
Research Article

EFFECT OF FAIR VALUE ACCOUNTING MEASUREMENT ON BIOLOGICAL ASSETS IN NIGERIA: A CASE STUDY OF OKOMU PALM OIL NIGERIA PLC

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ABSTRACT: The research examines the effect of fair value accounting on biological assets in Nigeria. Data were employed from Okomu Nigeria Plc annual report and analyzed using Simple Percentages and Multiple Regression. Hypotheses were tested at 0.05 level of significance. The study finds that market value of building has significant effect on the biological assets of Nigerian Agricultural sector. The study also finds that market value of machine and equipment influences biological assets of Nigerian agricultural companies. Lastly, the study finds that current market price of motor vehicle and tractor has significant effect on biological assets of Nigerian agricultural firms. The study recommends that there is need for agricultural firms to adopt the fair value accounting system in order to keep proper records of its biological assets.

KEYWORDS: Biological assets, Effect, Fair value accounting, fair values, Market price

I. INTRODUCTION

Fair value accounting is a widely discussed issue in the literature. Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction [1] Even though fair value is responsible for the volatility of the results and for stimulating some managerial discretion, it also incorporates more information into financial statements. In order to explore the perception of investors of this additional information, it is important to differentiate recognition and disclosure [2]

The first idea conveyed by fair value is that of market value, in situations where an active market exists for the item to be exchanged, and this measure can be more easily perceived. But fair value is not restricted to such idea: whenever the market is not available, other techniques can be used to determine it, such as the discounted cash flow, which is also related to output values and seeks to determine, although indirectly, the likely market value of an asset [3].

[4] pointed out that fair value must not be defined as market value, since such definition generates doubts when the market value does not exist. According to the abovementioned authors, fair value arose for situations in which there is no market: with the purpose to attribute value to an asset that does not have a market price, the fair value concept was adopted [4] Hence, the term fair value is more comprehensive since it includes market value as the first alternative to evaluate assets, prices of similar items, references in the industry or the present value of net cash flows projected to the asset.

The use of Fair Value Accounting (FVA) has both gained impetus and notoriety [5]. The importance of fair value accounting cannot be overemphasized. Fair value accounting is used as a certainty of the market value of an asset (or liability) for which a market price cannot be determined (usually because there is no established market for the asset)[6] posits that fair value accounting provides accurate asset and liability valuation on an ongoing basis to users of a company's reported financial information. He further stated that fair value accounting limits a company's ability to potentially manipulate its reported net income. Using fair value accounting, gains or losses from any price change for an asset or liability are reported in the period in which they occur [6].

The use of fair value for some specific assets is justified. On that ground, items that are subject to great volatility in market prices, such as biological assets, which are also subject to great alterations in their physical characteristics, must be evaluated by fair value so as to reflect the company's economic situation more faithfully.

However, the problems of fair value accounting have been widely acknowledged. It has been asserted that Fair Value Accounting in the financial reporting framework poses a challenge for auditors and that reliable auditing of financial reporting is at risk [7]. According to [8] even members of IASB have acknowledged the difficulties of verification when fair values must be determined in this manner. Also there have been suggestions that mark-to-market model based fair values estimates required under certain financial reporting standards are unverifiable [9];[10].One key challenge of FVA is the lack of knowledge by accountants and auditors particularly in developing countries like Nigeria.

The discussions on fair value valuation have gathered critics and defenders. They are the oldest discussions among theorists in the international scenario as they have been part of the American accounting standards for a long time and have gained more importance with the issuance of the international standards by IASB. [5] reported that the conceptualization of fair value is rather old and that, in 1939, Kenneth Mac Neal addressed the topic using the terms *fair and true*, thus attributing economic meaning to valuations. [11], [12],[13],[14],[15],[16]and[17] also addressed the topic with a focus on biological assets.

Biological assets are living organisms which, therefore, may change over time, normally in terms of the developmental aspect, as is the case of plantations and bred animals [18] Additionally, they are subject to high market price fluctuations resulting from the influence of the economy, climate, diseases, pests, etc. These two aspects, namely development and price volatility, cause alterations in the value of such assets so that the concept of historical cost shows to be inappropriate [18] The cost of basic raw material and of other production factors used does not reflect the present value of an asset, the number of future benefits expected from the application of resources in each season or breeding in their various maturation phases or remuneration for the waiting time [18].

In Brazil, rural and industrial activities were treated in a similar fashion, that is, by giving breeding animals the same treatment used for machines. This implicated useful life depreciation, as observed in [19] and Resolution CFC 909/01 (revoked by Resolution CFC 1186/2009). Additionally, only livestock could be evaluated by market prices, and if an active market existed for such an asset. But with the implementation of statement CPC 29, fair value valuation and its respective comparative demonstration became mandatory for all biological assets as from 2010.Fair value valuation requires technical and market knowledge for valuations to be made as a biological asset develops since the economic benefits generated in each phase of the animal's growth are different [20]

II. Review of Literature

In accounting and in most Schools of economic thought, fair value is a rational and unbiased estimate of the

potential market price of a good, service, or asset [21]. It takes into account such objective factors as: acquisition/production/distribution costs, replacement costs, or costs of close substitutes; actual utility at a given level of development of social productive capability; supply vs. demand; and subjective factors such as: risk characteristics; cost of and return on capital and individually perceived utility [21].

In accounting, fair value is used as a certainty of the market value of an asset (or liability) for which a market price cannot be determined (usually because there is no established market for the asset) [21]. Under US GAAP (FAS 157), fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date [5]. This is used for assets whose carrying value is based on mark-to-market valuations; for assets carried at historical cost, the fair value of the asset is not used [5] [19] summarized the concept of fair value accounting as “the value in use is considered to be entity specific, meaning that it cannot be expected to be a uniform base because management assumptions and expectations of the use of an asset may differ between entities”.

The importance of fair value accounting cannot be overestimated. [6] avers that a primary advantage of fair value accounting is that it provides accurate asset and liability valuation on an ongoing basis to users of a company’s reported financial information and limits a company’s ability to potentially manipulate its reported net income. Using fair value accounting, gains or losses from any price change for an asset or liability are reported in the period in which they occur [6].

The problems of fair value accounting have been widely acknowledged.[22] notes that there is lack of a single consistent framework for applying fair value measurements and developing a reliable estimate of fair value in the absence of quoted prices and it has created inconsistencies and incompatibilities, especially in the financial market. This means that guidance is needed to eliminate the inconsistencies and develop a solid frame work that can be used in fair value measurements [22]. [23] summed the controversies surrounding the use of fair value accounting to include: The usefulness of FVA; Awareness of FVA issues; Audit Challenges associated with FVA, and Appropriateness of FVA. [7] asserts that FVA in the financial reporting framework poses a challenge for auditors and that reliable auditing of financial reporting is at risk,[7] According to [24], even members of IASB have acknowledged the difficulties of verification when fair values must be determined in this manner. Also there have been suggestions that mark-to- market model based fair values estimates required under certain financial reporting standards are unverifiable[8] ; [9].

[9] argued that the measurement using fair value is a subject to manipulation. Thus, it is a weak measurement tool of valuations and performances instead of historical cost. He stated that every effort to ban the conservatism of accounting will fail and accounting cannot compete to market in valuing a company.[24]found that the use of fair value consistently will be more relevant compared to historical cost. They also found the consistent evidence to the earnings manipulation in the application of fair value by using sample from British Real Estate and Investment Fund Industries. The results were that the fair value of assets for investment companies was considered irrelevant, while for real estate samples was not, indicating possible earnings management in the form of income smoothing in real estate industry. In addition, [25] stated that when the fair value accounting results in ambiguous measurement, the value relevance becomes weak.

Fair value accounting on biological assets is a new concept that was brought on by the development of IAS 41 and the related GRAP 101 with the actual determination of fair value remaining a subjective matter [5] The effective accounting for, and reporting on the fair value of biological assets has been a challenge since its introduction (ASB, 2006). Even in the private sector, which is regarded as the frontrunners in compliance with accounting standards,

challenges with the implementation of their equivalent accounting standard, IAS 41, are evident.

2.1. Concept of Biological Assets

The accounting of biological assets, other than livestock, was introduced to the field of accounting with the development of the International Accounting Standard (IAS) 41 [26]. The adopted IAS 41 replaced the previously applied AC 205 standard which only addressed the recognition of livestock as a biological asset [21]. The term biological assets refer to living animals and plants which are parts of agricultural activities of the Company [27]. Biological assets are living organisms which change over time, normally in terms of the developmental aspect, as is the case of plantations and bred animals [28] additionally, they are subject to high market price fluctuations resulting from the influence of the economy, climate, diseases, pests, etc [28]. During the process of biological transformation, there are two possible outcomes asset changes through growth, degeneration or procreation, or production of agricultural produce.

The first separate standard for agriculture activity (IAS 41–Agriculture) was issued in 2000 and first applied to annual periods beginning on or after 1 January 2003. Until 2014, all types of biological assets were within the scope of IAS 41, together with the agriculture produce at the point of harvest and government grants. According to IAS 41 from 2009, biological assets should be measured at fair value less costs to sell, with all changes in the fair value included in income statement for the period in which they arise. Although, this provision is intended to increase transparency and relevancy of accounting information, it may create practical issues and introduce a significant proportion of subjectivity. The ideal scenario is the situation where there is an active market for a specific type of biological asset, in which case the market price is used as a fair value [18]. If a company estimates that there is no active market, it has to select the appropriate valuation model from the lower levels of the fair value hierarchy – market-determined prices or alternative estimates of fair value [18]

For a biological asset to be recognized, the entity should control the asset as a result of past events, it should be probable that future economic benefits associated with the asset will flow to the entity and the fair value or cost of the asset can be measured reliably. On initial recognition, the biological asset (including growing produce on a bearer plant) is required to be measured at its fair value less costs to sell, since it is presumed that the fair value can be measured reliably [29] It is pertinent to note that the cost - benefit exemption cannot be invoked and any claim that fair value measurement would be ‘clearly unreliable’ would need to be supported by strong evidence, such as, including the outcome of an actual valuation exercise. Biological assets are measured at fair value in order to allow users to gain more timely information for decision-making [29]. A biological asset can be sold, transformed into agricultural produce (trees turned into wood) or biological assets (e.g. sheep giving birth to a lamb) [30]. In addition to biological assets IAS 41 applies to agricultural produce representing the harvest of biological assets by the entity, but only until the harvest [28].

Accounting estimates are required especially when the asset is evaluated at the present value of expected net cash flows from the asset, since the input variables are highly judgmental and include projected cash flows, discount rate, growth rate, number of years in the projection and other key assumptions [31] All these inputs are affected by a number of externalities, such as climate change, adverse weather and market forces, which makes predictions even more unstable. Therefore, there are many areas of accounting estimates when evaluating biological assets. The main issue related to accounting estimates in general is the degree of estimation uncertainty, which depends on the nature and reliability of information available to management, but is also affected by unintentional or intentional management bias (IFAC,2009).

Previous researches have shown that there have been difficulties in evaluating the biological assets. Regarding the potential problems with estimating fair value, there were concerns about the cost, complexity and practical

difficulties of the fair value measurement of biological assets when an active market for these assets is not present [32] As a result, the valuation of biological assets at cost, which should be an exceptional case according to the standard, is a common approach in many countries of the world. [14] conducted a research on companies from the private sector and revealed that the historical cost is still the most common valuation basis for biological assets in France. Moreover, the absence of an active market also leads to companies using a variety of proxies for fair value, which does not contribute to the harmonization of accounting practices in agriculture [14]

2.2 Fair Value Accounting under International Financial Reporting

In general, the value-relevance research infers about how the accounting information is reflected in the share prices and influences the decision-making of investors. Moreover and in response to the comment of [9], who said that "the value-relevance literature's reported associations between accounting numbers and common equity valuations have limited implications or inferences for standard setting", these authors argue that the incorporated financial data in the accounting records reflect relevant information not only for investors but also for the standard setters and all stakeholders of the firm.

In fact, incorporating more information into financial statements seems to be the most important advantage of fair value accounting according to several authors [1] In particular, fair value covers more information than historical cost whenever there is either an observable market price that the manager cannot adjust or an independently observable and reliable estimate of market price [2]

The increase of up-to-date and relevant information with higher level of transparency improves investor self-reliance in capital markets. "Fair value reflects the amount at which an asset can be bought or sold and provides a better indication of current risk. As a result, investors and other decision-makers can exercise better market discipline and corrective actions regarding a company's decisions" [1]. Ideally, better financial information induces some potential benefits for investors, such as reduced risks and cost of capital.

Moreover,[3] argues that "those who criticize the limited use of fair values in the IFRS should question their application of national GAAP and whether previous financial statements really had the qualities they claimed". Nonetheless, there are also some well-known disadvantages related to fair value accounting. The recognized fair value changes in capital or in profit and loss are responsible for the higher volatility of reported results, hiding the value creation process [1] Even though volatility becomes a disadvantage to investors if it represents managerial discretion, [2] also defends that volatility should not be a problem whenever it reproduces timely incorporation of new information in earnings.

Some authors go further in the criticism by supporting that fair value accounting may have been responsible for the recent financial crisis. [5] argue that because the fair value-based models may not be reliable, fair value accounting may have contributed to the procyclicality of the financial system, exacerbating fluctuations in the financial system and, in severe cases, causing a downward spiral in financial markets.

Furthermore, when a liquid market price is not available, "mark to market" accounting leads to "mark to model" accounting, with several valuation models, such as the present value (discounted cash flow) method and the methods adapted from the original Black-Scholes model [33] These fair value models are based on specific parameters and assumptions that could lead to management manipulation [1]; [3] In fact, and given fair value measurement, [34] state that when accounting standards allow managerial discretion, this opportunity is unscrupulously used by managers in practice and will compromise the relevance of financial reporting. Therefore, "when users of financial reports judge the source of information as unreliable, they will not treat the information as useful or relevant" [34] Even though a liquid market price is able to reduce the opportunity for discretion by managers, [2] also highlights

that market liquidity could also lead to another problem, when the spreads are higher enough to raise uncertainty about fair value in the financial statements.

According to [35], fair value accounting is employed in four domains: financial instruments (with easy access to market price), investment property (with feasible future cash flow estimation), agriculture and present value techniques. In agriculture, there was a strong expectation regarding the existence of a highly developed future and active market for commodities. Nevertheless, in non-financial assets, such as investment property and biological assets, sometimes a market price is not available, which makes a fair value assessment more difficult. Fair value accounting of non-financial assets and biological assets, in particular, will be explained in the next sub-section.

2.3 Agency Theory

The agency theory was propounded by Jensen and Meckling in 1976. Agency relationship could be defined as a contract among the organization owner(s) and its top management. Managers work with the organization as agents to perform some service on behalf of owners who delegate some decision making authorities to managers. These authorities could be misused by managers to meet their own personal interests. Therefore, the existence of the accountant in the agricultural helps in proper accountability and also will ensure that the management carries out its plans according to procedures [36]. An Accountant is considered as an agent and monitor for a variety of users of financial statement that include the board, audit committee and senior management. Agency problems could occur when the board or its audit committee is inefficient, and hence, the senior management is likely to be a powerful influence over the accountant.

2.4 Value Relevance Theory

[36] propounded the value relevance theory. Value relevance is defined in the extant literature as the association between accounting amounts and market values. According to [37] value relevance theory has come a long way since Ball and Brown published their first paper on the usefulness of accounting earnings in 1968. They refuted the belief that accounting numbers lack meaning and were of little or no use to investors. The study of Ball and Brown was motivated by their disagreement with a common opinion at the time, that accounting income number cannot be defined substantively, that they lack meaning and are therefore of doubtful utility. This may be the case in historical accounting method where figures in the financial accounting method where figures in the financial statements are just a repetition of last year's figures. With the fair value model, Ball and Browns proposition comes true because the fair value measurement basis reflects current market trends. Therefore investors can reliably base their decisions on the financial statements.

Value relevance theory measures the relation between current market value and accounting numbers at any given date. According to [3], the relationship between market value and current accounting numbers at any given date is influence by certain events. These events for biological assets include: famine, earthquakes or even biological transformations these tend to alter the market value of the biological assets and change their price. Value relevance tests are joint test of relevance and reliability. These are two of the concepts on which fair value measurement is based.

III. METHODOLOGY

3.1 Research Design

This research used ex-post facto research design.

3.2 Nature and Sources of Data

The study used secondary sources of data. Annual reports of Okomu Palm Oil Nig. Plc starting from 2011 to 2015.

3.3 Area of Study

The area of this study is the Okomu Oil Company Plc, Okomu-Udo Ovia South West LGA, Benin City, Edo State Nigeria

3.4 Model Specification

The objectives will be analyzed using the Multiple Linear Regression Model. Model is a simplified view of reality designed to enable a researcher describe the essence and inter relationship within the system or phenomenon it depicts.

In writing the model equation, the following symbols were used to denote their respective variables.

BAST	= Biological Asset
BLDN	= Building
MEQ	= Machine and Equipment
MVTR	= Motor Vehicle and Tractor
EP	= Exit Price
a	= Constant of the equation
b	= Coefficient of the independent variable
u	= Error terms

3.5 Description of variables

For hypothesis which tests the relationship between the four variables used in this research work, It was represented by the equation.

$$BAST = a + BLDN(b) + u \quad (i)$$

For hypothesis one, which states that Market value of building does not have any significant effect on the biological assets of Nigerian Agricultural sector, it was represented by equation one.

$$BAST = a + BEQ(b) + u \quad (ii)$$

For hypothesis two, which states that market value of machine and equipment does not significantly affect the biological assets of Nigerian agricultural companies, it was represented by equation two.

$$BAST = a + MVTR(b) + u \quad (iii)$$

For hypothesis three, which states that Current market price of motor vehicle has no significant effect the biological assets of Nigerian agricultural firms, it was represented by equation three.

$$BAST = a + EP(b) + u \quad (iv)$$

For hypothesis four, which states that Exit price has no significant influence on biological assets of Nigerian

agricultural firms, it was represented by equation four.

IV. PRESENTATION AND ANALYSIS OF DATA

4.1 Presentation of Data

The data obtained from the annual report of Okomu Palm Oil Nig. Plc was presented and analyzed via the Statistical Package for Social Sciences (SPSS, 15.0).

Years	Biological Assets	BLDN	M& EQP	Motor & Tractor
2011	15049344	76565	102508	51601
2012	21008866	1060762	818843	403414
2013	18974568	1051785	907131	426667
2014	5111060	3916012	738508	430174
2015	7395898	3889044	724630	391990

Source; Okomu Annual Report 2011-2015

V. DISCUSSION OF FINDINGS

The first hypothesis which represents the impact of market value of building on the biological assets of Nigerian Agricultural sector which was tested with two variables (Biological Asset and market value of building). The results as presented in the coefficients revealed that calculated t-statistics ($t = -0.700$) for parameter market value of building of Nigerian agricultural companies is greater than tabulated t-statistics at 0.05 level of significance. The regression equation also revealed that biological assets accounted for -0.991 units for every decrease in market value of building in Nigerian agricultural companies. The coefficient of determination (R^2) 0.962 indicating that 96% variation in biological assets decrease is caused by variation in market value of building in Nigerian agricultural sector. The remaining 4% unexplained variable is due to variation in other variation outside the regression model which is otherwise included in the stochastic error term. The relationship between biological assets and market value of building in Nigerian agricultural sector is strongly high, positive and statistically significant at 0.05 level ($r=0.981$ $p>0.05$). The overall regression model is statistically significant in terms of its overall goodness of fit ($f = 8.546$ $p < 0.05$). As a result of this the study accepts the alternative hypothesis meaning that the market value of building has significant impact on the biological assets of Nigerian Agricultural sector.

The second hypothesis was tested to ascertain the effect of market value of machine and equipment on biological assets of Nigerian agricultural companies in line with hypothesis two in section one. The result measured whether there is relationship between biological assets and market value of machine and equipment of Nigerian agricultural companies. The result revealed that, calculated t – statistics ($t = 0.396$ $p < 0.05$) is less than tabulated t= statistics at

0.05 level of significance. The coefficient of determinant (R^2) was 0.962 indicating that 96% variation in return on asset is caused by variation in biological assets of Nigerian agricultural companies. The remaining 4% unexplained variation is caused by other variable outside the regression model which are otherwise include in the stochastic error term. The relationship between biological assets and market value of machine and equipment agricultural companies is high, positive and statistically significant at 0.05 alpha level ($r = 0.981$ $p > 0.05$). Also, the regression model is statistically significant in terms of its overall goodness of fit ($f = 8.546$ $p < 0.05$). Hence, the alternative hypothesis was accepted. This implies that there significant relationship between biological assets and market value of machine and equipment of Nigerian agricultural companies.

Based on the result of the last hypotheses which testes the effect of current market price of motor vehicle on biological assets of Nigerian agricultural firms which was tested with two variables (Biological Asset and current market price of motor vehicle and tractors). The results as presented in the coefficients revealed that calculated t-statistics ($t = -0.161$) for parameter current market price of motor vehicle and tractors of Nigerian agricultural companies is greater than tabulated t-statistics at 0.05 level of significance. The regression equation also revealed that biological assets accounted for -0.161 units for every decrease in current market price of motor vehicle and tractors of Nigerian agricultural companies. The coefficient of determination (R^2) 0.962 indicating that 96% variation in biological assets decrease is caused by variation in current market price of motor vehicle and tractors in Nigerian agricultural sector. The remaining 4% unexplained variable is due to variation in other variation outside the regression model which is otherwise included in the stochastic error term. The relationship between biological assets and current market price of motor vehicle and tractors of Nigerian agricultural companies is strongly high, positive and statistically significant at 0.05 level ($r=0.981$ $p>0.05$). The overall regression model is statistically significant in terms of its overall goodness of fit ($f = 8.546$ $p < 0.05$). As a result of this the study accepts the alternative hypothesis which states that Current market price of motor vehicle has significant effects the biological assets of Nigerian agricultural firms.

VI. SUMMARY OF FINDINGS

The findings of this study are as follows:

1. The researcher observed that market value of building has significant effect on the biological assets of Nigerian Agricultural sector.
2. It was also discovered that market value of machine and equipment influences biological assets of Nigerian agricultural companies.
3. The study equally discovered that current market price of motor vehicle and tractor has significant effect on biological assets of Nigerian agricultural firms.

VII. CONCLUSION

There is evidence that the recognized amount of biological assets under the fair value indicators namely, market value of building, market value of machine and equipment, market value of machine and tractors are very relevant

in the general performance of Nigerian Agricultural sector. Secondly, the recognized amount of biological assets like market building, machine and equipment are more relevant for firms that exhibit higher disclosure levels.

VIII RECOMMENDATIONS

Based on the findings, the researcher recommends that;

1. The management of Nigerian quoted Agricultural firms should work very hard to optimize the market of their land and building in order to increase their performance as well as productivity. And earnings for their business transaction.
2. There is need for agricultural firms to adopt the fair value accounting system in other to keep proper records of its biological assets.

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