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 agricultural sector. The specific objectives were to examine the effect of liquidity, firms' size, and firms' age on 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 report 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 analysis showed that only leverage has a 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. It was recommended that agricultural firms should look for other sources of finance to fund their business activities. Firms should maintain a good liquid condition. Efforts should be made to ensure continuous firm growth because of the positive link it has with biological assets. Firms are encouraged to continuously effect changes in both assets and other activities that may be affected by the age of the firm.

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

INTRODUCTION

1.1 Background of the study

Biological transformation is a natural change in a biological asset. It includes growth of living animals or plants, reduction in output due to age or disease and the production of new biological assets through a managed reproductive programme. An important tool for accounting in agricultural activities is the aid "biological assets" which distinguish accounting in agriculture from other sectors of economy (Ore, 2010). Biological assets are animals or plants that a company grows to obtain agricultural produce for sale or as additional biological assets (Supreme Council of Republic of Latvia, 1992a). The accounting for biological assets is closely related to the inventory of the agricultural produce from the plants and animals at the moment of its harvesting (Kalniņa, 2006).

The problems in the assessment of biological assets are related to the fact that agriculture depends on agro climatic conditions and territorial remoteness of an enterprise from the sales markets to a great extent. This is especially acute when estimating long-term biological assets, the fair value of which has been created in a longer period of time in changeable

market conditions. The value of perennial plants and food-producing animals considerably changes, depending on their location zones. This is closely related to the changes in risk degree and production costs. It should be noted that with time, the initial plant and animal values differ from the values of similar physically young and more productive biological assets (Jesemčika, 2010b).

Nigeria has the third highest number of poor people in the world, after China and India. With a per capita income of about US$ 350, around 70 million Nigerians are living on less than one US Dollar a day. The high rate of poverty in Nigeria is not unconnected to the over dependent on oil production with little or no interest to 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. Biological assets can be held and accounted for by any business owner. 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 agricultural company. It is the biological transformation of these assets that makes these agricultural firms profitable.

However, inadequate management and accounting of these assets has remained a problem for firms in Nigeria 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 biological assets of quoted firms in Nigeria agricultural sector. This is to ascertain whether current ratio and firm age influence biological assets of quoted Agricultural firm in Nigeria.

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 doesn't 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 fewer 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 doesn't 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 and less selling costs. Changing to fair value less selling costs if fair value becomes reliably measurable.

2.1.2 Liquidity

Liquidity is the firm's ability to fulfill its short-term obligations as they fall due Gitman and Zutter (2015). Liquidity ratios shows capabilities to pay a short-term debt, and another is the capabilities to pay off the long-term debt, also, show the current position of the cash, investment assets, and inventory level of the company. It does not only show the current position of paying ability but, also, it shows the borrowing ability of the company. On other words, by seeing these ratios, an analyst can easily understand how much borrowing capability a company has. A company that has high liquidity means that it can pay the short-term debt, so it tends to reduce total debt, which in turn capital structure will be smaller, so it can be said that liquidity affects the capital structure. High level of liquidity of a company will open the opportunity to get support from third parties because it shows the company has enough liquidity to operating activities. The company must maintain liquidity to maintain business continuity and relationships with external parties such as suppliers, investors, creditors, securities institutions, government, etc. According to Gitman (2015), current ratio is the company's ability to pay its short-term obligations using its current assets, for the purpose of this study, liquidity will be measured as: Current Ratio: Current Asset/Current Liability.

The current ratio is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year. Fernando (2020) opine that current ratios show investors and analysts how a company can maximize the current assets on its balance sheet to satisfy its current debt and other payables. The current ratio is mainly used to give an idea of a firm's ability to pay back its liabilities (debts and account payable) with its assets (cash, marketable securities, inventory, accounts receivable). As such, current ratio can be used to make a rough measurement of a firm's financial health. The higher the current ratio, the more capable a firm is of meeting its obligations as and when they fall due, as it has a larger proportion of assets value relative to its liabilities' value.

2.1.3 Firm Size

A company's size can be determined by the total number of assets possessed or total sales within a certain period (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 utilised the natural logarithm of total assets in this research study because total assets are all resources owned by the company as a result 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 the foundation of a company Paramitha and Rohman (2020). Firm age is the length of life of a company since it was established until the period of time as long as the company still exists. Age is a very important in every aspect of life, business inclusive therefore it is widely believe that a long-established company will have more experience in carrying out business activities in its industrial sector and it is better known to the broader community rather than newcomers. Yameen, Farhen and Tabash (2019) defines firm age as age of a company at the time period of analysis. In this research study, the researcher measured the firm age from difference between the year the study was conducted and the year the company was established. Age of a firm is its accumulated experience and is reflective of learning Olumide (2010). In biology terms, an increase in age of an organism

causes aging which is conditions associated with declining functioning of the body. This may occur due to rigidity, inertia and lose of capability for renewal (Loderer & Waelchli 2009).

The link between age and 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 as "learning by doing" (Coad, Segarra-Blascoand & Teruel, 2013). Another strand of research suggests that older firms do not have the flexibility to adopt new changes as they get older so that they perform worse than younger firms (Barron, West & Hannan, 1994).

Olumide (2010) opines that the age of a firm is its accumulated experience and is reflective of learning. It is the continuous length of time often in years that a firm has to be in its current business from when it was incorporated or when it was listed; for listed companies. However, as firms grow older, their capability to perform declines. In biology terms, an increase in age of an organism causes ageing which are conditions associated with decline in functioning of the body. This, in companies, may occur due to rigidity, inertia and loss of capability for renewal (Loderer & Waelchli, 2009).

2.2 Theoretical Framework

The study was anchored on Signaling theory by Michael Spence (1973) and Agency theory by Jensen and 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 the 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 own 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 should be improved to balance their interests with those of the owners, or debt consumers should be 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 signaling theory in 1973 based on observed knowledge gaps between parties in the organizations holds that there is need for signals from different parties to ensure that information about the activities of the firm are properly disseminated, 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 Agricultural sector, investors cannot distinguish between high-quality firms and low-quality firms. Hence, high-quality firms choose to underprice their new issues in order to signal their true value.

Signaling theory discusses a signal given from a firm to the other parties. In this theory, the signal means a firm's action that indicating the intention, motive, and firm's goals, whether it is directly or indirectly Porter (1980). The 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). Signaling theory answers the information asymmetry problem Akerlof (1970), Levin (2001), Morris (1987), Ross (1977). Information asymmetry problem could be reduced with the way a firm provides the information to the investors or capital market. Means that the management is providing the information to the investors to ease the investors to take an investment decision and reduce uncertainty Awuy et.al (2016), Cornnell et.al (2011), Mahoney (2012). A signal which has a positive impression that reflects 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) examined the effects of selected firm strategic factors on the returns on invested capital in Nigeria's manufacturing sector. The study sample consisted of 30 quoted manufacturing firms spread over eight industrial sectors. Data was collected from these 30 firms over a five-year period (i.e. 2003 to 2007) and analyzed using a panel regression model. The study reveals that size had a positive effect on returns on invested capital while age and capital intensity had negative effects.

Mutende, Mwangi, Njihia and Ochieng (2017) examined the influence of firm characteristics on the relationship between free cash flows and financial performance Nairobi Securities Exchange, Kenya. The study used secondary panel data which was obtained from all firms listed at the NSE for the period 2006 to 2015. Regression analysis was employed in data analysis. Results indicate that free cash flows have a significant positive effect on financial performance; while the firm size and firm age have a negative significant moderating effect on the relationship between free cash flows and financial performance.

Haykir and Çelik (2018) investigate the link between age and firm performance by analysing the family-owned companies in a developing country, Turkey. The study adopted the ordinary least squares estimation for the period between 2008 and 2016 using 38 listed and non-financial family-owned companies. The result indicates suggests that younger firms have higher profits until they reach a certain age. When they pass that threshold age older firms perform better than younger firms.

Yusuf, Adebayo, and Yusuf (2018) the effect of financial performance on Voluntary Disclosure of listed financial firms in Nigeria for the period of 10 years from 2008-2017. A sample of forty-five (45) out of fifty-seven (57) financial firms listed on the floor of Nigerian Stock Exchange as at 31st December 2017 was selected using purposive sampling. Secondary data were analyzed using regression techniques. The findings revealed that financial performance has no significant effect on voluntary disclosure of listed financial firms in Nigeria. The control variable (Size and Age) have a significant effect on voluntary disclosure.

Kassi, Rathnayake, Louembe and Ding (2019) examined the effect of market risk on the financial performance of 31 non-financial companies listed on the Casablanca Stock Exchange (CSE) over the period 2000–2016. The study employed the pooled OLS model and

found out that the different measures of market risk which include firm age have significant negative influences on the companies' financial performance.

Kenny and Luqman (2019) investigated firm's characteristics effect on financial reporting quality of Nigerian quoted manufacturing companies. Twenty-five (25) non-financial companies from 2009 to 2016 were used as sample. Balanced panel data was extracted via secondary source through the audited reports of the selected companies. Techniques adopted were multiple regression and modified Dechow and Dichev's (2002) model was used to proxy quality of financial reporting. Firm size represented firm characteristics. Findings revealed firm size have significant positive influence on quality of financial reporting.

Kwaltommai, Enemali, Duna and Ahmed (2019) examined the impact of firm characteristics and financial performance of consumer good firms using financial and non-financial data from annual reports of the 5 listed consumer good firms in Nigeria from 2007-2016 in Nigeria. Pearson correlation and multiple regressions shows that the firm age also have a positive relationship with financial performance and leverage too has a positive relationship with financial performance.

Okunbo and Oghuvwu (2019) studied the effect of firm age and size on the entrepreneurial performance of small and medium scale enterprises in Nigeria. The hypotheses formulated were verified using the ordinary least square regression method, based on primary data from a purposive sampling of hundred (100) small and medium enterprises. The study found a positive and significant relationship between firm age, size and entrepreneurial performance.

Thi-Hanh, Van-Duy, Manh-Tung, and Quan-Hoang (2019) investigated the relationship between firms' competition, wage, CEOs' characteristics, and firm performance of Vietnam's 693 listed firms in 2015 using both the ordinary-least-square (OLS) and quantile regression methods. The study reveals that the age of a firm and average wage per employee are negatively associated with firm performance.

Abubakar, Sulaiman and Haruna (2020) examined the Effect of Firms Characteristics and Financial Performance of Listed Insurance Companies in Nigeria. Robust regression analysis, the study revealed that Age have significant negative impact on financial performance of insurance companies in Nigeria. The study recommends that companies are to convert significant part of their cash and cash equivalent into productive assets that can improve their financial performance.

Edmund, Christopher and Zeman (2020) explored the business sector and firm age effects on firm performance mediated by foreign ownership levels in domestic firms and financial leverage by examining 146 Medium Enterprises (MEs) using primary data collected through targeted email questionnaires across different sectors of the economy. The results show that financial leverage significantly influence performance. Foreign ownership substantially mediates the correlation between firm age and performance but not leverage. Both foreign ownership and leverage have no substantial mediating effect on the relationship between the business sector and financial performance. Moreover, the findings reveal business sectors whose performance is statistically different from zero based on the referent group.

Rahmawati, Pandansari, and Khasanah (2020) determined the effect of liquidity ratios, profitability ratios, leverage ratios, and operating cash flow in predicting financial distress in manufacturing companies listed on the Indonesia Stock Exchange (2015-2018). The independent variables in this study were liquidity ratios, profitability ratios, leverage ratios, and operating cash flow, while the independent variable is financial distress. The object used in manufacturing companies with a sample of 105 companies. Data analysis techniques were used using logistic regression analysis. The results showed that the ratio of liquidity and operating cash flow did not influence predicting financial distress while the other two variables namely profitability ratios and leverage ratios had a very strong influence in predicting financial distress.

Thu-Trang and Toan (2020) investigated the impact of liquidity on bank profitability. Particularly, bank profitability is measured by return on assets (ROA) while liquid assets to total assets (LATA) and total loans to total deposits (TLTD) are indicators of bank liquidity. A panel of data from 26 Vietnamese commercial banks is obtained over the period 2013-2018. The GMM estimation is adopted to test the significant effect of liquidity on the profitability of Vietnamese commercial banks. The results reveal that profitability (ROA) was negatively influenced by the liquid asset ratio (LATA) and positively correlated to the loan-to-deposit ratio (TLTD). Further, bank profitability was also affected by macroeconomic control variables like economic growth (EG) and inflation (INF).

Nurwita and Ningsih (2020) conducted a liquidity and profitability ratio analysis for measuring the financial performance of pt. bank Bri Syariah 2012 - 2019 period. The current ratio, quick ratio, and cash ratio were used to measure the financial ratio, while return on asset and return on equity was used to measure profitability ratio. Using descriptive statistical

analysis techniques. The result revealed that the liquidity condition is healthy, because the Current Ratio percentage value reaches 262.06%, still above 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 above 200% (CR> 200%).

Eze and Agu (2020) carried out a study on liquidity management and performance of deposit money banks in Nigeria using six banks with international affiliation. In particular, the paper established the relationship between the variable of bank performance and liquidity management using capital adequacy, liquidity ratio, and current ratio as indicators and bank size as a control variable. Data were extracted from annual reports from the banks' websites for a period spanning seven years (2013 – 2019). Descriptive statistics and regression analysis were performed using the E-View 10.0 as an instrument for the analysis. Findings indicate a strong positive relationship between capital adequacy and return on equity while liquidity and current ratio showed a statistical nonsignificant negative relationship with return on equity. Bank size showed a strong positive relationship with return on equity.

Lojek (2020) examined the relationship between profitability and financial liquidity among the importers of best-selling brands of new cars in Poland. The liquidity ratios studied were 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. Return on asset and return on equity was used to measure financial performance. The study made use of Pearson correlation techniques. It was revealed there is a positive and strong relationship between profitability and financial liquidity in the automotive industry in Poland.

Arini, Samrotun, and Masitoh (2021) examined the effects of liquidity ratios, activity ratios, profitability ratios, leverage ratios on the financial difficulties of textile and garment companies listed on the Indonesia Stock Exchange in the period 2018-2019. The object in this study used samples of 40 samples on textile and garment companies listed on the Indonesia Stock Exchange in the period 2018-2019 using sampling techniques purposive. The methods used in this study are some of the processed linear regression analyses using SPSS 25. Based on this study shows that liquidity is influential but not significant to financial distress. The activity has a significant effect on financial distress. Profitability has a significant effect on financial distress. Leverage is influential but not significant to financial distress.

Ajayi and Lawal (2021) examined the relationship between liquidity management and bank performance using secondary data from the published annual reports of five (5) sampled Deposit Money Banks in Nigeria for a period of ten years (2009-2018). The proxies for liquidity management include loan to deposit ratio, loan to assets ratio, liquid ratio, while return on assets was the proxy for profitability. Data was analyzed using Auto Regressive Distributed Lag (ARDL) and results from the study showed that there is a negative and significant relationship between loan to deposit ratio with p-value 0.0021 and return on assets (ROA), a positive and significant relationship between loan to asset ratio with p-value 0.0005 and return on assets (ROA) and a positive and insignificant relationship between liquid ratio with p-value 0.1808 and return on assets (ROA).

Dahiyat, Weshah, and Aldahiyat (2021) examined the impact of liquidity and solvency management on the financial performance of Jordanian manufacturing companies listed on the Amman Stock Exchange, for a period of 10 years from 2010 to 2019. The size of the company was used as a control variable. The study employs Return on Assets (ROA) and Earnings Per Share (EPS) to measure financial performance. Current ratio (CR) and total debts to total assets were used as proxies for liquidity and solvency management, while logarithm of total assets was used to measure the size. Correlation and multiple regression analyses have been applied to analyze the data. The results show a statistically significant impact of independent and control variables (liquidity and solvency management and the size of the company) on financial performance, while the detailed results of the hypotheses indicate that liquidity has an insignificant reverse impact on financial performance.

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 effect of firm characteristics on biological assets of quoted firms in Nigeria. Most of the prior studies was 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 economy, hence, the present study used its evidence from agricultural firms listed on the Nigeria Stock Exchange.

Methodology

The study was based on *ex-post facto* research design, *ex-post facto* research design is use to determine 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 at December 2020. There are a total of five agro-allied firms listed on the Nigeria Exchange Group. Only the three companies dealing on biological assets under Nigeria agricultural sector were sampled, they 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.

3.2 Model Specification

Ordinary least squares regression technique was used for data analysis. Explicitly, the model is specified thus:

$$\text{Log BIOA}_t = \beta_O + \beta_1 \text{LogDER}_t + \beta_2 \text{LogROA}_t + \beta_3 \text{LogCRATIO}_t + \beta_4 \text{LogBSZE}_t + \beta_5 \text{LogTA}_t + \beta_5 \text{LogFAGE}_t + \varepsilon_t \quad -(\text{Eq. 2})$$

LogBIOA_t = Biological Assets at time t (Dependent variable),

LogDER_t = Leverage at time t,

LogROA_t = Profitability at time t,

LogCRATIO_t = Liquidity at time t,

LogBSZE_t = Board Size at time t,

LogTA_t = Firms' Size at time t,

LogFAGE_t = Firms' Age at time t,

β_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,

ε_t = Stochastic error (white noise) associated with the model

4.1 Data Analysis

Table 1: Descriptive Statistic of the Industry Level Panel Data

	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

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.

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

Table 2: Covariance Analysis Result of the Industry Level Panel Data

Covariance Analysis: Ordinary
Date: 09/13/21 Time: 12:14
Sample: 2011 2020
Included observations: 29
Balanced sample (listwise missing value deletion)

Covariance Correlation t-Statistic Probability	BIOA	DER	ROA	CRATIO	BSZE	TA	FAGE
BIOA	3.06E+20						
	1.000000						
DER	-2.30E+09	0.166804					
	-0.321634	1.000000					
	-1.765048	-----					
	0.0889	-----					
ROA	-2.91E+08	0.032977	0.312597				
	-0.029812	0.144418	1.000000				
	-0.154978	0.758368	-----				
	0.8780	0.4548	-----				
CRATIO	-8.96E+09	0.233918	-0.054538	11.46428			
	-0.151433	0.169156	-0.028809	1.000000			
	-0.796047	0.891813	-0.149759	-----			
	0.4329	0.3804	0.8821	-----			
BSZE	5.98E+09	-0.144687	-0.067229	-0.784926	0.958383		
	0.349262	-0.361874	-0.122828	-0.236802	1.000000		
	1.936786	-2.017055	-0.643103	-1.266481	-----		
	0.0633	0.0537	0.5256	0.2162	-----		
TA	2.58E+20	5.94E+08	-1.32E+09	-2.60E+10	1.11E+10	5.65E+20	
	0.620627	0.061150	-0.099217	-0.323290	0.476158	1.000000	
	4.112800	0.318343	-0.518103	-1.775195	2.813630	-----	
	0.0003	0.7527	0.6086	0.0871	0.0090	-----	
FAGE	-7.20E+10	-1.597438	0.848121	7.104560	0.375743	-1.29E+11	139.7741
	-0.348391	-0.330832	0.128308	0.177480	0.032464	-0.458193	1.000000
	-1.931291	-1.821630	0.672262	0.937093	0.168779	-2.678554	-----
	0.0640	0.0796	0.5071	0.3570	0.8672	0.0124	-----

Source: Computed by Researcher Using Eviews 10.0 Statistical Software

Table 2 reveals that there is a weak (32% approx.) and negative relationship between biological assets and leverage, with t-statistic: -1.765048 and probability: 0.0889. Biological assets and profitability also share a negative and weak relationship (3% approx.) with t-statistic -0.154978 and probability: 0.8780. Biological assets and liquidity also share a negative and weak relationship (15% approx.) with t-statistic -0.796047 and probability: 0.4329. Biological assets and Board size also share a positive and weak relationship (34% approx.) with t-statistic 1.936786 and probability: 0.0633. Biological assets and firm size also share a positive and strong relationship (62% approx.) with t-statistic 4.112800 and probability: 0.0003. Biological assets and firm age also share a negative and weak relationship (34% approx.) with t-statistic -1.931291 and probability: 0.0640.

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

Dependent Variable: LOG(BIOA)
Method: Panel Least Squares
Date: 09/13/21 Time: 12:53
Sample: 2011 2020
Periods included: 10
Cross-sections included: 3
Total panel (unbalanced) observations: 29
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.974410	Mean dependent var	21.62661
Adjusted R-squared	0.964175	S.D. dependent var	2.771130
S.E. of regression	0.524508	Akaike info criterion	1.796414
Sum squared resid	5.502171	Schwarz criterion	2.220747
Log likelihood	-17.04800	Hannan-Quinn criter.	1.929309
F-statistic	95.19623	Durbin-Watson stat	1.064167
Prob(F-statistic)	0.000000		

Source: Computed by Researcher Using Eviews 10.0 Statistical Software

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

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. The adjusted R-squared (R^2) indicated that about 96% of the changes in biological asset is accounted for by the explanatory variables. The remaining 4% could be explained by other factors capable of influencing 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.

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 reverse becomes the case.

4.3.1 Hypotheses One: Liquidity does not have significant effects on the biological assets of Nigerian Agricultural firms.

Decision: From the panel regression analysis in Tables 3, the P-value of 0.2625> 0.05. Therefore, the null hypothesis is accepted and the alternative hypotheses accepted. This

implies that liquidity do not have a significant impact on the biological assets of Nigeria Agricultural Industry.

4.3.2 Hypotheses Two: Firms' age does not have significant effect on the biological assets of Nigeria agricultural Firms.

Decision: From the panel regression analysis in Tables 3, the P-value of 0.3420 > 0.05. Therefore, the null hypothesis is accepted and the alternative Hypotheses rejected. This implies
that firm age does not have a significant impact on the biological assets of Nigeria Agricultural firm.

4.3.3 Hypotheses Three: Firms' size does not have significant effect on the biological assets of Nigeria Agricultural Firms.

Decision: From the panel regression analysis in Tables 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 Agricultural firm.

4.3 Discussion of Findings

In the test of hypotheses One, the panel regression analysis reveals that that liquidity Do not have a significant impact on the biological assets of firms in Nigeria. The implication of this result is that as the liquidity ratio of Agricultural firms increases or decreases, biological assets
are not affected. It is not surprising because the firm need 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 do 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 hypotheses Six, the panel regression analysis reveals that firm age does not have a significant impact on the biological assets of Nigeria 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 as a result of 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 hypotheses One, the panel regression analysis reveals that firm size does not have significant impact on the biological assets of Nigeria Agricultural firm. The findings show the relevance of total assets in biological assets, this implies that the ability of a firm in 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 out that firm size do 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) that revealed that firm size significantly influences biological assets disclosure.

5.1 Summary of Findings

The findings are summarized as follows:

i. Liquidity (measured by current ratio) has a positive and 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 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 insignificant (P-value of 0.3705 >0.05) effect on the biological assets of agricultural firms in Nigeria.

5.2 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 have negative and significant effect on biological assets, profitability, liquidity, 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 biological assets of agricultural firms in Nigeria. The adjusted R-squared (R^2) indicated that about 96% of the changes in biological asset is accounted for by the explanatory variables. The remaining 4% could be explained by other factors capable of influencing 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 biological assets of agricultural firms in Nigeria.

5.3 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 on 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 a current and new innovation in the industry to attract new investors, boost productivity and enhance shareholders' fund.

There is a paucity of research in Nigeria that examined factors that affect biological assets of quoted agricultural firms in Nigeria, despite the importance of these kind of asset in the growth of agricultural companies in Nigeria. Most of the prior studies on biological asset was 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 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 significant effect on biological assets.

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