



Does MSPO Certification Matter for Profitability of Malaysian Palm Oil Companies?

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ABSTRACT

With the increased awareness of environmental and sustainable issues, the Malaysian government had announced the Malaysian Sustainable Palm Oil certification (MSPO) to be made mandatory by the end of 2019. However, the announcement raised concern among the companies since MSPO will incur additional costs and eventually affect profitability. Thus, this study examines the effect of MSPO on the profitability of 39 listed Malaysian palm oil companies for the period of 2013 to 2017. The results show that MSPO helps to increase companies' profitability at 3.5%. It, therefore, suggests that palm oil companies should subscribe MSPO and leverage on the certification as an important element of their sustainability measures.

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INTRODUCTION

Malaysia is one of the world major producers and exporters of palm oil. In fact, the wide planted area of approximately 5.64 million hectares is one of the factors that enable Malaysia to become the second largest of the world's total production (32%) and export (37%) of oils and fats in 2017 (MPOB, 2017). The major destinations of Malaysian export for palm oil are India, the European Union (EU), China, Pakistan, and the United State of America (USA). Despite the dominance palm oil industry, Malaysia also faces challenges such as trading, competition, adverse campaign, and environmental issues. In fact, the environmental issues emerge when deforestations and open burning cause pollution as well as global warming due to extensive plantation and production to meet the high demand for palm oil (Muthiah, 2017). These issues not only affect the operation, profits, and investors trust but also increase the reputational risk of the companies (Basiron and Weng, 2004). Accordingly, aggressive campaigns against deforestation for palm oil plantation and destruction of natural habitats of flora and fauna have further raised the environmental concerns (Chin, 2014).

As a palm oil exporter, Malaysia has to fulfil the requirement on certified and sustainable processed palm oil set by some importing countries, such as the EU and the USA. Therefore, Malaysia establishes her own sustainability certification, known as Malaysian Sustainable Palm Oil (MSPO) certification. MSPO is developed to establish, improve, and implement the operational practices of Malaysian sustainability system for the sustainable production of palm oil without harming the environment. According to McInnes (2017), MSPO emphasises more on sustainability through plantation management. In fact, the MSPO has become a stepping-stone for Malaysia's long-term commitment towards sustainable production of palm oil (Benjamin, 2018). For smallholders, MSPO becomes a platform for training in improving their productivity. Furthermore, MSPO creates awareness among buyers and customers that Malaysian palm oil and its related products are sustainably produced. According to Saieed (2017), MSPO facilitates to deny that Malaysian palm oil industry adversely affects the environment and mitigates the pressure from anti-palm oil lobbyists and Western NGOs. Along with MSPO, another popular sustainability certification in Malaysia is Roundtable on Sustainable Palm Oil certification (RSPO). It was introduced in November 2008 to become a global standard to promote the growth and use of sustainable palm oil products through credible global standards (RSPO, 2017).

Previously, MSPO is a non-mandatory national certification. Since sustainability is critical for palm oil companies on business, financial, socio-economic, and environmental perspectives, MSPO becomes mandatory by the end of 2019 by Ministry of Primary Industries (formerly known as the Ministry of Plantation Industries and Commodities). The mandatory is in tandem with the current agenda of the United Nations, Sustainable Development Goals (SDGs). Twelve of the seventeen SDGs overlap on environmental sustainability¹. It shows that environmental sustainability is a crucial issue to be considered and at the same time increases the relevance of sustainability certification.

When looking at the number of companies with sustainable certifications, only 33% or 13 companies certified their palm oil with MSPO. The current announcement on mandatory MSPO had put pressure on non-certified companies. This is because the non-adoption of MSPO would increase the possibility of being penalised under the Malaysian Palm Oil Board (licensing) 2005 regulation number 15. Any company that fails to comply would result in suspending or not renewing licences by MPOB. The primary limitation is the cost associated with the certification that might affect firm profitability (Yusof and Yew, 2016). For instance, the cost to adopt MSPO is around RM3,000 per hectare consisting of subscription and audit fee, membership fees, and man-day cost (Ganeshwaran, 2017). Therefore, it is apparent that the primary concern of the palm oil companies is how to remain profitable, yet sustainable after taking consideration to certify their palm oil with MSPO. Moreover, there is a notable paucity of empirical research focusing specifically on the MSPO certification in the context of Malaysian palm oil industry. Thus, this study examines the effect of MSPO on the profitability of Malaysian palm oil companies. In addition, this study provides some insights for Malaysian palm oil players including public and private companies and smallholders in reducing their reputational risk by leveraging on MSPO certification as an essential element of sustainability measures. This study also promotes the advantages of having certified sustainable palm oil (CSPO), primarily MSPO certification, to fulfil the demand for the sustainable palm oil industry by the stakeholders.

¹ Goals no. 3, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16 and 17.

The organisation of this paper is as follows. Part 1 describes the research background, general views, issues, and challenges related to the Malaysian palm oil industry. Part 2 presents the review of relevant literature of environmental sustainability, the effects of sustainability practices compliance on firm performance as well as other attributes of firm performance. Part 3 and Part 4 discusses the methodology and findings of this study, respectively. Finally, Part 5 wraps up with the conclusion and implication of the study.

LITERATURE REVIEW

SDGs in supporting Environmental Sustainability

There are three interconnected sectors in sustainable development namely, society, economy, and environment (Brandon et al., 2000). Holdren et al. (1995) define environmental sustainability as maintaining and improving the standard of a life-supporting system on the earth by sustaining the biological diversity and conservation of air, water, and land resources. Such definition relates to Goal no. 7 and Goal no. 12 that address all three dimensions of environment, economy, and social and have a relatively similar scope of an element from each. Goal no. 12 also provides critical connections among the other targets and makes the SDGs more strongly linked to a network (Le Blanc, 2015). Sustainability can be measured when companies that involve in the palm oil industry can protect the environment without destroying them, use the sources efficiently, add value in labour benefits, reduce risks, and secure corporate reputation (Basiron and Weng, 2004).

Environmental issues have been discussed in international trade, while the market and consumers worldwide are demanding environmentally products (Anbumozhi and Kanda, 2005). Firms should take responsibility for environmental impact by moving from the environmental management model that focuses only on cleaning up and controlling to the full coverage of environmental harm through the entire product life cycle (Handfield et al., 2005). Pollution reduction should be conducted by extending green activities and attacking the source of contamination at each level of the product life cycle including raw material extraction, transportation, manufacturing recycling, and disposal (Matos and Hall, 2007).

In addition, the study by Jones et al. (2016) indicates that there is no consistent behaviour and awareness among construction staff concerning environmental attitudes and beliefs. The staff will consider sustainable manner once it benefits them rather than to the industry and it is supported by Tudor et al. (2007). Such a scenario is parallel with the players in the palm oil industry when they harm the environment by replacing the forest with the agricultural land palm oil (Nikoloyuk et al., 2009). Environment sustainability issues occur when there are unproductive problems among the smallholders, such as the use of unselected planting materials, unsystematic fertiliser application, and harvesting of unripe fruit bunches (Ayat Rahman et al., 2008). As a result, smallholders' incomes have been affected since the authority will penalise them. Besides, the major challenge in profit gains is the high cost of palm oil production and its price declining. In capturing this issue, there must be an increment of oil palm cultivation by 1.5% annually (Chandran, 2010).

Effects of Compliance/Regulation on Firm Profitability

Non-compliance with environmental criteria could potentially expose firms with legal liability, financial liability, property damage, and property loss (Schaltegger and Figge, 2000). In fact, some companies are unable to demonstrate a high level of environmental performance due to significant investment and insurance cost (Welford and Gouldson, 1993). Thus, policymakers play a significant role to determine the suitable policies to reduce the environmental impact in the palm oil industry (Atan et al., 2016; Ghani et al., 2016). For instance, the sustainability issues in the palm oil industry had driven the Malaysian government and relevant regulators to take the proactive and necessary action by announcing the mandatory of MSPO to protect the ecology, habitats, and hundreds of flora and fauna species. Malaysian palm oil industry also has 17 major regulations covering land, environment, and comprehensive protection (Mahat, 2012).

Theoretically, compliance with environmental certification or regulation related to the palm oil industry, such as MSPO, should positively affect financial performance. Joshua et al. (2012), in their analysis of incremental financial cost and benefits of RSPO compliance, indicate that RSPO reduces the cost of sales expenses and improves revenues. Furthermore, RSPO also enhances the relationship between firms and the stakeholders as well as reduces the labour turnover by 6%. Recently, Preusser (2015) finds a positive

correlation between the area of plantation certified with sustainability certification and crude palm oil (CPO) price. Specifically, firms with at least 40% plantation area certified by RSPO have 7% premium on CPO price compared to firms with 20% or less certified area. However, CSPO certification is not significant towards the profitability of palm oil companies. The study is consistent with Gijs et al. (2015) who find Forest Stewardship Council (FSC) certification give positive impact towards the net present value of tropical forest producers and small/medium growers. The companies receive significant benefits by owning FSC certification, such as tax incentives, research fees, and government supports. Humphries and Kainer (2006) and Hafizuddin et al. (2018) also support the finding.

In contrast, a study by Segarra-Oña et al. (2012) finds that economic performance has no relationship with the internationally agreed standard ISO 14001 even when environmental awareness is high when compared to urban and beach hotels. Hotels in natural surroundings are essentially forced to respect their environment as part of their core concept. Sarumpaet (2005) supports the idea that the financial performance of excellent rated Indonesian companies is not significantly associated with their environmental performance. Green (environmental) products or services are usually more expensive and not favoured by Indonesian consumers and reduce financial performance because there are no incentives provided by the government. This is supported by Rahman et al. (2009), Nor et al. (2016), and Shahida et al. (2018). The low number of subscription of sustainability certification is due to the high costs incurred, warm demand, and low sales to customers (Yusof and Yew, 2016).

Other Attributes of Firm Financial Performance

According to Adams and Buckle (2003), financial leverage indicates the ability of firms to manage their economic exposure to unexpected losses. Ramasamy et al. (2005) find that leverage has a positive relationship with financial performance among Malaysian palm oil companies. It is due to the expectation that firms could earn more to offset the cost of debt capital. Accordingly, Zhang (2010) and Ding and Sha (2011) suggest that leverage can bring a tax-sheltered benefit, which improves firm governance and firm performance. The above findings contradict with the study conducted by Ogebe et al. (2013) on the impact of capital structure on firm performance, in which leverage has a negative and statistically significant relationship with firm performance. Therefore, the firm should use more equity than debt to finance business activities. Consistent findings are reported in Bayyurt and Orhunbilge (2007).

Liquidity may affect firms' profitability as firms could have the incentive to invest in a more successful project. A study by Jose et al. (2010) among Chinese ports shows that high current ratio indicates the firm efficiency and can meet its short time obligation. Consequently, liquidity is positively related to firm profitability among Malaysian public listed companies during the financial crisis (Adlina, 2015). On the other hand, Wei (2012) shows that liquidity has no effect towards the financial performance of listed agricultural companies in China because the capacity to pay back short-term debt is ineffective compared to the capacity to pay back the long-term debt.

Larger companies have a better variety of abilities and enjoy the economies of scale that gives advantages to improve their profitability (Mahfuzah, 2012). Indeed, larger firms tend to borrow more due to their ability to diversify the risks. According to the trade-off theory, higher borrowing allows firms to benefit from the tax incentive. Meanwhile, small companies have a limited source of financing and prefer to use internal financing over external debts due to higher cost and risk (Abor and Biekpe, 2009). Consistent with trade-off theory, Muritala (2012) and Sheikh and Wang (2013) find that firm size has a positive relationship towards firms' profitability. In contrast, Ramasamy et al. (2005) assert that firm size is less significant and negatively correlated with profitability. In fact, larger firms are complex and challenging to manage, which may lead to organisational ineffectiveness.

High growth rate indicates a high debt by companies to equity ratio (Zeitun and Tian, 2007). Indeed, a high growth firm poses the ability to borrow from banks (Rahim, 2013). Furthermore, larger firms with low growth rate have greater opportunities to acquire long-term debt due to lower risk (Barclay, 1995). On the empirical evidence, Ramasamy et al. (2005) reveal that the growth rate has a positive correlation with the profitability of palm oil companies. One possible explanation for this finding is that a positive growth rate will increase the good impression of the companies. Similar results are reported in Adlina (2015) and Katherine and Subiak (2012).

Usually, the annual average price of CPO has a positive relationship with profitability and the higher price is associated with higher profits, which then results in high performance (Ramasamy et al., 2005). Accordingly, Booth et al. (2001) show that high inflation rate (high CPI) improves firm performance due to a lower level of firm debt. Meanwhile, fluctuation of the price will increase business risk and reduce tax charges (Deng and Luo, 2009) that may cause the firm to engage in hedging to reduce the price vitality risk. Indeed, hedging activities could further increase operating costs and may adversely affect firm profitability.

The above discussion demonstrates that only a few empirical studies related to MSPO have been conducted in Malaysia. Past literature also shows that many studies apply a qualitative approach, such as content analysis. In fact, their studies focus on RSPO and not MSPO. Despite several studies have empirically examined the effect of sustainability certification on profitability (e.g. Gijs et al., 2015; Segarra-Oña et al., 2012; Ferron, 2012), none of these studies focuses on palm oil industry or MSPO. Hence, this study aims to fill the gaps by examining the effect of MSPO certifications on the profitability of palm oil companies in Malaysia.

METHODOLOGY

Empirical Model

The study applies a quantitative approach by empirically estimating the effect of MSPO towards the profitability of palm oil companies in Malaysia. The study also uses panel data analysis since the data is cross-sectional and time-series data. With panel data analysis, there is a high possibility to violate the statistical assumptions, especially the normal distribution of data, heteroscedasticity, and autocorrelation with the error terms. Moreover, the study uses unbalanced panel data and may be exposed to the problem of not normally distributed. As a result, the estimation using the Ordinary Least Square (OLS) will become less efficient (Gujarati, 2002). In fact, Generalized Least Square (GLS) estimation provides a remedy to these problems (Wooldridge, 2002; Atanogun, 2014). Therefore, this study employs GLS estimation to examine the effect of sustainability certification towards profitability among Malaysian palm oil companies by using Stata Version 12.

An empirical model for this study is shown in Eq. 1. This model is adapted from Ramasamy et al. (2005) and Norzaleha (2011). However, a new variable, MSPO certification (MSPO) is incorporated into the existing model to allow the analysis on the effect of sustainability certification towards firm profitability. MSPO is a dummy variable, which takes the value of 1 for a firm with MSPO, otherwise 0. The dependent variable is firm profitability, which represented by the return on asset (ROA) by Wahab and Ramly (2013). ROA is calculated by dividing the earnings before interest tax (EBIT) with total assets. EBIT is better to be used than net profit in ROA because it is particularly useful on the sample size (palm oil companies) with different financing structures. Since the sample size of Malaysian palm oil companies consists of *shariah* and non-*shariah* compliant companies, EBIT is more appropriate in measuring ROA (Heras-Saizarbitoria et al., 2011).

$$ROA_{it} = \beta_0 + \beta_1 MSPO_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 SIZE_{it} + \beta_5 GROW_{it} + \beta_6 P_t + \varepsilon_{it} \quad (1)$$

Five other variables namely, leverage (LEV), liquidity (LIQ), firm size (SIZE), growth (GROW), and CPO price (P) are the independent variables used in Ramasamy et al. (2005) and Norzaleha (2011). However, this study employs these five variables as control variables to further define the relationship between the MSPO and ROA. The description of each variable is reported as below:

Table 1 The Description of Variables

Variables	Proxy	Measurement	Past Study
ROA	Firm's profitability	ROA = EBIT/ Total assets	(Royce et al. 2011; Ifurueze et al. 2013; Wahab & Ramli 2013)
MSPO	Companies with MSPO certification	Dummy variable equals to 1 for palm oil companies with MSPO, otherwise 0.	(Heras-Saizarbitoria et al. 2011; Kawthar & Vinesh 2011; Ferron et al. 2012; Naila 2012)
LEV	Leverage	LEV = (Total Liabilities/Total shareholder Equities)	(Gill et al. 2011; Raza 2013; Tailab 2014)
LIQ	Liquidity	LIQ = (Current Asset/ Current liabilities)	(Eljelly 2004; Jose et al. 2010; Seema et al. 2011)
SIZE	Size of firms	Log of Total Assets	(Ramsamay 2005; Linck et al. 2008; Lemmon et al. 2008; Pervan & Visic 2012; Graham et al. 2015)
GROW	Sales growth	GROW = (Revenue ₁ -Revenue ₀)/ Revenue ₀)	(Ramasamy et al. 2005; Kouser et al. 2012; Jang & Park 2011)
P	Price	Log of yearly average price of CPO from 2013 until 2017	(Asari et al. 2011; Nordin et al. 2014)

Data and Sources

This study is carried out by focusing on the palm oil industry as one of the main contributions of Malaysian economics and GDP. Furthermore, this study employs the secondary data from DataStream Thompson Reuters with a total sample of 39 palm oil companies listed in Bursa Malaysia for five years from 2013 to 2017. These companies are operating in upstream (planting, collecting, and milling) and downstream (refining and palm-based products) industries. Out of the 39 companies, there are 13 companies with MSPO. Table 2 summarises all the palm oil companies, with or without MSPO certification that listed in Bursa.

Table 2 The List of Palm Oil Companies Listed in Bursa Malaysia with and without MSPO

No.	Company	MSPO
1	Bousted Plantation Bhd	Yes
2	Far East Holding Bhd	Yes
3	Felda Global Venture Bhd	Yes
4	Genting Plantations Bhd	Yes
5	Hap Seng Plantation Bhd	Yes
6	IJM Plantations Bhd	Yes
7	Innoprise Plantations Bhd	Yes
8	IOI Corp. Bhd	Yes
9	Kuala Lumpur Kepong Bhd	Yes
10	PPB Group Bhd	Yes
11	Sarawak Oil Palm Bhd	Yes
12	Sime Darby Plantation Bhd	Yes
13	TDM Bhd	Yes
14	United Malacca Bhd	Yes
15	Astral Asia Bhd	No
16	Batu Kawan Bhd	No
17	BLD Plantation	No
18	Chin Teck Plantation Bhd	No
19	Dutaland Bhd	No
20	Golden Land Bhd	No
21	Gopeng Bhd	No
22	Harn Len Corp Bhd	No
23	Keck Seng (M) Bhd	No
24	Kim Loong Resources Bhd	No
25	Kretam Holdings Bhd	No
26	Kulim Malaysia Bhd	No
27	Kwantas Corp. Bhd	No
28	MHC Plantations Bhd	No
29	Negeri Sembilan Oil Bhd	No
30	NPC Resources Bhd	No
31	Paos Holding Bhd	No
32	Pinehill Pacific Bhd	No

Table 2 Cont.

No.	Company	MSPO
33	PLS Plantation Bhd	No
34	Rimbunan Sawit Bhd	No
35	Sin Heng Chan Bhd	No
36	TH Plantation Bhd	No
37	TSH Resources Bhd	No
38	United Plantations Bhd	No
39	Sarawak Oil Palm Bhd	No

Note: As per Bursa Saham Malaysia list 2017 and MSPO list 2017

Source: Bursa Malaysia and SAC (2017)

Data Analysis

Multiple regression analysis is applied in this study to analyse the effect of MSPO towards Malaysian palm oil companies. Specifically, the panel data model is employed and estimated using Stata Version 12.

RESULT AND DISCUSSION

Normally distributed data is important to obtain the accurate statistical test. It refers to the random error exists between independent variables and the dependent variable in a regression model. The data is considered as normally distributed when the value of skewness near to 0 while kurtosis near to 3 (Park, 2008). Based on Table 3, the data is not normally distributed. The skewness and kurtosis for ROA, LIQ, and GROW are remote from 0 and 3. According to Gujarati (2002), Generalized Least Square (GLS) can tackle the issue of the non-normal distribution of data. Therefore, this study employs GLS to examine the effect of sustainability certification on firm profitability.

Table 3 Descriptive Statistics

Variable	N	Mean	Std. Dev.	Skewness	Kurtosis
ROA	192	0.0614	0.1016	5.4549	44.5877
MSPO	192	0.2968	0.4580	0.8891	1.7906
LEV	192	2.1357	2.4845	-0.8331	2.3689
LIQ	192	4.8816	9.4227	4.1297	22.3750
SIZE	192	12.4961	3.6895	0.9469	2.4158
GROW	192	9.2766	62.8049	9.9188	122.7023
P	192	7.81065	0.0892	0.0128	1.7829

Meanwhile, the study runs Pearson correlation analysis to explain the strength and direction of the linear relationship between variables. Multicollinearity problem exists when the correlation coefficient is larger than 0.8 (Wei, 2012). Based on Table 4, the correlation coefficient of each variable is well below 0.8, which indicates the absence of severe multicollinearity problem. Hence, all variables can be used for the estimation.

Table 4 Pearson Correlation Matrix

	ROA	LEV	LIQ	SIZE	GROW	P
ROA	1.0000					
LEV	-0.2312	1.0000				
LIQ	0.0468	-0.3804	1.0000			
SIZE	-0.1610	0.3993	-0.2231	1.0000		
GROW	0.0121	0.0840	-0.0365	0.0891	1.000	
P	0.2458	0.0315	0.0076	0.0200	0.0693	1.0000

The White test shows that the value of chi-square ($\chi^2 = 43.59$, p -value = 0.0167) is significant at 5% level and indicates the presence of heteroscedasticity. Apart from heteroscedasticity, this study employs Wooldridge test to detect autocorrelation as it is a better fit for panel data (Wooldridge, 2002). The Wooldridge test shows a significant result (f -stat = 2.812, p -value = 0.1018) and signifies the absence of serious autocorrelation problem. Therefore, the null hypothesis of there is non-first-order autocorrelation is

accepted. Once again, when heteroscedasticity problem exists, the OLS regression is not relevant. Therefore, GLS regression is applied in this study. In GLS regression, Wald test is used to evaluate the significance of particular independent variables to be included in a statistical model (Magee, 1990). If the parameter is equal to 0, the independent variables should be omitted from the model. Table 5 shows that chi-square of Wald test is significant at 1% level (chi-square = 33.38; p -value = 0.0000). Hence, the null hypothesis of the parameters associated with the independent variables is failed to reject. In other words, all the independent variables contribute in explaining the dependent variable.

Variables	β
C	-2.0503 (0.5993)
MSPO	0.0348** (0.0160)
LEV	-0.0128** (0.0058)
LIQ	-0.0004 (0.0008)
SIZE	-0.0013 (0.0038)
GROW	0.0003 (0.0001)
P	0.2811*** (0.5968)
Observations (N)	192
Wald test	33.38***

Notes: Dependent variable is ROA. Value in the parentheses are the standard errors (SE), *** $p < .01$, ** $p < 0.5$ and * $p < .10$.

Based on Table 5, the finding of this study indicates that MSPO is positively correlated to ROA, at 5% significant level, after controlling LEV, LIQ, SIZE, GROW and P. Specifically, palm oil companies with MSPO earn 3.5% more profit than companies without MSPO. It, therefore, indicates that MSPO drives the increasing of ROA among Malaysian palm oil companies. This result is consistent with Humphries and Kainer (2006), Ferron et al. (2012), Gijis et al. (2015). All control variables are significant at 5% level except LIQ (liquidity), SIZE (firm size) and GROW (growth). Specifically, an increase of 1% in firm leverage reduces its profitability by 1.3%. Furthermore, 1% increases in the average price of CPO increases the firms' profitability of Malaysian palm oil companies by 28.1%.

Our result on the variable of MSPO suggests that MSPO has a strong influence on profitability. In this regard, the finding is consistent with the previous studies that suggest the sustainable certification positively affects firms' financial performance (Humphries and Kainer, 2006; Ferron et al., 2012; Gijis et al., 2015; Hafizuddin et al., 2018). MSPO is one of the alternatives by the Malaysian government that offer sustainable palm oil to counter the sustainability issues in the palm oil industry. This result shows that the current announcement by the Malaysian government to make MSPO as a mandatory requirement is pretty relevant to improve the environment, transparency, and profitability of palm oil companies in Malaysia (Basiron and Weng, 2004; Panapanaan et al., 2009; Atan et al., 2016; Ghani et al., 2016; Hussein et al., 2017). This empirical evidence also provides a response to the concerns of non-certified companies regarding the burden of the additional cost associated with MSPO subscription. By having MSPO, these companies have the opportunity to tap the market, especially the EU market, and increase their revenue. Besides, these companies would be able to sell their certified palm oil at a premium price, higher than non-certified palm oil (Preusser, 2015). Therefore, the mandatory of MSPO on all supply chain in the Malaysian palm oil industry helps to improve environmental sustainability and their profitability.

The negative effect of financial leverage on firms' profitability among Malaysian palm oil companies is consistent with the previous studies by Katherine and Subiak (2012) and Adlina (2015). In fact, firms with high debt ratio have the potential to reduce firm performance (Chen et al., 2008) and increase the potential of bankruptcy (Robichek & Myers, 1966). Therefore, these firms should reduce their dependency on debt in order to generate higher profits. Alternatively, these firms can finance their business operation through equity capital (Ogebe, 2013).

As expected, price gives a positive sign towards firm performance as represented by EBIT. The result by Ramasamy et al. (2005) supports this finding in which the annual average CPO Price has a positive relationship with profitability. The world markets determine the price and it would affect firm performance in which higher price is associated with higher profits. Accordingly, Deng and Luo (2009) suggest that commodity price has a positive relationship with a total export of palm oil and increase the profitability of producer companies.

CONCLUSION

This study examines the impact of sustainability certification that promotes sustainability by highlighting the MSPO towards the profitability of Malaysian palm oil companies. This study is based on yearly data from 39 Malaysian palm oil companies listed in Bursa Malaysia from 2013 to 2017. In addition, this study employs GLS regression to examine the effect of MSPO on the profitability of companies in the Malaysian palm oil industry. This study also provides current knowledge related to profitability and MSPO. Due to the lack of study related to MSPO empirically, this study helps other researchers with additional knowledge and increases the source of literature reviews. As a conclusion, MSPO by the Malaysian government is positively significant to profitability, as represented by ROA. In short, the current announcement on mandatory MSPO by the Malaysian government is relevant to fulfil the demand for certified palm oil and helps to provide higher profits to the palm oil companies.

Malaysia has the opportunities to improve the plantation sector, especially the palm oil industry if sustainable issues can be addressed in a proper manner. Thus, the findings of this study provide useful input for companies regarding their concern on the additional cost to comply with MSPO's principals. Moreover, the findings of this study can also be used by the Malaysian Palm Oil Council of MSPO to promote their MSPO certification among the producers, buyers, and consumers. The government may introduce tax incentives and subsidies on related items for certification. These incentives will help to reduce the burden of certification cost to these companies. Besides, awareness campaigns on sustainability certification to the community should be conducted through seminars and publications to demonstrate progress towards sustainability (Abdullah et al., 2015).

This study has some limitations. First, sustainable certification is represented by a binary variable that may not reflect the actual state of sustainability compliance. Therefore, future research may consider using a questionnaire to capture every component of sustainable certification and its effect on financial performance. Another limitation is that this study only employs a single measurement for financial performance. In this regard, future research could apply several performance measures to provide a full dimension of analysis. Continuous research in the palm oil industry is necessary because the data keeps on changing from year to year.

REFERENCES

- Abdullah, I, Wan Mahmood, WH, Fauadi, MHFM, Ab Rahman, MN & Ahmad, F 2015, 'Sustainability in Malaysian palm oil: A review on manufacturing perspective', *Polish Journal of Environmental Studies*, Vol 24, no.4, pp. 1463-1475. <https://doi.org/10.15244/pjoes/37888>
- Abor, J & Biekpe, N 2009, 'How do we explain the capital structure of SME in Sub-Saharan Africa? Evidence from Ghana', *Journal of Economic Studies*, vol. 36, no.1, pp. 83-97. <https://doi.org/10.1108/01443580910923812>
- Adams M & Buckle M 2003, 'The determinants of corporate financial performance in the Bermuda insurance market', *Applied Financial Economics*, vol. 13, no. 2, pp. 133-143. <https://doi.org/10.1080/09603100210105030>
- Adlina, UN 2015, 'The Determinants of the Profitability of Malaysian Public Listed Companies', Doctoral dissertation, Universiti Utara Malaysia.
- Anbumozhi, V & Kanda, Y 2005, 'Greening the production and supply chains in Asia: Is there a role for voluntary initiatives', Working Paper in IGES Kansai Research Centre.

- Atan, R, Razali, FA, Said, J & Zainun, S 2016, 'Environmental, Social and Governance (ESG) disclosure and its effect on firm's performance: A comparative study', *International Journal of Economics and Management*, vol. 10, Special issue 2, pp. 355-375.
- Atanlogun, SK, Edwin, OA & Afolabi, YO 2014, 'On comparative modeling of GLS and OLS estimating techniques', *International Journal of Scientific & Technology Research*, vol. 3, no. 1, pp. 125-128.
- Ayat Rahman, Ramli, A, Faizah, MS & Mohd, AS 2008, 'The Malaysian palm oil supply chain: The role of the independent smallholder', *Oil Palm Industry Economic Journal*, vol. 8, no.2, pp. 17-27.
- Barclay, MJ & Smith, CW 1995, 'The maturity structure of corporate debt', *Journal of Finance*, vol. 50, no.2, pp. 609-622. <https://doi.org/10.1111/j.1540-6261.1995.tb04797.x>
- Basiron, Y & Weng, CH 2004, 'The oil palm and its sustainability', *Journal of Palm oil Research*, vol. 16, no.1, pp. 1-10.
- Bayyurt, N & Orhunbilge, N 2007, 'Measuring business performance in the context of the Turkish manufacturing industry', *Sosyal Bilimler Dergisi*, pp. 138-148.
- Benjamin, L 2018, 'Roundtable on Sustainable Palm (RSPO vs Malaysian Sustainable Palm Oil. A comparison based on WWF's Certification Assessment Tool (CAT)', Report for WWF Malaysia, pp. 1-24. http://d1kjavfsq8j7onh.cloudfront.net/downloads/rspo_vs_msipo_report_2018.pdf (Accessed at 5 Jun 2018).
- Booth, LV, Aivazian, A, Demircug & Maksimovic, V 2001, 'Capital structure in developing countries', *Journal of Finance*, vol. 56, No.1, pp. 87-130. <https://doi.org/10.1111/0022-1082.00320>
- Brandon, P, Lombardi, P & Perera, S 2000, *Cities and Sustainability, Sustaining Our Cultural Heritage*, University of Moratuwa, Sri Lanka.
- Chandran, M.R 2010, 'The palm oil industry: Contributing towards sustainable global business', Presentation at 2010 NIOP Annual Convention, California, USA, March 2010.
- Chen, WR 2008, 'Determinants of firms' backward and forward-looking R&D search behavior', *Organization Science*, vol. 19, no. 4, pp. 609-622.
- Chin, C 2014, 'Changing perception about palm oil', *The Star Online*, 11 September. <https://www.thestar.com.my/lifestyle/features/2014/09/11/changing-perceptions-about-palm-oil/>
- Deng, L & Luo, H 2009, 'An empirical study of the macroeconomic factors that affect capital structure of agricultural listed companies', *Journal of Market Modernization*, vol. 11, pp. 28-29.
- Ding, H & Sha, R 2011, 'Empirical analysis of the impact of capital structure on performance in Jilin Forest Industry Co. Ltd', *Issues of Forestry Economics*, pp. 141-144.
- Ferron, RT, Funchal, B, Nossa, V & Teixeira, AJ 2012, 'Is ISO 14001 certification effective?: An experimental analysis of firm profitability', *BAR-Brazilian Administration Review*, pp. 78-94.
- Ganeshwaran, K 2017, 'Ensuring sustainable palm industry', *The star online*, 11 December, Available at <https://www.thestar.com.my/business/business-news/2017/12/11/ensuring-sustainable-palm-industry/> (Accessed 30 December 2017)
- Ghani, EK, Tarmezi, N, Said, J & Yuliansyah, Y 2016, 'The effect of risk management and operational information disclosure practices on public listed firm's financial performance', *International Journal of Economics and Management*, vol. 10, Specialissue2, pp. 235-252.
- Gijs, B, Joshua, L & Karen, M 2015, 'Profitability and sustainability in responsible forestry', Report of WWF. Available at https://c402277.ssl.cf1.rackcdn.com/publications/810/files/original/FINAL_Profitability_and_Sustainability_in_Responsible_Forestry_main_report.pdf?1438780746
- Gujarati, DN 2002, *Basic econometrics (4th Ed.)*, Singapore, McGraw-Hill Higher Education.
- Hafizuddin-Syah, BAM, Shahida, S & Fuad, SH 2018, 'Sustainable certifications and financial profitability: An analysis on palm oil companies in Malaysia', *Jurnal Pengurusan*, vol. 54, pp. 1-20.
- Handfield, RB, Sroufe, R & Walton, SV 2005, 'Integrating environmental management and supply chain strategies', *Business Strategy and the Environment*, vol. 14, no.1, pp. 1-19. <https://doi.org/10.1002/bse.422>
- Heras-Saizarbitoria, I, Molina-Azorin, JF & Dick, GP 2011, 'ISO 14001 certification and financial performance: Selection-effect versus treatment-effect', *Journal Of Cleaner Production*, vol. 19, no.1, pp. 1-12. <https://doi:10.1016/j.jclepro.2010.09.002>
- Holdren JP, Daily, GC & Ehrlich, PR 1995, 'The meaning of sustainability: Biogeophysical aspects', Available at <http://dieoff.org/page113.htm> (Accessed 4 august 2017). <https://doi.org/10.1080/0969160X.2009.9651811>

- Humphries S, Kainer K 2006, 'Local perceptions of forest certification for community-based enterprises', *Forest Ecology Management*, vol. 23, no.5(1-3), pp. 30-43. <https://doi.org/10.1016/j.foreco.2006.07.027>
- Hussein, ME, Siwar, C & Adham, KN 2017, 'The role of Malaysian palm oil industry in the Malaysian sustainable economic development', *International Journal of the Malay World and Civilisation*, vol. 5, no.1, pp. 11-18. <http://dx.doi.org/10.17576/IMAN-2017-05SI1-02>
- Jones, J, Jackson, JI, Bates, M & Tudor, T 2016, 'Factors influencing corporate pro-environment behaviour-a case study from the UK construction sector', *International Journal and Sustainable Development*, vol. 15, no.1, pp. 1-15. <https://doi.org/10.1504/IJESD.2016.073314>
- Jose, HA, Hongman, G, Xiaochuan, Z, Bahram, A & Haibo, W 2010, 'A study of the relative efficiency of Chinese Ports: A financial ratio-based data envelopment analysis approach', *Expert Systems*, vol. 27, no.5, pp. 349-362. <http://doi:10.1111/j.1468-0394.2010.00552.x>
- Joshua, L 2012, 'Profitability and sustainability in palm oil production', Report of WWF. Available at <http://dialnet.unirioja.es/descarga/articulo/2710856.pdf>. (Accessed 16 February 2017).
- Katherin, Y & Subiakto, S 2012, 'Capital structure determinant of Indonesian plantation firm: empirical study on Indonesian stock exchange', *2nd International Conference on Business, Economics, Management and Behavioral Sciences, Bali, Indonesia*, hlm, pp. 61-65.
- Panapanaan, V., Helin, T., Kujanpää, M., Soukka, R., Heinimö, J. & Linnanen, L 2009, 'Sustainability of palm oil production and opportunities for finish technology and know-how transfer,' Report of Lappeenranta University of Technology. Available at <https://pdfs.semanticscholar.org/db0e/858c4d96dcc817940e4cafc3292e399b69a3.pdf>
- Le Blanc, D 2015, 'Toward integration at last? The sustainable development goals as a network of targets', *Sustainable Development*, vol. 23, no.3, pp. 176-187. <https://doi.org/10.1002/sd.1582>
- Magee, L 1990, 'R2 measures based on Wald and Likelihood Ratio joint significance tests', *The American Statistician*, vol. 44, no.3, pp. 250-253. <https://doi.org/10.1080/00031305.1990.10475731>
- Mahat, S 2012, 'The palm oil industry from the perspective of sustainable development: A case study of Malaysian palm oil industry', Ph.D Thesis, Ritsumeikan Asia Pacific University Japan.
- Mahfuzah, S & Raj, Y 2012, 'Capital structure and firm performance: Evidence from Malaysia Listed Companies', *Social and Behavioral Sciences*, vol. 65, pp. 156-166. <http://doi:10.1016/j.sbspro.2012.11.105>
- Matos, S & Hall, J 2007, 'Integrating sustainable development in the supply chain: The case of life cycle assessment in oil and gas and agricultural biotechnology', *Journal of Operations Management*, vol. 25, No.6, pp. 1083-1102. <http://doi:10.1016/j.jom.2007.01.013>
- McInnes, A 2017, 'A comparison of leading palm oil certification standards', Report of Forest People Programme.
- MPOB 2017, 'Selected export of palm kernel oil by destination', Available at <http://bepi.mpob.gov.my/index.php/en/statistics/export/180-export-2017/811-monthly-export-of-oil-palm-products-2017.html>
- Muritala, TA 2012, 'An empirical analysis of capital structure on firms' performance in Nigeria', *International Journal of Advances in Management and Economics*, vol. 1, No.5, pp. 116-124. <http://doi:10.5171/2015.675930>
- Muthiah, W 2017, 'Countries that malign palm oil can be dealt with accordingly', *The Star Online*, 19 May. <https://www.thestar.com.my/news/nation/2017/05/19/boycott-can-work-both-ways-says-pm-countries-that-malign-palm-oil-can-be-dealt-with-accordingly/>
- Naila, DL 2012, 'The effect of environmental regulations on financial performance in Tanzania: A survey of manufacturing companies quoted on the Dar es Salaam stock exchange', *International Journal of Economics and Financial Issues*. vol. 3, no. 1, pp. 99-112.
- Nikoloyuk, J, Burns, TR & De Man, R 2010, 'The promise and limitations of partnered governance: the case of sustainable palm oil', *Corporate Governance: The international journal of business in society*, vol. 10, no.1, pp. 59-72. <https://doi.10.1108/14720701011021111>
- Noorzaleha, AT 2011. 'Factors affecting the financial performance in Malaysian palm oil industry', Thesis degree, University Malaysia of Sarawak.
- Nor, NM, Bahari, NAS, Adnan, NA, Kamal, SMQAS & Ali, IM 2016, 'The effects of environmental disclosure on financial performance in Malaysia', *Procedia Economics and Finance*, vol. 35, pp. 117-126. [https://doi.org/10.1016/S2212-5671\(16\)00016-2](https://doi.org/10.1016/S2212-5671(16)00016-2)
- Ogebe, P, Ogebe, J & Alewi, K 2013, 'The impact of capital structure on firms' performance in Nigeria', Paper Munich Personal RePEc Archive (MPRA). <http://doi:10.2139/ssrn.2232445>

- Park, HM 2008, 'Univariate analysis and normality Test using SAS, Stata, and SPSS', . Working Paper in Statistical and Mathematical Computing, Indiana University.
- Preusser, S 2015, 'Correlating economic and financial viability with sustainability for palm oil plantations', Research paper RSPO, Available at <http://www.rspo.org/articles/download/58c8da95c948794>
- Rahim, NA 2013, 'Theoretical investigation on determinant of government linked companies capital structure', *Journal of Accounting, Finance and Economics*, vol. 3, no. 2, pp. 72-85.
- Rahman, SA, Yusoff, Rb & Mohamed, WN 2009, 'Environmental disclosure and financial performance: An empirical study of Malaysia, Thailand and Singapore', *Social and Environmental Accountability Journal*, vol. 29, no.2, pp. 46-58.
- Ramasamy, B, Darryl, O & Maththew 2005, 'Firm size, ownership and performance in the Malaysia palm oil industry', *Asian Academy of Management Journal of Accounting and Finance*, vol. 1, pp. 81-101.
- RSPO 2017, 'Vission & mission', available at <https://rspo.org/about> (accessed 23January 2017).
- Saieed, Z 2017, 'Raising the standard with MSPO', *The Star Online*, 10 January. <https://www.thestar.com.my/business/business-news/2017/01/10/raising-the-standard-with-mspo/#3Cf2RI2zBtpzHpRR.99> (Accessed at 6 January 2018).
- Sarumpaet, S 2005, 'The relationship between environmental performance and financial performance of Indonesian companies', *Jurnal Akuntansi & Keuangan*, vol.7, no.2, pp. 89-98. <https://doi.org/10.9744/jak.7.2.pp.%2089-98>
- Schaltegger, S & Figge, F 2000, 'Environmental shareholder value: economic success with corporate environmental management', *Eco-Management and Auditing*, vol. 7, no. 1, pp. 29–42. [https://doi.org/10.1002/\(SICI\)1099-0925\(200003\)7:1<29::AID-EMA119>3.0.CO;2-1](https://doi.org/10.1002/(SICI)1099-0925(200003)7:1<29::AID-EMA119>3.0.CO;2-1)
- Segarra-Oña, MDV, Peiró-Signes, Á, Verma, R & Miret-Pastor, L 2012, 'Does environmental certification help the economic performance of hotels? Evidence from the Spanish hotel industry', *Cornell Hospitality Quarterly*, vol. 53, no.3, pp. 242-256. <https://doi.org/10.1177/1938965512446417>
- Shahida, S, Hafizuddin-Syah, BAM & Fuad, SH,2018, 'The effect of sustainability certification for export on operational profitability of Malaysian palm oil companies', *Jurnal Ekonomi Malaysia*, vol. 5, no. 2. <http://dx.doi.org/10.17576/JEM-2018-5002-5>
- Sheikh, NA & Wang, Z 2013, 'The impact of capital structure on performance', *International Journal of Commerce and Management*, vol. 23, no. 4, pp. 354-368. <https://doi.org/10.1108/IJCoMA-11-2011-0034>
- Tudor, T, Barr, S & Gilg, A 2007, 'A tale of two location settings: Is there a link between pro-environmental behavior at work and at home?', *Local environment*, vol. 12, no. 4, pp. 1-13. <https://doi.org/10.1080/13549830701412513>
- Wahab, SNA & Ramli, NA 2013, 'Determinants of capital structure: An empirical investigation of Malaysian listed government linked companies (GLCs)', *International Journal of Economics and Financial Issues*, vol. 4, no. 1, pp. 930-945.
- Wei, W 2012, 'Factors affecting financial performance of agricultural firms listed on Shanghai Stock Exchange', Doctoral dissertation, University of the Thai Chamber of Commerce.
- Welford, R & Gouldson, A 1993, *Environmental management and business strategy*, United Kingdom, Financial Times Management, 220.
- Wooldridge J 2002, *Econometric analysis of cross-section and panel data*, United Kingdom, MIT press.
- Yusof, B & Yew, F 2016, 'The burden of RSPO certification costs on Malaysian palm oil industry and national economy', *Journal of Oil Palm, Environment & Health*, vol. 7, no. 12, pp. 19-27. <http://doi.org/10.5366/jope.2016.02>
- Zeitun, R & Gang, T 2007, 'Does ownership affect a firm's performance and default risk in Jordan?', *The International Journal of Business in Society*, vol. 7, no.1, pp. 66-82. <https://doi.org/10.1108/14720700710727122>
- Zhang, X 2010, 'Based on factor analyzing: performance evaluation of listed companies in SME Board and its factors analysis', *Journal of Liuzhou Teachers College*, vol. 2010, no.3, pp. 74-78.

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