

## Original Research Article

# Effect of Liquidity and Life Cycle on Biological Assets of Quoted Firms in Nigeria Agricultural Sector

### ABSTRACT

This study examined the effect of liquidity and life cycle on biological assets of quoted firms in Nigeria's agricultural sector. The specific objectives were to examine the effect of liquidity, firm size, and firm age on the biological assets of quoted Agricultural firms in Nigeria. An *ex-post facto* research design was adopted in the study. The study made use of secondary panel data drawn from annual reports and accounts of the sampled agricultural firms for a period of Ten (10) years, 2011-2020. Panel least squares multiple regression was used to test the hypotheses. The result of the analysis showed that leverage has a statistically significant effect on the biological assets of quoted agricultural firms in Nigeria. The implication is that none of the three variables can predict the increase or decrease in biological assets of agricultural firms in Nigeria. The authors recommend that agricultural firms should look for other sources of finance to fund their business activities. Firms should maintain a good liquid condition. Continuous firm growth should be made because of the positive link it has with biological assets. Firms are encouraged to perform changes continuously in both assets and other activities that may be affected by the age of the firm.

**Keywords:** Biological asset, liquidity, life cycle, agricultural firms, firm size, firm age, Nigeria

## 1. INTRODUCTION

### 1.1 Background of the study

A natural change in a biological asset is referred to as biological metamorphosis. It encompasses the development of live creatures or plants, the decline of output due to aging or sickness, and the creation of new biological assets through a controlled reproduction program. The term "biological assets," which distinguishes accounting in agriculture from other sectors of the economy, is an essential instrument for accounting in agricultural operations (Ore, 2010). "Biological assets are animals or plants that a corporation raises to sell agricultural output or as extra biological assets" (Supreme Council of the Republic of Latvia, 1992a). "The inventory of agricultural products from plants and animals during harvesting time is connected to the accounting for biological assets" (Kalnia, 2006).

The difficulties in valuing biological assets stem from the fact that agriculture is heavily reliant on agro-climatic conditions and an enterprise's geographic distance from sales markets. This is especially true when calculating the fair value of long-term biological assets,

the fair value of which has been produced over time under volatile market conditions. The value of perennial plants and food-producing animals varies greatly depending on where they are found. This is due to changes in risk level and manufacturing costs. It should be highlighted that the initial plant and animal values change with time and differ from the values of physically youthful and more productive biological assets (Jesemika, 2010b).

Nigeria has the world's third-highest population of poor people, after only China and India. With a per capita income of roughly US\$350, around 70 million Nigerians live on less than one US dollar each day. The high rate of poverty in Nigeria is not unconnected to the over-dependent oil production with little or no interest in a major sector of the economy that is capable of helping the country attain food sufficiency (Agriculture). The contribution of agriculture to gross domestic product is very poor, the future fuel will be derived from the component of agriculture (biological assets) hence the urgent need to concentrate and consciously enhance its activities to derive high revenue generation. Any business owner can hold and account for his/her biological assets. However, because of their nature, they are, typically, of the utmost importance to farmers or any individuals whose primary source of profit comes from growing, selling, and shipping such goods. The asset is one of the most important assets of an agricultural company. The biological transformation of these assets makes these agricultural firms profitable.

However, inadequate management and accounting of these assets have remained a problem for firms in Nigeria's agricultural sector. The increasing pervasive failure of agricultural companies in Nigeria has necessitated the study. The main objective of this study is to examine the effect of liquidity and life cycle on the biological assets of quoted firms in Nigeria's agricultural sector. This is to ascertain whether the current ratio and firm age influence the biological assets of quoted Agricultural firms in Nigeria. The study will be divided into four more sections; a review of related literature, methodology, findings, and conclusion.

## **REVIEW OF RELATED LITERATURE**

### ***2.1.1. Biological Assets***

Biological assets are living organisms that can change over time, such as plantations and bred animals (Sanja, Ivana, & Mateja, 2016). Ernst (2017) said that IAS 41 Agriculture helps agricultural businesses evenly spread revenue recognition over various periods. IAS 41 governs agricultural accounting, financial statement presentation, and disclosures.

Agricultural activity is the management and harvest of biological assets (live animals or plants) for sale or conversion into agricultural produce or more biological assets. IAS 41 specifies the accounting treatment for biological assets during growth, degeneration, production, and propagation, and for agricultural produce at harvest. It does not cover post-harvest processing (for example, processing grapes into wine, or wool into yarn). IAS 41 requires that bearer plants be accounted for using IAS 16; other biological assets are measured at fair value less costs to sell; changes in the fair value of biological assets are included in profit or loss; and biological assets attached to land (for example, trees in a plantation forest) are measured separately from the land.

IAS 41.30 assumes most biological assets can be correctly valued. This presumption can be rebutted for a biological asset that does not have a published market price in an active market and for which alternative fair value measurements are demonstrably unreliable. The asset is valued at cost less depreciation and repair losses. All other biological assets must be measured at fair value less selling costs. Changing to fair value less selling costs if fair value becomes reliably measurable.

### ***2.1.2 Liquidity***

Liquidity refers to the firm's capacity to meet its short-term commitments when they arise as a result of Gitman and Zutter (2015). Liquidity ratios demonstrate the company's ability to pay off short-term debt, as well as its ability to pay off long-term debt. They also reveal the company's present cash, investment assets, and inventory level. It not only displays the company's current condition in terms of paying ability but also its borrowing ability. In other words, by looking at these ratios, an analyst may quickly determine a company's borrowing capacity. A corporation with strong liquidity can pay its short-term debt, therefore it tends to lower total debt, resulting in a smaller capital structure; hence, liquidity influences capital structure. A firm's high level of liquidity increases its chances of receiving help from other parties since it demonstrates that the company has enough liquidity to carry out its operations. To ensure business continuity and connections with external parties such as suppliers, investors, creditors, securities institutions, government, and so on, the firm must retain liquidity. According to Gitman (2015), “the current ratio is a company's capacity to meet its short-term commitments using current assets; hence, liquidity will be assessed as Current Ratio: Current Asset/Current Liability in this research”.

The current ratio is a liquidity ratio that assesses a company's capacity to pay short-term or one-year commitments. According to Fernando (2020), “current ratios indicate to investors and analysts how a corporation may optimize its balance sheet current assets to service its current debt and other payables. The current ratio measures a company's capacity to repay its liabilities (debts and accounts payable) with its assets (cash, marketable securities, inventory, and accounts receivable)”. As a result, the current ratio may be used to estimate a company's financial health. The greater the current ratio, the more competent a company is in fulfilling its commitments as and when they become due because it has a bigger share of assets valued relative to liabilities valued.

### ***2.1.3 Firm Size***

The total number of assets possessed or total sales within a certain period determines the company size (Nnajieze, 2021). "Assets are economic resources possessed by an entity and whose cost (or fair worth) at the time of purchase may be objectively ascertained" (Anthony, 2012). According to Kartikasari and Merianti (2016), “firm size can be calculated as the natural logarithm of total assets or total sales. The researcher utilized the natural logarithm of total assets in this research study because total assets are all resources owned by the company because of past transactions and are projected to bring prospective economic benefits to the company in the future. The larger a corporation, the more actions carried out in its commercial activities that will receive more attention from external parties such as the government, investors, creditors, and economic analysts than a small company. Total assets will be used as a proxy for business size in this study”.

### ***2.1.4 Firm age***

The age of a company can be determined by its foundation (Paramitha & Rohman, 2020). A firm's age is the length of life of a company from it was established until the period as long as the company still exists. Age is very important in every aspect of life, business inclusive therefore it is widely believed that a long-established company will have more experience in carrying out business activities in its industrial sector and the broader community rather than newcomers had better know it. Yameen, Farhen, and Tabash (2019) define firm age as the age of a company at the time of analysis. In this research study, the researcher measured the firm age from the difference between the year the study was carried out and the year the company was established. The age of a firm is its accumulated experience and is reflective of learning (Olumide, 2010). In biological terms, an increase in the age of an organism causes

ageing which is a condition associated with declining functioning of the body. This may occur due to rigidity, inertia, and loss of capability for renewal (Loderer & Waelchli 2009).

The link between age and the performance of a company has been extensively examined in the finance literature as well as other disciplines such as economics and organizational studies. Theoretical and empirical papers are ambiguous regarding the relationship between age and firm performance. On the one hand, research suggests that older firms out-perform younger firms since they have more experience in the industry. They call this phenomenon “learning by doing” (Coad, Segarra-Blasco and Teruel, 2013). Another strand of research suggests that older firms do not have the flexibility to adopt new changes as they get older so they perform worse than younger firms (Barron, West & Hannan, 1994).

## **2.2 Theoretical Framework**

The study was anchored on the Signaling theory (Michael Spence, 1973) and Agency theory (Jensen & Mecklings, 1976).

### **2.2.1 Agency Theory**

This is a theory about the relationship between the principal (shareholders) and the principal's agent (the company's executives). This implies that a firm can be seen as a loosely defined nexus of contracts between property holders. When one or more individuals, known as principals, employ one or more other individuals, known as agents, to conduct a service and then assign decision-making power to the agents, an agency partnership is created.

Berle and Means (1932) first suggested “the agency theory, arguing that as major companies' equity ownership dwindles, ownership and management become gradually divided. This situation permits competent management to seek their interests rather than the interests of shareholders”.

Jensen and Meckling (1976) proposed that “the best debt ratio in a capital system be determined by minimizing agency expenses resulting from managers' conflicting interests with lenders and debt holders. They recommend that either managers' share of the company's ownership is improved to balance their interests with those of the owners, or debt consumers are paid to curtail managers' proclivity towards unnecessary extra consumption”. Jensen (1986) addresses “the agency dilemma in the sense of free cash flow. He proposed that the issue of free cash flow could be solved by increasing management's interest in the company

or increasing leverage in the capital structure, thus reducing the amount of "free" cash available to them".

### **2.2.3 Signaling Theory**

Michael Spence promulgated signalling theory in 1973 based on observed knowledge gaps between parties in the organizations. It holds that there is a need for signals from different parties to ensure that information about the activities of the firm is properly disseminated, For example Signaling theories of underpricing assume that the issuing firms' managers know more about the quality of their firms than outside investors. This research study is anchored on this theory, with imperfect information in Nigeria's Agricultural sector, investors cannot distinguish between high-quality firms and low-quality firms. Hence, high-quality firms choose to underprice their new issues to signal their true value.

"Signalling theory discusses a signal given from a firm to the other parties. In this theory, the signal means a firm's action that indicates whether the intentions, motive, and firm goals, are direct or indirect" (Porter, 1980). Communication about the firm's performance or value is a positive signal that is given by the firm to convince the financial statement user party Connell et, al (2011). Signalling theory answers the information asymmetry problem by Akerlof (1970), Levin (2001), Morris (1987), and Ross (1977). "The information asymmetry problem could be reduced with the way a firm provides the information to the investors or capital market. This means that the management is providing the information to the investors to ease the investors take an investment decision and reduce uncertainty" Awuy et.al (2016), Cornnell et.al (2011), Mahoney (2012). A signal which has a positive impression reflects that a good firm's performance could attract investors' interest, so the firm reputation could have an improvement Verechia (1983).

### **2.3. Empirical Review**

Adamade and Gunu (2017) investigated "the influence of selected business strategic determinants on returns on capital invested in Nigeria's manufacturing industry". "The study sample included 30 publicly traded manufacturing enterprises from eight industrial sectors. Data from these 30 businesses were collected for five years (from 2003 to 2007) and evaluated using a panel regression model". According to the findings, size had a beneficial influence on returns on invested capital, however, age and capital intensity had a negative effect.

Mutende, Mwangi, Njihia, and Ochieng (2017) investigated the impact of business characteristics on the link between free cash flows and financial performance in Kenya's Nairobi Securities Exchange. The study relied on secondary panel data acquired from all NSE-listed businesses from 2006 to 2015. In the data analysis, regression analysis was used. According to the findings, free cash flows have a strong positive influence on financial performance, but the business size and firm age have a significant negative moderating effect on the link between free cash flows and financial performance.

Haykir and Elik (2018) studied the relationship between age and company performance in Turkey, a developing country. The study used the ordinary least squares estimation for 38 listed and non-financial family-owned enterprises between 2008 and 2016. According to the findings, younger enterprises enjoy better earnings until they reach a particular age. When they reach that age barrier, older enterprises outperform younger firms.

Yusuf, Adebayo, and Yusuf (2018) studied the influence of financial performance on the voluntary disclosure of listed financial businesses in Nigeria from 2008 to 2017. Purposive sampling was used to choose forty-five (45) financial enterprises from among the fifty-seven (57) listed on the floor of the Nigerian Stock Exchange as of December 31, 2017. Regression methods were used to evaluate secondary data. According to the research, financial performance does not influence the voluntary disclosure of listed financial institutions in Nigeria. Voluntary disclosure is significantly affected by the control variables (Size and Age).

Kassi, Rathnayake, Louembe, and Ding (2019) investigated the impact of market risk on the financial performance of 31 non-financial firms listed on the Casablanca Stock Exchange (CSE) from 2000 to 2016. The study used the pooled OLS model and discovered that several indices of market risk, such as company age, have substantial negative impacts on the financial performance of the firms.

Kenny and Luqman (2019) evaluated the impact of business characteristics on the financial reporting quality of Nigerian publicly traded manufacturing firms. From 2009 to 2016, the sample included twenty-five (25) non-financial enterprises. Balanced panel data was gathered from the audited reports of the selected firms as a secondary source. Multiple regression and a modified Dechow and Dichev's (2002) model were used to assess the quality of financial reporting. Firm characteristics were indicated by firm size. The findings indicated that business size had a considerable favourable effect on financial reporting quality.

Okunbo and Oghuvwu (2019) examined the effect of company age and size on the entrepreneurial success of Nigerian small and medium-sized firms. Based on primary data from a purposeful selection of hundred (100) small and medium firms, the assumptions were validated using the ordinary least square regression approach. The study discovered a strong and positive association between company age, size, and entrepreneurial performance.

Thi-Hanh, Van-Duy, Manh-Tung, and Quan-Hoang (2019) used the ordinary-least-squares (OLS) and quantile regression techniques to study the link between company competitiveness, and wage, CEO traits, and firm performance of Vietnam's 693 listed enterprises in 2015. According to the findings, a firm's age and average salary per employee are inversely related to its performance.

Abubakar, Sulaiman, and Haruna (2020) explored the correlation between firm characteristics and the financial performance of Nigerian listed insurance companies. The study discovered that age has a considerable negative influence on the financial performance of insurance businesses in Nigeria using robust regression analysis. According to the report, businesses should transform a major portion of their cash and cash equivalents into productive assets that can boost their financial performance.

Edmund, Christopher, and Zeman (2020) examined 146 Medium Enterprises (MEs) using primary data collected through targeted email questionnaires across different sectors of the economy to investigate the effects of the business sector and firm age on firm performance as mediated by foreign ownership levels in domestic firms and financial leverage. The findings suggest that financial leverage has a major impact on performance. Foreign ownership moderates the relationship between firm age and performance, but not leverage. Foreign ownership and leverage have no discernible impact on the link between the business sector and financial performance. Furthermore, depending on the referent group, the data identify business sectors whose performance is statistically distinct from zero.

Rahmawati, Pandansari, and Khasanah (2020) investigated the role of liquidity parameters, profitability ratios, leverage ratios, and operational cash flow in forecasting financial distress in Indonesia Stock Exchange-listed manufacturing enterprises (2015-2018). The independent variables in this study were liquidity ratios, profitability ratios, leverage ratios, and operational cash flow, whereas financial hardship was the independent variable. The item was tested in 105 different manufacturing businesses. The logistic regression approach was performed to analyze the data. The findings revealed that the liquidity and operational cash

flow ratios had little effect on forecasting financial hardship, however, the other two factors, profitability and leverage ratios, had a very substantial influence on predicting financial distress.

Thu-Trang and Toan (2020) explored how liquidity affects bank profitability. Bank profitability is specifically assessed by return on assets (ROA), whilst bank liquidity is measured by liquid assets to total assets (LATA) and total loans to total deposits (TLTD). Over the years 2013-2018, a panel of data from 26 Vietnamese commercial banks was acquired. The GMM estimate is used to examine if liquidity has a substantial influence on the profitability of Vietnamese commercial banks. Profitability (ROA) was shown to be negatively impacted by the liquid asset ratio (LATA) and favourably connected with the loan-to-deposit ratio (TLTD). Furthermore, macroeconomic control factors such as economic growth (EG) and inflation have an impact on bank profitability (INF).

Nurwita and Ningsih (2020) carried out “a liquidity and profitability ratio study to assess the financial performance of PT Bank Bri Syariah from 2012 to 2019. The financial ratio was measured using the current ratio, quick ratio, and cash ratio, while the profitability ratio was measured using return on asset and return on equity. Using approaches for descriptive statistical analysis. The result revealed that the liquidity condition is healthy because the Current Ratio percentage value reaches 262.06%, which is still greater than the standard category banking industry stipulated by BI in SEBI No.6 / 10 / PBU 2004 dated April 12, 2004, where the percentage value of the Current ratio for healthy banks was greater than 200% (CR> 200%)”.

Eze and Agu (2020) used six banks with international connections to research the liquidity management and performance of Nigerian deposit money institutions. The article, “in particular, established a link between bank performance and liquidity management by utilizing capital adequacy, liquidity ratio, and current ratio as indicators and bank size as a control variable. For seven years, data were gathered from yearly reports on the banks' websites (2013 – 2019). For the analysis, descriptive statistics and regression analysis were used. The findings reveal that capital adequacy has a substantial positive association with return on equity, but liquidity and current ratio have a statistically insignificant negative link with return on equity. The size of a bank was shown to have a substantial positive link with return on equity”.

Lojek (2020) investigated the link between profitability and financial liquidity among Polish importers of best-selling new automobile brands. Operating cash flow/sales ratio, Operating cash flow/current assets ratio, Operating cash flow/current liabilities ratio, Current liquidity ratio, Quick ratio, and Immediate liquidity ratio were the liquidity measures analyzed. Financial performance was measured using return on asset and return on equity. Pearson correlation methods were used in the investigation. It was discovered that there is a positive and substantial association between profitability and financial liquidity in Poland's automobile sector.

In the period 2018-2019, Arini, Samrotun, and Masitoh (2021) investigated the impacts of liquidity ratios, activity ratios, profitability ratios, and leverage ratios on the financial troubles of textile and garment firms listed on the Indonesia Stock Exchange. The purpose of this study was to collect samples from 40 textile and apparel firms listed on the Indonesia Stock Exchange between 2018 and 2019. Some of the processed linear regression analyses using SPSS 25 were employed in this investigation. According to this study, liquidity is influential but not substantial in financial crises. The behaviour has a substantial impact on financial misery. Profitability has a large impact on financial difficulty. Leverage has an impact, although it is insignificant in terms of financial trouble.

Ajayi and Lawal (2021) investigated the link between liquidity management and bank performance over ten years using secondary data from the published annual reports of five (5) selected Deposit Money Banks in Nigeria (2009-2018). Loan to deposit ratio, loan to assets ratio, and liquid ratio are proxies for liquidity management, whereas the return on assets is a proxy for profitability. The study found a negative and significant relationship between loan to deposit ratio with a p-value of 0.0021 and return on assets (ROA), a positive and significant relationship between loan to asset ratio with a p-value of 0.0005 and return on assets (ROA), and a positive and insignificant relationship between liquid ratio with a p-value of 0.1808 and return on assets (ROA) (ROA).

### ***2.5. Gap in Empirical Literature***

There is a paucity of research in this area and we are yet to come across any study in Nigeria that comprehensively dealt with the effect of firm characteristics on the biological assets of quoted firms in Nigeria. Most of the prior studies were done overseas. The studies carried out in Nigeria concentrated majorly on firm characteristics and performance. Also, from the reviewed literature, researchers seemed to intentionally avoid the agricultural sector of the

economy despite the benefits of agricultural produce to Nigeria's economy, hence, the present study used its evidence from agricultural firms listed on the Nigeria Stock Exchange.

### 3. METHODOLOGY

The study was based on an *ex-post facto* research design. The *ex-post facto* research design is used to determine the responsiveness of biological assets to board size, firm size, and firm age of Agricultural and Agro-allied companies quoted in the Nigeria Exchange Group as of December 2020. Only five agro-allied firms were listed on the Nigeria Exchange Group. However, the three companies dealing with biological assets in Nigeria's agricultural sector were sampled. These include Ella Lakes PLC, Okomu Oil palm company plc, and Presco Plc. Secondary data were sourced from the annual report and accounts of the sampled firms.

#### 3.1 Model Specification

The ordinary least squares regression technique was used for data analysis. Explicitly, the model is specified as:

$$\text{Log BIA}_t = \beta_0 + \beta_1 \text{Log DER}_t + \beta_2 \text{Log ROA}_t + \beta_3 \text{Log CRATIO}_t + \beta_4 \text{Log BSZE}_t + \beta_5 \text{Log TA}_t + \beta_6 \text{Log FAGE}_t + \varepsilon_t \quad \text{--- (Eq. 2)}$$

$\text{Log BIA}_t$  = Biological Assets at time t (Dependent variable),

$\text{Log DER}_t$  = Leverage at time t,

$\text{Log ROA}_t$  = Profitability at time t,

$\text{Log CRATIO}_t$  = Liquidity at time t,

$\text{Log BSZE}_t$  = Board Size at time t,

$\text{Log TA}_t$  = Firms' Size at time t,

$\text{Log FAGE}_t$  = Firms' Age at time t,

$\beta_0$  = Constant/intercept of the regression model,

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  and  $\beta_6$  = Coefficients of DER, ROA, CRATIO, BSZE, TA, and FAGE respectively in the regression model,

$\varepsilon_t$  = Stochastic error (white noise) associated with the model

#### 3.2 Data Analysis

Hejase et al. (2012) contend that informed objective decisions are based on facts and numbers, real, and timely information. Furthermore, according to Hejase and Hejase (2013), “descriptive statistics deals with describing a collection of data by condensing the amounts of data into simple representative numerical quantities or plots that can provide a better

understanding of the collected data” (p. 272). Therefore, this study analyzed data collected with descriptive statistics such as means, standard deviations, maximum, and minimum values among others, supported with tables for clarity. Moreover, inferential statistics are used including covariance and regression analysis. Furthermore, Eviews 10.0 Statistical Software was deployed to extract the results.

#### 4 RESULTS AND FINDINGS

Table 1 above shows the variable description of the 29 observations of the panel data of the Agricultural firms in Nigeria. The table reveals the industry minimum include; biological assets: 17.36550; leverage: 0,216364; profitability: -0.193416; liquidity:0.010215; board size: 9; firm Size 20.84545, firm age: 9. However, the industry’s maximum includes; biological assets: 25.14405; leverage:1.546262; profitability:3.041586; liquidity:15.50807; board size: 12; firm Size: 25.14405and firm age:44. The means for the variables studied are: 21.62661; leverage: 0.760601; profitability: 0.180007; liquidity:2.463177; board size:10; firm size 23.38775; firm Age:29.

##### 4.1: Descriptive Statistic

	LOG(BIOA)	DER	ROA	CRATIO	BSZE	LOG(TA)	FAGE
Mean	21.62661	0.760601	0.180007	2.463177	10.27586	23.38775	29.13793
Median	22.96395	0.646739	0.071957	1.349729	10.00000	24.12615	35.00000
Maximum	25.14405	1.546262	3.041586	15.50807	12.00000	25.14405	44.00000
Minimum	17.36550	0.216364	-0.193416	0.010215	9.000000	20.84545	9.000000
Std. Dev.	2.771130	0.415646	0.569000	3.445826	0.996299	1.572594	12.03187
Skewness	-0.666021	0.372056	4.586919	2.666303	0.308359	-0.783007	-0.533225
Kurtosis	1.684274	1.784582	23.68629	9.607519	2.098021	1.943810	1.612578
Jarque-Bera	4.235775	2.454057	618.7658	87.11600	1.442636	4.311257	3.700222
Probability	0.120285	0.293162	0.000000	0.000000	0.486111	0.115830	0.157220
Observations	29	29	29	29	29	29	29

*Source: Computed by Researcher Using Eviews 10.0 Statistical Software*

“The normality of the distribution of the data series is shown by the coefficients of Skewness, Kurtosis, and Jarque-Bera Probability. From Table 1, the probability of the Jarque-Bera Statistics for all the variables (focal and explanatory) have a significant p-value except for leverage (0.293162), board Size (0.486111), and firm size (0.115830), firm age (0.157220)”. (Elizabeth, 2022) “The rest of the variables are as follows: Biological assets (0.120285), profitability (0.000000), and liquidity (0.000000). The significance of the p-value depicts non-normal distribution for the variables studied except for leverage, the board size, firm

size, and firm age. This was further confirmed by the skewness coefficients which are greater than one in all the variables under study. The kurtosis coefficient provides a second level of confirmation that all the variables are not normally distributed with the following coefficients, biological assets (1.684274), profitability (23.68629), and liquidity (9.607519). This is the case of the data extracted from annual reports and accounts of the sampled companies from the Agricultural sector in Nigeria”. (Elizabeth, 2022)

**Table 3: Regression Analysis Result of the Industry Level Panel Data**

Variable	Coefficient	Standard Error	t-Stat	p-Value
DER	-1.084084	0.428212	-2.531653	0.0198
ROA	0.165128	0.079948	2.065437	0.0521
CRATIO	0.027407	0.023770	1.153041	0.2625
BSZE	0.061339	0.167269	0.366711	0.7177
LOG(TA)	0.533754	0.582579	0.916192	0.3705
FAGE	-0.068716	0.070604	-0.973265	0.3420
C	11.24256	10.93507	1.028119	0.3162
R <sup>2</sup> = 0.97, Adjusted R <sup>2</sup> = 0.96, F-Stat = 95.19623, Prob(F-stat) = 0.000000, D.W. Stat. = 1.06				

*Source: Computed by Researcher Using Eviews 10.0 Statistical Software*

Table 3 shows that leverage has a significant and negative effect on biological assets, with a probability value that is less than 0.05(0.0198) and a t-statistic that is greater than 2(-2.531653). “Profitability has an insignificant and positive effect on biological assets with a probability that is less than 0.05(0.0521) and a t-statistic that is greater than 2(2.065437). Also, liquidity has an insignificant and positive effect on biological assets with a probability that is less than 0.05(0.2625) and a t-statistic that is less than 2 (1.153041)”. (Elizabeth, 2022) Furthermore, “Board size has an insignificant and a positive effect on biological assets with a probability that is less than 0.05(0.7177) and a t-statistic that is less than 2 (0.366711), Firm size has an insignificant and a positive effect on biological assets with a probability that is less than 0.05(0.3705) and t-statistic that is less than 2 (0.916192) and firm age have an insignificant and a negative effect on biological assets with a probability that is less than 0.05(0.3420) and t-statistic that is less than 2 (-0.973265)”. (Elizabeth, 2022)

The table further depicts that a unit change in leverage will reduce biological assets by 1.084. While a unit change in profitability and liquidity will increase biological assets by 0.165 and 0.027 respectively. Furthermore, “a unit change in board size and firm size will increase

biological assets by 0.061 and 0.533 respectively. Lastly, a change in firm age will reduce biological assets by 0.0687". (Elizabeth, 2022) "The adjusted R-squared ( $R^2$ ) indicated that about 96% of the changes in the biological asset are accounted for by the explanatory variables. The remaining 4% could be explained by other factors capable of influencing the biological asset of firms in the Agricultural sector in Nigeria. The probability of the F-statistic is significant which shows the statistical fitness of the multiple regression results. There is an absence of serial autocorrelation in the panel data extracted from annual reports and accounts of Agricultural companies in Nigeria as suggested by Durbin-Waston Stat of 1.06". (Elizabeth, 2022)

### *4.3 Test of Hypotheses*

**Statement of Decision Rule:** Reject  $H_0$  if P-value is less than the A-value calculated (0.05) and accept the null hypotheses if the reverse becomes the case.

#### *4.3.1 Hypotheses One:*

**Null Hypothesis  $H_0$ :** Liquidity does not have a significant effect on the biological assets of Nigerian Agricultural firms.

**Alternative Hypothesis  $H_a$ :** Liquidity does have a significant effect on the biological assets of Nigerian Agricultural firms.

**Decision:** From the panel regression analysis in Table 3, the P-value of  $0.2625 > 0.05$ . Therefore, the null hypothesis is accepted and the alternative hypotheses accepted. This implies that liquidity does not have a significant impact on the biological assets of Nigeria's Agricultural Industry.

#### *4.3.2 Hypotheses Two:*

**Null Hypothesis  $H_0$ :** Firms' age does not have a significant effect on the biological assets of Nigeria agricultural Firms.

**Alternative Hypothesis  $H_a$ :** Firms' age does have a significant effect on the biological assets of Nigeria's agricultural Firms.

**Decision:** From the panel regression analysis in Table 3, the P-value of  $0.3420 > 0.05$ . Therefore, the null hypothesis is accepted and the alternative Hypotheses are rejected. This

implies that firm age does not have a significant impact on the biological assets of Nigeria's Agricultural firm.

#### ***4.3.3 Hypotheses Three:***

**Null Hypothesis H<sub>0</sub>:** Firms' size does not have a significant effect on the biological assets of Nigeria Agricultural Firms.

**Alternative Hypothesis H<sub>a</sub>:** Firms' size does have a significant effect on the biological assets of Nigeria Agricultural Firms.

**Decision:** From the panel regression analysis in Table 3, the P-value of 0.3705 >0.05. Therefore, the null hypothesis is accepted and the alternative hypotheses rejected. This implies that firm size does not have a significant impact on the biological assets of Nigeria's Agricultural firm.

#### ***4.4 Discussion of Findings***

In the test of hypothesis One, the panel regression analysis reveals that liquidity does not have a significant impact on the biological assets of firms in Nigeria. This result implies that as the liquidity ratio of Agricultural firms increases or decreases, biological assets are not affected. It is not surprising because the firm needs liquid, ready cash to meet up with its immediate financial obligations... The findings are also not consistent with the findings of Carolina, Kusumawati, and Chamalinda (2020). This study found out that liquidity does not influence biological assets disclosure. However, the findings of the current study were deemed significant because it is dealing with the effect of biological assets of Agricultural firms in Nigeria

In the test of hypothesis two, the panel regression analysis reveals that firm age does not have a statistically significant impact on the biological assets of Nigeria's Agricultural firm. This means that the age of the firm has no significant influence on the biological assets. However, as firm age increases, the biological assets of agricultural firms decrease. This could be a result of a lack of innovation by the board and the management. No prior studies have established the same finding, making this study the first in this area.

In the test of hypothesis One, the panel regression analysis reveals that firm size does not have a statistically significant impact on the biological assets of Nigeria's Agricultural firm.

The findings show the relevance of total assets in biological assets, this implies that the ability of a firm in the Agricultural industry to sustain its operation is not linked to its total assets. The study also shows that Firm size does not have any effect on biological assets. The findings are also not consistent with the findings of Carolina, Kusumawati, and Chamalinda (2020) that found that firm size does not influence biological assets disclosure. However, the findings of the current study were consistent with the findings of Falinkhatun, Dini, and Hanggana (2019) and Goncalves and Lopez (2013) which revealed that firm size significantly influences biological assets disclosure.

#### ***4.5 Summary of Findings***

The findings are summarized as follows:

- i. Liquidity (measured by current ratio) has a positive and statistically insignificant (P-value of  $0.2625 > 0.05$ ) effect on the biological assets of agricultural firms in Nigeria.
- ii. Firm age has a negative and statistically insignificant (P-value of  $0.3420 > 0.05$ ) effect on the biological assets of agricultural firms in Nigeria.
- iii. Firm size (measured by total asset) has a positive and statistically insignificant (P-value of  $0.3705 > 0.05$ ) effect on the biological assets of agricultural firms in Nigeria.

### **5 CONCLUSION**

The study examined the effect of firm characteristics on biological assets in quoted agricultural firms in Nigeria. The panel regression analysis (fixed effect model) revealed that leverage has a negative and significant effect on biological assets, profitability, liquidity, the board size, and firm size has a positive but insignificant effect on biological assets of agricultural firms in Nigeria. Firm age has a negative and insignificant effect on the biological assets of agricultural firms in Nigeria. The adjusted R-squared ( $R^2$ ) indicated that about 96% of the changes in the biological asset are accounted for by the explanatory variables. The remaining 4% could be explained by other factors capable of influencing the biological asset of firms in the Agricultural sector in Nigeria. The study, therefore, concludes that among the firm characteristics' indicators, only leverage can be used to predict the biological assets of agricultural firms in Nigeria.

#### ***5.1 Recommendation***

In tandem with the findings of the study, the researcher made the following recommendation:

- i. Firms should maintain a good liquid condition. They should ensure that cash and other liquidity components are enough to invest in their biological assets.

- ii. Efforts should be made to ensure continuous firm growth because of the positive link it has with biological assets.
- iii. Firms are encouraged to continuously effect changes in both assets and other activities that may be affected by the age of the firm. Management should maintain current innovations in the industry to attract new investors, boost productivity and enhance shareholders' funds.

There is a paucity of research in Nigeria that examined factors that affect the biological assets of quoted agricultural firms in Nigeria, despite the importance of this kind of asset in the growth of agricultural companies in Nigeria. Most of the prior studies on biological assets were done overseas. Also, from the reviewed literature, researchers seemed to intentionally avoid the agricultural sector of the economy despite the benefits of agricultural produce to Nigeria's economy, hence, the present study contributed to the reservoir of knowledge by establishing that among the attributes of agricultural firms in Nigeria, leverage was the only variable that has a significant effect on biological assets.

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