2011 to 2020. Financial performance is the dependent variable proxied by Return on Equity (ROE). IR is the independent variable proxied by Financial Capital and Manufactured Capital. Descriptive, correlational, and panel regression analysis the fixed effect model was employed for the analysis. STATA 16 is the software used to aid the analysis. The findings revealed that financial capital positively and significantly affect financial performance of listed multinational companies in Nigeria. While, manufactured capital inversely and insignificantly affected financial performance. The study concludes that adoption of IR improves firm financial performance. The study recommends that companies should mandatorily adopt and continue with the practice of integrated reporting system, since it improves firm performance. Accounting standard setters and regulatory authorities should provide such policy directions.*

**Keywords:** Financial Capital (FC), Manufactured Capital, Financial Performance, Integrated Reporting (IR)

## INTRODUCTION

Corporate reporting has evolved over time because of the changing information needs of stakeholders. These stakeholders required credible information (both financial and non-financial) for decision making. Initially the traditional corporate reporting of annual financial statements and reports were thought to be sufficient. However, such reports were criticized on focusing on shareholder interests and majorly on financial matters alone in addition to being historical in nature. Stakeholders demanded for more non-financial information including the impact of corporate activities on the environment, social impact, and the governance structure of the corporate entities. This led to corporate sustainability reporting which included not only the financial results but also the impact of the companies on the environment (E), social (S) and the Governance structures (G) commonly referred to as the (ESG) reports. The major challenge of the corporate sustainability report is that it is retrospective in nature and often does not capture future targets and risks which are critical for a company's long-run survival. It therefore does not meet the information needs of all the stakeholders including the global community. To overcome this challenge, a new reporting system referred to as Integrated Reporting (IR) has been developed (Smith, 2019).

An integrated reporting is a concise communication about how an organization's strategy, governance performance and prospects, in the context of its external environment, lead to creation of wealth, preservation or erosion of value over short, medium, and long term (IIRC, 2021, IIRC, 2013). Integrated reports therefore include both financial and non-financial information. Integrated reporting has been used on voluntary basis in developed countries since 2002 when the first IR was published (Jensen and Berg, 2012). South Africa is the first country to have made it mandatory for companies to publish their integrated reports in the company's annual financial statements with effect from 2010. (Islam, 2020; Matemane and Wentzel, 2019). According to the IIRC report, two hundred and fifty-four (254) organizations adopted IR in South Africa with one thousand six hundred and fifty-two (1, 652) integrated reports (IFRS Foundation, 2022). An integrated report is said to be beneficial to all stakeholders interested in an organization's ability to create value over time (IIRC 2021).

Extant literature also suggests that integrated reporting enhances financial performance (Adegboyegun et al., 2020; Islam 2020; Kaura, et al, 2019; Nurkumalasari et al., 2019; Irungu, 2018; Simnett and Green, 2017). However, most of the studies are based on developed nations and evidence suggests that country specific differences affect integrated reporting (Jensen & Berg 2012, Metemane and Wentzel, 2019). Some other studies (Islam, 2020; Kaura et al 2021) concentrated on specific sectors whose findings cannot be generalized across sector since sectoral differences exist and affect integrated reporting (Islam, 2020).

There is dearth of studies on integrated reporting in Nigeria, as this reporting system is voluntary in nature. It has been found that higher voluntary disclosures are more common in developed than developing countries (Islam and Deegan, 2008). Evidence also suggests that in developing countries, voluntary disclosures by corporate entities are motivated by pressures exerted by multinational corporations (Jensen and Berg, 2012). In order to bridge these gaps a study on multinationals can provide greater insights on the relationship between IR and their Financial Performance. This study therefore seeks to examine the effects of integrated reporting on financial performance of listed multinationals in Nigeria. When stakeholders have easy access to financial and non-financial information as provided in an integrated, all stakeholders benefit (IIRC 2021). Extant studies have also documented that companies' financial performance improves with provision of integrated reports (Kaura et al 2021; Matemane and Wentzel, 2019; Dam and Scholtens, 2015). As a result, this study expects a positive relationship between IR variables and financial performance. Given the foregoing, the following hypotheses are those which are germane to this study;

**H<sub>01</sub>:** Financial capital has no significant effect on financial performance of listed multinational companies in Nigeria.

**H<sub>02</sub>:** Manufactured capital has no significant effect on financial performance of listed multinational companies in Nigeria.

## **LITERATURE REVIEW**

This section is broken down into three parts conceptual framework, empirical review, and theoretical framework.

### **Conceptual Framework**

#### **Integrated Reporting**

An integrated reporting is a concise communication about how an organization's strategy, governance performance and prospects, in the context of its external environment, lead to creation of wealth, preservation or erosion of value over short, medium, and long term (IIRC, 2021, IIRC, 2013). Integrated reports therefore includes both financial and non-financial information. Integrated report includes eight content elements and six capitals out of which two; financial capital and manufactured capital are used as proxies in this study.

The idea of integrated reporting was put in a framework by International Integrated Reporting Council (IIRC) which is not for a profit-making organization established by the global coalition of standard setters, regulators, investors, companies, the accounting profession, academia, and non-governmental organizations (NGOs). The purpose is to develop an integrated reporting framework, promote and monitor the practice of integrated reporting globally (VRF, 2022; IIRC, 2021). Value Reporting Foundation (VRF), was the former, International Integrated Reporting Council (IIRC), Sustainability Accounting Standards Board (SASB), and Climate Disclosure Standards Board (CDSB) amalgamated to form the International Sustainability Standards Board (ISSB) at the 2021 United Nations Climate Change Conference (COP26) in Glasgow, Scotland from 31st October to 12th November 2021 under the umbrella body of International Financial Reporting Standards (IFRS) Foundation (VRF, 2022) to enable the framework to be used worldwide. Integrated reporting has been adopted voluntarily by companies across the globe since 2002 (Smith, 2019).

Integrated reporting is founded on integrated thinking, that produces a periodic and concise report (Malafronte & Pereira, 2021). "Integrated Thinking refers to the conditions and processes that are conducive to an inclusive process of decision making, management and reporting, based on the connectivity and interdependencies between a range of factors that affect an organization's ability to create value over time" (Busco et al., 2017). Integrated thinking is all about linking performance to the purpose of the organization to achieve goal congruence (CIMA, 2022). Integrated reporting connects capital, governance, strategy, and business models to establish a relationship (Smith, 2019). Increasingly, stakeholders and regulators demand necessitated the evolution of the integrated reporting to address their concerns (IIRC, 2021). The IR aims to give a holistic view of the company, it explains how resources create value for the business and accounted for financial and non-financial information.

Integrated Reporting accounts for financial and non-financial information in one report (Eccles & Krzus, 2010). "Integrated reporting enhances the way organization think, plan and report", An integrated report contains an organizational overview and external environment; governance; business model; risks and opportunities; resource allocation; performance; and outlook (Jhunjunwala, 2014). It is worth noting that integrated reporting is Principles-based.

#### **Capital in the IR framework**

Capital is the aggregation of resources and information used in value creation for the stakeholders. International Integrated Reporting Framework, (2021) grouped capital into six, namely financial capital, manufactured capital, intellectual capital, human capital, social and relationship capital, and natural capital. In this study, financial and manufactured capitals are the variables of interest.

Financial Capital is considered the pool of resources that are readily available for the organization to utilize; they are mainly from two sources, debt, and equity (IIRC, 2013). The financial capital is defined as the financial resources and relevant information that helps in achieving organizational objectives and value creation for the stakeholders of the business. Financial capital is broadly understood as the pool of funds

available to an organization. This includes both debt and equity finance. This description of financial capital focuses on the source of funds rather than its application which results in the acquisition of manufactured or other forms of capital. Financial capital is a medium of exchange that releases its value through conversion into other forms of capital. The long-term debt to equity ratio was the parameter used by Chikwendu et al. (2020) to measure financial capital. This study adopted that variable measurement for financial capital.

Manufactured capitals are the physically tangible resources (property, plant, and equipment) and infrastructure of the business. This capital could be owned, leased, or organizational access to goods and services (IIRC, 2013). Manufactured capital is seen as human-created, production-oriented equipment and tools. A distinction is drawn between inventory (as a short-term asset) and plant and equipment (tangible capital). Although the identification of these items is generally agreed upon, their accounting treatment, particularly in valuation, depreciation, and taxation, is more contentious and intense argument. The manufactured capital was measured as the propensity of non-current assets to total assets (Ullah & Ahmad, 2019). The ratio of non-current assets to total assets has been adopted as the measure for manufactured capital.

### **Organisational Performance**

Corporate organizations aim to improve their performance to meet stakeholders expectations. They set goals for themselves and the degree by which the set goals are achieved with limited resources within a minimum period can be seen as corporate performance (Taouab and Issor, 2019). Other scholars see corporate performance as the capability and ability of an organization to meet its set goals effectively and efficiently with available resources to add value for the providers of its capital (Lebens and Euske, 2006). Performance may be measured by profit margin, return on assets, or return equity.

### **Return on Equity**

Return on Equity is the ratio of profit after tax to total shareholder equity (Zhang et al., 2021). According to Sinie and Socol (2020), the ratio of Return on Equity is known as return on equity. This ratio examines the extent to which a company uses its resources to be able to provide a return on equity. Return on equity can be used to determine the success of management in managing the company's capital in delivering returns to shareholders; the higher this ratio, the better because it provides a greater rate of return to shareholders. Several factors can increase Return on Equity; increasing sales without proportionally increasing expenses and costs, reducing the cost of goods sold or operating expenses of the company, and increasing sales relatively based on asset value, either by increasing sales or reducing the amount of investment in selling assets, increase the use of debt relative to equity, to a point that does not jeopardize the financial well-being of the company.

### **Revenue Growth**

Revenue growth refers to an increase in revenue over a period. In accounting, revenue growth is the rate of increase in total revenues divided by total revenues from the same period in the previous year. Thus, revenue growth can be measured as a percent increase from a starting point. The revenue growth metric is vital because it indicates the health of a business's sales. Therefore, revenue growth remains a popular method of assessing a company's success in selling its products and services (Campbell, 2020). According to Kasogo (2020), revenue growth is determined by the ratio of prior revenue minus current revenue to prior revenue for the period.

### **Empirical Review**

Kaura et al (2021) examined the relationship between integrated reporting and firm performance of listed ICT companies in Nigeria. The population of the study was the 10 ICT companies, and a purposive sampling was used leaving out one company with incomplete data. Data for the period 2011-2020 were collected from companies' website, APT securities and Nigeria Exchange Group using their annual reports. Integrated reporting was the dependent variable, and an IR index was constructed using content analysis. Performance was the independent variable was proxied by ROA and Market Value Added (MVA). Panel regression was used to analyse the data with the aid of EViews 10 and STATA 14. The results show that there is an insignificant relationship between IR and ROA. A positive and significant relationship exists between IR & MVA (Financial and Manufactured Capitals) suggesting that companies that adopt integrated reporting signal to the market of future growth. The study is however, limited to the ICT sector. Further insights can be reached

on the relationship between IR & Performance if other companies and sectors are studied as company characteristics and sectoral differences affect integrated reporting (Metamane and Wentzel, 2019).

Islam (2020) investigated the relationship between integrated reporting and firm performance in a voluntary disclosure regime in Bangladesh. A quantitative research design was used, and a pooled Ordinary Least Square (OLS) regression analysis carried out on 20 firms listed on the Dhaka Stock Exchange for three financial years from 2016-2018, with 60 firm-year observations were employed. The purposive sampling technique was used in the selection of samples for the study. Content analysis was used to measure the extent of disclosure in the annual reports. The integrated reporting index score used in the study was self-constructed based on unweighted method of eight contents of integrated report. The study which observed the disclosure pattern of integrated reporting and its relationship to firm's operational, financial, and market growth performance in a voluntary disclosure regime, discovered that the integrated reporting disclosure index is positively and significantly related to all three performance variables (namely, return on assets (ROA), return on equity (ROE), and market-to-book value ratio). The result of the content analysis showed that disclosure pattern increases in sampled firms which could be because of improved performance recorded from the disclosure behaviour. The study concluded that both return on assets and return on equity used as proxies for firm performance have a positive and statistically significant relationship with the adoption of the integrated reporting framework. It was therefore recommended that regulators should adopt the reporting format as it facilitates the tagging of financial and non-financial data streamlining the annual report analysis. The study sample size and firm year observations are small and concentrated on non-financial firms only, a larger sample size and higher firm year observations may provide more understanding of the relationship between IR and firm Performance.

Hurghis (2015) carried out an analysis of integrated reporting and financial performance. The study used a quantitative research design to analyze both accounting-based and market-based measurements of quantitative variables. The research attempted to establish a correlation between a disclosure index and financial performance. A sample of 75 observations and 65 companies were selected from among companies participating in the IIRC Pilot Programme between 2012 and 2014. A binary concept was used in the analysis to explain the position when companies present information regarding the six capitals highlighted in the IR framework. The value was "1" if disclosed and "0" if not. Data were sourced manually and from the report uploaded to the IIRC database by participating companies. Given the design of the research, the Pearson Correlation Test was applied. Results from the analysis showed that there is no relationship between Integrated Reporting and Firm performance based on the disclosure index of the IIRC framework. The study concluded that IR has no effect on firm performance and possible reason could be that integrated reporting being a voluntary decision, and new, the companies may still be studying the principles and guidelines. The study was a pilot programme which was based on 2012-2014 data. IR develops over time and companies embrace it as time passes on. A current study of 2020 given a more current information on the relationship of IR and firm performance.

Neneh (2016) studied performance implications of financial capital availability on the financial literacy - performance nexus in South Africa. Data for the study was collected using self-administered questionnaires. The sample of 300 entrepreneurs were selected as respondents to the questionnaires using convenience sampling method which was supplemented with snowball sampling owing to the lack of a database of entrepreneurs in the Free State and South Africa in general. The respondents were identified from the yellow pages' directory and then, visited at their specific business locations. 200 questionnaires were fully completed and returned resulting in a valid response rate of 66.7%. The study measured financial capital availability using a subjective measure of the SME owner/manager's level of satisfaction with his/her access to financial capital. This factor was measured on a five-point Likert scale with the opposite statements "insufficient and a great impediment for our development" for 1 and "fully satisfactory for the firm's development" for 5. The result of the analysis showed a positive and significant relationship between financial capital availability and firm performance. It was concluded that while SME have low levels of financial literacy and financial capital availability, financial literacy positively influenced SME performance, and that the relationship is positively moderated by financial capital availability. It was recommended that since financial literacy is an important driver of firm performance and that the relationship between financial literacy and firm performance is

positively moderated by financial resource availability, it should be developed as an essential part of entrepreneur activities. Also, policy makers should put measures in place to bridge the financial gap, and ensure entrepreneurs are able to access finance with ease. The results are based on primary data whose outcome may be subjective resulting from respondent bias. Secondary data without such bias may become more beneficial.

Nwauzor and Chukwu (2018) examined the effect of tangible assets on firms' performance in the listed financial sector on the Nigeria Stock Exchange. An ex post facto research design was employed with secondary data extracted from the annual reports and financial statements of sampled companies. Data covered 11 years from 2007-2017. These data were analyzed using STATA statistical package. The result of the analysis showed that each component of the manufactured capital (land and building, computer accessories, furniture and equipment, motor vehicles, etc.) has different behaviour in relation to profitability. An investment in land and building and furniture and equipment resulted in an insignificant increase in profit before tax. When regression was applied, investment in computer accessories and motor vehicles resulted in a decline in profit before tax. There was however a positive relationship between work-in-progress and profit before tax. The study concluded that firms should invest in land and building to increase profit. Investing in computer accessories and motor vehicles should be done with caution since it erodes investment. It was recommended that companies should spread operations into branches as it will enhance profitability. Absolute figures were used in the analysis, probably relative measures or figures quantified in ratio form could have given better outcomes. The results may respond to different measures of performance such as return on asset or equity.

Kim et al., (2019) researched the effects of intangible and tangible resources on social, economic, and mixed performance. Data was collected from business and management information material to cover a period from 2012 to 2017. A total sample of 755 Social Enterprises was used for analysis in this study. Descriptive, correlation, and regression analyses were employed. Financial resources and intangible resources were considered in the analysis. Results of the analysis showed that manufactured capital had positive effects on the economic and mixed performance of an organization. An analysis of financial capital showed that debts had negative effects on economic performance and mixed performance of the company. In the same vein, a test on other sources of capital e.g., government subsidies showed a positive effect on economic performance for companies with no significant effect on mixed performance. The study concluded that manufactured capital improves firm performance, this study was based on Korean Enterprises and because of country specific differences, the results cannot be generalized across nations.

Vanja (2020) researched the effects of capital investments on firm performance. Secondary data were gathered from the financial report of 60 manufacturing companies based in Serbia. The study covered a period of 13 years from 2004-2016. Panel regression was employed for data analysis. The result showed that capital investments have statistically significant negative effect on the short-term performance of firm, but positive effect on the long-term performance of the analyzed firms, while controlling for time-fixed effects and certain internal factors. It was concluded that capital investments have a negative effect on the firm performance in the short term, but positive effect on the firm performance in the long term. Precisely, it was discovered that in the panel data set, using pooled OLS regression, capital investments have statistically significant effect on firm performance, measured by return on assets, and considering both short-term and long-term aspects, after controlling for time-fixed effects and certain internal factors, such as firm size, leverage, total asset turnover, and asset tangibility. Recommendation was made that the state government should encourage and support capital investment activities to ensure economic sustainability, while manufacturing firms should invest more in sustainable production projects. The study concentrated on manufacturing firms whose information disclosures can be sector dependent. A study across different sectors may prove to be more revealing about the relationship between IR and firm performance.

Gospel and Celestine (2017) investigated the effect of tangible assets and corporate performance: evidence from manufacturing industry in Nigeria. The study used financial statement data of 10 manufacturing companies listed on the stock exchange. Corporate performance was proxied by return on assets and return on equity. The independent variables were plant and machinery as well as land and building. Multiple regression analysis was adopted, and results showed a significant positive relationship between return on assets and plant

and machinery; but the relationship between return on assets and land and buildings is negative. The result is also consistent in respect of the relationship between return on equity and the independent variables, leading to the conclusion that investments in tangible non-current assets (manufactured capital) affects the profitability of firms. It was recommended that every organization should invest prudently in tangible non-current assets and ensure that these assets are properly utilised.

Owais et.al. (2020) investigated the impact of financial and intellectual capitals on financial performance of a firm. The study categorized Intellectual capital which is frequently associated with firm performance into five core components: financial capital, customer capital, process capital, innovation capital, and human capital. The research employed panel data for a sample other than the financial or services sector from diverse industries listed on the Pakistan Stock Exchange (PSX) for five(5) years. Results indicate that there is a significant relationship between financial capital and financial performance. The study concluded that new causal relations could influence firm performance and help decision makers to develop strategies that will sustain the organization. Understanding the complexity embedded in the Check Relation Strategy firm choice, Innovation Capital (IC), and firm performance is improved by the study. To help managers adopt the optimal decision-making strategies, this research explores new causal links that affect business performance. It also sheds light on the contradictory and ambiguous findings gleaned from the literature. The study recommends that companies should sustain the practice of integrated reporting because it improves financial performance.

Shahzad (2015) investigated the impact of financial leverage on the corporate financial performance of the Pakistan textile industry between 1999 and 2012 using panel data. The leverage-performance relationship is examined with a special focus on the Global Financial Crisis of 2007-2008. Both accounting-based (Return on Assets - ROA) and market-based (Tobin's Q) measures of corporate financial performance are used. One hundred and twelve (112) listed companies from the textile sector of Pakistan constitute the population of the study. Data were sourced from the balance sheet analysis issued by the Statistics and Warehouse of the State Bank of Pakistan. The study dependent variable corporate financial performance was measured by accounting measure, return on assets (ROA), and market-based measure, Tobin's Q. The independent variable of the study, financial leverage was measured by Total Debt to Total Assets (TDTA), Long Term Debt to Total Assets (LDTA), Short Term Debt to Total Assets (SDTA), and Debt to Equity (DE). Firm size and firm efficiency are the control variables used in the study. The outcome of the study revealed that financial leverage has a negative impact on corporate performance using the accounting measure return on assets (ROA). Using the market-based measure, Tobin's Q, shows that short-term debt to total assets (SDTA) coefficient is positive, meaning that financial leverage positively influenced corporate financial companies of listed textile companies in Pakistan. The study concludes that since cost of borrowing is high in Pakistan and debt capital markets are underdeveloped, companies may be forced to sourcing funds from banks and borrowed funds are at a high cost which affects the companies adversely. The policy implication of this study can assist modern managers in determining the ideal quantity of debt financing they can afford at any given time without incurring significant costs to the company. A smart manager who can keep all the considerations (both internal and external to the organization) in account while deciding about the capital structure of a firm will be able to achieve the balance between debt and equity financing. Since debt financing has been the subject of this study thus far, managers should pay attention to any variables that could raise a firm's debt costs. A company's management should attempt to avoid debt financing when the prospective costs are higher and equity financing is also pricey.

## **Theoretical Framework**

### **Legitimacy Theory**

Dowling and Pfeffer (1975) is the proponent of legitimacy theory. The theory holds that an entity is socially contracted to the society where it operates. The theory assumes that actions should be appropriate within societal norms and values (Ame, 2021). Legitimacy theory targets satisfaction of the aspirations of society in general which is consistent with the integrated reporting approach (Guthie&Cugnanesan, 2006).The company's accomplishment hinges on how it considers the legitimate expectations of external stakeholders. The basic premise of the theory of legitimacy is the belief that a company influences the society in which it operates. At the same time, the company is also socially influenced; that is why its functioning is like a social

contract aimed at obtaining and maintaining social acceptance (Guthie&Cugnanesan, 2006). The theory supports the disclosure of environmental, social, and governance information to stakeholders which forms part of the integrated reporting system (Burlea& Popa, 2013). The theory suffers the challenge of clarifying the various stakeholder's interests in society.

### **Agency Theory**

The Agency Theory was propounded by Jensen and Meckling in 1976. Agency is the contractual relationship between one party called the principal (or shareholders) and another party called the agent (Directors or professional managers) to act in good faith on behalf of the principal in a fiduciary capacity. The basis of the principal-agent relationship is that conflict of interests, information asymmetry, and opportunistic behaviour (moral hazards and adverse selection) exist between the agent and the principal. Agency theory assumes that agents are dishonest and therefore the principal incurs agency cost in monitoring the activities of the agents to give them a level of assurance. The bottom line of agency theory is that it assumes that every firm has a form of principal-agent relationship within the walls of its structure. The shareholders, who are the investors or owners of the business, are considered the principal while the managers employed to oversee the firm on behalf of the owners are considered the agents (Jensen and Meckling, 1976). Integrated reporting aims at breaching the information gap between the directors and shareholders of multinational companies in Nigeria, through the provision of a comprehensive reporting system for the information requirement of all stakeholders.

### **Stakeholders Theory**

In 1984, Edward Freeman propounded the stakeholder theory. Any party or entity that affects or can be affected by the company is considered a stakeholder (Abanyam et al., 2020). Examples of stakeholders are shareholders, management, employees, customers, suppliers, and the community (Jeremy, 2020). Stakeholder theory assumes that company operation affects stakeholders and they have obligation to all its stakeholders (Abanyam et al., 2020). The basis of the theory is the creation of value for all stakeholders (Ame, 2021). However, Charles Blatter argues that it is not easy to balance the interest of diverse stakeholders (Abanyam et al., 2020). An integrated report provides comprehensive information in meeting the information needs of various stakeholders (Farneti et al., 2019; Ofoegbu et al., 2018; Kilic&Kuzey, 2017) and value addition to the company (IIRC, 2021; Dagilene&Nedzinskiene, 2018).

Legitimacy theory assumes a social contract exists between the company and the society (Deephouse & Suchman, 2008, Suchman, 1995), however, the theory is constrained in resolving the interest and balancing the power among stakeholders (Burlea & Popa, 2013). A contractual relationship exists between principal and agent, Jensen and Meckling (1976); the theory concentrates only on managers and the owners (Eisenhardt, 1989). Legitimacy theory and agency theory addresses certain aspects of stakeholders' interest but is unable to take into consideration all inclusion concept upon which stakeholder theory is anchored. The business model Mendelow's matrix is used to analyze stakeholders based on their interests and the level of power or influence they exert in the company (Lambe, 2021). The stakeholder theory assumed that the interest of diverse stakeholders (shareholders, management, employees, customers, creditors, government, community, and so on) are considered. It is against this backdrop of gaps identified in the theories, that this study is underpinned by stakeholder theory; because of its robustness in satisfying the interest of all stakeholders and not only the satisfying the interest of the providers of financial capital.

## **METHODOLOGY**

This study adopted a longitudinal research design as it considers a cross-section of multinational companies in twelve (12) sectors of the Nigeria Exchange Group and time series for ten years (10) from 2011 to 2020. Positivism research philosophy followed because the researcher remained independent of the quantitative data collected and operational variables of the study measured objectively. The population of the study is twenty-five (25) listed Multinational companies on Nigeria Exchange Group as of 31<sup>st</sup> December 2020. Four companies namely Oando Plc, Thomas Wyatt Plc, R.T. Briscoe Plc and Chellarams Plc; were not considered in the study for the following reasons. Oando Plc failed to make public their financial statements in the year 2019



and 2020. Also, Thomas Wyatt 2020 financial statement was not published. R.T. Briscoe and Chellarams Plc outlier of return on equity in 2015 and 2019 for R.T. Briscoe Plc, and Chellarams Plc was observed. Therefore, twenty-one (21) sampled listed multinational companies were used for the study. The secondary data were sourced from the published financial statements of the companies. Multiple regression was used in evaluating the effect of financial and manufactured capital on the financial performance of listed multinational companies in Nigeria for the analysis with the aid of the STATA 16 statistical tool.

### Model Specification

The study adopts the regression model used by Islam (2021) and is represented as follows:

$$ROE_{it} = \beta_0 + \beta_1 FC_{it} + \beta_2 MC_{it} + \beta_3 RG_{it} + \epsilon_{it} \dots \dots \dots (1)$$

Where: ROE= Return on Equity; FC= Financial Capital; Capital, MC = Manufactured RG = Revenue Growth  
 $\beta_0 - \beta_{it}$  = coefficient of the regression; i = number of multinational companies; t = number of years;  $\epsilon$  = Error term.

**Dependent Variable:** The dependent variable financial performance is proxied by Return on Equity (ROE); **Independent Variables** are Financial Capital (FC) and Manufactured Capital (MC), and the **Control variable** is proxied by Revenue Growth (RG). Table 3.1 below shows the study variables and their measurement.

**Table 3.1 Study Variables Measurement**

Variable	Proxies	Measurement	Source(s)
FP	Return on Equity (ROE)	The ratio of Profit After Tax (PAT) to Total Equity (TE) expressed in percentage.	Zhang et al. (2021) Nailal and Rika (2016)
FC	Financial Capital	Long Term Debt to Equity (LTDE) ratio expressed in percentage.	Chikwendu et al. (2020).
MC	Manufactured Capital	Non-Current Asset Ratio (NCAR) = Non-Current Assets divided by Total Assets expressed in percentage.	Ullah and Ahmad (2019).
RG	Revenue Growth	Current revenue minus Prior revenue divided by prior revenue expressed in percentage.  (CYR-PYR/PYR*100)	Kasogo (2020)

**Source: Author’s Compilation (2022)**

The apriori expectation for the study is that the independent variables, financial capital and manufactured capital will have a positive and significant effect on the dependent variable, return on equity (ROE).

## RESULT AND DISCUSSION

**Table 4.1 Descriptive Statistics**

stats	roe	fc	mc	rg
N	210	210	210	210
mean	13.86314	.8476667	42.89281	7.837571
sd	23.7226	1.335384	24.2631	23.55546
max	133.84	10.21	92.73	119.59
min	-71.42	0	1.24	-53.41
skewness	.8027338	3.264397	.0441838	1.076038
kurtosis	8.173749	16.87563	2.012271	7.35533

Source: Author Computation using STATA 16 Version (2022)

Table 4.1 shows total observations of two hundred and ten (210) indicating 21 multinational companies for the period of 10 years (2011 to 2020). The descriptive statistics for the Model, from Table 4.1 show that the average return on equity (ROE) of the sampled listed multinational companies in Nigeria was 13.86 with a standard deviation (SD) of 23.72. This is an indication that the return on equity (ROE) of the listed multinational companies deviate from both sides of the mean by 23.72, which means that the data is widely dispersed from its mean. The return on equity (ROE) also has a minimum and maximum value of -71.42 and 133.84 respectively. The data for return on equity (ROE) is positively skewed with a coefficient of 0.80, meaning that most of the data fall slightly to the right-hand side of the normal curve. The kurtosis coefficient of 8.17 shows that the data is far away from zero.

Table 4.1 also shows that the mean of financial capital (FC) of the listed multinational companies in Nigeria was 0.8477 with a standard deviation (SD) of 1.33. This shows that the financial capital (FC) of the listed multinational companies deviates from both sides of the mean by 1.33, which means that the data is slightly dispersed from its mean. The minimum and maximum values of financial capital (FC) are zero (0) and 10.21 respectively. The data for financial capital (FC) is positively skewed with a coefficient of 3.26. The kurtosis coefficient of 16.88 shows that the data deviates from zeronormal distribution. On the other hand, the average value of manufactured capital (MC) of the sampled listed multinational companies was 42.89 with an SD of 24.26. This means that the manufactured capital (MC) deviates from both sides of the average by 24.26 meaning that manufactured capital (MC) data is widely dispersed from the mean. The manufactured capital (MC) also has a minimum of 1.24 and a maximum of 92.73 respectively. The data for manufactured capital (MC) is positively skewed with a coefficient of 0.04, which means that the data is normally distributed because of zero skewness. The kurtosis coefficient of 2.0 further confirmed that the data are normally distributed, using the kurtosis coefficient of -2 to +2 criteria for normality of data established by George and Malley (2010).

The descriptive analysis of the control variable in Table 4.1 shows that the revenue growth (RG) of the sampled listed multinational companies in Nigeria has an average of 7.84, with an SD of 23.56. This shows that revenue growth (RG) deviates from both sides of the mean by 23.56, meaning that the data is widely dispersed from the mean. The revenue growth (RG) also has a minimum and maximum value of -53.41 and 119.59 respectively. The data for revenue growth (RG) was positively skewed with a coefficient of 1.08, meaning that most of the data fall on the right side slightly of the normal curve. The kurtosis coefficient of 7.36 shows that the data was not normally distributed which necessitate a diagnostic test of the data.

**Table 4.1b Descriptive Statistics - Shapiro-Wilk W test for Normal Data**

Variable	Obs	W	V	z	Prob>z
roe	210	0.88959	17.188	6.560	0.00000
fc	210	0.60331	61.751	9.510	0.00000
mc	210	0.96660	5.199	3.802	0.00007
rg	210	0.91538	13.173	5.947	0.00000

Source: Author Computation using STATA 16 Version (2022)

The study employed the Shapiro-Wilk (W) data normality test as part of the descriptive analysis, to ascertain how normal the data collected from secondary sources were. The test was conducted to check a variable that is assumed to be normally distributed. The premise is to test the null hypothesis that the data are normally distributed at a 0.05 level of significance. The results of the test are presented in Table 4.1b above. Table 4.1b shows that the return on equity (ROE) of the sampled listed multinational companies has a W test coefficient of 0.88959, with a Z-Value of 6.560 and P-Value of 0.00000. The test was significant at 5% with a confidence level of 95%. Thus, the study has no reason to reject the null hypothesis that the data for return on equity (ROE) are normally distributed and concludes that the data for return on equity (ROE) are normally distributed because the p-value is less than 0.05.

Table 4.1b, shows the financial capital (FC) of the sampled listed multinational companies in Nigeria, which has a W test coefficient of 0.60331 with a Z-Value of 9.510 and P-Value of 0.00000, meaning that the test was significant at 5% with a confidence level of 95%. Therefore, the study concludes that financial capital (FC) is normally distributed because the p-value is less than 5%. Similarly, the W test coefficient of 0.96660 for manufactured capital (MC), with a Z-Value of 3.802 and P-Value of 0.00000, shows that the test was significant at 5% with a confidence level of 95%. Consequently, the study has no reason to reject the null hypothesis that the data for manufactured capital (MC) are normally distributed and rejected the alternative hypothesis that the data for manufactured capital (MC) are not normally distributed. The revenue growth (RG) of the listed multinational companies in Nigeria has a W test coefficient of 0.91538, with a Z-Value of 5.947 and P-Value of 0.00000. The study concludes that revenue growth is normally distributed because the p-values are less than 0.005.

Table 4.2 below presents the outcome of the relationship between financial and manufactured capital against the financial performance of listed multinational companies in Nigeria. The correlation matrix shows the correlation among the variables of the study in Table 4.2.

**Table 4.2 Correlation Matrix**

	roe	fc	mc	rg
roe	1.0000			
fc	0.1099	1.0000		
mc	0.1088	-0.0203	1.0000	
rg	0.2142	0.0440	0.0200	1.0000

Source: Author Computation using STATA 16 Version (2022)

Return on equity (ROE) has a positive correlation with the return on financial capital (FC) and manufactured capital (MC) with coefficient values of 0.1099 and 0.1088, respectively. A 1% percent change in return on equity causes a proportional change of 10.99% in financial capital (FC), and 10.88% change in manufactured capital (MC). Return on equity is positively correlated with revenue growth (RG), and the coefficient of

correlation value is 0.2142 meaning that 1% variation in return on equity (ROE) causes a direct change in revenue growth (RG) by 21.42%.

Financial capital (FC) has a negative correlation with manufactured capital (MC) with a coefficient of correlation value of - 0.0203; This result is very good because the two independent variables are having a very low degree of correlation of 2.03% between financial capital (FC) and manufactured capital (MC) it is an indication of the absence of multicollinearity in the variables of interest. However, at this point conclusion cannot be drawn on the extent of the relationship between financial capital and manufactured capital; until further tests such as variance inflation factor (VIF) are carried out with other diagnostics tests confirming the multicollinearity existing in the data or otherwise. Furthermore, financial capital (FC) has a positive correlation with the control variable, revenue growth (RG) with a coefficient of correlation value of 0.0440. Implying that a unit change in financial capital (FC) has a direct effect on revenue growth (RG) by 4.4%. It is worthy of note that, the correlation existing between independent variables of the study is paramount which was confirmed by the low degree of correlation between financial capital (FC) and manufactured capital (MC) of 2.03%. Manufactured capital (MC) has a positive correlation with the control variable of the study, revenue growth (RG), with correlation coefficient values of 0.0200, signifying that a unit variation in manufactured capital (MC) will directly influence changes in revenue growth (RG), by 2.00%. In conclusion, no multicollinearity problem exist between financial capital and manufactured capital which are the independent variables of the study.

### Result of Multi collinearity/VIF Test

Variable	VIF	1/VIF
rg	1.00	0.997962
mc	1.00	0.998114
fc	1.00	0.999842
Mean VIF	1.00	

Source: Author Computation using STATA 16 Version (2022)

To validate the outcome of the correlation analysis in Table 4.3 above, a multicollinearity test was conducted on all independent and dependent variables as in Table 4.4 above. The results revealed that revenue growth (RG) has a VIF of 1.00, at a 0.997962 acceptance level, indicating that there is no issue of high collinearity with other variables; manufactured capital (MC) has a VIF of 1.00 at a 0.998114 acceptance level, which indicates that the data for manufactured capital (MC) has lower collinearity with other independent variables in the model. Furthermore, the results revealed that financial capital (FC) has a VIF of 1.00 at a 0.999842 acceptance level, which is an indication that the data for financial capital (FC) has lower collinearity with other explanatory variables of the study. The mean VIF for all explanatory variables is 1.00 indicating that the problem of multicollinearity among the independent variables of the study does not exist in the data. The mean VIF above 10 is an indication of multicollinearity existence in the data, on the other hand, the mean VIF of less than 10 shows the absence of a multicollinearity problem. In this case, a VIF of 1.00 is less than 10, the conclusion is that there is no problem of multicollinearity among the explanatory variables of the study.

### Breusch-Pagan / Cook-Weisberg test for heteroskedasticity Test Results

The test and result for heteroskedasticity are presented below:

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of roe

chi2(1)      =      0.04
Prob > chi2  =      0.8403
```

	Chi <sup>2</sup>	Prob > chi2
Hetest0.04	0.8403	

Source: Author Computation using STATA 16 Version (2022)

Table 4.4 shows a Hetest Chi<sup>2</sup> of 0.04, which is significant at a 5% level of significance (P-Value = 0.0000) for fitted values in the models. If the p-value that corresponds to this Chi-Square test statistic with p (the number of predictors) degrees of freedom is less than the 5% significance level (i.e.,  $\alpha = 0.05$ ) then reject the null hypothesis and conclude that heteroscedasticity is present. If the probability of Chi-Square is greater than 5% significant level, it means there is no reason to reject the null hypothesis and conclude that heteroscedasticity is absent. The probability of Chi-Square is 0.8403, which is greater than the significant level of 5%, automatically, no justification to reject null hypothesis implying that the data are homogenous. The conclusion is that there is no issue of heteroscedasticity.

#### Table 4.5: Spam test

	Chibar <sup>2</sup>	Prob.> chi <sup>2</sup>
Spam test	13.58	0.0000

Source: Author Computation using STATA 16 Version

The spam test determines the appropriate model between Pooled Ordinary Least Square (OLS) regression model and the Fixed Effects regression model. The Null Hypothesis (H<sub>0</sub>) and the Alternate Hypothesis (H<sub>1</sub>) with the decision criteria are stated thus:

**H<sub>0</sub>:** Pooled OLS regression model rather than a Fixed Effect model is appropriate.

**H<sub>1</sub>:** Pooled OLS regression is not appropriate.

If the p-value is greater than 0.05, do not reject H<sub>0</sub> and conclude that Pooled OLS model is appropriate.

If the p-value is less than 0.05, reject H<sub>0</sub> and conclude that the Fixed Effect model is appropriate.

The results in Table 4.5 above for the model show a wild F value of 13.58 with a corresponding probability of P > F - value of 0.0000 which is less than the value of 0.05. Therefore, the study rejects the null hypothesis and accepts the alternate hypothesis and concludes that the fixed effect model is the most appropriate.

#### Breusch and Pagan Lagrangian multiplier test for random effects

$$roe[pid,t] = Xb + u[pid] + e[pid,t]$$

```

Estimated results:
-----+-----
      roe |      562.7619      23.7226
         e |      239.7189      15.48286
         u |      352.2906      18.7694
Test:   Var(u) = 0
          chibar2(01) =    275.02
          Prob > chibar2 =    0.0000

```

Source: Author Computation using STATA 16 Version (2022)

The Breusch and Pagan Lagrangian multiplier (LM), test examines if any random effect exists in the model. The null hypothesis is that individual-specific or time-specific error components are zero. LM test compares the random-effects model with pooled OLS model. The decision stated thus:

The decision rule is that there is no reason to accept the null hypothesis if the P value is greater than 0.05 %, otherwise accept the alternative hypothesis if the P value is less than 5% (0.05).

The Chibar2 value of LM is 275.02 with the probability > Chibar2 of 0.000 (Table 4.6above, refers) showing that the probability of the LM test is less than significant level of 0.05; we conclude that the Random Effects model is the most appropriate model.

### Hausman Test

```

---- Coefficients ----
      |          (b)          (B)          (b-B)          sqrt(diag(V_b-V_B))
      |          fe          re          Difference          S.E.
-----+-----
fc |    4.275732    3.584883    .6908486    .8881265
mc |   -.0719921   -.0080878   -.0639043   .0700013
rg |    .1940641    .1957776   -.0017134   .0062181
-----+-----
chi2(3) = (b-B)' [(V_b-V_B)^(-1)] (b-B)
          =          1.36
          Prob>chi2 =          0.7157

```

Source: Author Computation using STATA 16 Version (2022)

Hausman test is the test between the fixed effect regression model and the random effect regression model. The probability of chi2 will determine which of the model is appropriate at the significant level. Based on the outcome of spam test indicated that the fixed effect model is the most appropriate (Table 4.5 refers) and the Breusch and Pagan Lagrangian multiplier (LM) revealed that random effect model is the most appropriate model (Table 4.6 refers). Hence, the need to conduct a hausman test to select the most suitable model between fixed and random models.

Hausman test selects the most appropriate model to be interpreted between Random Effects model with the Fixed Effects model as statistically determined by the probability value of chi2 above.

Hausman Test Decision Criteria:

**H<sub>0</sub>:** Random Effects model rather than Fixed Effect model is appropriate.

**H<sub>1</sub>:** Random Effects model is not appropriate.

If the p-value is larger than 0.05, do not reject H<sub>0</sub> and conclude that the Random Effects model is appropriate.

If the p-value is less than 0.05, reject H<sub>0</sub>, and conclude that Fixed Effects is appropriate.

Based on the probability of chi2 value of 0.7157 in Table 4.7, is above the significant level of 0.05; the study has no reason to reject the null hypothesis because of probability value of 0.7157 falls outside the critical value of 0.05. The study concludes that the random effects model is the most appropriate model to interpret.

The best regression result to be interpreted depends on the outcome of the wild/spam test LM test and Hausman test. The outcome of the spam test suggested that the fixed effect model is suitable and the Breusch and Pagan Lagrangian multiplier (LM) showed that the random effect model is suitable. Hausman's test preferred the random effect model to be the most appropriate model for the interpretation of the results as shown in table 4.8 below.

## Random Regression Model Result

Random-effects GLS regression	Number of obs	=	210
Group variable: pid	Number of groups	=	21
R-sq:	Obs per group:		
within = 0.1050	min =		10
between = 0.0168	avg =		10.0
overall = 0.0483	max =		10
Wald chi2(3) = 21.98			
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0001

  

	roe	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
	fc	3.584883	1.643207	2.18	0.029	.3642559 6.80551
	mc	-.0080878	.1034137	-0.08	0.938	-.210775 .1945994
	rg	.1957776	.0481132	4.07	0.000	.1014775 .2900777
	_cons	9.636846	6.270221	1.54	0.124	-2.652562 21.92625

  

sigma_u	18.769405
sigma_e	15.482859
rho	.59507586 (fraction of variance due to u_i)

Source: Author Computation using STATA 16 Version (2022)

The Wald chi-square value of 7.71 and a corresponding Prob. > F of 0.0001 which is below the 5% significant level show that the model is suitable to explain the relationship expressed in the study. The following provides further explanation of the type and degree of the association between both the dependent variable and all the study's independent variables in terms of coefficients, t-values, and p-values:

### Test of Hypotheses

**Hypothesis 1** Financial capital has no significant effect on financial performance of listed multinational companies in Nigeria.

The regression results presented in Table 4.8 show that the financial capital of the listed multinational companies in Nigeria, during the study period has a positive and significant effect on financial performance at the 5% level (coeff 3.584883,  $p=0.029$ ). Therefore, because of the probability of  $p > z$  of 0.029, the study rejects the null hypothesis and concludes that financial capital has a significant effect on the financial performance of listed multinational companies in Nigeria. It implies that a unit variation in the financial capital will cause a direct proportional effect of 2.9% in the financial performance of listed multinational companies in Nigeria. This finding is consistent with study outcome from (Islam, 2020; Owais et al., 2020; Neneh, 2016) that financial capital positively and significantly influenced financial performance. On the other hand, the study outcomes vary with findings of Shahzad (2015) that financial capital inversely affected financial performance.

**Hypothesis 2** Manufactured capital has no significant effect on financial performance of listed multinational companies in Nigeria.

The regression results presented in Table 4.8 show that the manufactured capital of the listed multinational companies in Nigeria, during the study period has no significant effect on financial performance at the 5% level (coeff -0.0080878,  $p=0.938$ ). Therefore, because of the probability of  $p > z$  of 0.938, the study has no reason to reject the null hypothesis; because the p-value of 0.938 is greater than the confidence level of 5% statistical significance, the study rejected the alternate hypothesis, and with no justification to reject the null hypothesis. The study concludes that manufactured capital has no significant effect on the financial performance of listed multinational companies in Nigeria.

## Discussion of Findings

Total observations of two hundred and ten (210) indicating 21 listed multinational companies in Nigeria for the period of 10 years (2011 to 2020) were analyzed. The descriptive statistics on the mean, standard deviation, maximum and minimum values, skewness, and kurtosis for return on equity, financial capital, manufacture capital and revenue growth discussed in Table 4.1 above. From the Shapiro-Wilk normality test conducted the dependent variable (return on equity), independent variables (financial capital and manufactured capital), and control variable (revenue growth) were normally distributed because their probability values of 0.000, fall below 5% significant level. The mean Variance Inflation Factor (VIF) value of 1.00 which is less than the VIF value of 10 benchmarks for multicollinearity; the criterion is that VIF value of less than 10, indicates that the independent variables are not highly correlated. In this study, the mean VIF value of 1.00, implies that there is no issue of multicollinearity that exist between financial capital (FC) and manufactured capital (MC). Breusch-Pagan / Cook-Weisberg test for heteroskedasticity test conducted and the probability value of 0.0000 which is within the 5% significant revealed the heteroskedasticity problem is absent, meaning that the data are homogenous.

In arriving at the appropriate regression model for interpretation. A spam test conducted to choose between pooled OLS and the fixed effect regression model, the test result show fixed regression model preferred over pooled OLS regression model. On the other hand, the Breusch and Pagan Lagrangian multiplier (LM) test was carried out to examine if any random effect exists in the model and to select between the random effect model and the pooled OLS model. The LM test revealed that the random effect model is suitable for interpretation. Furthermore, the Hausman test was then conducted which model between the fixed effect model and the random effect model, is suitable and fit for the interpretation of the result. The Hausman test specified, the random effect model as the best and most appropriate regression model for the interpretation and decision making. The result shows that financial capital has a positive and significant impact on the financial performance of listed multinational companies in Nigeria. The findings are consistent with the findings of Islam (2020), Owais et al. (2020) and Neneh (2016) found that financial capital has a positive and significant impact on the performance of companies. The study outcome differs from Shahzad (2015) established that an inverse relationship exists between financial capital and financial performance. However, In the same vein, manufactured capital has a negative but insignificant effect on the financial performance of listed multinational companies in Nigeria. The result is inconsistent with the outcome of (Nwauzor & Chukwu, 2018; Gospel & Celestine, 2017) that asset tangibility influenced the financial performance and profitability of companies.

## CONCLUSION AND RECOMMENDATIONS

Integrated reporting is a system of reporting that accounts for all six capitals, namely, financial capital, manufactured capital, intellectual capital, human capital, social and relation capital, and natural capital. It embeds financial and non-financial information communicated to users of the information concisely and coherently. In this study, financial and manufactured capital were examined on the financial performance of listed multinational companies in Nigeria for the period of ten (10) years 2011 to 2020. Since many parties are interested in the company's activities the study was underpinned by stakeholder theory. The theory considers the interest of diverse stakeholders such as shareholders, management, employees, customers, creditors, government, community, and so on. In conclusion financial capital has a positive and significantly affected financial performance of listed multinational companies in Nigeria. While on the other hand, manufactured capital statistically has no significant effect on financial performance. The study recommends that companies should adopt and continue with the practice of the integrated system of reporting because it creates value for the stakeholders of companies in Nigeria and positively impacted the financial performance of companies.



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## Appendix I Pooled OLS Regression Result

. regress roe fc mc rg

Source	SS	df	MS	Number of obs	=	210
Model	7925.75227	3	2641.91742	F(3, 206)	=	4.96
Residual	109691.483	206	532.482926	Prob > F	=	0.0024
Total	117617.235	209	562.76189	R-squared	=	0.0674
				Adj R-squared	=	0.0538
				Root MSE	=	23.076

  

roe	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
fc	1.829254	1.196717	1.53	0.128	-.5301289 4.188636
mc	.1043788	.0658139	1.59	0.114	-.0253765 .234134
rg	.209004	.0678426	3.08	0.002	.075249 .3427589
_cons	6.197364	3.4391	1.80	0.073	-.5829817 12.97771

Source: Authors Compilation using STATA 16 (2022)

## Appendix II Fixed-Effects Regression

Fixed-effects (within) regression  
 Group variable: pid  
 R-sq:  
   within = 0.1067  
   between = 0.0061  
   overall = 0.0341  
 corr(u\_i, Xb) = -0.1786

Number of obs = 210  
 Number of groups = 21  
 Obs per group:  
   min = 10  
   avg = 10.0  
   max = 10  
 F(3,186) = 7.41  
 Prob > F = 0.0001

roe	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
fc	4.275732	1.867859	2.29	0.023	.5908183 7.960645
mc	-.0719921	.1248783	-0.58	0.565	-.318352 .1743678
rg	.1940641	.0485133	4.00	0.000	.098357 .2897713
_cons	11.8057	5.650831	2.09	0.038	.6577395 22.95366

  

sigma_u	18.880923
sigma_e	15.482859
rho	.59792746 (fraction of variance due to u_i)

F test that all u\_i=0: F(20, 186) = 13.58      Prob > F = 0.0000

Source: Authors Compilation using STATA 16 (2022)

## Appendix III Study Variables

PID	Year	Companies	ROE	FC	MC	RG
111	2011	11 Plc	90.76	2.25	47.83	6.44
111	2012	11 Plc	43.68	2.22	65.18	30.12
111	2013	11 Plc	36.5	1.76	73.53	-2.55
111	2014	11 Plc	47.18	1.43	75.09	1.07
111	2015	11 Plc	31.72	1.59	71.68	-19.3
111	2016	11 Plc	38	1	63.81	46.54
111	2017	11 Plc	27.48	0.7	49.6	33.1
111	2018	11 Plc	27.62	0.52	51.62	31.42
111	2019	11 Plc	22.39	0.41	56.49	16.44
111	2020	11 Plc	7.43	0.39	62.36	-13.66
113	2011	Cadbury Nig	22.13	0.19	39.89	16.93
113	2012	Cadbury Nig	17.24	0.16	34.84	-1.64
113	2013	Cadbury Nig	25.1	0.2	39.24	6.59
113	2014	Cadbury Nig	13.11	0.28	57.2	-14.66
113	2015	Cadbury Nig	9.39	0.36	55.15	-8.83
113	2016	Cadbury Nig	-2.68	0.41	51.37	7.74
113	2017	Cadbury Nig	2.55	0.35	49.9	10.34
113	2018	Cadbury Nig	6.49	0.38	49.04	8.75
113	2019	Cadbury Nig	7.9	0.39	47.32	9.32
113	2020	Cadbury Nig	6.88	0.38	38.62	-9.97
114	2011	Conoil	17.74	0.13	13.16	53.1
114	2012	Conoil	4.57	0.15	8.6	-4.77
114	2013	Conoil	17.02	0.05	6.88	6.36
114	2014	Conoil	5.18	0.03	6.03	-19.55
114	2015	Conoil	13.03	0.07	8.26	-35.4
114	2016	Conoil	15.37	0.06	8.25	2.54
114	2017	Conoil	8.82	0.05	8.72	35.86
114	2018	Conoil	9.81	0.05	9.83	5.8
114	2019	Conoil	10.13	0.07	9.53	14.36
114	2020	Conoil	7.38	0.05	10.1	-15.95
115	2011	Glaxosmithkline Nig	25.63	0.15	40.59	27.65
115	2012	Glaxosmithkline Nig	26.48	0.15	40.54	17.57
115	2013	Glaxosmithkline Nig	23.65	0.17	46.24	15.31
115	2014	Glaxosmithkline Nig	14.28	0.14	47.94	4.58

115	2015	Glaxosmithkline Nig	7.32	0.15	44.28	0.37
115	2016	Glaxosmithkline Nig	13.95	0	9.8	-53.04
115	2017	Glaxosmithkline Nig	2.83	0	8.74	11.85
115	2018	Glaxosmithkline Nig	6.99	0.01	15.04	14.43
115	2019	Glaxosmithkline Nig	10.02	0	12.8	12.76
115	2020	Glaxosmithkline Nig	6.82	0	10.67	2.58
116	2011	John Holt	-49.67	0.13	84.43	-42.19
116	2012	John Holt	23.04	0.22	67.54	-53.41
116	2013	John Holt	5.87	0.55	92.73	9.91
116	2014	John Holt	17.7	0.4	87.16	-7.34
116	2015	John Holt	-7.97	1.55	82.75	-13.85
116	2016	John Holt	2.96	1.58	69.17	9.9
116	2017	John Holt	-27.73	2.02	61.42	-14.18
116	2018	John Holt	5.88	1.84	62.02	16.92
116	2019	John Holt	7.78	1.87	60.37	-32.95
116	2020	John Holt	-13.84	1.93	47.86	2.12
117	2011	Julius Berger	45.27	10.21	41.45	-2.46
117	2012	Julius Berger	52.91	6.28	53.98	18.98
117	2013	Julius Berger	37.34	4.8	50.05	5.54
117	2014	Julius Berger	31.58	4.38	47.31	-7.49
117	2015	Julius Berger	10.05	5.03	39.97	-32.01
117	2016	Julius Berger	-15.08	5.18	36.31	3.88
117	2017	Julius Berger	8.55	4.7	52.92	2.08
117	2018	Julius Berger	17.23	4.99	47.23	37.16
117	2019	Julius Berger	21.72	5.27	48.69	36.9
117	2020	Julius Berger	-2.75	4.62	53.24	-9.25
118	2011	Lafarge Cement Wapco Nig	15.4	1.14	83.79	42.56
118	2012	Lafarge Cement Wapco Nig	21.52	0.76	84.33	40.74
118	2013	Lafarge Cement Wapco Nig	30.4	0.3	77.72	12.32
118	2014	Lafarge Cement Wapco Nig	20.34	0.45	81.61	108.35
118	2015	Lafarge Cement Wapco Nig	15.33	1.06	83.69	29.82
118	2016	Lafarge Cement Wapco Nig	6.79	0.31	80.43	-17.78
118	2017	Lafarge Cement Wapco Nig	-22.04	0.51	73.85	36.16
118	2018	Lafarge Cement Wapco Nig	-6.54	1.44	82.73	3.1
118	2019	Lafarge Cement Wapco Nig	4.5	0.2	84.9	-30.94
118	2020	Lafarge Cement Wapco Nig	8.58	0.06	79.68	8.25
119	2011	May & Baker Nig	8.1	0.3	71.57	4.28
119	2012	May & Baker Nig	2.42	0.69	61.75	17.18

119	2013	May & Baker Nig	-3.4	0.62	58.77	12.33
119	2014	May & Baker Nig	2.05	0.6	56.72	10.23
119	2015	May & Baker Nig	2.19	0.52	56	7.83
119	2016	May & Baker Nig	-1.36	0.82	49.88	11.9
119	2017	May & Baker Nig	11.16	0.54	51.08	10.43
119	2018	May & Baker Nig	9.47	0.37	58.53	-8.56
119	2019	May & Baker Nig	12.2	0.17	57.21	-5.52
119	2020	May & Baker Nig	14.31	0.56	36.02	16.21
120	2011	Mrs (Texaco Chevron)	7.44	0.37	32.6	-4.4
120	2012	Mrs (Texaco Chevron)	1.99	0.34	40.29	11.52
120	2013	Mrs (Texaco Chevron)	3.23	0.31	34.09	10.11
120	2014	Mrs (Texaco Chevron)	3.69	0.27	35.56	5.17
120	2015	Mrs (Texaco Chevron)	4.46	0.25	29.02	-5.66
120	2016	Mrs (Texaco Chevron)	6.61	0.23	23.79	25.87
120	2017	Mrs (Texaco Chevron)	5.99	0.09	29.04	-2.32
120	2018	Mrs (Texaco Chevron)	-6.1	0.06	32.36	-16.37
120	2019	Mrs (Texaco Chevron)	-8.92	0.07	39.26	-27.52
120	2020	Mrs (Texaco Chevron)	-13.44	0.06	43.19	-35.32
121	2011	Neimeth Int Pharm	11.2	0.29	17.57	0.45
121	2012	Neimeth Int Pharm	-4.4	0.14	19.03	22.74
121	2013	Neimeth Int Pharm	7.33	0.11	17.51	-13.46
121	2014	Neimeth Int Pharm	14.02	0.02	20.36	-19.25
121	2015	Neimeth Int Pharm	-29	0.18	21.42	-10.3
121	2016	Neimeth Int Pharm	5.32	0.26	18.71	37.04
121	2017	Neimeth Int Pharm	-51.09	0.35	26.04	-23.37
121	2018	Neimeth Int Pharm	18.67	0.26	30.95	47.91
121	2019	Neimeth Int Pharm	20.54	0.23	27.52	4.51
121	2020	Neimeth Int Pharm	16.67	0.23	19.41	19.73
122	2011	Nestle Nig	71.07	1.28	71.43	18.42
122	2012	Nestle Nig	61.83	0.87	70.37	19.14
122	2013	Nestle Nig	54.83	0.85	61.41	14.03
122	2014	Nestle Nig	61.87	0.72	64.75	7.7
122	2015	Nestle Nig	62.45	0.57	59.14	5.54
122	2016	Nestle Nig	25.67	0.57	42.37	20.25
122	2017	Nestle Nig	75.15	0.56	50.61	34.21
122	2018	Nestle Nig	85.64	0.4	49.03	9.06
122	2019	Nestle Nig	100.28	0.49	44.65	6.67
122	2020	Nestle Nig	133.84	1.74	38.46	1.07



124	2011	Nigeria Breweries	48.92	0.86	75.47	13.56
124	2012	Nigeria Breweries	40.71	0.78	77.58	19.71
124	2013	Nigeria Breweries	38.34	0.36	82.08	6.31
124	2014	Nigeria Breweries	24.73	0.37	84.9	-0.83
124	2015	Nigeria Breweries	22.08	0.25	85.04	10.34
124	2016	Nigeria Breweries	17.13	0.34	79.69	6.75
124	2017	Nigeria Breweries	18.54	0.27	77.11	9.82
124	2018	Nigeria Breweries	11.65	0.49	77.78	1.64
124	2019	Nigeria Breweries	9.6	0.45	81.05	-7.77
124	2020	Nigeria Breweries	4.57	0.46	79.1	4.35
125	2011	Pz Cussons	13.83	0.14	36.32	5.12
125	2012	Pz Cussons	6.2	0.1	37.82	9.53
125	2013	Pz Cussons	12.06	0.1	33.71	-1.12
125	2014	Pz Cussons	12.53	0.11	34.5	2.19
125	2015	Pz Cussons	11.03	0.15	37.42	0.3
125	2016	Pz Cussons	4.91	0.09	35.61	-4.92
125	2017	Pz Cussons	8.17	0.06	32.78	14.53
125	2018	Pz Cussons	4.27	0.06	33.19	1.16
125	2019	Pz Cussons	2.53	0.07	37.75	-7.72
125	2020	Pz Cussons	-20.95	0.17	37.12	-9.88
126	2011	Redstar Express	21.38	0.18	32.36	1.64
126	2012	Redstar Express	19.16	0.02	26.55	19.53
126	2013	Redstar Express	17.69	0.13	28.06	5.25
126	2014	Redstar Express	21.21	0.12	31.62	21.21
126	2015	Redstar Express	18.62	0.09	27.51	3.77
126	2016	Redstar Express	15.12	0.06	24.04	-0.38
126	2017	Redstar Express	17.55	0.1	26.89	10.04
126	2018	Redstar Express	13.75	0.13	26.53	15.19
126	2019	Redstar Express	16.88	0.09	27.53	19.73
126	2020	Redstar Express	10.72	0.07	26.63	4.79
127	2011	Royal Exchange	-0.63	0.8	9.28	98.21
127	2012	Royal Exchange	7.68	0.88	8.46	9.99
127	2013	Royal Exchange	1.24	1.19	8.34	27.51
127	2014	Royal Exchange	1.68	1.33	6.43	3.77
127	2015	Royal Exchange	-17.49	1.85	8.37	14.68
127	2016	Royal Exchange	-15.36	2.66	7.21	15.05
127	2017	Royal Exchange	-17.38	3.14	6.42	3.11
127	2018	Royal Exchange	-3.06	4.87	4.13	14.74

127	2019	Royal Exchange	-17.24	2.41	4.48	-3.43
127	2020	Royal Exchange	7.76	0.62	4.66	-16.47
128	2011	Scoa Nig	3.9	0.31	13.2	8.59
128	2012	Scoa Nig	2.25	0.07	17.61	70.49
128	2013	Scoa Nig	3.76	0.06	18.49	3.45
128	2014	Scoa Nig	5.94	0.02	21.49	3.42
128	2015	Scoa Nig	-65.33	0.17	24.54	-29.69
128	2016	Scoa Nig	-35.57	0.69	57.48	-20.93
128	2017	Scoa Nig	-71.42	0.94	60.84	-49.76
128	2018	Scoa Nig	-0.95	1	57.13	36.29
128	2019	Scoa Nig	16.11	2.62	50.59	64.58
128	2020	Scoa Nig	-13.54	0.64	31.78	61.76
129	2011	Stanbic Ibtc Holding	8.32	2	4.46	3.11
129	2012	Stanbic Ibtc Holding	12.19	2.4	3.61	63.2
129	2013	Stanbic Ibtc Holding	22.03	1	3.76	8.24
129	2014	Stanbic Ibtc Holding	26.67	2.26	2.54	15.29
129	2015	Stanbic Ibtc Holding	14.65	1.7	2.7	14.59
129	2016	Stanbic Ibtc Holding	20.26	2.12	2.18	5.78
129	2017	Stanbic Ibtc Holding	26.12	2.42	1.58	40.52
129	2018	Stanbic Ibtc Holding	31.06	1.9	1.3	-3.68
129	2019	Stanbic Ibtc Holding	24.83	3.1	1.48	1.71
129	2020	Stanbic Ibtc Holding	21.98	3.4	1.24	-12.15
130	2011	Total Nigeria	38.03	0.26	31.15	8.31
130	2012	Total Nigeria	41.33	0.25	26.73	25.23
130	2013	Total Nigeria	40.29	0.23	29.32	9.33
130	2014	Total Nigeria	31.76	0.21	26.36	1.03
130	2015	Total Nigeria	24.92	0.21	32.91	-13.54
130	2016	Total Nigeria	62.78	0.01	22.02	39.86
130	2017	Total Nigeria	28.41	0.1	33.1	-0.99
130	2018	Total Nigeria	25.91	0.19	32.15	6.92
130	2019	Total Nigeria	8.05	0.2	34.46	-5.13
130	2020	Total Nigeria	7.33	0.2	32.94	-29.93
131	2011	Transcorp Nig	14.31	0.25	83.73	-0.19
131	2012	Transcorp Nig	6.1	0.42	67.44	-4.72
131	2013	Transcorp Nig	8.03	0.36	81.77	42.13
131	2014	Transcorp Nig	3.68	0.54	78.91	119.59
131	2015	Transcorp Nig	2.32	0.83	74.98	-1.41
131	2016	Transcorp Nig	-1.3	0.95	73.63	45.81

131	2017	Transcorp Nig	11.08	0.89	67.05	35.1
131	2018	Transcorp Nig	19.58	0.63	68.84	29.74
131	2019	Transcorp Nig	3.68	1.03	65.61	-26.71
131	2020	Transcorp Nig	3.31	1.1	68.42	-5.34
132	2011	Uac Of Nig	5.97	0.41	50.28	14
132	2012	Uac Of Nig	11.72	0.31	56.32	16.76
132	2013	Uac Of Nig	13.89	0.13	59.92	13.04
132	2014	Uac Of Nig	14.41	0.18	60.36	8.82
132	2015	Uac Of Nig	6.94	0.18	61.87	-14.6
132	2016	Uac Of Nig	7.41	0.13	55.48	15.67
132	2017	Uac Of Nig	1.81	0.1	53.39	5.4
132	2018	Uac Of Nig	-12.76	0.14	45.81	-11.7
132	2019	Uac Of Nig	8.83	0.35	57.99	0.58
132	2020	Uac Of Nig	5.63	0.14	44.76	2.72
133	2011	Unilever Nig	41.29	0.28	50	16.92
133	2012	Unilever Nig	39.52	0.29	59.51	1.5
133	2013	Unilever Nig	49.87	0.62	57.94	8.02
133	2014	Unilever Nig	32.26	0.86	59.4	-7.08
133	2015	Unilever Nig	14.9	0.93	58.13	6.22
133	2016	Unilever Nig	26.28	0.62	42.69	17.82
133	2017	Unilever Nig	9.81	0.11	25.71	30.09
133	2018	Unilever Nig	11.03	0.07	23.16	2.35
133	2019	Unilever Nig	-11.15	0.04	31.08	-34.89
133	2020	Unilever Nig	-6.38	0.03	30.09	2.43

**Source: Authors Compilation (2022) from Nigeria Exchange Group & Financial Statements of Companies.**

**KEY**

PAT	Profit After Tax
TE	Total Equity
ROE	Return on Equity (PAT/TE)
LTD	Long-term Debt
FC	Financial Capital (LTD/TE)
NCA	Non-Current Assets
TA	Total Assets
MC	Manufactured Capital (NCA/TA)
RG	Revenue Growth [(Current Year Revenue - Prior Year Revenue)/Prior Year Revenue]
PID	Panel identification code

