Asset Growth Rate and Financial Performance: A Study of Listed Manufacturing Firms in Nigeria

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ABSTRACT

This study analysed the impact of asset growth rates and financial performance in Nigeria. The research used a panel design methodology and relied on secondary data obtained from the annual reports of seventy-one (71) publicly listed manufacturing firms over a ten-year period, from 2012 to 2022. The data was analysed through descriptive statistics, correlation and the OLS regression techniques. The outcome indicates that the growth of noncurrent assets is positively and significantly associated with the financial performance of the sampled manufacturing companies in Nigeria. The second finding indicated that the growth rate of intangible assets exhibits a negative and non-significant relationship, while the third finding indicated a positive and significant relationship between the net asset growth rate and the financial performance of listed manufacturing firms in Nigeria. Based on these outcomes, the study recommends that firms should carefully consider their investments in non-current assets, as these investments significantly influence financial performance. Additionally, firms should focus on managing net asset growth to enhance their financial outcomes.

Keywords: Asset Growth Rate, Current Asset Growth Rate, Intangible Asset Growth Rate, Net Assets Growth Rate, Non-Current Assets Growth Rate, Return on Asset.

INTRODUCTION

Decisions relating to the best sources of finance and how they should be used are part of the main roles of firm managers. In the utilisation of a company's funds, most companies grow their assets, which is done by increasing the amount of assets at their disposal. The increase in firm assets makes them competitive and increases the future benefits to the firms. Peterson (2019) stated that assets are a firm's resource that leads to future benefits. United States FASB Concepts Statement 6 states that assets have probable future economic gains gotten or controlled by an entity as a result of events or past transactions. Gill (2018) defined assets as any owned physical tangible object or intangible right which has economic value to its owners. One way of categorising assets is on the basis of their ease of conversion into ready cash. Accordingly, total assets are classified into non-current assets or current assets. Other classifications include the physical presence of intangible or tangible assets, as well as the use of operating and non-operating assets. Current assets are a company's short-term assets; those that can be liquidated quickly and used for a company's immediate needs, while non-current assets are long-term and have a useful life of more than a year (Usman, 2019). These assets grow over time in line with the business activities of organisations. Growth in a company's assets is important for its existence in a competitive and flexible market situation and also used to increase the economic benefit of the firm. The acquisition of heavy assets requires a large investment in capital, which can compel companies to utilise it in order to generate income for the well-being and financial performance of the firm.

Bhunia, Mukhuti and Roy (2019) defined financial performance as a company's overall financial well-being over a period of time. The process of financial performance analysis can determine a firm's financial performance for a given period. The analysis is seen as a process of evaluating the outcome of a company's operations and policies in monetary terms. In explaining further Erasmus (2018) identifies the financial weaknesses and strengths of a firm by creating relationships between the items of the financial position and

income statement. A company's assets have a crucial role in both its operations and profitability. In the overall operations of a firm, assets function in tandem with other elements like liabilities and equity. One of the most important performance indicators is stock returns. Additional capabilities, opportunities, revenues, and profits are provided by asset growth. Growth may come via mergers and acquisitions or naturally. The association between the financial performance of Nigerian listed manufacturing enterprises and their assets growth rate was a major focus of this study.

Financing decisions result in a given financial structure (assets and liabilities), and suboptimal financing decisions can lead to corporate failure, while optimal financing decisions can lead to corporate performance (Chisti, Ali & Sangmi, 2017). Whether there is a link between the ideal asset growth rates that maximises the wealth of the stakeholders is a major conundrum for academics, company managers, investors, and other stakeholders. A review of previous empirical work has shown controversial findings regarding asset growth and financial performance. Duru (2019) examined the impact of working capital management on the profitability of Nigerian quoted manufacturing firms and found that a firm's cash conversion cycle had a positive but non-significant relationship with profitability. Mathuva (2019) studied the impact of working capital management on performance in Kenya and detected a positive relationship between the time when inventories were brought in and sold and profitability. Another opposite finding was from the study by Farkoosh, Farkoosh & Naseri (2020), who examined the effect of net asset value on profitability and found that net asset value has a non-significant relationship with net profit margin. These controversial findings have necessitated the need for grey research to be carried out to unravel the true position of the relationship between asset growth rate and financial performance.

Apart from the fact that no sufficient research work has been done on asset growth rate and financial performance, the few studies (Mathuva 2019, Shubita & Alsawalhah, 2012; Tong & Green 2017; Gill 2018 & Bhunia, Mukhuti & Roy, 2019) that have been carried out on the subject matter were done in developed economics while others in Africa country other than Nigeria. Also, the manufacturing company is another area that have contributed greatly to the Nigeria Group Exchange amounting to about 43% of the total value of the Nigeria stock (Owusu and Alhassan, 2020). Despite the massive contribution of the manufacturing companies to the Nigerian Exchange Group (NGX) only few studies have been carried out in the sector. There is need to close the gap of scarce research in this area. This work focused on quoted manufacturing companies in Nigeria. The study centered on manufacturing companies because it is a grey area for research and the findings can be generalized to more than half of the companies in the Nigerian Exchange Group.

LITERATURE REVIEW

This section presents the literature on the independent variables and the dependent variable (financial performance – Return on Assets) and the theory underpinning the study.

Non-Current Assets Growth and Financial Performance

In their study, Olatunji and Adegbite (2019) investigated how investing in fixed assets impacts the profitability of specific Nigerian banks. Using information from their annual reports, they also looked at the key components of fixed asset investment in a few Nigerian commercial banks. The link between the independent variables (buildings, land, leased premises, fixtures and fittings, and computer investments) and the dependent variable (net profit) was examined using multiple regressions and Pearson product-moment correlation. The findings show a strong correlation between net profit and a number of variables, including land, leasehold, machinery, buildings, information, communication, and technology, as well as fixtures and fittings. 96% is the corrected R2 value. This finding implies that fixed asset investments have a significant and favourable statistical influence on Nigeria's banking industry's profitability. To enhance bank profitability, Nigerian banks should focus on increasing investments in fixed assets, particularly in the form of ICT. It is important to monitor the use and productivity of fixed assets to ensure shareholder satisfaction and boost profitability.

Okwo, Ugwunta, and Nweze (2017) examined the effect of fixed asset investment on profitability within the Nigerian brewery sector using cross-sectional data from company annual reports, covering the period from 2000 to 2015. The sample consists of four brewery firms listed on the NGX, selected for analysis due to the

availability of data for the specified period. The sample comprises Champion Breweries Plc, Guinness Nigeria Plc, Nigerian Breweries Plc, and International Breweries Plc. The hypothesis test results indicate that investment in fixed assets does not have a strong or significant effect on the reported profit levels of breweries in Nigeria.

Chen, Yao, and Zhang (2018) used data from nine equities markets in the Pacific-Basin region—Japan, China, Hong Kong, Taiwan, Korea, Malaysia, Singapore, Thailand, and Indonesia—to examine the connection between corporate asset growth and stock returns. Two sources of information were used: accounting data and stock return data from the Pacific Basin Capital Market Research (PACAP) databases, which were made available via Wharton Research Data Services. The Indonesian stock market is distinguished by the smallest sample period, which spans from 1990 to 1998, while the Japanese market has the longest, covering the years 2014 to 2017. The alphas for decile portfolios were computed using the Fama–French three-factor model, which was developed in 1993. To examine the effects of several factors on asset growth at the same time, they used the Fama-MacBeth regression approach. The results show that asset growth had a constant impact on the PACAP markets during the course of the research. Firms' asset growth and future stock returns are substantially correlated negatively, suggesting that the region's financial systems may be inefficient in terms of capital allocation and investment valuation.

Li (2016) investigates the inverse relationship between capital investments (fixed assets), future profitability, and stock returns using annual financial statements of companies from 2009 to 2014. The findings indicate that the negative relationship between investment and future profitability remains consistent when accounting for investment scaling and conservative accounting effects.

Demir (2020) analyses the investment in financial and fixed assets and their effects on profitability. A regression analysis was conducted using a sample of 172 manufacturing firms in Turkey from 2012 to 2017. The study comes to the conclusion that a rise in short-term investments considerably lessens the negative consequences of risk, volatility, and high interest rates. On the other hand, the profitability of manufacturing companies is severely impacted by growing uncertainty, nation risk, and real interest rates.

Intangible Asset Growth Rate and Financial Performance

Reyhani (2020) evaluates how the mix of intangible assets affects the performance of businesses in a range of industries that are listed on the Tehran Stock Exchange (TSE). The study used EBIT (Earnings Before Interest and Taxes) was the dependent variable in the definition of the intangible asset structure, while goodwill and variable assets were the independent variables. According to the study, goodwill has a major beneficial impact on EBIT.

Eberhart et al. (2020) provide consistent evidence that the growth of intangible assets affects shareholder experiences, suggesting that this leads to significantly positive long-term abnormal stock returns. For businesses that display extremely favourable anomalous operational performance, the results are the same. Investments in R&D and other intangible assets do not immediately provide a return in the market, according to the result. According to the data, high-tech companies outperform low-tech ones in terms of abnormal operating performance.

Szewczyk (2018) identified firms possessing superior investment opportunities. These may be high-growth firms characterised by market-to-book ratios that exceed one. These firms are more inclined to optimise their R&D investments. Titman et al. (2017) examined the extent to which investors may underreact to the implications of increased investment expenditures associated with empire-building. Research indicates that firms significantly increasing their investment in intangible assets often underperform relative to their benchmarks in the subsequent five years.

Dhillon and Vachhrajani (2018) analyse the effects of operational efficiency on the overall profitability of Gujarat Industries Power Company Limited (GIPCL), utilising published data from June 2010 to November 2017. The research found an insignificant positive correlation between operational efficiency and overall

profitability when activity ratios, including asset turnover, were used to assess operational efficacy and all-round profitability.

Kotšina and Hazak (2017) examine the impact of investment intensity measured by the percentage of fixed assets to total assets and the return on assets. The study sample comprises 8,074 companies across six EU member states. It was analysed over a nine-year period from 2008 to 2015. The study's findings suggest that companies' investment intensity does not significantly affect future rates of return on assets, whether negatively or positively.

Current Assets Growth Rate and Financial Performance

Duru (2019) examined the impact of working capital management on the profitability of manufacturing firms listed in Nigeria using data from a sample of 22 manufacturing firms from 2012 to 2017. The study's five hypotheses were assessed using generalised least squares multiple regressions, and the results showed that the liquidity ratio had a negative correlation with profitability and the firm's cash conversion cycle had a positive but non-significant correlation with profitability. It is recommended that a balance be maintained between liquidity and profitability. Firms should avoid stock-outs due to significant sales in previous years. We also encourage firms to lower their cost of sales to boost their profitability. Increasing credit sales is also advised to ensure sufficient cash for settling obligations. Furthermore, it is suggested that companies employ specialised personnel for guidance on working capital management.

Azam and Haider (2019) examined the influence of working capital management on the performance of non-financial firms listed on the Karachi Stock Exchange (KSE30). Data were collected from 21 non-financial firms. The Canonical Correlation statistical tool was employed to collect data for the study. Findings show that current asset growth has a significant impact on firms' performance, and it is concluded that managers can increase returns on assets and shareholder value.

Alavinasab and Davoudi (2019) analysed 147 companies listed on the Tehran Stock Exchange from 2015 to 2018, uncovering a significant relationship between current asset growth and profitability. Abata (2018) examined the asset quality of banks in Nigeria. Data were collected over an 8-year period from 2010 to 2017. The researcher determined that asset quality, as indicated by current asset growth, statistically influences the performance of banks in Nigeria through regression analysis.

Ishmael and Kehinde (2017) investigate the impact of current asset components on profitability within the Ajaokuta Iron Industry. The study identified varying proportions of current assets within the industry, including receivables, cash, and bank holdings. The results also demonstrated that Ajaokuta Iron Industry's profitability study exhibited an increasing trend between the sampled duration of 2012 and 2016.

Azadi (2020) analyses the impact of fluctuations in current assets on recognised operating earnings within the Tehran Stock Exchange. The analysis utilising OLS revealed that, in the food and metal industries, the coefficient of variation of fixed assets positively and significantly influences operating earnings. Conversely, in the chemical industries, the coefficient of variation of current assets does not significantly affect operating earnings.

Al-Qudah and Al-Afeef (2019) investigated the connection between liquidity, profitability, and current asset investment in industrial companies in Jordan. They measured liquidity using current ratio and relied on ROA in measuring the firm profitability. Their result showed a noteworthy relationship between current asset investment and the profitability and liquidity of the sampled Amania industrial goods companies. According to the study, 44.1 percent of the variances in the ROA and current ratio can be attributed to changes in current asset investments.

Deloof (2018) examined the correlation between profit ratios and asset management, as indicated by net assets, among firms in Belgium. Data were collected from a sample of 1,000 Belgian firms listed on the stock exchange over a specified period. The data were analysed through multiple regressions. An inverse relationship was identified between profit ratios and net asset growth among all firms located in Belgium.

Ogundipe, Ajao, and Ogundipe (2018) examined the relationship between net asset management and firm profitability by utilising evidence from Nigerian firms. Data spanning the years 2014 to 2016 were gathered from a sample of 54 firms listed on the Nigeria Stock Exchange (NSE). The analysis employed the correlation coefficient. The findings indicate that capital growth, leverage, net assets, profitability, and investment in capital expenditure have a significant impact on corporate cash holdings in Nigeria.

Farkoosh, Farkoosh, and Naseri (2018) looked at how net asset values affected Iranian investors' decision to buy stock in investment firms. The investment choices made by investors in businesses listed on the Tehran capital markets are the subject of the dependent variable. The net asset value and other variables make up the independent variable. Out of the 2000 people in the population, 500 responders were chosen as a sample. By distributing questionnaires to 500 respondents—of whom 464 responded—they used a main data gathering strategy. Excel and the SPSS program were used to calculate the standard deviation. They used the Friedman test, demographic Kruskal-Wallis tests, Excel software, and SPSS software to examine the correlations between variables at different levels. The outcome demonstrates that interest rates, at 7.99 points, and net asset value, at 12.91 points, play crucial roles in investing choices, respectively. This suggests that political considerations come in second to financial considerations when it comes to influencing investment decisions.

Korankye and Adarquah (2020) studied the impact of working capital on the profitability of firms and collected data from 2012 to 2018 for the listed companies in Ghana. The regression analysis indicated that current assets exert a positive and significant influence on profitability. Relatedly, Jamali and Asadi (2018) also examined the correlation between net asset management efficiency and profitability through a case study of 13 listed companies from 2011 to 2017. The net assets turnover is a critical ratio for assessing asset management efficiency. According to the study, asset management effectiveness and profitability are strongly correlated.

Raheman and Nasr (2017) examined the relationship between net working capital management and profitability in a sample of 94 firms listed on the Karachi Stock Exchange in Pakistan. Following a six years of data analysis, the researchers found a relationship between company performance, liquidity, and net working capital management. Measures of net profitability include the average cash conversion cycle, average payment period, average inventory turnover (in days), average collection period, and current ratio. The ratio of financial assets to total assets, business size, and debt ratio were the control variables. Using panel regression and Pearson's correlation, the study found a strong inverse association between business profitability and net working capital management parameters. The firm's profitability declines when the cash conversion process is prolonged. A negative relationship between liquidity and profitability was also identified. Conversely, firm size exhibits a positive correlation with profitability.

Singh and Pandey (2018) conducted a study examining the influence of net asset growth management on the profitability of Hindalco Industries Limited. This study examines the relationship between Hindalco's net assets, profitability, and profit before taxes (PBT). The study predominantly utilised secondary data derived from industry annual reports spanning the years 2012–2016. They analysed the data using percentage, covariance, and multiple regression techniques and found that net asset growth management significantly enhances profitability.

Theoretical Review

The growth of the fitter theory and the pecking order theory underpin this study.

Growth of the Fitter Theory

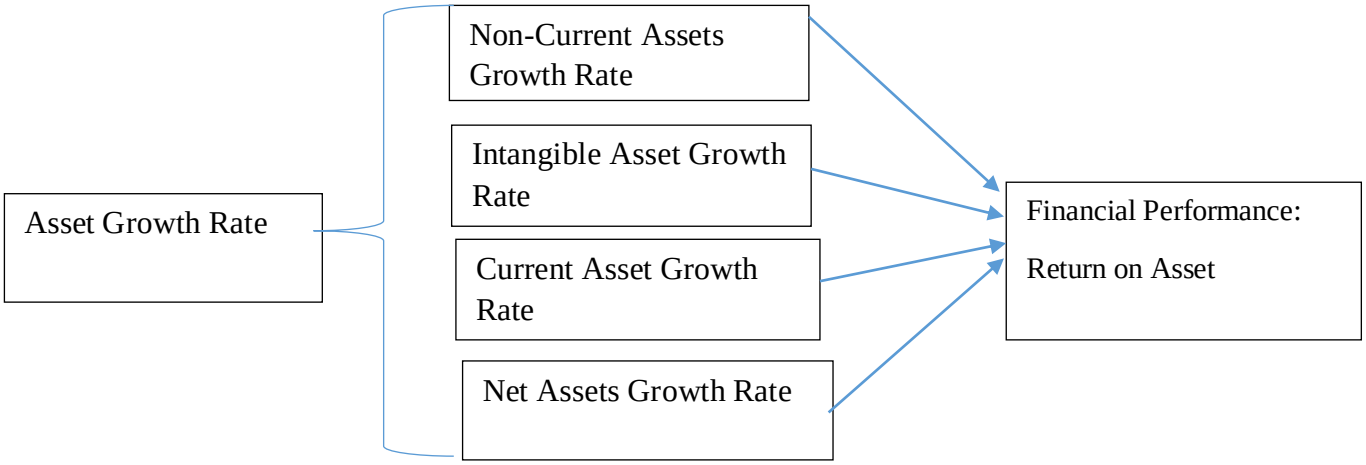
The growth of the Fitter theory was propounded by Alchian (1950). According to this theory, fitness is portrayed by the company profit, and the profitable firms grow and survive in the market while the other firms exit due to poor performance (Kouser, 2018). According to Alchian's (1950) theoretical analysis, fitter organisations expand and persist, while less fit companies lose market share and die out due to the process of natural selection. Therefore, it is likely to foresee that profitable enterprises will grow if profit rates reflect the level of fitness (Jang and Park, 2018). According to Delmar et al. (2021), more profitable firms may have

higher potential to grow since they have already shown a greater fit with the environment and may be able to fund future competitive actions with their own cash flow.

The pecking order theory

This theory was expanded by Myers (1984). It is entrenched in investment and corporate finance decisions when firms are visible to the information not opened to them (Frank, Goyal and Vidhan 2018). It posits that companies prioritise their expenditure sources based on the cost of financing, seeing equity raising as a financing option of last resort. Retained profits are prioritised in the finance hierarchy due to their cost-effectiveness and minimal susceptibility to information asymmetry. Next, debt carrying minimal asymmetry is taken into account as a monitoring tool against management's excessive spending. Demir (2018) studied the link between completion, higher risks and uncertainty in competition for listed one hundred and seventy-two (172) manufacturing firms in Turkey from 2010 to 2017. The study concludes that an increase in short-term financial investments is likely to mitigate the adverse effects of volatility, elevated interest rates, and risk to a considerable extent. Conversely, rising uncertainty, country risk, and real interest rates significantly detriment profitability in the manufacturing sector.

Conceptual Framework



Source: Adopted from Mwangi, Willy, and Patrick (2018) by the Researchers (2024)

The framework shows the components of the independent variable asset growth rate. These components are the non-current asset growth rate, intangible asset growth, the current asset growth rate, and the net asset growth rate. While the framework also shows the component of the dependent variable financial performance, which was decomposed as return of asset. The framework reflects the relationship between these variables and how the impact of the independent variables affects the dependent variables.

METHODOLOGY

In the research design for this study, the researchers adopted the ex post facto type of research and content analysis technique which is known as the panel data research. Panel research design is a method of collecting data repeatedly from a set. The purpose of using the panel research design in this study was that the study data cut across both time and space, and the researchers sampled a group/panel of firms and then measured some variables of interest at more than one point in time.

The population comprised the seventy (71) manufacturing firms (industrials, basic materials, customer goods and oil and gas) listed on the Nigerian Exchange Group (NGX) as of 31st December 2022. The sample was arrived at based on a two-point filter, which are that the companies must be quoted for the entire period of the study, 2012-2022, and the company should have the required data needed to achieve the objectives of the study.

We used the Taro Yamane (1967) formula to calculate the sample size for this study:

$n = N/(1+N(e)^2)$.

Where n represents the sample size, N represents the population under study, while e is the error margin (0.05).

Thus, $n = 71/(1+71(0.05)^2)$. $n = 60$

The study utilised secondary data obtained from the corporate annual reports of manufacturing companies over the course of 11 years, from 2012 to 2022. The researchers exclusively employed corporate annual audited reports from 2012 to 2022, which were compiled by the Machame RATIOS ® database. This was due to their accessibility and the potential for increased comparability of results. The data was analysed using descriptive statistics and correlation while the hypothesis is tested using regression technique. This helped to establish the relationship between the independent variables and the dependent variable and to identify the direction of the relationship.

The study premised its model on the main objective and anchored it on the sub-objective. The study modified the work of Bhunia, Mukhuti and Roy (2019), whose model states:

$EPS = \alpha + \beta_1 NCAGR + \beta_3 CAGR + \varepsilon_t$.

Where: EPS = Earnings Per Share

NCAGR = Non-Current Assets Growth Rate

CAGR = Current Growth Rate

The model of Bhunia, Mukhuti and Roy (2019) was modified as follows:

Financial Performance = *f* (Asset Growth Rate)

$ROA = \alpha + \beta_1 NCAGR + \beta_2 IAGR + \beta_3 CAGR + \beta_4 NAGR + \beta_5 LEV + \varepsilon_t$

Where:

ROA = Return on Asset

NCAGR = Non-Current Assets Growth Rate

IAGR = Intangible Asset Growth Rate

CAGR = Current Asset Growth Rate

NAGR = Net Assets Growth Rate

LEV = Leverage

ε_t = Error or disturbance term α = constant β = Beta

Measurement/Operationalization of Variables

Variables	**Description**	**Measurement**	**Author**	***Apriori* Expectation**
Dependent Variable				
Return on Asset	ROA	ROA is calculated by dividing a firm's net income by the total assets. It is then expressed as a	Usman, (2019).	

		percentage.		
Independent Variables				
Non-Current Assets Growth Rate	NCAGR	Non-current assets of current year minus non-current assets of previous year divided by non-current assets of previous year	Duru (2019)	+
Intangible Asset Growth Rate	IAGR	Intangible asset of current year minus intangible asset of previous year divided by intangible asset of previous year	Bhunia, Mukhuti and Roy (2019)	-
Current Asset Growth Rate	CAGR	Current asset of current year minus current asset of previous year divided by non- current asset of previous year	Erasmus (2018)	+
Net Assets Growth Rate	NAGR	Measured as net assets of current year minus net assets of previous year divided by net assets of previous year	Farkoosh, Farkoosh & Naseri (2020)	-
Control Variable				
Leverage	LEV	Total book value of debt/Total assets	Lukeman (2019)	

Source: Researchers Compilation (2024)

ANALYSIS AND RESULTS

Table 1: Univariate Descriptive statistics

Variables	Mean	Std. Dev	Maximum	Minimum	Skewness	Kurtosis
ROA	2.452 652	15.27351	108.9	-179.92	-3.732536	47.7171
NCAGR	10.20718	53.52043	666.58	-100	7.215767	73.27884
IAGR	8.815083	107.0982	996.47	-100	5.433659	39.72594
CAGR	17.07598	63.32603	1053.29	-84.27	9.114889	132.0287
NAGR	7.688617	66.55952	620.08	-319.96	2.588984	29.7882
LEV	64.53376	36.28236	395.45	3.55	4.192619	31.37516
FSIZE	7.2699379					

Source: Researchers' Compilation from STATA 14.0 Output (2024)

The descriptive statistics presented in Table 1 indicate that the mean value of ROA is 2.45%, with maximum and minimum values of 108.9 and -179.92, respectively. The standard deviation of 15.27 indicates a significant spread in the distribution, suggesting substantial variation in ROA values around the mean among the sample companies. ROA exhibited a negative skewness of -3.73 and a platykurtic distribution indicated by a kurtosis value of 47.71. The Non-Current Assets Growth Rate (NCAGR) exhibits a mean value of 10.21%, with maximum and minimum values recorded at 666.58% and -100%, respectively. The standard deviation of the distribution was approximately 53.52, indicating significant dispersion from the mean. NCAGR exhibited a

positive skewness of 7.215 and a platykurtic distribution with a kurtosis of 73.278. The Intangible Asset Growth Rate (IAGR) averaged 8.815%, indicating significant growth in the intangible assets of the selected manufacturing companies. The IAGR exhibits a maximum value of 996.47 and a minimum value of -100, with a standard deviation of 107.09 indicating significant variability among the firms relative to the mean. The IAGR exhibited a positive skewness of 5.433 and a platykurtic distribution, as indicated by a kurtosis value of 39.726.

The mean Current Asset Growth Rate (CAGR) is 17.07, approximately 17%, with a maximum of 1053.29 and a minimum of -84.27, indicating an average growth of 17% in current assets among the selected manufacturing companies. The standard deviation of 63.32 signifies dispersion from the sample mean. The Compound Annual Growth Rate (CAGR) exhibited a positive skewness of 9.11 and a platykurtic distribution indicated by a kurtosis value of 132.02.

The mean, maximum, and minimum values of the Net Assets Growth Rate are 7.69%, 620.08, and -319.96, respectively. The mean value suggests an average growth rate of 8% in net assets. The standard deviation of 66.56 signifies a substantial deviation from the mean. NAGR exhibited a positive skewness of 2.59 and a platykurtic distribution, as indicated by a kurtosis value of 29.79.

Lastly, the result also showed that the mean leverage (LEV) was 64.53, with a maximum of 395.45 and a minimum of 3.55. LEV exhibited a standard deviation of 36.28, signifying a substantial deviation from the mean. LEV exhibited a positive skew, indicated by a skewness value of 4.19, and demonstrated a platykurtic distribution as evidenced by its kurtosis value.

Panel Least Square Regression Results

The panel date regression result for this study is presented in Table 2 as presented as follows:

Table 2: Panel Regression Results

	Expected Sign	**ROA Full sample (Fixed Effect)**	**ROA Full sample (Random Effect)**	**ROA Full sample (ROBUST Fixed Effect)**	**ROA Large firms sample (ROBUST Fixed Effect)**	**ROA Small firms sample (ROBUST Random Effect)**
C		15.230 {0.000}	12.391 {0.000}	15.230 {0.054}	9.004{0.016}	9.908{0.026}
NCAGR	+	0.0291* {0.005}	0.0323* {0.002}	0.0291{0.346}	-0.0011{0.841}	0.1074**{0.037}
IAGR	+	0.0008 {0.875}	-0.0011 {0.833}	0.0008 {0.863}	0.0014{0.284}	0.0084 {0.172}
CAGR	+	0.0242* {0.005}	0.0255*{0.003}	0.0242{0.190}	0.0070{0.354}	0.0403 {0.186}
NAGR	+	0.0056 {0.493}	0.0076 {0.354}	0.0056 {0.737}	0.0136*{0.002}	0.0051 {0.844}
LEV	-	-0.2111*	-0.1680*	-0.2111***	-0.0732158	-0.2453***

		{0.000}	{0.000}	{0.086}	{0.219}	{0.073}
F-statistics		16.16{0.00}	99.27{0.00}		5.65{0.01}	3.07{0.02}
R- Squared		0.27	0.28	0.263	0.18	0.38
Mean VIF		1.05	1.05			
Heteroscedasticity (Prob.)		1687.15(0.000)				
Observation (N)		600	600	600	281	319
Hausman Test			21.41 (0.0007)			

Note: (1) bracket {} are probability-values (2) *, **, ***, implies statistical significance at %1. 5% and 10% levels respectively.

Source: Authors Compilation from STATA 14.0 Output (2024)

Table 2 presents the results of the panel least squares regression analysis conducted with STATA 14.0. The panel least squares estimation commenced with the estimation of the fixed effect (FE) model, subsequently followed by the random effect (RE) model in a systematic approach. Following the implementation of the FE/RE models, the subsequent step involved selecting between the fixed effect and random effect outcomes through the application of the Hausman test. The Hausman statistic results, presented in Table 2 within the fixed effect column, indicate a probability value of 0.0007 and a Chi-square value of 21.41. The probability value of the Hausman test is less than 0.05, indicating insufficient evidence to accept the null hypothesis that the random effect model is more appropriate. Consequently, we accepted the alternative hypothesis, indicating that the fixed effect result is more appropriate for this study.

Based on the Hausman test results, our analysis will exclusively rely on the fixed effect outcomes for both the discussion of findings and hypothesis testing, ensuring consistency and accuracy in the inferences derived from this study. The fixed effect results from the model with a normal standard error indicated that all variables exhibited the anticipated signs. Additionally, three variables—non-current asset growth (NCAGR), current asset growth (CAGR), and leverage (LEV)—were identified as statistically significant in enhancing the financial performance of the listed manufacturing firms, as measured by return on assets (ROA). To evaluate the reliability of the inferences derived from the fixed effect result, the estimate underwent relevant diagnostic tests, including the variance inflation factor (VIF) for multicollinearity and the Breusch-Pagan white test for heteroskedasticity (refer to appendix for comprehensive diagnostic results).

Table 4.3 indicates a mean VIF value of 1.05, with individual variable VIFs (refer to appendix) remaining below 10. This suggests that the variables exhibit low correlation, thereby confirming the absence of multicollinearity in the model. This aligns with the findings and conclusions derived from the correlation coefficient analysis.

From the heteroskedasticity test result as presented in Table 2 with a chi-statistics value of 1687.15 and its probability value of 0.0000, which happens to be less than 0.05, we therefore conclude that the null hypothesis of homoscedasticity was rejected, and as such, it means that there is no constant variance in the model or there is the presence of a heteroskedasticity problem.

Following the heteroskedasticity result, it is therefore imperative to correct the fixed effect result from any form of heteroskedasticity before its inferences can be accepted.

Consequently, to correct for the detected heteroskedasticity, the robust standard error estimates for the fixed effect model were then conducted.

The result of the robust standard error for the fixed effect model is presented in the fifth column in Table 2. This result is therefore the most robust and reliable for inferences, and as such, the interpretation, discussion and test of hypotheses shall be based on the robust fixed effect model results.

The robust fixed effect results in Table 2's fifth column yielded a coefficient of determination of 0.26, meaning that all explanatory variables accounted for 26% of the variations in return on assets. The remaining 64 per cent are therefore unexplained by other variables outside the model and scope of this study. This figure is attributed to the fact that the study is area-specific (assets growth on financial performance), which limited the inclusion of so many other control variables, bearing in mind the degree of freedom. We characterise this unexplained variation as being due to variables not explicitly included in the model and measurement errors, both of which effects are captured by the stochastic error term.

The value of the F-statistic of 16.16 with a statistically significant probability value of 0.000 that is less than 0.05 showed that the model is linear and statistically significant at the 5% level of significance. This implies that the overall model has a good fit and it's significant in explaining the variations in the financial performance model.

The F-statistics and probability values of the assumption that the error term is uncorrelated with the explanatory variables are 1.58 (0.1805). The probability which is greater than 0.05 revealed that the error term is uncorrelated with the explanatory variables.

Looking at the coefficients, it was observed also that all the explanatory variables met the expected signs. Generally, the asset growth variables were found to have a positive relationship with return on assets, while leverage had an inverse relationship with return on assets.

Specifically, the robust fixed effect result revealed that the non-current asset growth rate (NCAGR) with a coefficient value of 0.0291 implies that a rise in the growth rate of NCAGR will lead to an increase in the profitability of manufacturing firms in Nigeria. But judging by the probability value of 0.346, which appears to be greater than 0.05, it is obvious that NCAGR is statistically insignificant in driving profitability even though it met the expected sign. The insignificance of NCAGR, even though it met the stated theory, could be attributed to the non-ploughing back of the asset into the business, excess unproductive spending or the fact that the growth is too minimal to impact profitability significantly.

A similar result was found for the case of intangible asset growth rate (IAGR); based on its coefficient value of 0.0008, it means that the relationship between IAGR and ROA is positive. This is in line with laid-down theory and expected signs. But going by the probability of 0.863, which is greater than 0.05, IAGR is found to be statistically insignificant in promoting profitability. This could be blamed on the low rate of intangible assets, such as the low budget for R&D and other intangible assets like IT programs, as seen from the minimal rate of growth of IAGR raw data for the sampled manufacturing firms.

From the angle of the current asset growth rate (CAGR), a positive and insignificant relationship holds between CAGR and ROA, seeing the coefficient and probability values of 0.0242 and 0.190. The probability is greater than 0.05.

Just like the other assets, the net asset growth rate (NAGR) with a coefficient value of 0.0056 showed that a percentage rise in the rate of NAGR will result in a rise in profitability (ROA) ratio by 0.0056 per cent, which is in line with laid-down theory. The probability value of 0.737 appears to be greater than 0.05, implying that NAGR is statistically insignificant in driving the profitability of manufacturing listed firms in Nigeria. The insignificance of net asset growth to ROA could occur due to poor asset management by the management.

From the control variable strand, leverage (LEV), being the debt to total asset ratio, was found to be negatively related to the profitability of the sampled firms. With the coefficient of -0.2111, it showed that a rise in the

debt-to-total-asset ratio by one hundred thousand will lead to a drop in profitability of the firms in question by 0.2111, which is about 21.1%. Leverage is said to have met the expected sign, and debt is of utmost importance to note vis-à-vis the profitability of the firms under study.

For further robustness of the result, the full sample was divided into two based on the mean value of firm size to obtain estimates of the robust fixed effect for large and small firms. The results for the large and small firms are presented in the 6th and 7th columns of Table 2. From the results, an almost similar result was found for both the large and small firm cases when compared to the full sample. However, it was observed that in the case of large firms, NCAGR was negatively and insignificantly related with ROA, and the net asset growth rate of large manufacturing firms was both positive and 1% statistically significant in driving firm performance. But in the case of the small firm, all the signs were the same as those of the full sample, but alongside leverage, the non-current asset growth rate was found to be statistically significant at the 5% level of significance in promoting profitability among listed manufacturing firms in that category.

Generally, when we compare the entire results of both the robust fixed for the full sample, the robust fixed effect for large firms and that of the small firm, it is obvious that leverage appears to be the only variable that is consistent both in sign and level of significance. Hence, we conclude that for the listed manufacturing firms under study, although the asset growth variables are drivers of profitability, their impact is not highly significant when put together; only net assets and non-current assets are significant for the case specifics of large and small firms, respectively.

Testing of Hypotheses

Following acceptance of the study's robust fixed effect model, the p-value was used to assess the significance of the independent factors' impact on the dependent variable. The null hypothesis is accepted when the p-value is higher than 5% ($p>0.10$), according to the decision rule. On the other hand, the alternative hypothesis is accepted and the null hypothesis is rejected when the p-value is less than 10%.

Ho_1: Non-Current Assets Growth has no significant relationship with the financial performance of listed manufacturing firms in Nigeria.

The evaluation of the slope coefficients of the explanatory variables reveals that Non-Current Assets Growth is found to have a positive and insignificant relationship with Financial Performance, as revealed in its p-value of 0.346, which is greater than 0.05 and even 0.10 ($p>0.05, 0.10$). Consequently, the null hypothesis is accepted, and as such, we say that the non-current asset growth rate is not statistically significant in influencing the profitability of listed manufacturing firms in Nigeria.

Ho_2: Intangible Asset Growth Rate has no significant relationship with the financial performance of listed manufacturing firms in Nigeria.

The evaluation of the slope coefficients of the explanatory variables showed that Intangible Asset Growth Rate has a positive and non-significant relationship with Financial Performance with a p-value of 0.863, which is greater than 0.05 and 0.10 ($p>0.05, 0.10$). Hence, we accept the null hypothesis, which states that IAGR is not statistically significant for promoting the financial performance of the listed manufacturing firms in Nigeria.

Ho_3: The current asset growth rate has no significant relationship with the financial performance of listed manufacturing firms in Nigeria.

The evaluation of the slope coefficients of the Current Asset Growth Rate displayed that **a positive** and insignificant relationship exists between the Current Asset Growth Rate and Financial Performance as described by the p-value of 0.190, which is greater than 0.05 and 0.10 ($p>0.05$ and 0.10). Consequently, the null hypothesis is accepted. This implies that the current asset growth rate has no significant relationship with the financial performance of listed manufacturing firms in Nigeria.

H_{O4}: Net Assets Growth Rate has no significant relationship with the financial performance of listed manufacturing firms in Nigeria.

The coefficients of net asset growth rate revealed the existence of a positive and statistically insignificant relationship between net asset growth rate and financial performance, as the p-value of 0.737 (See Table 2) is greater than 0.05 and 0.10 ($p<0.05$). Consequently, the null hypothesis is accepted.

DISCUSSION

According to the first findings, the financial performance of Nigerian listed manufacturing companies is positively but marginally correlated with non-current asset growth. The result contradicts those of Okwo, Ugwunta, and Nweze (2017), who used companies in the Nigerian brewing sector to investigate the effect of fixed asset investment on profitability. According to their research, the amount of money invested in fixed assets has little to no bearing on the claimed profit margin of Nigerian brewers. The result is also at variance with those of Olatunji and Adegbite (2019), who looked at the effects of fixed asset investments on the profitability of particular Nigerian banks. They discovered a strong correlation between net profit and a number of variables, including buildings, machinery, land, leasehold, information, communication, and technology, as well as fixtures and fittings. Once more, Chen, Yao, and Zhang (2018) used data on nine equity markets in the Pacific-Basin region, including China (one of the fastest growing economies), Japan (a well-developed economy), Hong Kong, Taiwan, Korea, Malaysia, Singapore, Thailand, and Indonesia. They looked at the impact of corporate asset growth on stock returns and discovered that it had a universal effect on the PACAP markets during the study period. This indicates a possible inefficiency of the region's financial institutions in allocating capital and pricing investment opportunities, as there is a markedly negative correlation between enterprises' asset growth and future stock returns. Increasing short-term financial investments are found to significantly reduce the negative effects of risk, volatility, and higher interest rates, while increasing uncertainty, country risk, and real interest rates have a significant negative impact on manufacturing firm profitability, according to Demir (2020), who looked at the investment in financial assets or fixed assets and their impact on profitability.

The result of the second hypothesis test indicated that the growth rate of intangible assets exhibits a positive yet non-significant relationship with the sampled Nigerian firms. This finding is in tandem with Gujarat Industries Power Company Limited (GIPCL), which found that there is an insignificant positive correlation between operational efficiency and overall profitability. And those of Kotšina and Hazak (2017), who examine the impact of investment intensity measured by the percentage of fixed assets to total assets and the return on assets, found that there is no strong negative (or positive) impact of companies' investment intensity on future rate of return on assets. This result is inconsistent with the study of Eberhart et al. (2020), who found consistent evidence that intangible asset growth affects shareholders' experience, implying significantly positive long-term abnormal stock returns follow. Titman et al. (2017), who investigated whether investors underreact to empire-building implications of increased investment expenditures, found that firms that increase their investment expenditures in intangible assets the most tend to underperform their benchmarks over the following five years. Another finding that this result opposed is the finding of the research done by Reyhani (2020). The study examines how the performance of approved Tehran-based companies is impacted by their intangible asset structure across a number of industries. It concludes that goodwill significantly boosts company earnings before taxes.

The outcome of the third hypothesis testing indicated that that the current asset growth rate impacts positively, but insignificantly, on the financial performance of the sampled Nigerian firms. This result is in consonance with Duru (2019), who examined the impact of working capital management on the profitability of Nigerian quoted manufacturing firms and found that the firm's cash conversion cycle had a positive but non-significant relationship with profitability, and the liquidity ratio had a negative relationship with profitability. This finding negates that of Azam and Haider (2019), who investigated the impact of working capital management on firms' performance for non-financial institutions listed in the Karachi Stock Exchange (KSE30) and found that current asset growth has a significant impact on firms' performance, and it is concluded that managers can increase return on assets and value of shareholders. Alavinasab and Davoudi (2019), who examined 147 companies listed on the Tehran Stock Exchange over a period from 2015 to 2018, found a significant relation

between current asset growth and profitability. The findings of Abata (2018) also negate those of Abata (2018) in the study of how asset quality of banks in Nigeria affects performance of banks and found that asset quality measured by current asset growth has statistical influence on the performance of banks in Nigeria. Azadi (2020), who examined the effects of changes in assets (current) on accepted operating earnings in the Tehran Stock Exchange, found that for food and metal industries, the coefficient of variation of fixed assets has a positive and significant effect on operating earnings, while for chemical industries, the coefficient of variation of current assets did not have a significant impact on operating earnings. Moreover, Al-Qudah and Al-Afeef (2019), who looked into the relationship between current asset investment, profitability, and liquidity for industrial companies listed on the Amman Stock Exchange, found a connection between current asset investment and both of these factors among the industrial sector listed in Amman.

According to the fourth finding, the financial performance of the sampled Nigerian companies is positively and marginally correlated with the Net Assets Growth Rate. This finding contradicts that of Deloof (2018), who investigated the connection between profit ratios and asset management (as determined by net asset) of Belgian companies and discovered an indirect relationship between the profit ratios and the growth of net assets for all Belgian companies. Capital growth, leverage, net assets, profitability, and investment in capital expenditures have a significant impact on corporate cash holdings in Nigeria, according to research by Ogundipe, Ogundipe, and Ajao (2018), who used Nigeria's emerging markets as evidence to study net asset management and firms' profitability. Once more, Farkoosh, Farkoosh, and Naseri (2018) looked at how net asset value affected buying shares of Iranian investment businesses and discovered that interest rates, at 7.99 points, and net asset value, at 12.91 points, both play important roles in investment choices. This suggests that political issues are the second most important element influencing investment decisions, behind financial ones. The results of this study are contrary to those of Korankye and Adarquah's (2020) investigation which investigated the link between working capital and business performance and discovered that current assets significantly and favourably affect profitability. Jamali and Asadi (2018), who studied the relationship between net asset management efficiency and profitability in a case study of 13 listed companies from 2011 to 2017, found that there is a high degree of correlation between profitability and asset management efficiency. Singh and Pandey (2018) performed a study on the impact of net asset growth management on the profitability of Hindalco Industries Limited, a specific industry, and found that net asset growth management has a positive significant impact on profitability.

CONCLUSION

This study explored the relationship between asset growth rates (proxies by non-current asset growth rate, intangible asset growth rate, current asset growth rate and net asset growth rate) and their impact on the financial performance of the listed manufacturing firms in Nigeria for the period of 2012 to 2022. The study employed that panel data analysis (fixed effect and random effect methods). Based on the normal transition and decision rules, the fixed effect regression result was adopted, which was then subjected to some of the appropriate diagnostic tests that led to the acceptance of the robust fixed effect model results for interpretation and drawing of inferences. Generally, the regression result revealed that all the asset growth rate variables met the apriori sign; as such, they were found to be positively related to financial performance. They were, however, not statistically significant, a situation that could be attributed to poor asset management, the infinitesimal amount of investment in those intangible assets and inadequate research and development culture among the firms and the nation at large. Firm leverage was found to be both negative and statistically significant in explaining the financial performance of the companies under study. This thereby shows that the more indebted firms are, the less profit they will make and, of course, the lower their performance level.

The study thereby recommended, among others, that manufacturing firms should increase their budget on intangible assets, and large manufacturing firms should try to pay more attention to investment in net assets, as it has a larger potential in promoting financial performance than the others. While small manufacturing firms should be keen about the non-current asset investment since it has implications for their increased profitability.

Thus, on the basis of the study, we recommend that, going by the fact that all asset growth rates met the expected sign of having positive relationships, there is a need for the manufacturing firms to increase their

budget on intangible assets and also carry out a proper investigation as to the reason why asset growth with such potential is not significant in driving the performance as a whole.

The manufacturing firms should be mindful of their debt status, as it can significantly reduce their financial performance if proper care is not taken.

Large firms should try to pay more attention to investment in net assets, as it has a larger potential in promoting financial performance than the others.

Small firms should be keen about the non-current asset by increasing such investment and carrying out prompt monitoring, as it can impact their profitability significantly.

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