



Fair value and environmental disclosure impact on agricultural company financial performance

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Abstract

Biological assets are growing assets owned by a company and can provide economic benefits in the future. In Indonesia, biological assets are recorded and recognized based on PSAK 69. The PSAK 69 requires the use of the fair value method to measure biological assets that were previously measured using the historical cost method. This study aims to determine the impact of PSAK 69 implementation on financial performance. This study also investigates the effect of environmental reporting on financial performance. The agricultural listed company on the Indonesia Stock Exchange was chosen as the sample in this quantitative study. The data was obtained from the financial reports from 2015 to 2020. The environmental reporting data was measured by a PROPER rating. The data was then analysed using panel data regression. The findings of this study indicated that the implementation of PSAK 69 did affect the financial performance. The environmental reporting using the PROPER rating however did not affect the financial performance. The result of this study can be used as a basis for decision making for management to improve the company's financial performance and environmental reporting.

Keywords: Biological Assets; Agriculture; Fair Value; Return; Environmental Reporting

Abstrak

Aset biologis adalah aset bertumbuh yang dimiliki oleh perusahaan dan dapat memberikan manfaat ekonomi di masa mendatang. Di Indonesia, aset biologis dicatat dan diakui berdasarkan PSAK 69 mulai tahun 2018. PSAK 69 meminta aset biologis diukur dengan metode *fair value*, yang sebelumnya diukur dengan *historical cost*. Penelitian ini bertujuan untuk mengetahui dampak penerapan PSAK 69 tentang aset biologis terhadap kinerja keuangan. Selain itu, penelitian ini juga ingin mengetahui dampak pelaporan lingkungan pada kinerja keuangan. Penelitian ini merupakan penelitian kuantitatif dengan perusahaan sektor agrikultur yang terdaftar pada Bursa Efek Indonesia sebagai sampelnya. Data penelitian bersumber dari laporan keuangan perusahaan tahun 2015-2020. Data tentang pelaporan lingkungan diambil dari peringkat PROPER. Data diolah dengan menggunakan analisis regresi data panel. Hasil dari penelitian ini menunjukkan bahwa perubahan pengukuran pada aset biologis berpengaruh pada kinerja keuangan perusahaan. Pelaporan lingkungan menggunakan peringkat PROPER tidak berpengaruh terhadap kinerja keuangan perusahaan. Penelitian ini dapat dijadikan dasar pengambilan keputusan bagi manajemen untuk meningkatkan kinerja keuangan perusahaan serta meningkatkan pelaporan lingkungan.

Kata Kunci: Aset Biologis; Agrikultur; *Fair Value*; *Return*; Pelaporan Lingkungan

INTRODUCTION

Agricultural companies are companies engaged in the processing of biological assets, which are growing assets that can provide economic benefits in the future (Elad & Herbohn, 2011). Biological assets include various types of animals and plants capable of producing agricultural products (Ikatan Akuntan Indonesia, 2018). Agricultural companies measure biological assets using the fair value method based on the PSAK 69, where companies measure their biological assets at the beginning and end of the period according to market prices and minus costs to sell (Ikatan Akuntan Indonesia, 2018). This standard applies to biological assets that are still growing until harvested (Ikatan Akuntan Indonesia, 2018).

Previously, biological assets were measured using the historical cost method based on PSAK 16. Assets are recorded at cost under the historical cost method (Ikatan Akuntan Indonesia, 2018), which covers land preparation costs, nursery costs, fertilization costs, and other costs until the assets are ready to be harvested. If the asset can be harvested, it will be depreciated by estimating the productive age of the asset (Ikatan Akuntan Indonesia, 2018). When assets are recorded using the historical cost method, the value displayed at the end of the period is only the value at the beginning of recognition, even if the asset continues to grow, reducing the reliability of financial statements (Argilés-Bosch et al., 2012) and increasing the reported value bias (Falikhatun et al., 2020). As a result, financial performance will suffer, affecting the assessment of the company's financial performance (Argilés-Bosch et al., 2017). Fair value measurements equalize asset valuations to market conditions, which is expected to reduce the value bias displayed and improve financial performance (He et al., 2018). The difference between PSAK 16 and PSAK 69 can be seen in Table 1.

Table 1. PSAK 69 vs PSAK 16

	PSAK 69	PSAK 16
Recognition	The company recognizes a biological asset when it derives future economic benefits and can reliably measure its cost (par 7).	The company recognizes a biological asset if it can deposit the biological asset, generating future economic benefits, and the fair value or cost can be measured reliably (par 10).
Measurement	Measured at the beginning and end of the period less costs to sell (par 12), except when a biological asset cannot be measured reliably. Biological assets can be measured at cost less accumulated depreciation (par 30).	Recorded at cost (par 15).

Source: Ikatan Akuntan Indonesia (2018)

In Indonesia, research related to PSAK 69 is beginning to emerge, although it is still focused on the application of PSAK 69 to a single firm object (see for example Falikhatun et al., 2020; Izzah et al., 2020; Muhamada, 2020). Other studies were conducted to compare the results of financial performance or earnings management before and after the application of PSAK 69 (see for example, Fachmi, 2020; Pratama, 2020; Romadoni, 2020). The results of this study solely explain whether or not the company implemented PSAK 69 properly and whether or not there is a difference between before and after implementation. Other research (see for example, Aryanto, 2012) also investigated the company's financial condition at the time of applying PSAK 69 and found that using fair value can increase volatility in company profit. The volatility is caused by the recognition of profit/loss from the difference in biological asset measurement. This volatility causes fluctuations in profit/loss, affecting investment decisions and making managers' decisions less precise in the future (Aryanto, 2012). Our study is unique in that it seeks to determine

not only the impact of changes in the measurement of biological assets, but also the influence of environmental activities on the company's financial performance. There is no research that discusses the impact of PSAK 69 implementation and environmental activities on financial performance, prompting this research to be conducted.

Biological assets recorded using fair value provide numerous benefits, including more relevant and reliable financial statements (Huffman, 2018; Argilés-Bosch et al., 2017). Companies in developing countries prefer to use fair value since it is easier and avoids the value measurement bias (Goncalves & Lopes, 2015). This is because the method of measuring biological assets is nearly equal to the market price, resulting in identical conclusions. The use of fair value also results in a better prediction of the company's cash flow in the coming year (Herrmann et al., 2006) and more informative stock prices (Wen-hsin Hsu et al., 2018). This occurs because each recording follows the growth of assets (Orban et al., 2015). Indirectly, the reported value of biological assets is not the true worth. The concept is different when the company uses historical cost method. When using historical cost, the reported value is not the true value because biological assets are only recorded at the initial measurement (Van Biljon & Scott, 2019), but the condition of the asset has grown and increased the net worth (Orban et al., 2015). Thus, evaluating the company's financial performance by comparing it to the previous period will be easier (Grege-Staltmane, 2010). This is due to the fact that when using historical cost, biological assets get mixed up with the company's fixed assets, resulting in an inaccurate comparison of asset values. However, the value of biological assets cannot be compared with other companies because each company uses different market prices (Grege-Staltmane, 2010).

This study aims to investigate the effect of changes in biological assets on financial performance framed by the agency theory. The agency theory discusses the contractual relationship between managers acting as agents and investors and creditors acting as principals (Jensen & Meckling, 1976). Principals entrust their funds to agents to obtain maximum returns on their investments, while agents work hard to earn salaries and bonuses (Jensen & Meckling, 1976; Panda & Leepsa, 2017). However, the relationship between the agent and the principal can lead to agency conflicts due to disparities in interests and information. Differences in interests arise when the principal, as the owner of capital, seeks the highest possible return on his investment (Arifa, 2017), while the manager works hard to achieve bonuses and salary (Wellalage & Locke, 2013). Information gaps occur when the agent has more information than the principal, leading to the principal's distrust of the agent (Arifa, 2017; Jensen & Meckling, 1976). To overcome this, a high quality financial report is needed (Hadiyanto et al., 2018). Financial reports are regarded as being of good quality if they contain more relevant values and are easily comprehended by stakeholders (Falikhatun, 2019).

Changes in the method of measuring biological assets can reduce agency conflicts between agents and principals (Falikhatun et al., 2020). The use of fair value can improve the company's financial performance (Elad & Herbohn, 2011) as it displays more relevant and trustworthy values (Falikhatun et al., 2020) because the measurement always follows the market price (Herrmann et al., 2006). Companies that employ fair value measurements are also considered more informative by investors (Wen-hsin Hsu et al., 2018). The use of fair value in measuring biological assets makes it easier for investors to understand the condition of the development of these assets, which is the company's primary activity (Wen-hsin Hsu et al., 2018). Fair value is also considered to promote the transparency of the company's financial value/performance, hence increasing investor confidence and reducing the occurrence of agency conflicts (Falikhatun et al., 2020). For this reason, this study aims

to determine the effect of applying fair value to biological assets on the company's financial performance and the following hypothesis has been developed:

H_i: Using fair value for biological assets has a positive effect on the company's financial performance.

Companies' activities in the agricultural sector tend to be related to the environment, such as planting oil palm trees and breeding animals that have an impact on the environment (Cavaco & Crifo, 2014). This will pollute the surrounding environment (Zhang et al., 2020). As a regulator, the government attempts to solve this problem by enacting rules aimed at the surrounding environment as a result of companies' business activities (Lahouel et al., 2020). These activities are generally carried out in the form of environmental reporting as a type of corporate social responsibility (CSR) (Horváthová, 2010). In Indonesia, the Ministry of the Environment has started to pay attention to environmental reporting (Mumtazah & Purwanto, 2020). The government recognizes conforming companies by assigning them a rating on the Company Performance Rating Program (PROPER). The PROPER rating is assigned if the company has carried out environmental management activities as a result of its commercial activities (Kementerian Lingkungan Hidup, 2020). External factors from the government also encourage companies to carry out environmental reporting (Tzouvanas et al., 2019). Government policies for stricter environmental management force companies to begin environmental reporting (Tzouvanas et al., 2019). This will encourage companies to avoid the higher costs associated with fines for failing to report on environmental issues. Environmental reporting is a type of corporate responsibility towards environmental management (Li et al., 2017). Environmental reporting demonstrates that companies are concerned about the environment in addition to profit (Zhang et al., 2020). As a result, environmental reporting has become one of the components that has begun to pay attention to assessing the economic-environmental balance (Wang et al., 2020).

Previous studies found that environmental performance influences financial performance (Aigbedo, 2021; Tzouvanas et al., 2019), because companies strive to strengthen financial governance in order to achieve good environmental and financial performance (Tzouvanas et al., 2019). Companies with poor financial performance, on the other hand, are less likely to engage in environmental reporting because it will create a problem due to costs incurred (Aigbedo, 2021). In Indonesia, one of the environmental performance indicators is PROPER, that also has an impact on financial performance (Luh et al., 2017; Rahmawati, 2012). PROPER carried out by the company has an impact on improving the brand's image and growing consumer awareness (Rahmawati, 2012). Consumers become loyal to the company's products as a form of company appreciation in environmental management (Luh et al., 2017). The increased number of loyal customers led to higher sales of the company's products, increasing the profit. Increasing earnings indirectly can boost the company's financial performance and attract investors (Utami, 2008). Thus, it can be concluded that when the company does environmental reporting, its financial performance improves.

Investors believe that good environmental reporting can increase the credibility of the company (Wang et al., 2020). Environmental reporting is viewed as a form of corporate obligation. This obligation is in the form of environmental responsibility costs that may arise due to environmental pollution (Utami, 2008). This can indirectly lower investment risk. The decrease in investment risk will attract other investors to invest (Wen-hsin Hsu et al., 2018). Investors also value good environmental reporting to convey the company's sound financial position and effective business management (Fitriani, 2013; Luh et al., 2017). Companies tend to have healthy business operations by saving costs in the form of

reducing their usage of raw materials, using energy more efficiently, and reducing production waste (Küçükbay & Arpazlı Fazlılar, 2016). Investors are therefore interested in purchasing the company's shares (Falikhatun et al., 2020). Environmental reporting can be used as a tool to assess environmental management (Gonenc & Scholtens, 2017). In the agricultural sector, environmental reporting is considered a responsibility for business activities (Alexopoulos et al., 2018; Nurputri & Nuzula, 2019). The existence of environmental reporting can increase investor confidence in management's ability to manage the company (Zhang et al., 2020) and the surrounding environment (Jo et al., 2014). Agency conflicts between agents and principals may decrease as investor confidence in the company rises (Wang et al., 2020). Based on previous studies, this study aims to explain the effect of environmental reporting on agricultural companies' financial performance, and a hypothesis is formulated:

H₂: Environmental reporting has a positive effect on the company's financial performance.

METHOD

This quantitative study examines the impact of biological assets and environmental reporting on the company's financial performance. The target population of this study is agricultural companies listed on the Indonesia Stock Exchange. The annual report from 2015 to 2020 served as the data source for this study. This period was chosen because it is three years before and after the company is mandated to apply fair value to its biological assets. The data for the PROPER assessment comes from a certificate regarding the announcement of the PROPER rating by the Ministry of Environment in 2015-2020.

The dependent variable in this study is financial performance, which is measured using return on assets (ROA). ROA was chosen because the net income will be impacted by changes in the measurement of biological assets (Falikhatun et al., 2020). Additionally, ROA is used to assess how effective the company is in managing its assets to generate profits (Goncalves & Lopes, 2015). ROA can be calculated by dividing net income by total assets. In this study, biological assets and environmental reporting are used as two independent variables. Biological assets are growing assets that will generate future economic benefits for the company (Ikatan Akuntan Indonesia, 2018). Biological assets are measured by the ratio of biological asset intensity (BIO). BIO is used to determine how much the share of biological assets owned by the company is worth compared to the total assets (Argilés-Bosch et al., 2017; Falikhatun et al., 2020). BIO is calculated by dividing biological assets by total assets. Environmental reporting is a form of corporate responsibility in managing the surrounding environment. This study uses the PROPER rating as a measurement tool for corporate environmental reporting. The environmental reporting variable was measured using a dummy variable with five categories. A value of 5 is assigned if a company gets a gold rating, 4 if it gets a green rating, 3 if it gets a blue rating, 2 if it gets a red rating, 1 if it gets a black rating, and 0 if it receives no rating.

This study also uses four control variables: liquidity ratios, solvency, company size, and the dummy variable of the year of application of fair value or historical cost on biological assets. Liquidity, solvency, and firm size were chosen because these ratios affect financial performance (Falikhatun et al., 2020; Romadoni, 2020). Liquidity is measured using the current ratio, which is calculated by dividing current assets by current liabilities (Falikhatun et al., 2020; Romadoni, 2020). Solvency is measured using the debt to asset ratio (DAR), which is calculated by dividing total debt by total assets (Romadoni, 2020). Company size is measured using the total book value of assets calculated from the natural

logarithm of the total assets (Wulandari, 2016). For the year dummy variable, a value of 0 is assigned for the period before the application of the fair value (2015 to 2017). The value of 1 is assigned for the period after the implementation of the fair value (2018 to 2020).

This study uses panel data regression because the research data is cross-sectional and time series data. Before testing the data, the classical assumption tests (the normality, multicollinearity, heteroscedasticity, and autocorrelation tests) are carried out first. The normality test was used to investigate whether the data was normally distributed (Hair et al., 2009). The test result showed the p-value of the K-S test was less than 0.05, indicating that the data was not normally distributed. Winsorizing is used to overcome outliers so that the data is normally distributed. Winsorizing was done by replacing outlier data with its outlier limit. Winsorizing is carried out on variables that cause abnormal data (Tukey, 1961). Winsorizing is done on a dependent variable that exists in a study (Chambers et al., 2000). In this study, winorizing was carried out on the dependent variable (ROA). After wisorizing the ROA, the data was normally distributed. Other tests (heteroscedasticity test, multicollinearity test, and autocorrelation test) produced results that met the classical assumption requirements.

After all classical assumptions have been met, a model test is conducted to determine which panel data regression model is the most appropriate. There are three models in the panel data: the common effect model (CEM), fixed effect model (FEM), and random effect model (REM). A common effect model (CEM) equation is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 C_1 + \beta_4 C_2 + \beta_5 C_3 + \beta_6 C_4 + e \quad (1)$$

The fixed effect model (FEM) equation is explained as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 C_{1it} + \beta_4 C_{2it} + \beta_5 C_{3it} + \beta_6 C_{4it} + e_{it} \quad (2)$$

The random effect model (REM) equation is explained as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 C_{1it} + \beta_4 C_{2it} + \beta_5 C_{3it} + \beta_6 C_{4it} + e_{it} \quad (3)$$

$$e_{it} = u_i + v_t + w_i \quad (4)$$

Notes:

β_1 - β_6	= regression coefficients	C_t	= dummy year
α	= constant	e	= error
Y	= financial performance (ROA)	i	= company i
X_1	= biological assets (BIO)	t	= period t
X_2	= PROPER ratings	u_i	= error by company
C_1	= Current ratio (CR)	v_t	= error by time
C_2	= Debt to asset ratio (DAR)	w_i	= total errors
C_3	= company size (SIZE)		

A Chow test was performed to determine the best model between CEM and FEM. In Table 2, the Chow test shows a p-value of less than 0.05, hence the FEM model was selected. Next, the Hausman test was carried out to choose the best model between FEM or REM. The p-value of the Hausman test is greater than 0.05, indicating that the selected model REM (see Table 2). The Lagrange Multiplier test was carried out because the Chow and Hasuman tests did not allow for a conclusion. The Lagrange Multiplier test shows a p-value of less than 0.05 (see Table 2), hence the model chosen is REM.

Table 2. Panel Estimation Model

Estimation Model	p-value	Selected Model
Chow Test	0.000	FEM
Hausman Test	0.093	REM
Lagrange Multiplier Test	0.000	REM

RESULT AND DISCUSSION

The purpose of this study is to examine the impact of applying fair value on the company's financial performance. According to Table 3, the average ROA is relatively low (Subramanyam, 2017), indicating that the assets of agricultural companies are not yet generating profits at their highest potential (Falikhatun et al., 2020; Subramanyam, 2017). The low profitability can be caused by the recognition of net losses from 48 samples. PT. Provident Agro Tbk. (PALM) has the highest ROA value, while PT. Bakrie Sumatera Plantations Tbk (UNSP) has the smallest. Even though the companies operate in the same field—palm oil processing—they have different ROA values. PALM in 2020 generated other income which is eight times higher than its operating income. It also had costs of goods sold and operating expenses, which tend to be constant from the previous year. On the other hand, UNSP has a high cost of goods sold and operating expenses when compared to sales. As a result, the company got a net loss from the sale. The difference between high and low ROA values demonstrates how effective the company is in managing its business activities to generate profits (Goncalves & Lopes, 2015). A higher ROA value indicates that a company is able to manage its assets more profitably, and vice versa (Falikhatun et al., 2020).

Table 3. Statistic Descriptive

Variable	N	Minimum	Maximum	Mean	Std. Deviation
ROA	119	-0.573	0.493	0.003	0.121
BIO	119	0.000	0.583	0.147	0.185
CR	119	0.046	5.790	0.632	1.054
DAR	119	0.001	1.925	0.556	0.274
SIZE	119	11.767	28.882	20.110	5.342

Table 3 shows that BIO is relatively low (Romadoni, 2020), indicating that companies tend to have more fixed assets than the portion of their biological assets to support their business activities (Azzahra et al., 2020). In this study, PT. Gozco Plantations Tbk (GZCO) which engages in palm oil processing, has the highest BIO because of its revaluation of biological assets from historical cost to fair value. In 2017, GZCO revalued its biological assets, and resulted in a 31% increase of the value. On the other hand, PT. BISI International Tbk. (BISI) was the company with the smallest BIO in 2016. In that year, BISI had zero biological assets because it had not yet measured its biological assets. Before applying the fair value, BISI recorded its biological assets in the work-in-process inventory account. The biological assets had just been measured and revalued by the company for 2018 utilizing fair value.

The current ratio (CR) indicates a company's ability to meet its short-term obligations (Subramanyam, 2017). CR has a high average value, indicating a tendency of the company to use short-term funding to support its business activities properly (Falikhatun et al., 2020). PT. BISI International Tbk. (BISI) has the highest CR, indicating that the company's current assets are able to pay off its short-term debts. The company with the lowest CR is PT. Gozco Plantations Tbk (GZCO). A low CR value indicates a tendency to look for alternative funding sources to support business activities. The difference in the portion of short-term debt and current assets of the company explains the high and low levels of CR (Romadoni, 2020).

Agricultural companies have a moderate average debt to asset (DAR) value (Subramanyam, 2017). This indicates that the majority of agricultural companies rely on debt financing. DAR can show how much of a company's debt is borne by its assets. PT. Provident Agro Tbk (PALM) owns the DAR with the smallest value, while PT. Bakri

Sumatra Plantations (UNSP) has the highest DAR, surpassing 100 percent. According to the UNSP financial report, the company is facing a capital deficiency, in which the debt exceeds the assets (Andre & Taqwa, 2014). Capital deficiency is one indicator of a company on the verge of bankruptcy (Andre & Taqwa, 2014).

When compared to other variables, company size (SIZE) has the highest average value, indicating that the agricultural sector is classified as a medium industry (Irawati, 2012). PT. Jaya Agra Wattie Tbk (JAWA) is the largest company in this study because it has a variety of business activities. JAWA is engaged in the crude oil and rubber processing industries. It also has other business lines involving coffee and tea plantations and processing. On the other hand, PT. Estika Tata Tiara Tbk. (BEEF), which engages in processing livestock into finished products, is the smallest company.

Table 4 shows that there are no companies in the agricultural sector with PROPER gold rating. Only three companies obtained green ratings, including PT. Austindo Nusantara Jaya Tbk in 2019 and 2020, PT. Smart Tbk in 2015 and 2016, and PT. Astra Agro Lestari Tbk in 2016. The majority of the samples received a blue PROPER rating (n=46). Companies with a PROPER rating are required to always maintain their rankings (Syahadah, 2017). However, the company's concern and responsibility for the environment remain low in practice (Tahu, 2019). This can be seen from the number of companies that have not gotten a rating. Therefore companies without a rating are expected to immediately report their environment.

Table 4. PROPER Ratings

PROPER	Frequency	Percentage
Green	5	4.20%
Blue	46	38.66%
Red	2	1.68%
Black	1	0.84%
No rating	65	54.62%
Total	119	100.00%

Table 5 shows the correlation between variables where the ROA has no correlation with the BIO and PROPER. However, ROA was correlated with CR and DAR. ROA and CR have a positive correlation, indicating that the better the liquidity, the more sufficient short-term capital is available to carry out business activities (Hasmirati & Akuba, 2019). ROA also has also a negative correlation with DAR. An increase in DAR will result in a decrease in ROA value. When a company employs long-term debt as a source of funding, it incurs interest expenses, which can reduce company profits (Mwaniki & Omagwa, 2017). Meanwhile, the three control variables are also correlated with one another. CR and DAR are negatively correlated, CR is negatively correlated with SIZE, and DAR is positively correlated with SIZE.

Table 5. Correlations

	ROA_Y	BIO_X1	PROPER_X2	CR_C1	DAR_C2	SIZE_C3
ROA_Y	1					
BIO_X1	0.060	1				
PROPER_X2	0.148	-0.022	1			
CR_C1	0.535**	-0.169	0.015	1		
DAR_C2	-0.516**	-0.098	-0.074	-0.531**	1	
SIZE_C3	-0.175	-0.162	-0.149	-0.234*	0.227*	1

Note: correlations are significant at *p < 0.01, **p < 0.05

Table 6 shows the results of panel data regression where simultaneously all variables have an effect on ROA ($F=10.75$, $p<0.01$). The R-squared value indicates that BIO and PROPER variables are able to explain 36% of the variation in the ROA value. The results also show that BIO and PROPER have no effect on ROA. The control variables (CR, DAR, and DFV) partially affect ROA.

Table 6. Regression Result

Variable	Coefficient	t-Statistic	Prob.
Constant	0.047	1.486	0.140
BIO_X1	0.023	0.679	0.499
PROPER_X2	-0.002	-0.527	0.599
CR_C1	0.012**	2.509	0.014
DAR_C2	-0.129*	-5.108	0.000
SIZE_C3	0.001	1.304	0.195
DFV_C4	-0.029**	-2.507	0.014
R ²	0.356		
F	10.753*		

Note: coefficients are significant at * $p < 0.01$, ** $p < 0.05$

BIO has no effect on ROA, hence it can be inferred that ROA is unaffected by the value of biological assets. However, DFV has a negative effect on ROA. This implies that changing the historical cost method to the fair value method has an impact on financial performance. The results of this study contradict the findings of Argilés et al., (2011), Aryanto (2012), and He et al., (2018) which indicate that the application of fair value method on biological assets has no effect on the financial condition. However, the results of this study are consistent with those of Falikhatun et al., (2020), Goncalves & Lopes (2015), and Huffman (2018) who demonstrate that the application of fair value to biological assets influences the financial condition. The results of the paired sample t-test in Table 7 corroborate these findings. The test results show that BIO and ROA values are greater when a company applies the historical cost method, which is confirmed by a higher average BIO value.

Table 7. Mean Difference Test

Variable	Mean	t-value	p-value
BIO (Historical cost)	0.2695	9.1570	0.0000*
BIO (Fair value)	0.0276		
ROA (Historical cost)	0.0281	4.7080	
ROA (Fair Value)	-0.0112		

Note: significant at * $p < 0.01$

When using historical cost, an asset is recorded at cost and other costs until it is ready for use (harvested). A company will find it easier to analyze the acquisition costs such as land preparation costs, costs for nurseries, and fertilizer costs when using the historical cost method. In contrast, when using fair value, land preparation and nursery costs are difficult to estimate because asset valuation is directly equated with market prices (Elad & Herbohn, 2011). For instance, a company must determine the cost of animal assets until they are ready to be harvested. As a result, the measurement of these assets will reflect the costs incurred to breed them. When a company uses fair value, only the market value of animal assets is considered. Therefore, it will be difficult to identify the costs associated with breeding the animals. The application of fair value to biological assets by equating them with market pricing also results in a very subjective measurement process (Elad & Herbohn, 2011). This is because everyone has different assumptions (Elad & Herbohn, 2011). The

application of fair value can not explain the acquisition values of the assets. This results in a higher **BIO** value when measured using historical cost than when measured by the fair value method. The application of historical costs is indeed more challenging, but results in greater benefits.

The application of fair value by equating market prices has an impact on financial statements (Saputra & Kurniawan, 2019). This is due to the fluctuations in market value (W. Hidayat et al., 2012). When market prices increase or decrease, the financial performance will be affected (Saputra & Kurniawan, 2019). Furthermore, biological assets cannot demonstrate their actual values when using fair value due to fluctuations in market pricing, diminishing the relevance of asset value decreases (Aryanto, 2012). The historical cost method prevents this from occurring. The value of biological assets in the financial statements is always equal to the acquisition prices, hence it has no impact on the financial statements (W. Hidayat et al., 2012). In contrast, the application of fair value to biological assets uses the accretion concept, where the asset value is recognized in accordance with the condition of asset growth (Elad & Herbohn, 2011). If the market prices of biological assets increase, the asset values will increase, and vice versa (Aryanto, 2012). Thus, the value of biological assets goes up or down based on the market values that are used to calculate asset values (Falikhatusun et al., 2020).

In 2018-2020 (application of fair value), according to study data, the value of biological assets tends to decrease compared to the historical cost method. In 2018-2020 (application of fair value), many companies also recorded net losses. On the other hand, agricultural sector companies are businesses with large operating expenses (Goncalves & Lopes, 2015). When the operating expenses are too high and the current year's income is not optimal, a company tends to suffer losses. **ROA** decreased as a number of companies incurred a net loss caused by a decrease in asset values when the fair value was applied. In contrast, when the company used the historical cost method, it recognized a higher biological asset value. This higher value was a result of recognizing the initial costs when the asset was obtained. In 2015-2017, many companies recognized net income, showing that using historical cost method improved the **ROA** value.

The results of this study fail to support the agency theory which predicts that changes in the method of measuring biological assets will reduce conflicts between agents and principals, because the use of fair value can improve financial performance (Elad & Herbohn, 2011) as it displays a better asset value (Herrmann et al., 2006). Based on the results of this study, the value of biological assets is higher when a company employs the historical cost method. Therefore, **H1** proposed in this study is rejected.

Table 6 also shows that **PROPER** rating has no effect on **ROA**; the rating obtained cannot increase the **ROA**. The results of this study are not consistent with those of Tahu (2019), Utami (2008), and Ramadhana (2022), but they are consistent with those of Sudaryanto (2011), Sarumpaet (2005), and Astuti (2014). **PROPER** has no impact on financial performance because companies overlook environmental reporting, and instead focus on profit maximization. Environmental reporting will increase costs and reduce profits (Astuti et al., 2014). Additionally, the **PROPER** rating cannot accurately describe the financial performance because stakeholders place value in financial statements to make decision (W. N. Hidayat & Ghofar, 2020). Based on the data in this study, as many as 65 companies have not carried out environmental reporting through **PROPER**. This means that many companies prefer not to do environmental reporting because it incurs large costs (Astuti et al., 2014). These costs can reduce the profit, and the company offsets this by increasing the selling price. On the other hand, consumers are typically attracted to products with lower prices (Sarumpaet, 2005). Hence, an increase in selling price due to

environmental reporting costs can decrease sales and reduce the financial performance. Consumers also do not rate **PROPER** as a factor in deciding whether or not to buy products (Luh et al., 2017). As such, environmental reporting tends to comply with government regulations in order to prevent environmental problems in the future (Sarumpaet, 2005). Hence, H2 proposed in this study is also rejected.

The results show that **CR** and **DAR** have an effect on **ROA**, while **SIZE** does not. **ROA** is positively affected by **CR**, but negatively affected by **DAR**. **CR** shows the level of the company's margin of safety in fulfilling its short-term obligations (Irawati, 2012). The more liquid the company is, the easier it will be to settle its short-term debts. On the other hand, excessive liquidity will have a bad impact on financial performance (Fajaryani & Suryani, 2018). Therefore, companies need to keep their liquidity levels within their normal limit. **DAR** has a negative effect on **ROA**. The **ROA** will decrease while its **DAR** increases and vice versa. This is because the **DAR** value indicates that the majority of the company's assets are derived from long-term debts (Mwaniki & Omagwa, 2017). In addition, long-term financing results in principal and interest installments that must be paid within a certain time frame (Romadoni, 2020). Consequently, companies tend to have high expenses.

CONCLUSION

This study attempts to determine whether the application of fair value to biological assets has an impact on profitability. According to the findings of this study, biological assets have no effect on the company's financial performance. However, the shift from historical cost to fair value in measuring biological assets has an impact on financial performance. The result indicates that financial performance is stronger when biological assets are valued based on their historical cost. This study also shows that environmental reporting has no impact on financial performance. This suggests that the rating of environmental reporting cannot increase profitability. Other findings demonstrate that the company's liquidity and solvency conditions affect its financial performance.

This study provides both theoretical and practical contributions. Theoretically, this study contributes to the financial accounting literature and serves as a reference for future research on methods of evaluating biological assets. Practically, this study benefits companies and investors. This study can be used as a basis for management decisions regarding the company's financial performance. It can also be used as a basis to improve the company's environmental reporting. For investors, this study can be used as a source of information about companies' financial condition when making investment decisions or granting loans to a company. However, since the application of fair value has just been started for three years, the research data is limited. Further research can extend the research period, as a longer period will provide more consistent results.

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