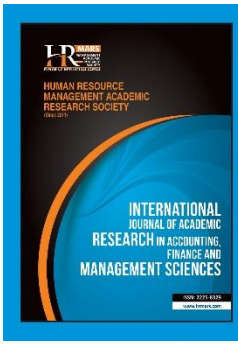

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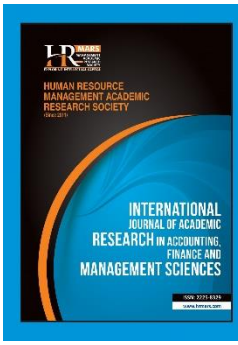
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Examining The Value Relevance of Biological Assets and Their Fair Value Change in Malaysia

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Abstract
The Malaysian Financial Reporting Standard 141 (MFRS 141) on agriculture requires all agriculture companies to measure their biological assets based on fair value less cost to sell. Some researchers argue that fair values of biological assets are not reliable and relevant whereas the others suggest that they are value relevant. The purpose of this study is to investigate the value relevance of biological assets and the change in the fair value of biological assets in Malaysia, as measured in accordance with the MFRS 141. Specifically, this investigation looked into whether or not biological assets and changes in fair value over time are relevant to market value. In particular, the study concentrated on assessing whether biological assets and changes in their fair values have a substantial influence on the market value. The sample for this study is made of agriculturally-related companies that had their shares listed on a public stock exchange in Malaysia between 2018 and 2020. The research project was carried out in Malaysia. The investigation was conducted in a manner that adhered to the value relevance technique that Ohlson (1995) recommended. It was revealed that the biological asset and the change in fair value that was established by using MFRS 141 are both major factors that play a role in the process of determining market value. The results lead the researchers to the conclusion that the adoption of MFRS 141 - Agricultural resulted in an improvement in the quality of financial reporting of biological assets in Malaysia. Future studies should include sample from ASEAN, Asia or developed countries so that the results can be generalised.
Keywords: Biological Assets, Fair Value Change, Value Relevance, Agriculture Companies, Malaysia

Introduction

The agricultural industry in Malaysia, which is a significant contributor to the economy as a whole, provides a significant boost to the economy of the nation. In 2019, this industry contributed 7.1% of the country's Gross Domestic Product (GDP), which was equivalent to RM101.5 billion. In addition to that, this industry remains the single most important contributor to employment levels throughout the whole nation (Department of Statistics Malaysia, 2020).

In recent years, there has been substantial focus placed on the accounting of biological assets in both developed and developing nations. This has been especially true after the publication

of IAS 41 Agriculture in 2012, which brought this topic to the forefront of the accounting community. The Malaysian Accounting Standards Board (MASB) came out with MFRS 141 Agriculture, which incorporates standards that were released by the International Accounting Standards Board and went into effect on January 1, 2012. Biological assets and agricultural produce are required to be measured at their fair value less cost to sell. Any changes to the fair value less cost to sell will be recorded as gain or loss in the statement of profit or loss, as stipulated by MFRS 141 Agriculture for the agricultural sector.

However, determining fair value is not an easy task because of the inherent danger that comes with making decisions based on one's own judgement, which may be interpreted as providing subjective rather than objective financial information. According to MFRS 13 Fair Value Measurement, "fair value" is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants on the measurement date. This price is referred to as the "transaction price." Users of financial statements are required to be provided with extensive disclosures regarding fair value in order to assist them in evaluating valuation techniques and the inputs that were used.

Previous researchers, such as Bosch et al (2012); Bohuová et al (2012); Rech and Pereira (2012); Hinke and Stárová (2013); Maina and Wingard (2013); Mates et al (2013), have brought up the issue of the challenges that come along with adopting IAS 41 as well as the benefits that come along with it 2015. The majority of these studies concentrated their attention on developed nations that have a capital market that is robust and highly developed, such as the United States of America, the United Kingdom, and Australia. However, there have only been a handful of studies that have looked into Malaysia's biological resources for example, (Jamil et al., 2019; Selahudin et al., 2018; Muhamad and Ghani, 2013).

The determination of fair value can be challenging and even complex, particularly when dealing with biological assets or agricultural produce, both of which have a potential propensity to be undervalued due to shortcuts being taken. For instance, according to Norizan and Kadri (2022a), the selection of fair value methodologies is the primary concern for plantation firms in Malaysia. Due to the fact that it is relatively difficult to ascertain, the vast majority of companies are not yet in a position to implement this strategy.

According to the findings of Maina and Wingard (2013), there are a number of obstacles that must be overcome by businesses in order to accurately quantify their biological assets. They noted that the lack of an active and transparent market offers a substantial hurdle for the application of fair value to biological assets for companies of small and medium size. This is especially true for those entities that are in the developing world. They discovered the startling conclusion that the commodities markets in Kenya function utilising a streamlined auction system that does not have a transparent price discovery process. As a consequence of this, the overwhelming majority of farmers firmly agreed that market prices are unstable and unpredictable, and as a result, they did not represent a fair foundation for the value of biological assets.

Kurniawan et al (2014) suggested that fair value evaluation using IAS 41 is not considered reliable because it is full of subjectivity and the farmers in Indonesia have their own system to record biological assets. On the other hand, Hadiyanto, Puspitasari, and Ghani (2018) discovered that businesses that measure their activities based on historical costs generate information that is both less reliable and less pertinent than businesses that measure their activities based on fair value.

The adoption of MFRS 141 – Agriculture made the measurement of biological assets using fair value less cost to sell a mandatory requirement, despite the difficulties that were presented. There haven't been many studies conducted to determine how the adoption of this standard will affect the quality of financial reporting in relation to the value of biological assets, but there have been some. A search of the relevant literature only turned up four studies that truly investigate the value relevance of biological assets. Biological asset value was found to be relevant by (Argiles et al., 2011; Huffman, 2013; Goncalves and Lopes, 2015; Ludvigsen, 2019; Tran, 2021).

The purpose of this study is to investigate the value relevance of biological assets as well as the change in the fair value of agricultural listed companies in Malaysia for the time period spanning 2018–2020. The sample size, time frame, and accounting standards used in this study are fundamentally different from those used in earlier studies. Argiles (2011) conducted research on the Spanish population and the time period covered was before the implementation of IAS 41. (IFRS 41, MFRS 141). Huffman (2013) analysed data from 183 multinational corporations located in 35 countries; however, the time period analysed was conducted before IAS 41 came into effect (IFRS 41). Concalves and Lopes (2015) conducted research on multinational corporations from the years prior to 2010 and continuing through 2013. Ludvigsen covered until 2018.

Research Questions

The research questions of the study are

1. To what extent Malaysian agricultural listed companies reported their biological assets using MFRS 141 Agriculture?
2. To what extent biological assets in Malaysian listed companies is value relevant?
3. To what extent change in fair value of biological asset of Malaysian listed companies is value relevant?

The main objective of the study is to empirically test the value relevance of biological assets in Malaysia Specifically, this study tries to achieve the following objectives:

1. To investigate the extent of reporting on biological assets among agriculture listed companies.
2. To investigate value relevance of biological assets.
3. To investigate the relevance of fair value gain/loss of biological assets.

Literature Review

MFRS 141 Agriculture was published by the Malaysian Accounting Standards Board (MASB) in the month of November in 2011. The Standard applies to annual periods that begin on or after January 1, 2012, regardless of when they start. MFRS 141 is the equivalent to IAS 41 Agriculture, including the effective date and the issuance date, as adopted and amended by the International Accounting Standards Board. Those entities that are in compliance with MFRS 141 will also be in compliance with IAS 41 at the same time. Improving the quality of financial reporting is one of the reasons for implementing any accounting standard, including accounting standards specific to the agriculture industry (Arbidane and Mietule, 2018).

Agricultural activity refers to the management of the biological transformation of living animals or plants (biological assets) for the purpose of sale, the production of agricultural produce, or the creation of additional biological assets. IAS 41 prescribes, among other things, the accounting treatment for biological assets during the period of growth, degeneration,

production, and procreation, as well as the initial measurement of agricultural produce at the point of harvest. In addition, IAS 41 addresses the accounting treatment for the procreation of biological assets. It is required to measure at fair value less costs to sell from the initial recognition of biological assets up to the point of harvest, with the exception of situations in which fair value cannot be reliably measured on the initial recognition. An entity is required by IAS 41 to measure a biological asset at its cost less any accumulated depreciation and any accumulated impairment losses if the quoted market prices are not available or if the fair value cannot be measured reliably. This applies even if the fair value cannot be measured at all.

For some companies in Malaysia, determining what constitutes fair value requires taking into account both the anticipated volumes of agricultural products as well as their anticipated market prices. When calculating the amount of fresh palm oil and durian that will be produced, the company takes into account the expected yield of the biological assets. This yield is determined by the age of the oil palm and durian trees, as well as the location, soil type, and infrastructure (Norizan and Kadri, 2022a). The market price of fish of equivalent length, species, and genetic quality is used by aquaculture businesses to estimate the fair value less selling costs of fishery livestock, minus the predicted mortality of fishery livestock, and selling costs. This is done by subtracting the predicted mortality from the market price of fish (Norizan et al., 2022b).

Thurrun Bhakir (2010) discovered that out of 43 oil palm plantations listed on Bursa Malaysia analysed, only ten percent of the companies adopt the fair value method. In addition to this, he discovered that the companies were having trouble identifying the characteristics of the biological assets, and they believed that the process of valuing the biological assets as of the balance sheet date was burdensome and expensive. He argued that additional work should be expensed to ensure that these companies are ready to adopt IAS 41 and that this work needs to be done.

According to the findings of Selahudin et al (2018), which were derived from a survey of 81 agricultural companies in Malaysia's plantation sector conducted in 2015 and 2016, the higher intensity of biological assets will lead to an increase in the level of biological assets disclosure in Malaysia. In addition to this, they discovered that larger companies have a greater tendency to provide more disclosure when compared to smaller companies.

Jamil et al (2019) looked at forty different plantation-based companies that were publicly traded in 2016. These plantation companies are required to disclose their accounting for biological assets in the annual report in accordance with MFRS 141. There were a total of 12 mandatory disclosures that were investigated for this study. They found that the highest score of mandatory disclosure for the Plantation companies was only six out of twelve based on the sample that they looked at.

The determination of fair value can be difficult, particularly in situations involving biological assets or agricultural produce; furthermore, it is not always straightforward, as there may be a tendency to take shortcuts during the valuation process. This can make the situation more complicated.

According to Lefter and Roman (2007), the International Accounting Standard 41 (IAS 41) is worthy of being regarded as an important standard because it marks the beginning of a consistent transition away from the purchase cost principle and towards a fair value accounting. In addition to this, they brought attention to the fact that the accounting standard on agriculture is of utmost significance for developing countries. On the other hand,

International Accounting Standard 41 is also used for agricultural activities carried out by businesses operating in other sectors.

A limited number of studies have been conducted on the topic of the value relevance of biological assets. Some of the researchers came to the conclusion that biological assets are significant in explaining market value, while other researchers came to the conclusion that biological assets are not significant in explaining market value.

Goncalves and Lopes (2015) examine the value-relevance of fair value accounting of biological assets using 389 firm-year observations of listed firms worldwide in 27 countries that adopted International Financial Reporting Standards (IFRS) until 2010. They came to the conclusion that the biological assets have value relevance for the period of 2011-2013. After taking into account the effect that the level of disclosure of biological assets has, the findings indicate that the value-relevant nature of biological assets is enhanced in organisations that display higher levels of disclosure.

Huffman (2013) conducted a study using a sample of 183 international companies from 35 countries that had adopted the IAS 41 during the time periods 1999-2001 and 2007-2010. The sample was used for both time periods. According to the findings of the study, there is a correlation between measuring consumable biological assets at fair value and measuring bearer biological assets at historical cost. This makes the book value and earnings information more value-relevant. The researchers Argiles et al (2011) studied a sample of Spanish farms and came to the conclusion that fair valuation of biological assets provides more predictive power towards future earnings than historical cost measures do.

In order to help address some of the gaps in our knowledge and provide particular information on the value relevance of biological assets, the focus of this research will be on the situation in Malaysia as it has existed more recently. The years 2018 to 2020 will be covered by this study, which will give information on the value relevance of biological assets and fair value gain.

Hypotheses

Based on the above previous studies the following null and alternative hypotheses are developed:

H_O1: Biological assets of Malaysian listed agricultural companies are not value relevant.

H_O2: Change in fair value of biological assets of Malaysian listed agricultural companies is not value relevant.

Research Methodology

Research Design

For the purpose of this study, a value relevance model discovered by Ohlson (1995) was used to evaluate the value relevance of the biological assets held by Malaysian listed companies.

Sample

The sample was chosen from among the agricultural businesses operating in Malaysia that are members of the Bursa Malaysia Stock Exchange.

Analytical Procedures

The data was processed using the *Microfit 5.5*. Microfit statistical software was developed by Pesaran and Pesaran. The software is equipped with sophisticated statistical tools suitable for secondary data research.

Statistical Models to Test the Relevance of Biological Asset

The topic of the study is equity valuation, specifically the relationship between the market value of equity, book value of equity, and earnings. Specifically, this relationship will be examined. Ohlson (1995) developed a model for valuing equity in which he argued that market value of equity ought to be represented by book value of equity (which is equivalent to net asset) and current year net income. He had successfully demonstrated his contention that the variation in market value of equity could be significantly explained by the book value of equity and the current year's net income. To this day, a large number of studies have been carried out to demonstrate that Ohlson's (1995) equity valuation model is accurate. Therefore, the researchers decided to use the Ohlson (1995) model and a modified version of it throughout the entirety of the study. The Ohlson (1995) basic model is shown below:

$$MVjt = \alpha + \beta_1 BV_{jt} + \beta_2 NP_{jt} \quad (1)$$

Modified model to facilitate the inclusion of biological assets:

$$MVjt = \alpha + \beta_1 BV_{jt} + \beta_2 BIO_{jt} + \beta_3 NP_{jt} \quad (2)$$

Modified model to facilitate the inclusion of fair value gain or loss on valuation of biological assets:

$$MV_{jt} = \alpha + \beta_1 BV_{jt} + \beta_2 NP_{jt} + \beta_3 FVC_{jt} \quad (3)$$

$$MV_{jt} = \alpha + \beta_1 BIO_{jt} \quad (4)$$

$$MV_{jt} = \alpha + \beta_1 FVC_{jt} \quad (5)$$

Where,

MV_{jt} is market value of equity of firm j at year t

BV_{jt} is book value of equity of firm j at year t

BIO_{jt} is total biological assets of firm j at year t

NP_{jt} is net profit after tax of firm j at year t

And FVC_{jt} is fair value change of biological asset of firm j at year t

Results

Introduction

With the exception of one company, every single publicly traded agriculture company in Malaysia measured their biological assets based on the fair value minus the cost to sell. The application of fair value less cost to sell is not appropriate for the company because all of the biological assets have been aged more than 25 years, have been fully depreciated, and are carried at a nil net book value (Inch Kenneth Kajang Rubber Public Limited Company). The company has no choice but to use the cost model because the application of fair value less cost to sell is not appropriate (p. 53, 2020). According to Thurrun Bakir (2010), only ten percent of plantation companies in Malaysia were using the fair value model in 2010. This is a significant accomplishment considering that number. According to Hadiyanto, Puspitasari, and Ghani (2018), using a sample of 38 palm oil growers for the period from 2011 to 2014, they found that a portion of the sample was still utilising the cost model, while the remaining portion was utilising the fair value less cost to sell method.

In Malaysia, companies' biological assets only make up a small portion of their total assets and net assets combined. It contributes 4.59% to a company's net asset (equity), 2.61% to the total asset, and 3.02% to the market value of a business on average. The change in fair value, on the other hand, accounts for 11.12 percent of average net profits, 0.4 percent of net assets, and 0.2 percent of the market value of equity.

Table 1
Descriptive Test

Sample period: 154 observations					
Variable	MV	BV	NP	BIO	FVC
Maximum	37,520,935,292	16,269,748,000	3,060,500,000	2,818,522,000	478,030,000
Minimum	23,219,641	4,312,443	-1,079,952,000	3,828	-32,346,000
Mean	2,921,484,559	1,920,557,238	68,967,299	88,171,894	7,668,993
Std. Dev.	6,938,136,722	3,346,232,861	323,067,283	332,886,050	43,594,136
Skewness	3.4684	2.8395	5.3691	7.0883	8.8945
Kurtosis - 3	11.3939	7.3470	48.0046	53.3720	88.7894
Coef. of Variation	2.3749	1.7423	4.6844	3.7754	5.6845

Even though they are relatively minor components, the biological asset and fair value movement make a contribution to the overall market value of the firm. According to the results of tests of correlation, the total biological asset is correlated at a level of 26.541% with the market value of equity, 40.537% with the book value of equity, and 20.408% with net profits. The change in the fair value of the total biological asset has a correlation of 20.848% with the market value of equity and a correlation of 20.578% with the book value of equity.

Table 2
Correlation Test

Variable	MV	BV	NP	BIO
BV	.85214*			
NP	.59582*	.50665*		
BIO	.26541*	.40537*	.20408*	
FVC	.20848*	.20578*	-.057456	.036178

*=Correlations are significant at 5% confidence level

Regression Results

Cross-sectional Sample

The basic model, also known as Model 1, was carried out in order to validate the accuracy of Ohlson's (1995) model in the context of Malaysia. The findings indicate that the model is valid for the Malaysian sample, indicating that the book value of equity and net profits of the firm are both related to market value (value relevant). Given that this is the fundamental model, it is reasonable to assume that the inclusion of any variable will improve the model's ability to explain the dependent variable, which in this case is market value. The book value of equity and profits of Malaysian biological (agricultural) enterprises are related to market value and have the ability to explain 75.922% of the fluctuations in market value with a 5% degree of confidence. Explanatory power of market value of equity rose by 0.608% to 76.530% when value of biological assets (BIO) was included to the analysis, as shown in Model 2. This finding is significant at the 5% confidence level. This demonstrates that BIO is a component that has a statistically significant role in determining the market value of equity for Malaysian agricultural enterprises.

Table 3
Regression between market value, book value of equity, net profits, total biological assets and fair value change using different models.

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
α	-3.55E + 08	-3.33E + 08	-3.40E + 08	2.43E + 09*	2.48E + 09*
BV	1.5350*	1.6149*	1.4548*		
NP	4.7407*	4.7369*	4.9459*		
BIO		-1.9780**		5.5381*	
FCV			15.3898**		52.7913*
No	154	154	154	154	154
R^2	.76237	.76990	.77187	.070606	.12599
Adj. R^2	.75922	.76530	.76731	.064491	.12024
F Stat	242.22*	167.30*	169.17*	11.55*	21.91*

*=significant at 1% confidence level, **=significant at 5% confidence level and ***=significant at 10% confidence level.

In Model 4, BIO is treated as a single independent variable, and this treatment makes it a substantial market value explanatory variable. It accounts for 6.45% of the total variance in market value. Research has shown that in the context of Malaysia, during the sample period of 2018-2020, the value of BIO is significant. It follows that the implementation of MFRS 141 in Malaysia after the publication of IFRS 41 by the IASB has the potential to improve the quality of financial reporting, particularly in regard to the measurement of assets at fair value, in particular biological assets. This is implied by the fact that it is possible for this to occur. The data presented above provide sufficient evidence to suggest that H_O1 could be rejected. The fundamental Ohlson (1995) model is expanded upon in Model 3 by including the fair value change (FVC) in biological assets. The inclusion of FVC has the potential to boost the explanations of MV by 0.809%, bringing the total up from 75.922% to 77.731%. It is regarded as a major addition to the fundamental concept even if there is just a little increase in the proportion of explanation offered. As a standalone factor, FVC is capable of explaining 12.024% of the total variance in market value, and it reaches statistical significance at a 5% level of confidence (Model 5). This demonstrates that within the context of Malaysia, a change in the fair value of a biological asset is likewise important to value. As was discussed in the previous paragraph, the implementation of MFRS 141 – Agriculture for the recognition of biological assets and fair value change in Malaysia has been successful in elevating the overall quality of the country's financial reporting. The data presented above provide adequate information to support the conclusion that H_O2 may likewise be rejected.

Conclusions, Limitation, and Future Study

The objective of the study was to explore the value relevance of both biological assets as well as the change in the fair value of biological assets owned by publicly listed Malaysian agricultural companies. The study carried out a series of statistical tests making use of a sample taken from publicly listed agricultural businesses across the years 2018 through 2020. The sample was collected and used for the duration of the study. The outcomes of the study indicate that value relevance status needs to be accorded to both fair value gains and biological assets. The results suggest that the adoption of MFRS 141 – Agriculture was effective in increasing the degree of transparency that was present in the reporting of biological assets in Malaysia. This lends credence to the overarching hypothesis put forward by Arbidane and Mietule (2018), which states that the implementation of the accounting

standard has the potential to improve the quality of financial reporting.

This investigation can only cover a limited amount of ground due to a variety of factors that cannot be changed. The sample for this study is made up of the annual reports of each and every agricultural firm that has been publicly listed in Malaysia throughout the course of the most recent three years. This will ensure that the most accurate results are obtained (2018 – 2020). There is a significant possibility that the results cannot be generalised to any of the other countries in Asia or to the ASEAN area as a whole. It is possible that in order to generalise the findings of the current study, it will be necessary for future research to use a larger sample size that is comprised of businesses from a wide variety of countries. If this is the case, then the research that follows will need to be conducted in accordance with these requirements.

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