ISSN: 2251-032X Volume 15, Issue 1, Pages 32 - 53: 2024

Determinants of Profitability of Listed Industrial Goods Firms in Nigeria

Okoh, Isaac Chibuzo; Prof. Ifeoma Mary Okwo; Prof. Chike Ernest Nwoha

Department of Accountancy,
Faculty of Management Sciences,
Enugu State University of Science and Technology (ESUT), Enugu

Abstract

Research Objective: This paper explored the impact of artificial intelligence (AI) on entrepreneurship and its implications for sustainable venture creation in Nigeria, focusing on how AI enhances the sustainability of new venture processes and outcomes.

Methodology: A qualitative research approach was adopted, drawing data from various documents, journals, and artifacts to assess the influence of AI on entrepreneurial processes.

Findings: The study revealed that advancements in AI technologies facilitated the identification and exploitation of market opportunities, significantly impacting how entrepreneurs develop, design, and scale their organizations. AI led to promising innovations, accelerated production, enhanced work processes, and improved efficiency.

Conclusion: As a key driver of the Fourth Industrial Revolution, AI has transformed entrepreneurial practices, albeit with implications for job displacement.

Recommendations: The study recommends that the Nigerian government implement a policy framework to establish AI-based entrepreneurial grants and provide low-interest loans to support existing and potential entrepreneurs utilizing AI technology.

Keywords: *Profitability, Liquidity, firm size, leverage, industrial goods firm.*

1.0 INTRODUCTION

With increase in global competition, survival of every business entity is a very pertinent question in the business arena. In such a competitive environment, good performance is considered essential for business success. Thus, all over the world, the issue of firm performance has been a major focus by stakeholders as business organizations exist to make commensurate profit on their investment. It is this desire to make profit that prompts most investors to sacrifice their resources in anticipation of the profit. It can differentiate one company from the other. Therefore, a key measure of performance is profitability as business organizations are mostly concerned with profit and wealth maximization. Without profitability, a firm would find it difficult to attract investors and sustainability of business' operations in the long run would be at risk. Magaretha and Supartika (2016) posit that in a

competitive marketplace, business owners must learn how to achieve a satisfactory level of profitability.

Profitability is a major aspect in current financial reporting by corporate bodies. The profitability of a company shows the company's ability to generate profit from utilization of its assets. Profit is realized when the amount of revenue gained from a business activity exceeds the expenses and the cost incurred to carry out the activity. Therefore, profitability measures the performance of a company in terms of profit it realizes from assets utilized or capital employed in business. Since most investors put their resources in expectation of commensurate returns, the profit earned by a business is often used to serve as a measure of success of that investment. Niresh and Velnampy (2018) explain that profitability is the amount of money a firm can create with whatever resources the firm has, implying that its inability to generate income is a loss. There is profit when income realized is greater than input cost, otherwise, it reflects poor performance. Firm profitability and ways of improving it are extensively debated issues among managers and scholars (Pratheepan, 2014). This is born out of the fact that the primary objective of a business unit is to achieve maximum profit in addition to secondary objectives such as increase in sales, assets, and market share (Aparna, 2015). Profit is the indicator of efficiency of a business unit as it shows the level of efficiency with which a business unit makes use of funds or assets. The higher the profit, the more will be the efficiency of the business unit.

Some researchers such as Burja (2017), Saleem and Rehman (2017), Lobos and Szewczyk (2016), Asgari, Pour, Zedeh and Pahlavan (2015) contend that profit is affected by number of variables such as proportion of leverage, which affects the expense of the firm in terms of interest payment, firm size, liquidity, cash flows, corporate governance mechanisms such as board size, and audit committee meeting. It is the task of the firm's management to utilize right strategies from time to time taking into account these factors that might exert considerable influence on the profit of the firm. Oguna (2018) stated that financial performance analysis identifies the financial strengths and weaknesses of the firm by properly establishing relationships between the items of the statement of financial position and income statement. This is achieved by selecting the information relevant to the decision under consideration from the total information contained in the financial statements, arranging the information in a way to highlight significant relationships and interpret and draw inferences and conclusions.

Firm size is a very critical factor for the success of a business as it might wield significant influence on profitability. According to Glancey (1998), when larger firms take advantage of economies of scale, then a positive relationship is expected between profitability and size of the firm. Large firms have the advantage of exploring the benefits of economies of scale; their average unit cost declines over a range of output. They can also benefit from economies of scope; through extra cost savings as a result of the use of separate products that share some

production facilities. They can purchase raw materials in bulk at lower cost and even enjoy discounts for bulk purchase. Furthermore, large firms, comparative to small firms, can easily source in the finance market using their large asset base as collateral and utilize such funds for profitable investment opportunities. Contrary to the above line of thought, large firms might tend to be inflexible; the lack of flexibility of which would affect their smooth operations and ultimately reduce profitability. This study conjectures a positive relationship between firm size and profitability.

Statement of the Problem

Studies on the determinants of firm growth have continued to gain momentum. These studies have established that variables such as firm size, liquidity, board size, leverage, cash flows and audit committee meetings wield significant influence on profitability of firms. This notwithstanding, some studies found that the variables have insignificant relationship with profitability (Dogan & Topal, 2018).

However, the challenge is, studies that have found that firm size, liquidity, board size, leverage, cash flows and audit committee meetings significantly affect firm profitability have produced mixed results. Findings of these studies have fallen into two divergent groups. On the one side of the divide is a group of studies which conclude that firm size, liquidity, board size and leverage have positive relationships with firm profitability. On the other side of the pole is another group of studies which submit that firm size, liquidity, board size, leverage, cash flows and audit committee meetings have a negative relationship with firm profitability. These mixed results have made it difficult for good policy formulation in the context of emerging economies such as Nigeria.

Studies on the relationship between firm size and profitability have produced mixed findings. The vast empirical evidence on the relationship between firm size and profitability suggests variations in results as some studies such as Babalola (2013), Baloch, Ihsan, Kakakhel & Sethi (2015), Asgari, Pour, Zadeh & Pahlavan (2015) and Dogan (2013) report that firm size has significant relationship with profitability while others, including Kumar and Kaur (2016), Niresh & Velnampy (2014), find that firm size does not have any significant effect on profitability. The study covered the period of 2012-2021 and included only publicly listed industrial goods manufacturing firms in Nigeria.

Objectives of the Study

The main objective of this study was to examine the growth of listed industrial goods firms in Nigeria. The specific objectives are to:

i. Determine how leverage affects profitability of listed industrial goods firms in Nigeria.

ii. Assess the effect of firm size on the profitability of listed industrial goods firms in Nigeria.

iii. Examine the effects of liquidity on the profitability of listed industrial goods firms in Nigeria.

Research Questions

The following research questions guided this research:

1. To what extent does leverage affect profitability of listed industrial goods firms in Nigeria?

2. To what degree does firm size affect profitability of listed industrial goods firms in Nigeria?

3. How does liquidity affect profitability of listed industrial goods firms in Nigeria?

Research Hypotheses

The following hypotheses are formulated to guide the study:

H_{01}: Leverage does not significantly affect profitability of listed industrial goods firms in Nigeria.

H_{02}: Firm size does not significantly affect profitability of listed industrial goods firms in Nigeria.

H_{03}: Liquidity does not significantly affect profitability of listed industrial goods firms in Nigeria.

Significance of the Study

This study is important as the findings would extend the frontier of knowledge in respect to the determinants of profitability. The study would be beneficial to management of organizations especially industrial goods firms in Nigeria, government and regulators as well as current and potential researchers in the following respects:

The management of organizations especially in Nigeria would benefit immensely from the study. This is because the appropriate application of the findings of the study would result in improvement in management decision making. Understanding of the relationship between liquidity and profitability will aid management to ascertain the right proportion of liquid assets to hold. Similarly, the outcome of this investigation would provide useful information on the relationship between leverage and profitability which would aid management in assessing the optimum level of leverage. The management of industrial goods firms also stand to benefit from this study in the context of constituting their board sizes, taking bearing from the outcome of the study.

The findings of the study would be of immense benefit to the government and regulators in Nigeria as it would provide a useful guide for the formulation of policies and decisions that would have a positive impact on the profitability of the industrial goods sector. The empirical evidence that the study would provide could be used by regulatory authorities such as the Securities and Exchange Commission (SEC) and Central Bank of Nigeria (CBN) among others, to strengthen existing regulatory policies that would enhance the profitability of

industrial goods firms in Nigeria. This is considered essential as the current administration is poised to revive the ailing industrial goods sector as heavy reliance on oil revenue is now heading the economic fortunes of the country to a crash as evidenced by the current economic recession.

Scope of the Study

The aim of this study is to examine the determinants of growth of listed industrial goods firms in Nigeria. The study covered a period of ten (10) years from 2012 to 2022. This period is chosen so as to obtain most recent data that reflect current economic circumstances of the companies. As the industrial firms sector is rapidly growing, it is necessary to properly carry out this study. Also amidst dwindling oil prices in Nigeria, there is a need to revitalize the industrial sector so as to stem the tide of the recent economic recession which has eaten deeply into the fabric of the Nigerian economy. The study used return on assets as dependent variable, leverage of firm, and firm size as independent variables

2.0 REVIEW OF RELATED LITERATURE

Profitability

Profitability, which is frequently used as a measure of financial performance, is one of the main objectives for the existence of many companies. Profit is an essential prerequisite for any company operating in today's increasingly competitive and globalized market. In addition, profit does not only serve as a means of attraction to investors; it also improves the level of solvency, and thus, strengthens consumers' confidence (Ismail, 2016).

The concept of profitability is fundamental to both accounting and economic theories. Since it is an offshoot of income, it also has its foundation form the famous Hicks' concept of income. Using the Hicksian approach, profit can be explained as the maximum value which can be consumed at a given period of time without tempering with "well-offness" (Glautier, Underdown & Morris, 2016). This definition has been staunchly supported by economists. It provides a sound basis for appreciation of what actually constitutes income and hence, profit.

Profit can also be conceived as the residual arising from netting revenue realized against cost consumed (Igben, 2019). Again, this definition suffers general acceptance as economists do not subscribe to what they call 'arbitrary allocation of cost' to realized revenues as accountants do. The implication of this is that profitability can be explained in various ways.

Devi and Devi (2018) define profitability as the level to which an organization can successfully and efficiently make the most of its obtainable funds and assets, and alter them into outstanding profit. This forms the basis for boosting income of employees, providing better quality products for customers, and having better environment friendly production units. Also, more profits precipitate more future investments, thereby creating more employment opportunities and enhancing income of people.

ISSN: 2251-032X Volume 15, Issue 1, Pages 32 - 53: 2024

Leverage

There seems to be common consensus in the literature that leverage has to do with use of debt capital, by a firm in relation to equity capital. Syed (2013) describes leverage as the extent to which a business or investor is using borrowed money. This means that leverage shows the extent to which the total assets of the company are funded by loans. It is necessary to state that an increase in the ratio ensures an increase in the amount of the business's financing sources. The negative aspect of it is that it also leads to a lesser degree of independence by a firm and threatens its financial solvency. Mohammad (2014) explains that leverage is referred to as the capacity of an organization to use borrowed money. This definition seeks to imply that leverage is the extent of use of fixed interest securities by an organization.

Liquidity

The concept of liquidity has been defined in several ways. This is largely due to the fact that the concept of liquidity arises from different economic perspectives (Marovza, 2015). Adler (2012) asserts that liquidity can be defined in the context of how easy one can obtain funding to trade a security, the former being called market liquidity and the latter being funding liquidity. In this manner, liquidity is seen as a cost, whose impact on return on assets has to be assessed.

Taking bearing from the banking sector, Marozva (2015) posits that liquidity is simply the ability of a bank to maintain sufficient funds and/or reserves to pay for its maturing obligations. Marozva (2015) explains further that liquidity can be linked to the firm's ability to immediately meet cash, cheques, other withdrawal obligations and legitimate new loan demand while abiding by existing reserve requirements. This definition is insightful, however, it holds much more relevance in the banking sector than industrial goods firms. This is because industrial goods firms are not under obligation to abide by predetermined reserve requirements. This limitation is also inherent in the definition proffered by Ibe (2013) who contends that liquidity is a financial term that means the amount of capital that is available for investment.

Theoretical Framework

Agency Theory

The agency theory was developed by Jensen and Meckling (1976). In its primitive form, the agency theory relates to situations in which one individual (called the agent) is engaged by another individual (called the principal) to act on his/her behalf based upon a predetermined legal arrangement. Since both individuals are assumed to be motivated by their pecuniary and non-pecuniary interests, and their interests do not always move in the same direction, there is the contention that the agent may take actions which will endanger the principal's interests.

Leverage has connection with agency theory as use of debt impacts agency cost in several ways. In the first instance, the use of debt shrinks the free cash flow available to a manager as

promised interest payments to debt holders decrease free cash flow available for investment, other factors held constant. This shrinkage in free cash flow also helps in restraining overinvestment problems. In addition, use of debt can prompt increased monitoring of managers by debt holders such as banks, which exerts considerable pressure on managers to pioneer the affairs of the business profitably.

Empirical Review

Leverage and Profitability

Syed (2019) investigated the influence of financial leverage on financial performance by taking evidence from listed sugar companies of Pakistan. The study used 35 listed companies from the food producer sector of Karachi Stock Exchange over a period of 6 years from 2006 to 2011. Regression analysis was used to analyze the data collected through secondary sources. The results reveal positive relationship of debt equity ratio with return on asset and negative relationship of debt equity ratio with earning per share, net profit margin and return on equity. However, the study's strict reliance on foreign firms makes its result unsuitable for possible application to the Nigerian context as the economic environment in Nigeria is quite distinct.

Siyanbola, et al (2015) examined the impact of gearing on performance of selected companies in Nigeria. T-test statistics were used to analyze data gathered. Finding reveals that leverage plays an important role in the companies' performance over the years. From direct interview, it was discovered that if the gearing of a company is efficiently managed and utilized, earnings of that company would increase and would have a direct impact on performance and its market share in the industry it belongs to. The choice of a survey design for such a research might be questionable. Issues such as response bias cannot be avoided. Thus, it may be more objective to use the financial statements of the selected firms.

Akinmulegun (2018) empirically examined the effect of financial leverage on corporate performance in Nigeria. Vector AutoRegression (VAR) model was used to analyze the secondary data collected over a period of 6 years from 1999 to 2005. The findings reveal that leverage shocks exert substantially on corporate performance in Nigeria especially when the net assets per share (NAPS) is used as an indicator of corporate performance in Nigeria over the period covered by the study. Earnings per share depend on feedback shock and less on leverage shock. Also, the finding revealed that the leverage shock on earnings per share indirectly affect the net assets per share of firms as the bulk of the shocks on the net assets per share was received from earnings per share of the firms

Mohammad (2017) sought to find out the relationship between financial leverage and financial performance of listed chemical companies in Pakistan. Sample size which consisted of 20 listed companies from the chemical sector of Karachi Stock Exchange was used. Using multiple regression analysis, the results of the study show a positive relationship between

financial leverage and financial performance of the studied firms. The population of the study being top Pakistani chemical companies is good, but it could be viewed that a study on industrial goods firms could produce a different result.

Aqsa and Ghulam (2019) examined the relationship between financial leverage and financial performance of Pakistani firms. Financial leverage was proxied by debt equity ratio, both in percentage and in ratio and gearing ratio (the ratio of long-term debt to shareholders' equity). Financial performance was represented by return on assets, return on equity, return on capital employed, net profit margin, profit before tax and profit after tax. The study covered a period of ten years from 2001 to 2009. The study found out that financial leverage variables positively affect financial performance variables of the selected Pakistani firms. The study adopted regression analysis, which confirms that firms having high profits must improve their financial performance by increasing financial leverage. The period covered by the study is considered to have been long for its conclusion to be drawn on present issues.

Enekwe, et al (2019) studied the effect of financial leverage on financial performance of the Nigeria pharmaceutical companies. Financial leverage was represented by debt ratio (measured as the ratio of total liabilities to total assets), debt equity ratio (measured as the ratio of total liabilities to total equity) and interest coverage (measured as the ratio of interest before interest and tax to interest). The Pearson correlation and regression techniques were employed. The results show that debt ratio (DR) and interest coverage ratio (ICR) have a positive relationship with Return on Assets (ROA) of the Nigerian pharmaceutical industry. The use of three companies from a sub sector as the basis for analysis might produce results that would be difficult for generalization even in that specific sector.

Firm size and Profitability

Kumar and Kaur (2016) noted that the empirical evidence on size and profitability is vast and showed variations in results. Based on this backdrop, their study investigated the relationship between firm size and profitability of the Indian automobile industry. To analyze the relationship, a linear regression model was employed. The study covered a period of seventeen (17) years from 1998 to 2014, and measured profitability as the ratio of net profit to total sales. Firm size was represented by the ratio of total sales turnover to net assets. The study found that there is no significant relationship between firm size and profitability. A significant achievement of the study is its use of a long period of coverage.

Baloch, Ihsan, Kakakhel and Sethi (2015) investigated the impact of firm size, asset tangibility and retained earnings on the financial leverage with evidence from the auto sector in Pakistan. Data pertaining to 22 selected firms were collected from the financial statement analysis document issued by the state bank of Pakistan over a period of 6 years from 2006-2011. The study used multiple regression models and the result indicates that firm size and asset tangibility significantly affect financial leverage. In the study, financial leverage was

used as a surrogate for firm performance. Therefore, the study could not explicitly measure the relationship between firm size and profitability as leverage cannot be a good measure of profitability.

Asgari, Pour, Zadeh and Pahlavan (2015) investigated the relationship between firm growth opportunities and firm size on retained earnings of companies listed on Tehran Stock Exchange. The study covered a period of 6 years from 2006 to 2011. A sample of 111 companies was selected. The study used regression analysis and found that there is an inverse and significant relationship between company's growth opportunities and retained earnings of companies. Finally, results suggest that there is a direct and significant relationship between firm size and retained earnings of companies.

Dogan (2017) explored the effect of firm size on profitability with evidence from Turkish firms. Data of 200 companies which were active on the Istanbul Stock Exchange (ISE) between the years 2008 and 2011 were collected and analyzed using multiple regression and correlation analysis. The result of the analysis indicates a positive relation between firm size and profitability of firms. The major breakthrough of the study is selection of many firms (200) which could be seen as being representative enough of the firms (500) listed on the Istanbul Stock Exchange. This notwithstanding, the choice of the period of coverage is a concern as it might not reflect current realities.

Liquidity and Profitability

Maqsood, Anwar, Raza, Ijaz and Shouqat (2016) explored the relationship between liquidity and profitability with focus on some selected banks in Pakistan. Liquidity was represented by current ratio and cash ratio. The study used eight (8) banks as its sample size. Secondary data were gathered from the annual reports of the banks over a period of twelve (12) years from 2004 to 2015. The data collected were analyzed through correlation and regression analysis. The results show that liquidity has a significant influence on profitability of the studied banks. The period covered by the study can be considered as quite reasonable as the period captures the current period and the number cross-sections is reasonable. However, the fact that the drivers of profitability of deposit money banks cannot be the same as those of the industrial goods firms, are the concerns of this study.

Kidtmat and Rehman (2018) assessed the impact of liquidity and solvency on profitability of the chemical sector of Pakistan. Profitability was measured by return on assets. Ten listed chemical companies in Pakistan were sampled for the study and their published annual reports were used to obtain data over a period of 10 years from 2001-2009. Based on regression analysis, it was discovered that solvency ratio has a negative and highly significant impact on return on assets and return on equity. It was also concluded that liquidity has a high and positive effect over return on assets of the sector. The limitation of this study is similar to the shortcomings of Vintila and Nenu (2016).

Ibe (2017) examined the impact of liquidity management on the profitability of banks in Nigeria. Three banks were randomly selected to represent the entire banking industry in Nigeria. The proxies for liquidity management include cash and short term funds; bank balances such as treasury bills and certificates, while profit after tax was the proxy for profitability. The study covered a period of six years from 2006-2011. Secondary data was gathered from the three selected banks in Nigeria. Regression analysis was used to analyze the data gathered. The results indicate that liquidity management affects the performance of the Nigerian banking industry. The strength of the study lies in its inclusion of solvency ratio as one of the proxies of liquidity as solvency is a critical issue particularly with respect to the sustainability of banks in Nigeria. Banks in Nigeria possess economic features quite distinct from those of industrial goods firms.

Saleem and Rehman (2018) studied the relationship between liquidity and profitability of oil and gas companies in Pakistan. Liquidity was proxied by current ratio (measured as the ratio of current assets to current liabilities), quick ratio (measured as the ratio of current assets less inventories to current liabilities) and liquid ratio (measured as the ratio of cash plus investments to current liabilities). Profitability was proxied by return on assets and return on equity. The study covered the period of 6 years from 2004 to 2009. A sample of 26 listed oil and gas companies on the Karachi Stock Exchange was drawn. The results, using regression analysis, show that there is a significant impact of liquidity ratio on (ROA), but return on equity is not affected by current ratio, quick ratio and liquid ratio. The study provides results that can explain the relationship between key variables (liquidity and profitability) which are core to this current study. The major pitfall of the study by Saleem and Rehman (2011) is that the period covered might not reflect present economic circumstances even in Pakistan.

Marozva (2015) evaluated the influence of liquidity on bank performance in South- Africa. The study covered a period of eight years from 1997 to 2004. A sample of five (5) banks was used. Multiple regression analysis was adopted for analysis of data collected, and the results show that there is a significant negative relationship between liquidity and banks' performance. The findings of the study might not provide sufficient understanding of the relationship between liquidity and performance of asset-oriented firms such as industrial goods firms in Nigeria.

Gaps in Empirical Literature

It could be observed from table 2.4.1 that out of the 15 current empirical studies reviewed, only 4 were conducted in Nigeria while the remaining 11 were carried out outside the country. This implies that more studies are required in Nigeria in this area of studies. The table also indicates that only 4 out of the 17 studies were conducted in bank performance of their various countries while the remaining 13 studies were conducted in other profitability of firms. It was further observed that none of the studies covered the period from 2016 to 2022. This gave rise to a time gap in these areas of studies. The current study addressed these

literature gaps by investigating the determinants of growth of listed industrial goods firms in Nigeria from 2012 to 2022.

3.0 METHODOLOGY

Research Design

This study will adopt *ex-post facto* research design. Thus, historical financial data were obtained from foods and beverage firms listed on Nigeria Stock Exchange during the period from 2012 to 2022.

Area of Study

The study was conducted in Nigeria and precisely on the growth of industrial goods firms listed on Nigeria Exchange Group during the period from 2012 to 2022.

Sources of Data

The study was conducted with secondary data, which were collected from the annual reports and financial statements of the industrial goods firms listed on Nigeria Stock Exchange during the period from 2012 to 2022.

Population and Sample Size

The population of this study consists of twenty-one listed industrial goods firms in Nigeria as retrieved from the Nigerian Exchange Group (NGX) as at 31st December, 2015. However, the basic criterion for inclusion of any company into this study is consistent availability of data throughout the period of study. Based on this, six (6) firms have been eliminated. These include: Adswitch Plc, African Paints (Nigeria) Plc, DnMeyer plc, IPWA, Premier Paints plc and West African Glass Industry Plc. Therefore, the adjusted population is fifteen firms (representing about 71% of the firms in the industry). These companies produce or deal in products such as cement, chemicals, protectives, industrial decorative and architectural coatings and paints and related products.

Sources and Method of Data Collection

The study uses secondary data extracted from the published annual reports of the sampled firms. The annual reports are retrieved using two sources. First, the official websites of the firms are accessed and available reports downloaded. Second, other annual reports not gotten from the firm's websites are retrieved from the Nigerian Stock Exchange Fact Book.

Model Specification

The following model was developed based on the variable of the study:

$ROAit = \beta_0 + \beta_1 LEVit + \beta_2 SIZ_{it} + \beta_3 LIQit + \varepsilon$

Where:

ROAit= Return on Assets for firm i in time t

LEVit = Leverage for firm i in time t

SIZit = Liquidity of firm i in time t

LIQit = Board size of firm i in time t

βo = Intercept

β_1, β_2, β_3, β_4, β_5, β_6 = model coefficient

ε = error term

Variables Measurement

The variables for the study are split into dependent and independent variables.

Their measurements are as shown in the table below:

Table 3.3: Variables and their Measurement

S/NO	Proxy	Type	Measurement	Source
i.	Return on assets (ROA)	Dependent	Profit before interest and tax/total assets	Burja (2017), Magaretha and Supertika (2019)
ii.	Leverage (LEV)	Independent	Total debt/total assets	Lobos and Szewcyyk (2018)
iii.	Liquidity	Independent	Current assets/current liabilities	Ehiedu, and Chukwunweike (2018).
iiv.	Board Size	Independent	Number of board members	Dogan and Yildiz (2017)
.	Firm Size	Independent	Natural logarithm of total Assets	Babalola (2013)

Source: Author's Compilation, 2022

4.0 DATA ANALYSIS

Method of Data Analysis

Based on the data type and previous research studies, the study uses panel data regression technique. The major tool of data analysis that is used is multiple regression analysis which is carried out using STATA statistical software, while SPSS software is used to run stepwise regression for selection of variables, normally distributed and the variability in the error term is constant. The essence of these analyses is to improve the validity of all the statistical

inferences that are made. Since the data has panel attributes, Hausman specification tests are performed to ascertain whether the study should use fixed effect or random effect.

Descriptive Statistics

The various descriptive statistics are displayed in Table 4.1. The intent is to provide understanding on the nature of data being used. The descriptive statistics include minimum value, maximum value, mean, standard deviation, skewness and kurtosis of all the variables used in the study.

Table 4.1: Descriptive Statistics of the Variables

Variable	Min	Max	Mean	Std Dev.	Skewness	Kurtosis	N
ROA	-0.27	0.79	0.97	0.16	1.75	9.78	105
SIZ	13.26	20.84	15.74	1.97	0.90	2.97	105
LEV	0.04	0.93	0.45	0.18	0.35	3.08	105
LIQ	0.33	0.98	0.68	0.15	-0.13	2.73	105

Source: STATA output, 2023.

Table 4.1 reports the descriptive statistics for the dependent and independent variables. The table reveals that the minimum value of ROA for the firms is about -0.27. This is attributed to the losses suffered by some of the firms for certain years. The maximum value of ROA is 0.79, representing the maximum rate of return realized from assets utilized by the listed industrial goods firms in Nigeria. The mean value of about 7% as can be seen in the above table suggests that on average, the studied firms realize about 0.069 from utilization of their assets. This is with a standard deviation of about 0.16 implying high rate of variability of the returns realized on assets (ROA) by the firms.

SIZ has a minimum value of about 13.26, which explains the minimum size of the firms under study, and maximum value of about 20.84 which indicates the largest possible size of the firms under study. SIZ has a mean of about 15.74 and standard deviation of 1.97, representing a very moderate level of variations in the size of the firms under study during the period. LEV has a minimum value of about 0.04, maximum value of about 0.93 which indicates the proportion of debt owed by the firms with respect to their total assets. On average, this ratio is about 0.45 (45%) while the variability level as shown by the standard deviation is about 0.15 (0.15%), implying high variability in the debt ratio of the firms.

LIQ has a minimum value of about 0.33 which implies the ratio of current assets to current liabilities of the firms under study while the highest ratio is represented by a maximum value of about 0.98, with average of about 0.68. It has a standard deviation of about 0.15 which means that there is little variation in the liquidity position of the firms during the study period.

Table 4.2: Summary of regression result

VAR	COEFF	Z	P>(Z)
SIZ	0.0138635	4.08	0.000
LEV	-0.1363727	-2.66	0.008
LIQ	-0.3488432	-3.38	0.001
BS	-0.020904	-3.18	0.001
C	0.3698303	3.92	0.000
R-Square	0.5813		
Wald Chi^2	79.38		
Prob	0.0000		

Source: STATA Output, 2023

From the regression result presented in table 4.2, the R^2 which is the multiple coefficient of determination gives the percentage or proportion of total variation in the dependent variable (ROA) which is jointly explained by the independent variables to be approximately 58%. This signifies that 58% of total variation in ROA of listed industrial goods firms in Nigeria is explained by changes in SIZ, LEV, LIQ, while the remaining, that is about 42%, is caused by other factors not captured in the model. These factors could be financial such as stock turnover rate, size, non-financial such as management competence or even macroeconomics like inflation rate, government policy, among others.

The cumulative result holds sway as the Wald Chi^2 has a high value of 79.38 which is significant at 1%. This means that the model can be well fitted with the variables selected. It further means that the selected variables are the major determinants of profitability of listed industrial goods firms in Nigeria. The linear relationships among the independent variables with the dependent variable are discussed hereunder.

Test of Hypotheses

Hypotheses One: From the regression result in table 4.1 above and based on the decision rule, the hypothesis (Ho), P-value is less than 0.05, i.e. P=0.0,8. Therefore, we accept the null hypothesis which states that leverage does not significantly affect profitability of listed industrial goods firms in Nigeria.

Hypotheses Two: From the regression result in table 4.2 above and based on the decision rule, the hypothesis (Ho), P-value is less than 0.05, i.e. P=0.001. concluded that leverage does not significantly affect profitability of listed industrial goods firms in Nigeria.

ISSN: 2251-032X Volume 15, Issue 1, Pages 32 - 53: 2024

Hypotheses Three: From the regression result in table 4.2 above and based on the decision rule, the hypothesis (Ho), P-value is less than 0.05, i.e. P=0.08. concluded that liquidity does not significantly affect profitability of listed industrial goods firms in Nigeria.

Discussion of Findings

Leverage and Profitability

The finding showed that leverage does not significantly affect profitability of listed industrial goods firms in Nigeria. This is where the p-value is less than 0.05 i.e. p=0.008. The findings are supported by Sayed (2019) who investigated the influence of financial leverage on financial performance by taking evidence from listed sugar companies in Pakistan. The result revealed a positive relationship between debt equity ratio with return on asset and negative relationship of debt equity ratio with earnings per share, net profit margin and return on equity.

Firm size and profitability

The result of hypothesis two revealed that firm size does not significantly affect profitability of listed industrial goods firms in Nigeria. This is evident as the p-value for firm size is less than 0.05 i.e. p-<0.00. P-value is 0.000. This finding is collaborated with the finding of Kumar and Kaur (2016) who found that there was no significant relationship between firm size and profitability. A significant achievement of the study is its use of a long period of coverage.

Liquidity and Profitability

Lastly, the result of hypothesis three revealed that liquidity does not significantly affect profitability of listed industrial goods firms in Nigeria, this is where the p-value for liquidity is less than 0.05, i.e. p<0.00. P-value is 0.001. The finding deviates from the findings of Ibe (2017) who found that liquidity management affects performance of the Nigerian banking industry. The strength of the study lies in its inclusion of solvency ratio as one of the proxies of liquidity as solvency is a critical issue particularly with respect to sustainability of banks in Nigeria. Banks in Nigeria possess economic features quite distinct from those of industrial goods firms.

Summary

The results indicated that:

i. Leverage does not significantly affect the profitability of listed industrial goods firms in Nigeria.

ii. Firm size does not significantly affect profitability of listed industrial goods firms in Nigeria.

iii. Liquidity has a negative and significant relationship with profitability of listed industrial goods firms in Nigeria.

5.0 CONCLUSION & RECOMMENDATIONS

Conclusion

On the basis of the findings of the study, the following conclusions were made: Findings revealed that leverage has a negative and significant relationship with growth of listed industrial goods firms in Nigeria. Therefore, it can be concluded that reduction in level of leverage by listed industrial goods firms in Nigeria will lead to increase in profitability. Firm size was found to be a positive and significant determinant of profitability. This is as a result of the fact that the two variables have positive and significant relationships with firm size having the potential to predict profitability. For this reason, it can be concluded that bigger industrial goods firms have the tendency to make higher profits than smaller industrial goods firms. The study found a negative relationship between liquidity and profitability of industrial goods firms listed in Nigeria. The study concluded that high volume of liquidity reduces profitability of industrial goods firms listed in Nigeria.

Recommendations

Based on the findings of the study, the following recommendations are made:

i. Industrial goods firms in Nigeria should weigh the potential economic benefits of debt capital against its cost before making decisions as to the choice of debt capital.

ii. It is recommended that industrial goods firms should avoid having large board sizes. This is crucial as large board sizes add more cost to the organization.

iii. The study recommends that a minimum amount of liquidity should be maintained by industrial goods firms to reduce the extra cost attached to holding unnecessary liquid assets. This can be done by promoting the virtues of just-in-time, a concept which advocates minimum holding of inventory.

References

Adelegan, O. J. (2016). An Empirical Analysis of the relationship between cash flow and Divided charges in Nigeria. *Journal of Research in Development and Management,* 15, 35-49.

Ahmad, R. (2016). A study of relationship between liquidity and profitability of Standard Chartered Bank Pakistan: Analysis of financial statement approach. *Global Journal of Management and Business Research,* 16(1), 77-82.

Ali, M., Alireza, A. and Jalal, A. (2013). The association between various Earnings and cashflow measures of firm performance and stock returns: some Iranian evidence. *International Journal of Accounting and Financial Reporting*, 3(1), 24-39.

Al-Matari, A. K., Al-Swidi, E. H., Fadzil, F. H. and Al-Matari, E. M. (2015). Board of Directors, Audit Committee Characteristics and Performance of Saudi Arabia Listed Companies. International Review of Management and Marketing, 2(4), 241-251.

Akinmulegun, S. O. (2018). The effect of financial leverage on corporate performance of some selected companies in Nigeria. Canadian Social Science, 8(1), 85-91.

Aparna, K. (2015). Determinants of profitability: A firm level study of Steel Authority of India Limited (SAIL). *Journal of Finance and Accounting,* 4(12), 1-4.

Aqsa, I. and Gulam, M. M. (2014). The impact of financial leverage on firm performance in fuel energy sector, Pakistan. *Research Journal of Finance and Accounting,* 5(23), 172-179.

Archarungroj, P. and Hoshino, Y. (1998). The impact of firm size on export performance and attitudes: An empirical study on Thailand Exporters. *Japanese Journal of Administrative Science*, 12(2), 79-88.

Asgari, M. R., Pour, A. A. S., Zadeh, R.A. and Pahlavan, S. (2015). The relationship between firm‟s growth opportunities and firm size on changes ratio in retained earnings of listed companies in Tehran Stock Exchange. *International Journal of Innovation and Applied Studies,* 10(3), 923-931.

Bala, H. Garba, J. and Ibrahim, I. (2015). Corporate liquidity and profitability of listed food and beverages firms in Nigeria. *Net Journal of Social Sciences*, 4(1), 10-22.

Babalola, Y. A. (2013). The effect of firm sixe on firm‟s profitability in Nigeria. *Journal of Economics and Sustainable Development*, 4(5), 90-94.

Baloch, Q.B., Ihsan, A., Kakakhel, S.J. and Sethi, S. (2015). Impact of firm size, asset tangibility and retained earnings on financial leverage: evidence form auto sector, *Pakistan. Abasyn Journal of Social Sciences,* 8(1), 143-155.

Banchuenvijit, W. (2012). Determinants of firm performance of Vietnam Listed companies of Bangladesh. *Journal of SUB,* 5(1), 56-76.

Bashar, S.M. and Islam, M.I. (2014). Determinants of profitability in the pharmaceutical industry of Bangaldesh. *Journal of SUB*, 5(1), 56-76.

Beasley, M., Carcello, J., Hermanson, D. and Lapides, P. (2017). Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms. Accounting Horizons, 14(4), 441-454

Bebeji, A., Mohammed, A. and Tanko, M. (2015). The effect of board size and composition on the financial performance of banks in Nigeria. *African Journal of Business Management,* 9(16), 590-598.

Brush, T. H., Bromily, P. and Hendrickx, M. (2015). The free cash flow hypothesis for sale growth and firm performance. *Strategic Management Journal,* 2, 455-472.

Bulan, L., Sanyal, P. and Yan, Z. (2019). Directors, Outsiders and Efficiency: An Analysis of How Board Characteristics Influence Firm Productivity. *European Journal of Business and Management*, 1 (2), 30-40.

Burja, C. (2016). Factors influencing the companies‟ profitability. Annales Universtatis Apulensis Series Oeconomica, 13(2), 215-224.

Burca, A. and Batrinca, G. (2014). The determinants of financial performance in the Romanian insurance Market. *International Journal of Academic Research in Accounting, Finance and Management Sciences,* 4(1), 299-308.

Carpenter, M. A. and Westphal, J. D. (2018). The strategic context of external networking: Examining the impact of director appointments on board involvement in strategic decision making. Academy of Management, 44(4), 639–660.

Chechet, I. L. and Olayiwola, A. B. (2014). Capital structure and profitability of Nigerian quoted firms: Agency cost theory perspective. *American International Journal of Social Science*, 3(1), 25-45.

Chikashi, T.O. (2017). An Investigation of comprehensive income and firm performance: The case of the electric appliances Industry of the Tokyo stock Exchange. *Journal of Accounting and Finance Research,* 2(2), 29-35.

Dalton, D. R. and Daily, C. M. (2015). Board and financial performance, the bigger is better. *Journal of Finance,* 3(1), 45-49.

Devi, A. and Devi, S. (2014). Determinants of firms‟ profitability in Pakistan. *Research Journal of Finance and Accounting,* 5(19), 87-91.

Doğa, M. and Yildiz, F. (2017). The impact of the board of directors‟ size on the Bank‟s Performance: Evidence from Turkey. *European Journal of Business and Management*, 5 (6), 130-140.

Dogan, M. (2016). Does firm size affect the firm profitability? Evidence from Turkey. *Research Journal of Finance and Accounting,* 4(40), 53-59.

Dogan, M. and Topal, Y. (2014). The influence of dividend payments on company performance: The case of Istanbul Stock Exchange (BIST). *European Journal of Business and Management,* 6(3), 189-198.

Drakos, A. A. and Bekiris, F. V. (2019). Endogeneity and the relationship between board structure and firm performance: A simultaneous equation analysis for the Athens Stock Exchange. Managerial and Decision Economics, 31(6), 387-401.

Ehiedu, T. and Chukwunweik, V. (2017). The impact of liquidity on profitability of some selected companies: The Financial Statement Analysis (FSA) Approach. *Research Journal of Finance and Accounting,* 5, 81-90.

Ejelly, M. A. (2014). Liquidity-profitability tradeoff: An empirical investigation in emerging market. *International Journal of Management,* 14(1), 16-23.

Enekwe, C. I. Nweze, A. U. and Agu, C. I. (2015). The effect of dividend payout on performance evaluation: evidence of quoted cement companies in Nigeria. *European Journal of Accounting, Auditing and Finance Research,* 3(11), 40-59.

Enekwe, C. I., Agu, C. I. and Eziedo, K. N. (2014). The effect of financial leverage on financial performance: Evidence of quoted pharmaceutical companies in Nigeria. *IOSR Journal of Economics and Finance,* 5(3), 17-25.

Fauzi, F. and Locke, S. (2017). Board structure, ownership structure and firm performance: A study of New Zealand listed-firms. *Asian Academy of Management Journal of Accounting and Finance,* 8(2), 43-67.

Florin, G. L. (2016). Understanding the determinants of firms‟ performance. Practical Application of Science, 2(2), 84-90.

Gill, A. and Mathur, N. (2018). The impact of board size, CEO duality, and corporate liquidity on the Profitability of Canadian Service Firms. *Journal of Applied Finance & Banking.*

Glancey, M. (1998). Determinants of growth and profitability in small entrepreneurship firm. *International Journal of Entrepreneurship Behaviour and Research*, 4(1), 18-27.

Grautier, N .W. E., Underdown, B. & Morris, R. (2018). Accounting theory and practice (8th edition). London: Pitman.

Hannan, M. T. and Freeman, J. (2017). Structural inertia and organizational change. American Sociological Review, 49 (2) 149-164

Hillman, A. J. and Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. The Academy of Management Review, 383-396.

Ibe, S. O. (2013). The impact of liquidity management on the profitability of banks in Nigeria. *Journal of Finance and Bank Management*, 1(1), 37-48.

Igben, R. O. (2009). Financial accounting made simple. Lagos: El-Toda Publishers.

Institute of Chartered Accountants of Nigeria (ICAN) (2014). Corporate reporting: study text. United Kingdom: Emile Wolf International.

Ismail, M. (2013). Determinants of financial performance: The case of General Takaful and insurance companies in Malaysia. *International Review of Business Research Papers*, 9(6), 111-130.

Ismail, R. (2016). Impact of liquidity management on profitability of Pakistan firms: A case of KSE-100 Index. *International Journal of Innovation and Applied Studies*, 14(2), 304-314.

Jensen, M. and Meckling, W. (2016). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial Economics*, 3(4), 305-360.

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. J*ournal of Finance,* 48, 831-880.

Johl, S. K., Kaur, S. K. and Cooper, B. J. (2015). Board characteristics and firm performance: Evidence from Malaysian Public Listed Firms. *Journal of Economics, Business and Management,*3(2),239-243.

Josson, B. (2017). Does the size matter? The relationship between size and profitability of Icelandic firms. *Bifrost Journal of Social Sciences*, 1, 43-55.

Kidmat, W. B. and Rehman, M. U. (2014). Impact of liquidity and solvency on profitability of chemical sector of Pakistan. Economics, Management and Innovation, 6(3), 3-13.

Kouser, R., Bano, T. and Azeem, M. (2018). Inter-relationship between profitability, growth and size: A Case of non-financial companies from Pakistan. *Pakistani Journal of Commerce and Social Sciences,* 6(2), 405-419.

Kumar, N. and Kaur K. (2016). Firm size and profitability in Indian automobile industry: An analysis. Pacific Business Review International, 8 (7), 69-78.

Lartey, S. C., Antwi, S. and Boadi, E. K. (2013). The Relationship between Liquidity and Profitability of Listed Banks in Ghana. *International Journal of Business and Social Science,* 4(3), 48-56.

Lin, C. J. (2017). An examination of board and firm performance: Evidence from Taiwan. *International Journal of Business and Finance Research*, 5(4), 17-34.

Lobos, K. and Szewczyk, M. (2013). Determinants of profitability of manufacturers of mushroom compost in Poland. Advanced Research in Scientific Areas, 2(6), 160-165.

Malik, M., Wan, D., Ahmad, M., Naseem, M. and Rehman, R. (2014). Role of board size in corporate governance and firm performance applying pareto approach. Is it cultural phenomena? *The Journal of Applied Business Research,* 30 (5), 1395-1406.

Maqsood, T., Anwar, M. A. Raza, R., Ijaz. M and Shouqat, U. (2016). Impact of liquidity management on profitability in banking sector of Pakistan. *International Review of Management and Business Research,* 5(2), 643-652.

Margaretha, F. and Supartika, N. (2016). Factors affecting profitability of small and medium enterprises (SMEs). *Journal of Economics, Business and Management*, 4(2), 132-137.

Marozva, G. (2015). Liquidity and bank performance. International Business and Economic *Research Journal,* 14(3), 453-462.

Mistry, D. S. (2012). Determinants of profitability in Indian automotive industry. Technical *Journal of Management Studies,* 7(1), 20-23.

Mohammad, A. (2014). Relationship between financial leverage and financial performance. *Research Journal of Finance and Accounting*, 7(1), 20-23.

Mutuku, M. K. and Kyalo, J. K. (2015). Determinants of profitability of e-commerce operations of companies in the communication sector in Nairobi County, Kenya. International *Journal of Education and Research*, 3(3), 657-670.

Niresh, J .A. and Velnampy, T. (2014). Firm size and Profitability: A study of listed manufacturing firms in Sri Lanka. *International Journal of Business and Management,* 9(4), 57-64.

Nwaezeaku, N.C. (2016). Theories and practice of financial management. Owerri: Ever Standard publishing.

Okpe, I., Duru, A. N. and Alor, C. (2016). The Effect of Cash Flow Statement on Companies Profitability (A Study of Some Selected Banks in Nigeria). *African Journal of Basic & Applied Sciences* 7(6), 350-356.

Okwo, F. I., Ugwunta, D. O. and Agu, S. U. (2013). An examination of the factors that determine the profitability of the Nigerian beer brewery firms. Asian Economic and Financial Review, 2(7),741-750.

Oyerogba, E. Memba, F. and Riro, G. (2016). Impact of board size and firm‟s characteristics on the profitability of listed companies in Nigeria. *Research Journal of Finance and Accounting,* 7(4), 243-151.

Pathan, S., Skully, M., and Wickramanayake, J. (2007). Board size, independence and performance: An analysis of Thai Banks. Asia-Pacific Financial Markets, 14, 3, 211-227.

Penrose, E. T. (1959). The theory of the growth of the firm. New York: Wiley.

Peteraf, M. and Barney, J. (2013). Unraveling the resource-based tangle. Managerial and Decision Economics,24 (1), 309-323.

Pfeffer, J. (1972). Size, composition, and function of hospital boards of directors. Administrative Science Quarterly, 18(2), 349-364.

Pfeffer, J. and Salancik, G. (1978). The external control of organizations, a resource dependence perspective. New York: Harper and Row.

Pratheepan, T. (2014). A panel data analysis of profitability determinants: Empirical results from Sri Lankan manufacturing companies. *International Journal of Economics, Commerce and Management,* 2(12), 1-9.

Reddy, B. M. (2015). Trade off between liquidity and profitability– A study on Tata Steel Ltd. *International Journal of Commerce, Business and Management* (IJCBM), 4(2), 1096-1100.

Saat, M., Karbhari, Y.,Xiao, J. Z., Ashikin, N., & Heravi, S. (2017). Factors affecting independent audit committee members effectiveness –The case of listed firms on Bursa Malaysia. World Review of Business Research, 2(3), 132–147.

Saber, A. (2013). The investigation effect of financial leverage and environment risk on performance firms of listed companies in Tehran Stock Exchange. *Journal of Applied Science and Agriculture,* 8(3), 249-255.

Saibaba, M. D. and Ansari, V. A. (2012). Impact of board size: An empirical study of companies listed in BSE 100 index. *Indian Journal of Corporate Governance*,5(2), 34-39.

Saleem, Q. and Rehman, R. (2017). Impacts of liquidity ratios on profitability (case of oil and gas companies of Pakistan). *Interdisciplinary Journal of Research in Business,* 1(7), 95-98.

Saliha, T. and Abdessatar, A. (2016). The determinants of financial performance: An Empirical test using the simultaneous equations method. Economics and Finance Review, 1(10), 1-19.

Seelanatha, L. (2018). Determinants of firms‟ performance: some Chinese evidence. Investment Management and Financial Innovations, 8(3), 28-38.

Serrasqueiro, Z. (2018). Growth and profitability in Portuguese companies: A dynamic panel data approach. Economic Interferences, 11(26), 565-573.

Sivathasan, N., Tharanika, R., Sinthuja, M. and Hannitha, E. (2013). Factors determining profitability: A study of selected manufacturing companies listed on Colombo Stock Exchange in Sri Lanka. *European Journal of Business and Management*, 5(27), 99-107.

Siyanbola, T. T., Olaoye, S. A. and Olurin, O. T. (2015). Impact of gearing on performance of companies. *Arabian Journal of Business and Management Review*, 3(1), 34-41.

Staikouras, P., Christos S. and Agoraki M. E. (2017). The effect of board size and composition on European bank performance. *European Journal of Law and Economics,* 23, 1-27.

Swarnapali, R. M. N. C. (2018). Firm specific determinants and financial performance of licensed commercial banks in Sri Lanka. Proceedings of the 3rd International Conference on Management and Business Research, 13(8), 12-16.

Syed, S. F. (2018). Relationship between financial leverage and financial performance: Evidence from of listed sugar companies in Pakistan. *Global Journal of Management and Business Research Finance,* 13(8), 12-16.

Tanna, S., Pasiouras F. and Nnadi, M. (2017). The Effect of board size on the efficiency of UK Banks. Economics, Finance and Accounting Applied Research Working Paper Series, 23- 32.

Ujunwa, A. (2017). Board characteristics and the financial performance of Nigerian quoted firms. Corporate Governance: The International Journal of Business in Society,12(5), 656-674.

Umobong, A. A. (2015). Assessing the impact of liquidity and profitability ratios on growth of profits in pharmaceutical firms in Nigeria. *European Journal of Accounting, Auditing and Finance Research,* 3(10), 97-114.

Vatavu, S. (2014). Corporate performance determinants. Evidence of differences across sectors. East-European Centre for Research in Economics and Business, 2(1), 642-647.

Vintilă, G. and Nenu, E.A. (2016). Liquidity and profitability analysis on the Romanian listed companies. *Journal of Eastern Europe Research in Business & Economics*, 4(5), 2-8.

Weterings, J. and Swagerman, D. (2018). The impact of board size on firm value: Evidence from the Asian real estate industry. Asian Journal of Business and Management Sciences, 1 (8), 22-43.