

# The Impact of Free Cash Flow on the Profitability of the Listed Industrial Goods Companies in Nigeria: The Moderating Effects of Managerial Ownership

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## Abstract

This study examined the moderating effects of managerial ownership on the relationship between free cash flow and the profitability of listed industrial goods companies in Nigeria. The study employed non-survey research design, using a sample size of eleven (11) companies from a total population of thirteen (13) listed industrial goods companies on the Nigerian Stock Exchange (NSE) with data extracted from the annual reports and accounts of the sampled companies for a period of eleven years from 2010 to 2020. Data was analyzed using descriptive statistics to provide a summary for the variables and correlation analysis carried out using the Pearson correlation technique. The analyses were done using STATA software version 14. The study found out that free cash flow had a significant and positive effect on profitability. On the moderating effect of managerial ownership on the relationship between free cash flow and profitability, it was found out that  $R^2$  increased from 2.66% to 8.16% in the model when the managerial ownership was introduced and is also significantly positive. Thus, managerial ownership moderates the relationship between free cash flow and profitability. Thus, this study recommends that the managers of the sampled companies in Nigeria should use excess cash flow to generate profit rather than hold up money in anticipation of future opportunities for the ultimate betterment of the firm and shareholders. Investors should choose companies that have excess free cash flows as well as managerial ownership, which would have a positive impact on the performance of sampled companies in Nigeria.

**Keywords:** Free cash flow, Managerial ownership, Profitability, Industrial goods companies in Nigeria

**DOI:** 10.7176/RJFA/14-10-08

**Publication date:** May 31<sup>st</sup> 2023

## 1. Introduction

Firms' profitability comes from the proper and prudent allocation and utilization of resources of an organization and profitability alone cannot determine the proper efficiency of managers because the sustainability of profitability is also an issue. Estimating the profitability level is one of the most important concerns of all companies that use distinct financial resources to undertake successful projects to achieve profit maximization and wealth maximization. In this context, every business's economic prosperity involved in product and service activities depends upon the efficient and effective cash management within and outside the organization (Liman & Mohammed, 2018). Therefore, free cash flow is also a higher choice; companies that possess excess free cash flow appear to be more rewarding for any financiers, who are always on their toes to get great investment to invest their extra funds.

Free cash flow represents that cash flow beyond what is necessary to maintain assets and finance expected new investments (Richardson, 2006). Usually calculated as cash flow from operations reduced by capital expenditures, free cash flow is typically viewed as "cash available to investors" as firm managers have the discretion to use the cash for activities like new product development, acquisitions, dividend payouts and debt reduction (Cohee et al., 2020; and Investopedia, 2003). Increasing free cash flow is often a default managerial retrenchment response to recessionary conditions, as firms seek to reduce operations and capital investment expenses (Gulati et al., 2010).

A firm's profitability is vested with its policies and cash flows and is determined with the help of return on assets, return on equity. The objective is that the firm should be capable of generating cash through operating, financing and investing activities. Moreover, a firm's failure in compliance with proper management in operating cash flows might lead to a decrease in profit realized from the businesses. Therefore, every firm should be able to manage its cash flows to reach the level of performance. The essence of the bird-in--hand theory of dividend policy is that shareholders are risk-averse and like to receive dividend payments instead of future capital gains. A high retention policy may enable an organization to finance a more rapid and better rate of growth. Firms having excess cash but not proper utilization of the cash can create agency problems due to the dissatisfaction of shareholders and so profitability is measured against some key factors as a ratio to determine the true state of the firm.

Managerial ownership, because of the quantum of executive directors' stakes in a company, should naturally have some alignment effects on the style within which managers run the affairs of the organization. This can be

so considering the agency theory proposition regarding the thought of interest synchronization of interests of the manager, of the organization because the manager's interest within the organization advances and the other way around. Thus, it's expected that managers with high stakes during a given organization tend to be more diligent than those with relatively low stakes.

The influence of managerial ownership on firms' profitability is expounded to the attitude that firms' value depends on the distribution of ownership between managers and other owners, first underlined by the Berle and Means (1932) and Jensen and Meckling (1976). Within this context and also the so-called 'incentive argument', giving managers corporate shares makes them behave like shareholders. In an extreme case like Jensen and Meckling (1976), we might have a firm with one owner-manager and also the agency costs reduced to the link between the owner-manager and its creditors that's no equity-related agency costs. The outstanding performance of the firms with 100% ownership has been recently confirmed by Mueller and Spitz (2002); they argued that the outstanding performance won't only result in incentives but also thanks to others psychological reasons.

Industrial goods companies in Nigeria are involved in the manufacturing and distribution of capital goods, including aerospace and defense, engineering and building products, electrical equipment, industrial machinery and packaging products for industrial and consumer products. Their businesses are dominated by the assembly of products for commercial use. As industrial outfits, these companies require investment in inventories financed either through cash or trade credit (amounting to accounts payable); utilize the trade credit as a marketing tool to take care of or expand sales; need cash to finance day-to-day operations and any excesses that are invested in marketable securities; and desire to be profitable. However, the dominant practical events have shown that the management of most of those companies is faced with the challenge of effectively managing quick assets to confirm improved financial performance. This shows that free income is crucial to a firm and consequently affects its financial performance and lifespan. Thus, this study assesses the moderating effects of managerial ownership on the relationship between free cash flow and profitability of the listed industrial goods companies in Nigeria.

### 1.1 Statement of the Problem

The free income theory of Easterbrook (1984) and Jensen (1986) states that companies with substantial free income always tend to face conflicts of interest between shareholders and managers. Managers once have satisfied all the obligations contracted of the firms with funds generated from operations can use the available cash from the treasury for their own benefit rather than the interest of the shareholder. Shareholders want managers to take decisions on profitable projects that maximize their stock value, whereas managers tend to waste the resources by investing instead of paying dividend as distributing cash as dividend to shareholders.

Firms having excess free cash flow (FCF) have to make wise decisions in making cash usable. The particular problem is within the actual fact how managers will be inspired to disperse the FCF rather than make an investment of it at a rate of interest but the value of financing their business or losing it on business ineptitudes. This study strives to unravel the research problem by trying to analyze the link between the firm's profitability and its free income by making particular relevancy the moderating effects of managerial ownership.

It has been observed that there are more studies at the international than the local (Nigeria) level on free cash flow, managerial ownership and the profitability of firms. At the international level, a number of studies have investigated the relationship between free cash flow and profitability. Notably, Garrett et al. (2020) examined the impacts of free cash flow on firm performance in the U.S. Murkor (2020) studied the effect of management of cash flow on financial performance in Kenya. Abdul and Raj (2020) focused on the impact of cash flows on financial performance in the industrial sector in Saudi Arabia and Usman et al. (2018) examined the impact of free cash flow on profitability in Germany. Waseque et al. (2018) examined the impact of free cash flow on profitability in Bangladesh. Lachheb and Slim (2017) examined the impact of free cash flow and agency costs on firm performance in French. Kadioglu et al. (2017) studied the relationship between free cash flow and company performance in Turkey. Kamran et al. (2017) assessed the effect of free cash flow on profitability in Karachi. Manian and Fathi (2017) examined the relationship between free cash flow and performance in Tehran. Ambreen and Aftab (2016) determined the impact of free cash flow on profitability in Karachi and Kamran (2016) studied the impact of free cash flow on firm's profitability in Pakistan.

At the local (Nigeria) level, there are very few studies on free cash flow and financial performance. Some of these studies include the works of Liman and Mohammed (2018) that examined the impact of cash flow and Nigerian companies' corporate financial performance. Augustine and Jacob (2017) examined the impact of CFOs on the performance of Nigerian companies. Ogbeide and Akanji (2017) focused on the relationship between cash flow and financial performance and Amah et al. (2016) examined the relationship between cash flow and performance. Managerial ownership and profitability are endogenously determined by exogenous (and only partly observed) changes in the firm's contracting environment (Chowdhury, 2007). A large fraction of the cross-sectional variation in managerial ownership is explained by unobserved firm heterogeneity. Moreover, after controlling both for observed firm characteristics and firm fixed effects, it cannot be concluded (econometrically) that changes in managerial ownership against firm performance. Also, the relationship between managerial

ownership and profitability has been empirically documented by subsequent researchers.

Examples of such studies include the work of Li and Sun (2014); Edmands and Manso (2011); Edmands (2009) and Cremers and Nair (2005). Similarly, the results of these findings from the studies seem to be inconsistent. Furthermore, while theories and evidence alike are consistent in documenting that both free cash flow and managerial ownership have a significant impact on profitability, one crucial point of note is that no research has successfully tested to see the relationship of free cash flow has on profitability when managerial ownership is high; that is the interactive effect of free cash flow and managerial ownership on profitability.

From the foregoing, there is scarcity of research on the relationship between free cash flow and profitability and also for the studies that the researcher reviewed there is not any that used managerial ownership as a moderating variable at the local (Nigeria) level. Even the few studies that existed at that level are mostly on the direct relationship between free cash flow and financial performance. Thus, there is the need for more researches on the relationship between the variables either on direct relationship or total relationship at the local (Nigeria) level. This research therefore contributed to the local literature by assessing the moderating effect of managerial ownership on the relationship between free cash flow and the profitability of the listed industrial goods companies in Nigeria.

The empirical studies review shows that the researchers have used different sectors and variables in examining the impact of free cash flow on financial performance. From the studies reviewed, few reported a positive impact and a vice-versa by other studies and a few more reported insignificant relationships. Moreover, no studies explain the relationship between free cash flows and companies' financial performance in Nigeria with the moderating effect of managerial ownership. Therefore, the current study might be considered an initiator in conducting such a relationship between with the selected moderating variable in the listed industrial goods companies in Nigeria. It is against this background that this study sought to find out to what extent free cash flow affects the profitability of the listed industrial goods companies in Nigeria and to what extent managerial ownership moderates the relationship between free cash flow and the profitability of the listed industrial goods companies in Nigeria?

## **2. Literature Review and Hypotheses Development**

### **i. Free Cash Flow and the Firm's Profitability**

Murkor (2020) examined the effect of management of cash flow on the financial performance of mutual funds in Kenya. The study employed causal research or explanatory design with secondary panel data, which was extracted from the audited financial statements of 22 mutual funds for the period 2011-2016. The study found that free cash flow management had an insignificant and a positive effect on return on assets. This insignificant result could be attributed to the small number of observations. Previous studies such as Liman and Mohammed (2018) and Sebastian and Sundar (2018) concluded that free cash flow could not affect firm's profitability.

On the other hand, Kamran et al. (2017) concludes that free cash flows enhance firm performance, but excess free cash flows create the agency problem due to this; the conflict of interest increased between owner and management and because of such conflict, firm performance decreases. This is in line with findings of Kadioglu et al. (2017), Manian and Fathi (2017), Mutende et al. (2017), Ogbeide and Akanji (2017), Amah et al. (2016), Ambreen and Aftab (2016), Ikechukwu et al. (2015), and Vakilifard and Shahmoradi.

Based on the above empirical studies, it can be understood that free cash flows enhance firm profitability, but excess free cash flows create the agency problem due to this; the conflict of interest increased between owner and management and because of such conflict firm performance decreases. It was also observed that there was a significant relationship between free cash flow, return on assets and return on equity and future value of the companies. In other words, most of the findings indicate that free cash flows have a significant positive effect on profitability. Almost all the above studies found that free cash flows have a positive statistically significant impact on a firm's profitability. Thus, free cash flow and managerial ownership were tested against agency costs. Together, these studies found that free cash flow has a significant and positive impact on firm's profitability.

H<sub>1</sub>. Free cash flow has positive and significant impact on firm's profitability.

### **ii. Managerial Ownership and the Firm's Profitability**

Although the relationship between managerial ownership and profitability has increasingly been examined, empirical results are mixed. In fact, Dakhllalh et al. (2021) examined the relationship between ownership structure and firm performance in developing countries like Jordan for the period of nine years (2009 – 2017). The result shows that managerial ownership has significant and positive effects on firm performance. Similarly, Oyedokun et al. (2020), Ahmed and Hadi (2017), Alabdullah (2018), Katper et al. (2018), Agburuga and Ibanichuka (2016), Hossain (2016), Boğa-Avram (2012) and Din and Javid (2011) find significant association between managerial ownership and profitability.

In contract, Abdullahi and Muhammad (2019) examined the effect of ownership structure on the financial performance of listed commercial banks in Nigeria for the period 2009-2016. This study used a sample of 13 listed commercial banks in conducting the study. It also employed Ordinary Least Square (OLS) and Generalized Least Square methods of panel data regression models in analyzing the data. The results of the analysis revealed that

managerial ownership (MOW) has statistically insignificant positive effects on financial performance. Furthermore, Noradiva et al. (2016) and Mueller and Spitz (2006) concluded that managerial ownership has insignificant effects on profitability. Based on these findings, we assume a positive relationship between managerial ownership and profitability.

H<sub>2</sub>. Managerial ownership is positively associated with profitability.

### iii. Free Cash Flow, Managerial Ownership and the Firm's Profitability

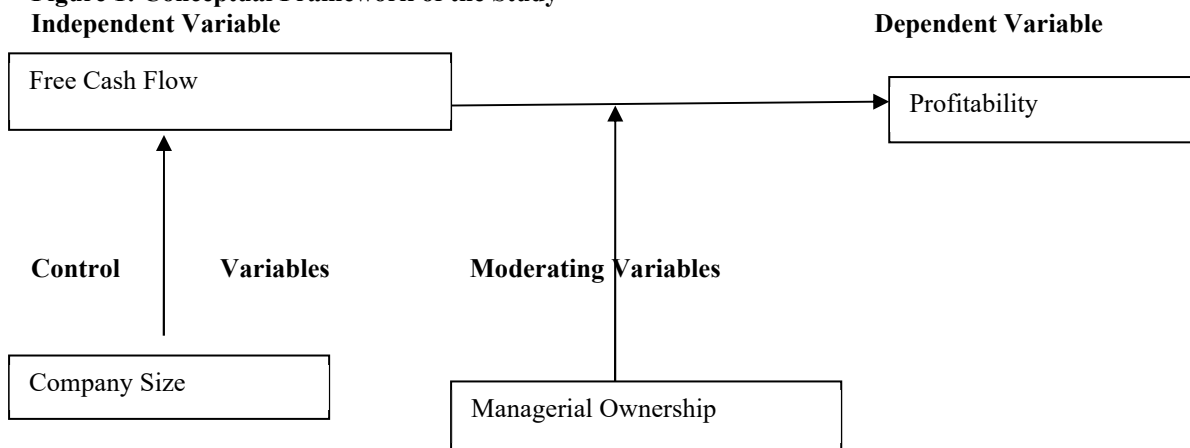
In the absence of generalizable results concerning free cash flow and profitability outcomes, this paper also aims to examine the moderating effect of certain managerial classes that may address this absence of solid and homogeneous conclusions. One possible explanatory factor for the lack of agreement on the impact of free cash flow on profitability outcomes may be the part played by the managerial ownership in the behaviour of directors. This can be determined by directors who also have certain percentage of equity in the company, based on the notion that managerial ownership, because of the quantum of executive directors' stakes in a company, should naturally have some alignment effects on the style within which managers run the affairs of the organization. This can be so considering the agency theory proposition regarding the thought of interest synchronization of interests of the manager, of the organization because the manager's interest within the organization advances and the other way around. Thus, it's expected that managers with high stakes during a given organization tend to be more diligent than those with relatively low stakes.

In the same vein, firms with positive free cash flows may have high performance and the management may take this opportunity to achieve their self-interest because of the administrative costs involved. In the same vein, the high performance of the business attracts the eye of general public institutions (the tax office). They try to scale back or conceal their high performance using profit management. But companies with negative cash flows are incapable of supporting the expansion of profit and income. Inadequate free cash flow could force the corporate to extend its debt level. Accordingly, it is expected that managerial ownership can moderate the relationship between free cash flow and profitability. To test this theoretical argument empirically, the following hypothesis is formulated in null form.

H<sub>3</sub>. Managerial ownership does not significantly moderate the relationship between free cash flow and profitability.

In line with hypotheses formulated Figure 1 shows how managerial ownership moderates the relationship between free cash flow and profitability diagrammatically below:

**Figure 1: Conceptual Framework of the Study**



Source: Developed by Researcher from the Literature Reviewed, 2023

## 2.2 Theoretical Review

A number of theories are considered relevant in explaining the impact of free cash flow on the profitability of the listed industrial goods companies in Nigeria with specific interest on the moderating effect of managerial ownership, such as free cash flow hypotheses, the pecking order theory and agency theory. These theories provide theoretical evidence of various arguments by different scholars and researchers about free cash flow on profitability.

### i. Free Cash Flow Hypotheses

Jensen and Michael (1996) posited that in the free cash flow theory, managers do not behave in a manner consistent with profit maximization. They instead use increased cash flow to pursue objectives that have little to do with increasing profits but a great deal to do with making their lives better (such as increasing the size of their company) or more comfortable. The agency cost explanation introduced by Jensen, Clifford and Smith (1995) suggests that monitoring difficulty creates the potential for the management to spend internally generated cash flow on projects that are beneficial from a management perspective but costly from a shareholder perspective.



It holds that investments reduce the free cash flow available to pursue their personal opportunities consumption and suboptimal investments. Donaldson (1997) argued that the managers of firms with free cash flows (cash flows above profitable investment opportunities) tend to waste cash by taking excessive profits or by making unprofitable investments. Managers are more likely to use the free cash flows to make investments that will be incremental to the size of the firm (or to pay themselves excessive perks) than to pay dividends to shareholders or repurchase outstanding shares. A testable implication of the agency hypothesis is that firms that have free cash flows are likely to grow beyond the optimal point of shareholder wealth maximization. Shareholders of such firms will benefit from any managerial decision that prevents these wasteful expenditures. Share repurchases prevent such waste by using up excess cash flows (Jensen & Smith, 1995).

## ii. Pecking Order Theory

Ross (1996) proposed the pecking order theory also referred to as the information asymmetry theory. Fama and French (2004) suggested that firms prefer to finance new investments with retained earnings. In a scenario where retained earnings won't be enough, debt financing will be used. While in a scenario where both retained earnings and debt are not enough, equity can be issued to finance new investments. This conclusion is based on two assumptions; managers are better informed about the prospect of the firm they manage than outside investors; as such issuing new shares to make a new investment is taken by outside investors as a signal that the firm's prospects are not good and the issued shares are overvalued and therefore make firms share prices fall. Secondly, the pecking order theory believes that managers act in the best interest of their shareholders (profit maximization). This means managers will forfeit positive NPV projects if accepting them will make the firm issue undervalued equity at higher costs to new investors.

The theory is relevant because it supports the key independent variable used in the research. The variable that the theory supports is the variable pertaining investing cash flow management. Where firms tend to purchase and put on the market marketable securities to maintain the standard level of cash flows surrounded by the organization, when cash flows go below the lower limit, firms tend to trade profitable securities to retain cash flows surrounded by a standard level. In contrast, when cash flows go up to the superior limit, organizations tend to invest in buying profitable securities such shares to maintain cash flows within a standard level. This theory informs the dependent variable financial performance of the listed industrial goods companies in Nigeria.

## iii. Agency Theory

According to the agency theory, agency conflicts arise from the possible divergence of interest between shareholders (principals) and managers (agents) of firms. The primary duty of managers is to manage the firm in such a way that it generates returns to shareholders, thereby increasing profit figures and cash flow (Elliot & Eliot, 2002). According to Boodhoo (2009), the contribution of the agency cost theory is that leverage is expected to lower agency costs, reduce inefficiency and thereby lead to an improvement in performance (Akinloye, 2008).

Agency theory predicts that companies with higher free cash flow increase a firm's cash holdings. The explanation of the agency is largely inconsistent with the changes or adjustments in the cash holdings of the firm. Harford (1999) results put forward that firms that hold excessive funds are an attempt to acquire other firms. These acquisitions are likely to be diversifying and result in declines in operational performance and the destruction of depositor value. Harford et al. (2008) concluded that firms with surplus money and poor governance lead to occurring wasteful investments. Cunha (2013) found that cost destroying purchases due to excess cash were significantly less likely when firms raised cash from financing sources, such as debt issuance. In conclusion, based on existing evidence, logical explanations and the discussions above, this study adopts free cash flow, pecking order and agency theory theories as the theories that underpin the relationship between free cash flow and the profitability with the moderating effect of managerial ownership.

## 3. Methodology

### Research Design, Sample Selection and Data Collection

This study is based on non-survey research design. The impact of free cash flow on profitability with the moderating effect of managerial ownership can best be obtained by examining the annual reports and accounts of the companies under study. Therefore, the study adopted non-survey research design because its phenomenon has already occurred, as used by Oyedokun et al. (2020), Muhammad and Mohammed (2018), Kamran et al. (2017) and Lawal (2015). This design was adopted because it is capable of guiding the study on how to collect the existing data (annual reports and accounts) of the company under study and thereby determine the effects among the variables under study.

For the sample, listed industrial goods from the Nigerian Exchange Group (NGX) market for the period of twelve years (2010-2021) were considered. The data for this study is based on secondary data. The financial data on the explanatory, moderating and the dependent variables of individual companies have been collated from annual reports and accounts of companies listed on the NGX. The target population of the study comprised all the thirteen (13) industrial goods making companies listed on the NGX as at 31<sup>st</sup> December, 2021, as shown in Table 1 below:

**Table 1: Population of the Study**

S/NO	Company	Date Listed	Date Incorporated
1	Austin Laz & Company, Plc.	1992	1982
2	Berger Paints, Plc.	1975	1959
3	Beta Glass, Plc.	1986	1974
4	Bua Cement, Plc.	2020	2014
5	Cap, Plc.	1978	1965
6	Cutix, Plc.	1987	1982
7	Dangote Cement, Plc.	2010	1992
8	Greif Nigeria, Plc.	1974	1940
9	Lafarge Africa, Plc.	1979	1959
10	Meyer, Plc.	1987	1960
11	Notore Chemical Ind., Plc.	2018	2005
12	Portland Paints & Products Nigeria, Plc.	2009	1985
13	Premier Paints, Plc.	1995	1982

**Source:** <https://ngxgroup.com/exchange/trade/equities/listed-companies/#> 20<sup>th</sup> May, 2021

The above Table displays the population of the study. This study used two filters to determine the sample size for the analysis. For any industrial good company to make the population of the study, (i) it must be quoted on the Nigerian Stock Exchange as at 31<sup>st</sup> December, 2020 and (ii) the company must be listed on the stock exchange throughout the study (2010-2020) and their financial reports must be available. Going by the criteria above, Bua Cement Plc and Notore Chemical Industry, Plc did not meet up with first criterion because the two companies were listed on the Nigerian Stock Exchange in 2020 and 2018, respectively. Hence, eleven (11) companies constitute the working population. After applying the filtering, eleven (11) companies constitute the sample size.

#### Sources and Methods of Data Collection

This study relies on secondary source of data only collected from the annual reports and accounts of the sampled listed industrial companies for twelve years (2010-2021). The method employed for collecting the data entails examining these sources and the data related to cash flow, managerial ownership and profitability extracted from the annual reports of the listed sampled size for the period of twelve (12) years, ranging from 2010-2021. This period is similar to Abdul and Raj (2020), Garrett et al. (2020), Murkor (2020), and Usman et al. (2018). This period is reasonable enough, under this particular context, to gather sufficient data and reach a sound conclusion.

#### Variables and their Measurements

The variables of this study are grouped into three: the dependent, the independent, the moderating and control. The dependent variable is the profitability; the independent, free cash flow, managerial ownership the moderator and control variables are company size and firm age. The variables and their measurement were explained in the Table 2 below:

**Table 2: Variables of the Study and their Measurement**

S/N	Names	TAG	Variables	Measurement	Used by
1	Return on Asset	ROA	Dependent	The ratio of profit before tax to the total asset (i.e., profit before tax divided by total asset	Garrett, et al. (2020), Murkor (2020) and Gul et al. (2011).
2	Free Cash Flow	FCF	Independent	(EBIT + Depreciation ± Change in Working capital- Capital Expenditure)/Total Asset	Garrett et al. (2020) and Waseque et al. (2018).
3	Managerial Ownership	MOW	Moderating	Total Holding of Executive Directors ÷ Total of Company Shareholdings	Dakhlallh et al. (2021), Oyedokun et al. (2020) and Katper (2018)
4	Company Size	CSZ	Control	Natural Logarithm of Company Total Assets	Garrett et al. (2020), Murkor (2020)
5	Firm Age	FAGE	Control	Year of Incorporation	Garrett et al. (2020) and Murkor (2020).

**Sources:** Generated by Researcher from Literature Reviewed

#### Techniques of Data Analysis

The study used three techniques in analyzing the data generated from the annual reports and accounts of the sampled companies from 2010 to 2021. They are descriptive statistics, Pearson correlation and regression analyses using STATA Version 14.

### Regression Model of the Study

Concerning econometric model specification, the analysis was carried out within a secondary data estimation framework. The preference of this estimation method is not only because it enables a cross-sectional time-series analysis, which usually makes provision for a broader set of data points, but also because of its ability to control for heterogeneity and endogeneity issues. Hence, panel data estimation allows for the control of individual-specific effects usually unobservable, which correlated with other explanatory variables included in the specification of the relationship between dependent and explanatory variables (Hausman & Taylor, 1981). The basic framework for panel data regression takes the following form:

$$ROA = f(\text{FCF, CSZ and FAGE}) \dots \dots \dots (i)$$

$$ROA = f(\text{FCF, FCF*MOW, CSZ, FAGE}) \dots \dots \dots (ii)$$

Meaning profitability is a function of free cash flow and other control variables.

The above equation can further expressed as:

$$ROA = f(\text{FCF, CSZ and FAGE}) \dots \dots \dots (iii)$$

Thus, the research model was formulated as follows:

$$ROA_{it} = \alpha_{0it} + \beta_1 FCF_{it} + \beta_2 CSZ_{it} + \beta_3 FAGE_{it} + \varepsilon_{it} \dots \dots \dots (iv)$$

The moderating effect of managerial ownership on the relationship between free cash flow and profitability is as follows:

$$ROA_{it} = \alpha_{0it} + \beta_1 FCF_{it} + \beta_2 FCF*MOW_{it} + \beta_3 CSZ_{it} + \beta_4 FAGE_{it} + \varepsilon_{it} \dots \dots \dots (v)$$

**Where:**

$\alpha_{it}$  = constant value of the dependent variable when other variables remain fixed

$\beta_1 - \beta_4$  = the coefficient of firm  $i$  in year  $t$ ,  $\varepsilon$  = error term of firm  $i$  in year  $t$

$ROA_{it}$  = Return on Asset of firm  $i$  for time  $t$ ,  $FCF_{it}$  = Free Cash Flow of firm  $i$  for time  $t$

$MOW_{it}$  = Managerial Ownership of firm  $i$  for time  $t$ ,  $\beta_3 FCF*MOW_{it}$  = Interaction of MOW with FCF of firm  $i$  for time  $t$ ,  $CSZ_{it}$  = Company Size of firm  $i$  for time  $t$ ,  $FAGE_{it}$  = Firm age of firm  $i$  for time  $t$ ,  $\alpha$  = Constant term,  $\beta_1, \beta_2, \beta_3$  = the Coefficients of FCF, MOW and MOW\*FCF, respectively,  $\mu$  = the error term of the regression, and  $i$  = company “ $i$ ” at time “ $t$ ”

### 4. Results and Discussion

This section presents the result of the analysis conducted on the data collected from the annual reports. The descriptive statistics, Pearson correlation and regression results were presented below:

#### Descriptive Statistics of the Study Variables

Table 3 provides a summary of statistics for the variables of the study, such as mean, standard deviation, minimum and the maximum of both the dependent and explanatory variables. The Table shows the summary statistics of the dependent and explanatory variables to appreciate the nature of the results adequately. The descriptive statistics analyzes the essential feature of financial leverage and earnings management. It provides a necessary insight into the quality of the data upon which analysis was done.

**Table 3: Descriptive Statistics**

Variables	Obs.	Mean	Std. Dev.	Min	Max
ROA	121	0.1483	0.0920	-0.1649	0.3776
FCF	121	0.1132	0.0825	0.0112	0.5792
MOW	121	0.3262	0.1599	0.1128	0.7477
CZS	121	177,008,000	576,008,000	1,078,352	4,880,090,000
AGE	121	44.0909	15.2135	18	80

Source: Generated using Stata Version 14.

Table 3 shows the descriptive statistics of all the variables of the study. The result indicates that an industrial goods company has an average return on asset figure of 0.1483, which signifies that listed industrial goods companies earned 15% return on money invested on their assets with a maximum return of 38% and a loss of 16%. The standard deviation of 0.0920 indicates that the data were clustered closely around the mean value. Free cash flow measured by dividing earnings before interest and tax, depreciation and working capital by total assets has a mean of 0.1132 with a standard deviation of 0.0825. A small standard deviation indicates that the data were clustered closely around the mean value. The data has a range with a minimum of 0.0112 and a maximum of 0.5792. This means that industrial goods companies generate, on average, 11% cash outflows to support operations and maintain their capital assets.

In the same vein, firm size shows a total mean score of ₦177,008,000 with a standard deviation of ₦576,008.000. This means that on average the firm of the listed industrial good companies in Nigeria has an investment in assets of ₦177,008,000 to the total of ₦576,008.000 of assets. Standard deviation indicates as significant the that data points can spread far from the mean. This is also confirmed by a minimum score of ₦1,078,352 and a maximum score of ₦4,880,090,000. The average age of the sampled industrial goods companies

is 44 years with a standard deviation of 15 years while minimum and maximum values are 18 and 80, respectively. This shows that some of the listed industrial goods companies are incorporated in Nigeria in 1992 and some others as far as 1940. This gives an insight as to whether being incorporated earlier results in an increase in profitability or otherwise.

### Correlation Matrix Results

The relationship between the dependent and explanatory variables is presented in Table 4. The correlation matrix Table shows the relationship between all the pairs of variables in the regression model; the relationship between all the explanatory variables individually with explained variables. The data is normally distributed, hence the choice of Pearson correlation over spearman correlation:

**Table 4: Correlation Result of the Independent Variables and Dependent**

VARIABLES	ROA	FCF	MOW	CSZ	AGE	VIF
ROA	1.0000					
FCF	0.1600	1.0000				1.07
MOW	-0.2375	0.0839	1.0000			1.05
CSZ	-0.0912	-0.2475	-0.0136	1.0000		1.09
AGE	-0.0988	0.0458	0.1922	-0.1448	1.0000	1.06

**Source:** Generated using Stata Version 14, based on the study data

Table 4 shows the correlation coefficients of the dependent and explanatory variables. The values of the correlation coefficient range from -1 to 1. The sign of the coefficient indicates the direction of the relationship, either positive or negative. The absolute values of the coefficient indicate the strength and large values indicate a stronger association. The correlation coefficients on the main diagonal are 1.0000 because each variable has a perfect positive linear association with itself. Tables 4 show a positive and weak association between return on assets and free cash flow with a correlation coefficient of 0.1600. The result indicates that free cash flow contributes an increase in the profitability of the listed industrial goods companies in Nigeria.

However, managerial ownership, company size and firm age have a negative and weak association with return on assets. This suggests that with an increase in managerial ownership, company size and firm age will reduce the profitability of the listed industrial goods companies in Nigeria. To ascertain Collinearity, the Variance Inflation Factor (VIF) test was carried out to test for Multicollinearity. The result of the VIF test indicates a range of 1.05 to 0.09. Barde (2009, as cited in Samaila, 2014) pointed out that a VIF of 10.00 can still be prove the absence of Collinearity. As such, the predictive ability of the independent variables is not adversely affected by the association.

### Regression Results and the Test of Hypotheses

To examine the impact of explanatory variables (free cash flow, managerial ownership, company size and firm age) on the dependent variable (return on assets), GLS (random effect) regression was used, as shown in Table 5. The random effect model was chosen over the fixed effect model based on the result of the Hausman Specification and Breusch and Pagan Lagrangian multiplier Tests for random effects.

**Table 5: GLS (Random Effect) Regression Results**

Variables	MODEL 1 (RE)				MODEL 2 (RE)			
	COEF	STD ERR	Z	P> Z	COEF	STD ERR	Z	P> Z
FCF	0.1325	0.0900	1.47	0.141	0.3430	0.1826	1.88	0.060
CSZ	0.0058	0.0173	0.34	0.735	0.0069	0.0171	0.40	0.689
AGE	-0.0009	0.0011	-0.81	0.420	-0.0006	0.0172	-0.59	0.558
MOW	-	-	-	-	-0.0370	0.1051	-0.35	0.725
FCF*MOW	-	-	-	-	-0.5081	0.3971	-3.28	0.001
Cons	0.1276	0.1421	0.90	0.370	0.1149	0.1450	0.79	0.428
R-Square								
Within	0.0221				0.0359			
Between	0.0364				0.1638			
Overall	0.0266				0.0816			
Mean VIF	1.06				2.84			
Heteroskedasticity	0.4176				0.3616			
Hausman	0.7116				0.7964			
Lagrangian M. T.	0.0000				0.0000			

**Source:** Generated using STATA version 14, based on the study data \*, \*\* and \*\*\* indicate 10%, 5%, and 1% level of significance, respectively.

**Model 1:** The regression results of the dependent and independent variables

$$ROA_{it} = 0.1276_{it} + \beta_1 0.1325_{it} + \beta_2 0.0058_{it} - \beta_3 0.0009_{it} + \varepsilon_i$$

The overall R<sup>2</sup> is 0.0266. This is the coefficient of determination, which indicates the proportion of variance



in the dependent variable (profitability) that is predicted by all the explanatory variables (free cash flow, company size and firm size). As such, 2.66% variations in profitability were explained by the explanatory variables used in the model while the remaining 97.34% variation on profitability is explained by factors not included in the model. This is lower than overall  $R^2$  reported by Abdul and Raj (2020), Garratte et al. (2020), Liman and Mohammed (2018), Sebastian and Sundar (2018) and Waseque et al. (2018), which may be attributed to different sectors under study. The results show that free cash flow, company size and firm age have an insignificant impact on the profitability of the listed industrial goods companies in Nigeria.

**Model 2:** The regression results of the dependent and independent variables with managerial ownership as moderator

$$ROA_{it} = 0.1149_{it} + \beta_1 0.3430_{it} + \beta_2 0.0069_{it} - \beta_3 0.0006_{it} - \beta_4 0.5081_{it} + \varepsilon_{it}$$

From Table 5, the result shows an overall  $R^2$  of 0.0816. This is the coefficient of determination, which indicates the proportion of variance in the dependent variable (profitability) that is predicted by all the explanatory variables (free cash flow, managerial ownership, company size and firm size). As such, 8.16% variations in profitability were explained by the explanatory variables used in the model while the remaining 91.84% variation on profitability is explained by factors not included in the model.

#### **i. Free Cash Flow and Profitability (Return on Assets)**

From Table 5, the result of model two shows that free cash flow has a significant and positive impact on return on assets with a coefficient of 0.3430 and p-value of 0.060 at the 10% level of significance, suggesting that an increase in free cash flow leads to an increase in profitability. This is in line with the findings of Abdul and Raj (2020), Murkor (2020), Ali et al. (2018), Usman et al. (2018), Waseque et al. (2018), Kamran et al. (2017), Manian and Fathi (2017), Ogbeide and Akanji (2017) and Ambreen and Aftab (2016). The finding is contrary to that of Garrett et al. (2020) and Nobanee and Abraham (2017), who concluded that free cash flow does not affect performance. The difference in findings may be attributed to sector, sample size and the period covered.

#### **ii. Free Cash Flow (IV), Managerial Ownership (MV) and Profitability (DV)**

However, when managerial ownership was introduced as the intervening variable to check the level of association between free cash flow and profitability, the result showed that free cash flow has a significant and negative impact on profitability with a coefficient of -0.5081 and p-value of 0.001. When the effect of free cash flow on profitability is moderated using managerial ownership, free cash flow has a negative impact on profitability at a 1% level of significance in a firm where managers hold shares in the business they own. This shows that when free cash flow increases alongside an increase in the level of shares held by the management because of the manager's focus on how to increase their returns, it affects the profitability of the listed industrial goods companies in Nigeria.

The implication of this study theoretically, the research found out that the agency theory and the pecking order theory commonly used to test the relationship between free cash flow and profitability in developed countries can also be applied in developing economies. This implies that agency cost can be reduced if managers intend to use free cash properly to make greater returns to shareholders. This can also be a guideline for the managers to better use their resources for the ultimate betterment of the firm and the shareholders. This can be useful in reducing the agency cost that arises due to the gap in the management of FCF.

### **5. Conclusion And Recommendations**

The paper endeavors to show how managerial ownership moderates the relationship between free cash flow and profitability. To do this, data from eleven (11) industrial goods companies listed on NSE have been taken from 2010-2020. Return on assets has been used to measure the profitability of these firms. Earnings before interest and tax plus depreciation negative/positive change in working capital minus capital expenditure divided by total asset, was used to measure free cash flow while the proportion of shares held by managers to the total of shares issued was used to measure managerial ownership. The controlled variables were firm size and the age of the firms.

The result from the regression analysis exhibits that free cash flow has significant and positive impact on profitability of the listed industrial goods companies in Nigeria. This suggests that free cash flow management determines the level of investment in the profitability of the listed industrial goods companies in Nigeria. Also, managerial ownership has insignificant impact on profitability. Furthermore, the result shows that managerial ownership moderated the relationship between free cash flow and profitability of the listed industrial goods companies. This suggests that firms with free cash flow as well as managers holding shares in such firms tend to make more profit than those that have only one of these variables. This implies that the agency costs can be reduced if managers intend to use properly free cash to make greater return to shareholders.

Based on the conclusions, the study recommends that the management of the listed industrial goods companies in Nigeria should translate their free cash flow into more profit and also use the excess cash flow to generate profit rather than hold up money in anticipation of future opportunities. Also, managers should use available resources for the ultimate betterment of the firm and shareholders. To investors, they should choose companies that have excess free cash flows as well as managerial ownership, which would have a positive impact on the performance of the listed industrial goods companies in Nigeria. This can also be a guideline for managers

to better use their resources for the ultimate betterment of the firm and shareholders. This can be useful in reducing the agency cost that arises due to the gap in the management of FCF.

As a whole, the research tried to add value to the country's research by fulfilling the previous research gaps and providing scope for the imminent researchers. The potential researchers may extend the work by considering other companies such as consumer goods, financial firms, and conglomerate among others. They may also add different measures of profitability. Also, future researchers should extend sampling to many years and many sectors in order to examine extensive profitability trend. Thus, a holistic sight can be observed.

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