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# The effect of Compound Annual Asset Growth Rate on Firm Profitability in Nigeria

**Israel, Godsent Ijeoma Ph.D.**

## Abstract

*The study examined Effect of Compound Annual Asset Growth Rate on Firm Profitability in Nigeria. Specifically, the study sought to examine the effect of Compound Annual Growth Rate on the Profit for the year of firms in Nigeria; To achieve these objectives, five research questions and hypotheses were raised. Relevant conceptual, theoretical and empirical literatures were examined. Ex post facto research design was employed. The data used in this study were sourced from annual reports and accounts of the selected firms. Descriptive statistics and ordinary least Square regression were employed in analyzing the data. The study found that Compound Annual Growth Rate does not significantly affect the Profit for the year of firms in Nigeria (where the t-value = 0.315629 and P-value of 0.7535). The study concluded that the effect of asset growth rate on the financial performance of oil and gas firms in Nigeria reveals a nuanced relationship. The findings indicate that while asset growth is theoretically crucial for enhancing firm value and operational capacity, it does not significantly impact profitability in the Nigerian oil and gas sector. The study recommended among other things that Given the non-significant impact of Compound Annual Growth Rate (CAGR) on profitability, Nigerian firms should reassess their growth strategies. Instead of solely focusing on achieving steady growth, firms should prioritize efficiency and profitability. This involves optimizing operational processes, controlling costs, and diversifying revenue streams*

***Keywords:*** *Compound Annual Growth Rate, Asset Growth Rate, Firm Profitability, Financial Performance, Oil and Gas Firms.*

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| Authors | Affiliation |
|---|---|
| 1 | Department of Accountancy, Faculty of Management Sciences, Enugu State University of Science and Technology (ESUT), Enugu State, Nigeria. |

## Introduction

Asset growth rate refers to the rate at which a firm expands its total asset base over a given period and is widely regarded as an important indicator of corporate growth, investment decisions, and long-term sustainability. In financial management, asset growth reflects how firms allocate resources to acquire productive assets such as property, plant and equipment, inventories, and intangible assets with the expectation of improving future earnings and competitive advantage. Financial performance, on the

other hand, measures the efficiency with which firms utilize their assets to generate profits and shareholder value, commonly assessed using indicators such as return on assets (ROA), return on equity (ROE), and profitability ratios (Titman, Wei, & Xie, 2019). The relationship between asset growth rate and financial performance has therefore become a central issue in corporate finance and strategic management literature.

In Nigeria, asset growth has assumed greater importance due to the role firms play in driving economic growth, employment generation, and industrial development. Nigerian firms operate in a challenging business environment characterized by macroeconomic volatility, high operating costs, infrastructural deficits, and fluctuating exchange rates. To remain competitive, many firms pursue asset expansion strategies aimed at increasing productive capacity, improving operational efficiency, and responding to market demand. According to Ogheneborhien, Ominijei, and Ugbogbo (2025), asset growth in Nigerian firms is often driven by investments in non-current assets and working capital to enhance operational performance. However, the extent to which such asset expansion translates into improved financial performance remains an empirical concern.

Empirical studies on Nigerian firms reveal mixed findings on the effect of asset growth rate on financial performance. Some studies suggest that growth in non-current assets positively influences profitability by enhancing production capacity and efficiency, particularly in manufacturing firms (Inyiama et al., 2017). Similarly, net asset growth has been found to improve returns when assets are efficiently utilized and supported by sound management practices (Ogheneborhien et al., 2025). Conversely, excessive or poorly managed asset growth may negatively affect financial performance by increasing depreciation costs, financing expenses, and asset underutilization. Titman et al. (2019) argue that rapid asset expansion can lead to declining future profitability if investments are not optimally allocated.

The Nigerian context further complicates the asset growth–performance relationship due to institutional and economic constraints. Factors such as limited access to long-term financing, weak corporate governance structures, and policy inconsistencies may hinder firms from converting asset growth into improved financial outcomes (Akinwale & Aremo, 2022). As a result, asset growth alone does not automatically guarantee better financial performance; rather, the effectiveness of asset utilization and strategic investment decisions plays a critical role.

Against this background, examining the effect of Compound Annual Asset Growth Rate on Firm Profitability in Nigeria is essential for understanding how investment decisions influence corporate outcomes. Such analysis provides valuable insights for managers, investors, and policymakers on how firms can achieve sustainable financial performance through efficient asset growth strategies within the Nigerian business environment.

**Statement of the Problem**

Ideally, firms are expected to experience improved financial performance as their asset base grows. Asset growth, when driven by strategic investment decisions, should enhance productive capacity, operational efficiency, and competitiveness, thereby leading to higher profitability, better returns on assets and equity, and sustainable corporate growth. In a well-managed business environment, increases in assets are anticipated to translate into stronger financial outcomes and long-term value creation for firms.

However, in Nigeria, the relationship between asset growth rate and financial performance has become

increasingly uncertain. Many firms continue to record growth in their asset base without corresponding improvements in profitability or financial efficiency. Challenges such as inefficient asset utilization, poor investment planning, weak corporate governance, high cost of capital, and macroeconomic instability often prevent firms from converting asset expansion into improved financial performance. In some cases, rapid asset growth has resulted in increased operating costs, rising debt levels, and declining returns, raising concerns about the effectiveness of asset growth strategies adopted by Nigerian firms.

If these problems are not adequately addressed, the consequences could be severe for firms and the broader economy. Persistent inefficiencies in asset growth may lead to declining profitability, liquidity constraints, financial distress, and potential business failure. For investors, such conditions reduce confidence and discourage capital investment, while for policymakers, they weaken the contribution of firms to economic growth, employment creation, and industrial development. Consequently, there is a critical need to empirically examine the effect of Compound Annual Asset Growth Rate on Firm Profitability in Nigeria to provide evidence-based insights that can guide managerial decisions, investment strategies, and policy formulation.

**Objectives of the Study**

The broad objective of the study was to examine the effect of Compound Annual Asset Growth Rate on Firm Profitability in Nigeria.

The specific objectives of the study were to:

i. Evaluate the effect of compound annual growth rate of asset on the profit for the year of firms in Nigeria

**Research Questions**

The following research question was made for the study.

i. What is the effect of compound annual growth rate of asset on the profit for the year of firms in Nigeria?

**Statement of Hypotheses**

The following null hypothesis was formulated for the study.

i. **Compound annual asset growth rate**does not significantly affect the profit for the year of firms in Nigeria.

**Scope of the Study**

The scope of this study encompasses an analysis focusing on the effect of Compound Annual Asset Growth Rate on Firm Profitability in Nigeria from 2013 to 2022. Specifically, the study investigated the relationship between and compound annual growth rate with profit for the year across various sectors in Nigeria. By examining data from different sectors, including industrial goods, telecommunications, conglomerate, and others, the study aims to provide a comprehensive understanding of how asset growth influences financial performance in diverse industries within the Nigerian economy.

**Review of Related Literature**

**Conceptual Review**

**Asset Growth Rate**

Asset growth rate refers to the change in a firm's total assets over a specific period and reflects how aggressively a company is expanding its asset base through investments in properties, equipment, inventories, and other resources (Titman, Wei & Xie, 2019). It is an important indicator of corporate growth strategies, as firms often increase their assets to enhance production capacity, enter new markets, or adopt new technologies. Research shows that a moderate and well-managed asset growth rate can improve financial performance by enabling firms to boost operational capabilities and generate higher

future earnings (Ogheneborhien, Ominijei & Ugbogbo, 2025).

However, the relationship between asset growth and performance is complex. Titman et al. (2019) note that rapid or poorly planned asset growth may lead to inefficiencies and lower profitability because such expansion might involve higher maintenance costs, financing burdens, and underutilized resources. In the context of emerging economies like Nigeria, structural constraints such as limited access to long-term finance and macroeconomic instability can further affect how asset growth translates into financial outcomes (Akinwale & Aremo, 2022). Therefore, understanding asset growth rate in relation to financial performance helps stakeholders evaluate whether expansions in asset base contribute positively to firm value and sustainability.

**Compound Annual Growth Rate**

The compound annual growth rate (CAGR) is a financial metric that measures the mean annual growth rate of an investment, asset, or financial metric over a specified period, assuming the growth is compounded annually. Unlike simple growth rate calculations, CAGR provides a smoothed annual rate that shows the consistent rate at which an investment would grow if it experienced the same rate of return each year. It is calculated using the formula:

$$\text{CAGR} = \left(\frac{\text{Beginning Value}}{\text{Ending Value}}\right)^{1/n} - 1$$

where n represents the number of years.
For example, if an asset's value grows from ₦10,000 to₦15,000 over three years, the CAGR is:

$$\text{CAGR} = \left(\frac{15{,}000}{10{,}000}\right)^{\frac{1}{3}} - 1 \approx 0.1447 \text{ or } 14.47\%$$

CAGR is widely used in finance and investment to compare the growth rates of different investments, assess business performance, and forecast future growth. It offers a realistic view of growth by accounting for the effects of compounding, providing a more accurate measure than average annual growth rates (Maginn et al., 2016).

CAGR is particularly useful for long-term financial planning and analysis, allowing investors and managers to evaluate the consistent growth of assets, revenues, or investments over time and make informed decisions.

**Financial Performance**

Eshna (2012), states that financial performance analysis is the process of measuring the results of a firm's policies and operations in monetary terms. Also Bhunia et al (2011) affirmed that financial performance analysis is the process of determining the operating and financial characteristics of a firm from accounting and financial statements and that the analyst attempts to measure the firm's liquidity, profitability and other indicators that the business is conducted in a rational and normal way; ensuring enough returns to the shareholders to maintain at least its market value.

**Profit for the Year**

Profit for the year, also known as profit after tax or net profit, is a key financial metric that represents the residual income left after deducting all expenses, taxes, and other costs from a company's total revenue within a specific accounting period, typically one fiscal year. It serves as a fundamental measure of a company's financial performance and profitability. The concept of profit for the year is essential for evaluating a company's ability to generate earnings and create value for shareholders. It reflects the company's operational efficiency, sales performance, cost management, and overall business success. Profit for the year is calculated using the following formula:

**Profit for the year = Total Revenue − Total Expenses − Taxes**

Profit for the year is reported on the income statement, which provides a comprehensive overview of the company's financial performance over a specific period. It is a critical component of financial analysis and

decision-making for investors, analysts, lenders, and other stakeholders.

**Effect of asset growth rate on the financial performance of firms**

The asset growth rate of a firm plays a significant role in determining its financial performance and overall health. A firm's asset growth rate refers to the rate at which its total assets are increasing or decreasing over a specific period. This metric is indicative of the firm's investment activities, capital allocation decisions, and potential for future growth. The asset growth rate of a firm significantly influences its financial performance by affecting revenue generation, profitability, market valuation, and risk exposure. By effectively managing asset growth and aligning investment decisions with strategic objectives, firms can enhance their financial performance, drive sustainable growth, and create long-term value for stakeholders.

**Theoretical Review**

**Independence of Growth**

The tenet of Independence of Growth, proposed by Robert Gibrat in 1931 as part of his Growth of the Fitter theory, asserts that the growth of a firm is independent of its past growth trajectory. Gibrat's theory suggests that each period of growth is considered as an independent stochastic process, and there is no memory effect or persistence in the growth dynamics over time.Under the principle of Independence of Growth, Gibrat argued that the growth rate of a firm in one period is not influenced by its growth or decline in previous periods. In other words, the historical growth pattern of a firm does not affect its future growth prospects. This implies that firms do not exhibit any inherent tendency to maintain or deviate from their previous growth rates, and growth trajectories are subject to random fluctuations and uncertainties.

By applying The Independence of Growth theory, the study can analyze how asset growth rates in Nigerian firms are shaped by factors such as market conditions, technological advancements, regulatory changes, and competitive pressures. This approach allows for the exploration of how firms adapt and respond to dynamic economic environments, and how their growth trajectories are influenced by exogenous shocks and internal strategic decisions.

**Empirical Review**

**Compound Annual Asset Growth Rate and the Profit for the Year**

Mathew (2018) examined empirically the impact of cash and bank balances on the performance of manufacturing companies in Nigeria: A study of Cadbury Nigeria Plc. The researcher used both secondary and primary data for data collection. For clear analysis, the study centres on two broad variables; the dependent variable which is performance and the independent variable which is cash management. Two different hypotheses were formulated and tested using descriptive statistics and correlation coefficient techniques respectively in order to establish whether there is a significant relationship between cash management, performance and liquidity. The results of the study suggests that a significant relationship exists between cash management and the performance of manufacturing companies in Nigeria. It reveals that mere availability of cash (liquidity) without proper management does not necessarily translate into favorable performance for manufacturing companies. Hence, the need for effective cash management for better performance.

Aftab et al (2018) critically examined the determinants of cash holdings of multinational companies and other regional firms on a global scale. The study touched all the continents by using a sample of 5,957 firms drawn

strategically from 47 countries for the ten year study period (2007-2016). Employing panel generalized method of moments (PGMM), the study posited that market to book ratio, leverage, dividends, intangibles, profitability and net working capital exerted strong negative influence on cash holdings while actual investments, cash flows, firm size and financial strength affected cash holdings of these firms positively and significantly.

Research conducted by Lina and Amir (2019) examined the effect of Return on Assets, Current Ratio, Size, and Growth on the Capital Structure of Manufacturing Companies listed on the Indonesia Stock Exchange in the 2013-2015 Period. The independent variable of this study is Return On Assets (X1), Current Ratio (X2), Size (X3), and Growth (X4) while the dependent variable is Capital Structure (Y). Data analysis techniques used multiple linear regression analysis. The results of this study are Return On Assets and Current Ratio affect the Capital Structure, while the Size and Growth does not affect the Capital Structure.

Jan-Horas and Denny (2019) focused on the Influence of Asset Management on Financial Performance, with Panel Data Analysis. The approach taken to measure asset management is Fixed Asset Turn Over (FATO), while financial performance is measured by profitability using Return on Assets (ROA). This research model looks simple and uses only one independent variable. The selection of the best model is done after testing several other variables, and the more relevant variable to explain the diversity of ROA dependent variables is FATO. This study uses panel data analysis, which consists of six companies in the period 2013-2017. The analytical method used is Panel Data Regression Analysis. Based on the results of hypothesis testing, it is found that the independent variable FATO has a positive and significant effect on ROA. This means that asset management is needed to improve the profitability of the company.

Murat and Derya (2019) explored the effect of intangible assets and sub-components of intangible assets on sustainable growth and firm value in Turkey. The cumulative (i.e., aggregative) value of intangible assets of firms and sub-components of intangible assets were used as test variables in the current study. Further, intangible assets of the firms were divided into three sub-components using the classification of Corrado, Hulten and Sichel, namely computerized information and database, innovative property, and economic competence. Firms listed on Borsa ˙Istanbul were analyzed to test the hypotheses. Two different measures of sustainable growth of firms and unique measure of firm value were used as dependent variables. The final sample includes 1353 observations for nine years between 2005–2013 in Turkey. Ordinary least square (OLS) and Heckman two-stage estimation procedures were employed to test the hypotheses. Estimation results of OLS and Heckman two-stage procedures show that the cumulative value of intangible assets affect the sustainable growth rates of firms and firm value positively. When the cumulative value of intangible assets was classified into three sub-components, both computerized information and database and economic competence impact the sustainable growth rates of firms and firm value.

Okechukwu and Ugwu (2022) evaluated the effect of financial assets on the financial performance of pharmaceutical firms in Nigeria from 2011-2020 with cash, stock and loans as independent variables and return on assets as dependent variables. Data extracted from the published financial statements of the firms for the period covered were subjected to descriptive analysis and inferential statistics analysis. Diagnostics tests include: Panel Unit Root test, Cointegration test,

Hausman test. Panel Regression Analysis result reveals positive but insignificant effect of cash, stocks and loans on return on assets of pharmaceutical firms in Nigeria. The conclusion drawn from the findings is that financial assets contribute very little to the financial performance of pharmaceutical firms in Nigeria. The higher the financial assets of pharmaceutical firms in Nigeria, the better, as the performance would be improved. The study recommends amongst others that pharmaceutical firms should improve on their cash management efficiency. Management of pharmaceutical firms in Nigeria should determine the optimal cash level of the firms to avoid liquidity problems while at the same time avoid ideal funds.

**Gap in Empirical Review**

Despite previous studies examining the relationship between asset growth rate and financial performance of firms in Nigeria, a notable gap exists in empirical research regarding the incorporation of specific variables related to asset growth. Most previous studies have focused on general measures of asset growth without considering detailed factors such as total asset growth rate, non-current asset growth rate, current asset growth rate, asset turnover ratio, and market value of assets. This gap is significant because it overlooks the nuanced impact of different types of asset growth on financial performance across various sectors in Nigeria. For instance, the composition of assets, their turnover efficiency, and market valuation can vary significantly among industries, influencing the relationship between asset growth and financial outcomes. By incorporating these specific variables into empirical analyses, researchers can provide more granular insights into how different types of asset growth affect firm performance within specific sectors of the Nigerian economy. This detailed understanding is essential for policymakers, investors, and managers to make informed decisions regarding resource allocation, investment strategies, and operational improvements aimed at enhancing financial performance and fostering sustainable growth in Nigeria's diverse economic landscape.

## Methodology

**Research Design**

The *ex post facto* research design was employed in studying the effect of Compound Annual Asset Growth Rate on Firm Profitability in Nigeria involves analyzing existing data retrospectively. This design leverages historical financial data from various sectors in Nigeria to assess the relationship between asset growth rate and financial performance indicators.

**Area of Study**

The study was conducted in Nigeria and based on oil and gas sector of the Nigerian economy. Nigeria, located in West Africa, occupies a prominent position on the continent both geographically and economically. Positioned between latitudes 4° and 14°N and longitudes 2° and 15°E, Nigeria is bordered by several countries including Benin, Niger, Chad, and Cameroon. Its coastline extends along the Gulf of Guinea to the south, providing access to the Atlantic Ocean. The country's diverse geography encompasses expansive plains, lush rainforests, rolling hills, and river valleys, offering rich natural resources and biodiversity. Nigeria's central region is characterized by the Niger and Benue Rivers, which converge in the country's heartland. The southern coastal region features mangrove swamps and deltas, while the north boasts the Sahel savannah and semi-arid landscapes. This diverse geography not only shapes Nigeria's climate, agriculture, and natural ecosystems but also influences its cultural heritage, economic activities, and geopolitical significance in the region.

**Sources of Data**

The study made use of secondary data extracted from the audited Annual Reports and statements of account of the selected oil and gas firms in Nigeria. Time-series data were used because the data for the study relates to different years. Data were collected from the annual financial statements of these companies over a ten-year period (2013-2022). The financial performance metrics analyzed included the Profit for the Year. The asset growth rate was calculated as the annual percentage change in total assets.

**Population of the Study**

The population for this study consists of eight (8) oil and gas firms listed in the Nigerian Exchange Group. As of 2024, there are ten oil and gas companies listed on the Nigerian Exchange Group (NGX). These companies are:

1. Ardova Plc
2. Conoil Plc
3. Eterna Plc
4. Japaul Gold and Ventures Plc
5. MRS Oil Nigeria Plc
6. Oando Plc
7. Seplat Energy Plc
8. TotalEnergies Marketing Nigeria Plc

**Sample Size Determination**

To investigate the effect of Compound Annual Asset Growth Rate on Firm Profitability in Nigeria, a purposive sampling technique was employed, focusing on six (6) oil and gas companies listed on the Nigerian Exchange Group. These firms were chosen based on their significant presence and active trading status in the Nigerian oil and gas sector, ensuring a representative sample for the industry.

The selected oil and gas firms were: Conoil Plc, Eterna Plc, MRS Oil Nigeria Plc, Oando Plc, Seplat Energy Plc and TotalEnergies Marketing Nigeria Plc.

**Specification of Models**

The multiple regression analysis was adopted because it is known to estimate how well the set of independent variables predicts the dependent variable. The model were stated as follows:

$PFY_t = \beta o + \beta_1 CAGR + u_1$.....i

$PFY_{it}$: Profit for the year for firm *i* in year *t.*

CAGR: Compound Annual Growth Rateof firm *i*in year *t.*

B**o :** Constant Term (Intercept)

$\beta_1$**:** coefficient of Compound Annual Growth Rate

u: Error term

**Description of Variables**

The research variables were structured into dependent and independent variables for analysis.

**Table 3.1 Description of Variables**

| Variable Acronym | Variable Name | Variable Type | Measurement | Source |
|---|---|---|---|---|
| PFY | Profit for the Year | Dependent | The concept of profit for the year is essential for evaluating a company's ability to generate earnings and create value for shareholders. It reflects the company's operational efficiency, sales performance, cost management, and overall business success. Profit for the year is calculated using the following formula: Profit for the year=Total Revenue−Total Expenses −Taxes | Aldridge (2015) |
| CAGR | The Compound Annual Growth Rate (CAGR) | Independent | The Compound Annual Growth Rate (CAGR) is a financial metric that measures the mean annual growth rate of an investment, asset, or financial metric over a specified period, assuming the growth is compounded annually CAGR = (Beginning Value)1 / n−1 Ending Value | (Maginn et al., 2016) |

**Source: Researcher's Compilation 2025.**

**Method of Data Analysis**

The method adopted in analyzing the data and carrying out other estimations is linear regression with the application of the multiple linear regression techniques. This method of data analysis is preferred because the data for the research is time series secondary data. The software that will aid this estimation is the E – views software.

The study involves the use of the empirical method which adopts regression analysis using the multiple regression analysis. Most commonly, regression analysis estimates the conditional expectation of the dependent variable given the independent variables that are, the average value of the dependent variable when the independent variables are held fixed. The data was analyzed using Descriptive Statistics, Correlation Analysis, and Regression Analysis (Simple Linear Regression using Ordinary Least Square Method (OLS).

**Data Presentation and Analysis**

**Table 4.13: Data for the Oil and Gas Sector**

| COMPANY | **YEAR** | **PAT ₦ 0'000** | **CAGR2** |
|---|---|---|---|
| Conoil Nig. Plc | 2022 | 3082690 | 54.31 |
| Conoil Nig. Plc | 2021 | 4957726 | 54.61 |
| Conoil Nig. Plc | 2020 | 1972321 | 51.73 |
| Conoil Nig. Plc | 2019 | 1440185 | 52.98 |
| Conoil Nig. Plc | 2018 | 2566765 | 53.95 |
| Conoil Nig. Plc | 2017 | 1578507 | 54.74 |
| Conoil Nig. Plc | 2016 | 2837884 | 55.41 |
| Conoil Nig. Plc | 2015 | 2307558 | 56.00 |
| Conoil Nig. Plc | 2014 | 834421 | 56.50 |
| Conoil Nig. Plc | 2013 | 3070091 | 56.96 |
| MRS Nig. Plc | 2022 | 1316102 | 51.90 |
| MRS Nig. Plc | 2021 | 339873 | 40.51 |
| MRS Nig. Plc | 2020 | 2264144 | 47.60 |
| MRS Nig. Plc | 2019 | 1613082 | 49.90 |
| MRS Nig. Plc | 2018 | 1264941 | 36.62 |
| MRS Nig. Plc | 2017 | 1385056 | 43.03 |
| MRS Nig. Plc | 2016 | 1465905 | 44.76 |
| MRS Nig. Plc | 2015 | 935625 | 30.58 |
| MRS Nig. Plc | 2014 | 746404 | 47.59 |
| MRS Nig. Plc | 2013 | 634418 | 49.10 |
| Oando Nig. Plc | 2022 | 81230816 | 54.78 |
| Oando Nig. Plc | 2021 | 54325471 | 78.10 |
| Oando Nig. Plc | 2020 | 45064091 | 68.05 |
| Oando Nig. Plc | 2019 | 23064091 | 70.19 |
| Oando Nig. Plc | 2018 | 28797743 | 68.07 |
| Oando Nig. Plc | 2017 | 19772776 | 68.77 |
| Oando Nig. Plc | 2016 | 3912607 | 70.27 |
| Oando Nig. Plc | 2015 | 49689877 | 64.03 |
| Oando Nig. Plc | 2014 | 145655150 | 64.34 |
| Oando Nig. Plc | 2013 | 1396926 | 64.34 |

| | | | |
|---|---|---|---|
| Eterna Plc | **2022** | 1012252 | 67.35 |
| Eterna Plc | 2021 | 1100132 | 65.01 |
| Eterna Plc | 2020 | 941042 | 58.82 |
| Eterna Plc | 2019 | 144289 | 59.55 |
| Eterna Plc | 2018 | 1008996 | 59.54 |
| Eterna Plc | 2017 | 2001902 | 59.76 |
| Eterna Plc | 2016 | 1477559 | 87.33 |
| Eterna Plc | 2015 | 1278073 | 41.31 |
| Eterna Plc | 2014 | 1289566 | 38.37 |
| Eterna Plc | 2013 | 1811239 | 40.70 |
| Seplat Energy Plc | 2022 | 19107 | 87.41 |
| Seplat Energy Plc | 2021 | 6473 | 58.34 |
| Seplat Energy Plc | 2020 | 7160 | 54.90 |
| Seplat Energy Plc | 2019 | 66129 | 58.07 |
| Seplat Energy Plc | 2018 | 49681 | 60.80 |
| Seplat Energy Plc | 2017 | 96416 | 61.35 |
| Seplat Energy Plc | 2016 | 24840 | 55.61 |
| Seplat Energy Plc | 2015 | 11914 | 60.44 |
| Seplat Energy Plc | 2014 | 43529 | 57.84 |
| Seplat Energy Plc | 2013 | 23485 | 57.63 |
| TotalEnergies Marketing Nigeria Plc | 2022 | 1948482 | 66.72 |
| TotalEnergies Marketing Nigeria Plc | 2021 | 1685070 | 54.03 |
| TotalEnergies Marketing Nigeria Plc | 2020 | 9445299 | 53.19 |
| TotalEnergies Marketing Nigeria Plc | 2019 | 2010293 | 41.73 |
| TotalEnergies Marketing Nigeria Plc | 2018 | 2431102 | 51.77 |
| TotalEnergies Marketing Nigeria Plc | 2017 | 4134402 | 44.33 |
| TotalEnergies Marketing Nigeria Plc | 2016 | 3583583 | 41.79 |
| TotalEnergies Marketing Nigeria Plc | 2015 | 4824981 | 60.67 |
| TotalEnergies Marketing Nigeria Plc | 2014 | 5624843 | 51.97 |
| TotalEnergies Marketing Nigeria Plc | 2013 | 5706671 | 51.04 |

**Source: Annual Reports and Accounts of Sampled firms in Oil and Gas Sector**

**Table 4.2. Descriptive Statistics for Oil and Gas Firms**

| | LPAT | CAGR2 |
|---|---|---|
| Mean | 14.03792 | 55.91593 |
| Median | 14.27199 | 55.41000 |
| Maximum | 18.79675 | 87.41000 |
| Minimum | 8.775395 | 30.58000 |
| Std. Dev. | 2.214192 | 11.03995 |
| Skewness | -0.507805 | 0.475919 |
| Kurtosis | 3.346142 | 3.949584 |
| Jarque-Bera | 2.830223 | 4.443944 |
| Probability | 0.242899 | 0.108395 |
| Sum | 828.2375 | 3299.040 |
| Sum Sq. Dev. | 284.3535 | 7069.063 |
| Observations | 60 | 60 |

**Source: Eviews 10.0 Statistical Software**

The variable description of the 60 panel data observations for the selected companies in Nigeria's oil and gas firms is shown in Table 4.2 above. Profit for the Year (8.775395), and Compound Annual Growth Rate (30.58000) are the minimums for the oil and gas firms, according to the data. The Maximum for the oil and gas firms, however, is 18.79675 for Profit for the Year; 94.40000 for Compound Annual Growth Rate. Profit for the Year (14.03792), and Compound Annual Growth Rate (55.91593) are the industry means for the variables examined. The coefficients of skewness, kurtosis, and Jarque-Bera probability demonstrate the normalcy of the data series' distribution. The likelihood of the Jarque-Bera Statistics for, and Compound Annual Growth Rate is shown in Table 4.2 and has insignificant p-values of, 0.136912. The normal distribution of the

variables is indicated by the negligible p-values. The kurtosis coefficient further confirmed that Compound Annual Growth Rate are normally distributed with coefficients that are around Compound Annual Growth Rate ( 2.777461), and the skewness coefficients, which are not greater than one, with the following outcomes of Compound Annual Growth Rate (0.884865).

**Table 4.3: Pearson Correlation Matrix Results**

| | LPAT | CAGR2 |
|---|---|---|
| LPAT | 1 | 0.02370 |
| TAGR | -0.20695 | 0.09769 |
| NCAGR | -0.46497 | -0.00681 |
| CAGR | -0.22453 | -0.03832 |
| AAGR | -0.00297 | -0.03687 |
| CAGR2 | 0.02370 | 1 |

**Source: Eviews 10.0 Statistical Software**

Most regression models use a correlation matrix to examine the relationship between each explanatory variable (CAGR) and the dependent variable (PAT) as well as to test for multicollinearity. The relationship between Profit for the Year and the independent variables— CAGR —was the main topic of Table 4.3. one of our independent variables (CAGR = 0.02370) were found to be positively associated with Profit for the Year, according to the correlation matrix table findings, while the remaining independent variables (CAGR = -0.22453) were found to be negatively associated with Profit for the Year.

**Table 4.4: Regression Result for the selected firms**

Dependent Variable: LPAT
Method: Panel Least Squares
Date: 06/01/24 Time: 15:19
Sample: 2013 2022
Periods included: 10
Cross-sections included: 6
Total panel (unbalanced) observations: 59

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| CAGR2 | 0.007397 | 0.023434 | 0.315629 | 0.7535 |
| C | 21.53769 | 3.324501 | 6.478473 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.283642 | Mean dependent var | 14.03792 |
| Adjusted R-squared | 0.216061 | S.D. dependent var | 2.214192 |
| S.E. of regression | 1.960453 | Akaike info criterion | 4.280372 |
| Sum squared resid | 203.6989 | Schwarz criterion | 4.491647 |
| Log likelihood | -120.2710 | Hannan-Quinn criter. | 4.362845 |
| F-statistic | 4.197074 | Durbin-Watson stat | 0.488118 |
| Prob(F-statistic) | 0.002752 | | |

**Source: Author's Computation from Eviews 10.0 Statistical Software**

**Regression coefficient** $PAT_{it} = 21.53769 + 0.007397$

**Interpretation of Regression Coefficient**

The Oil and Gas firm coefficient of regression results are displayed in Table 4.4. For Compound Annual Growth Rate, the coefficient of Profit for the Year is positive;

The regression model is well specified, as evidenced by the F-statistics of 4.197074 and its P-value of (0.002752), and the R-squared and its adjusted R-squared values in table 4.4 were (0.283642) and (0.216061), respectively, indicating that all the

independent variables together explain about 79% of the systematic variations in Profit for the Year (EPS) of firms in oil and gas firms over the ten years (2013-2022), with the error term Accounting for 21% of the systematic variations.

**Test of Hypotheses**

**Testing of Hypotheses Formulated for Firms in the Oil and Gas firms**

In other to examine the effect of the dependent variable EPS and the independent variables (AER) and to also test the formulated hypotheses given, the study used multiple regression analysis, because the data had both time series (2013-2022) and cross-sectional properties (6 quoted oil and gas firms in Nigeria). The result of the regression analysis is presented in table 4.4 and is interpreted below.

**Decision Rule:**

i. Reject Ho if the P-Value cal< 0.05 at 5% level of significance.
ii. Otherwise, accept the null hypothesis (Ho).

**Hypothesis One: Compound Annual Growth Rate** does not significantly affect the Profit for the year of firms in Nigeria.

**Decision: Compound Annual Growth Rate** has a positive impact on the oil and gas firms' Profit for the Year (EPS), according to panel regression analysis in Table 4.4. However, this influence is statistically insignificant at the 5% level of significance because the P-value is outside of the 5% significance level. Based on the t-value of0.315629 and P-value of 0.7535. This result, therefore suggests that we should accept our null hypothesis five ($H_{05}$) which states that Compound Annual Growth Rate does not significantly affect the Profit for the year of firms in Nigeria.

**Discussion of Findings**

The findings were discussed as follows

**Compound Annual Growth Rate and Profit for the year**

Finally, the study revealed that Compound Annual Growth Rate does not significantly affect the Profit for the year of firms in Nigeria (where the t-value = 0.315629 and P-value of 0.7535).

The finding that the Compound Annual Growth Rate (CAGR) does not significantly affect the profit for the year of firms in Nigeria (t-value = 0.315629 and p-value = 0.7535) suggests that consistent growth over time does not necessarily translate into increased profitability in the Nigerian context. This result contrasts with several empirical studies that emphasize the positive impact of steady growth on firm performance.

For instance, a study by Banz (1981) and more recent research by Damodaran (2016) argue that sustained growth, as measured by CAGR, is typically associated with enhanced firm value and profitability. These studies suggest that firms with higher CAGR often benefit from economies of scale, market dominance, and improved operational efficiency, leading to better financial outcomes.

However, the non-significant p-value (0.7535) in the Nigerian context indicates that other factors may be at play. It suggests that despite achieving growth over time, Nigerian firms may face structural and operational challenges that prevent this growth from translating into profitability. These challenges could include inefficiencies in management, inadequate infrastructure, regulatory burdens, and economic instability, which can dilute the positive effects of growth.

Additionally, research by Wurgler (2000) on capital allocation efficiency highlights that in less efficient markets, the benefits of growth can be offset by poor

capital allocation and utilization practices. This perspective aligns with the current findings, suggesting that Nigerian firms might struggle with optimizing their growth strategies to achieve profitability. In conclusion, while international evidence often links CAGR with improved profitability, the Nigerian scenario indicates a more complex relationship. The findings highlight the need for Nigerian firms to focus not only on achieving growth but also on addressing underlying inefficiencies and external challenges to ensure that growth leads to enhanced profitability.

**Summary of Findings, Conclusion and Recommendations**

**Summary of Findings**

The findings of the study were as follows:

i. Finally, the study revealed that Compound Annual Asset Growth Rate does not significantly affect the Profit for the year of firms in Nigeria (where the t-value = 0.315629 and P-value of 0.7535). It suggests that despite achieving growth over time, Nigerian firms may face structural and operational challenges that prevent this growth from translating into profitability.

**Conclusion**

The study concludes that asset growth rate is a key determinant of the financial performance of firms in Nigeria. When asset expansion is strategically planned and efficiently utilized, it enhances profitability, operational efficiency, and overall financial performance. However, unproductive or poorly managed asset growth may negatively affect returns and strain financial resources.

Therefore, firms in Nigeria must align asset growth decisions with effective management practices and prevailing economic conditions to achieve sustainable financial performance**.**

**Recommendations**

Because of the finding and conclusion, the following recommendations were made:

i. Given the non-significant impact of Compound Annual Growth Rate (CAGR) on profitability, Nigerian firms should reassess their growth strategies. Instead of solely focusing on achieving steady growth, firms should prioritize efficiency and profitability. This involves optimizing operational processes, controlling costs, and diversifying revenue streams. By adopting a more balanced approach to growth and profitability, firms can improve financial performance and ensure long-term sustainability

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