

Sustainability Certifications and Financial Profitability: An Analysis on Palm Oil Companies in Malaysia

(Pensijilan Kelestarian dan Keberuntungan Kewangan: Analisis ke Atas Syarikat-Syarikat Sawit di Malaysia)

Hafizuddin-Syah B.A.M
S. Shahida

(Faculty of Economics and Management, Universiti Kebangsaan Malaysia)
Siti Hanisah Fuad
Graduate School of Business, Universiti Kebangsaan Malaysia

ABSTRACT

As the second largest palm oil producer in the world, Malaysian palm oil industry has contributed significantly to the national GDP. However, this industry has been under criticism for serious deforestation and open burning activities, which obviously opposing to the objective of the oil palm Good Agricultural Practice on zero burning. As a result, sustainability certification of Roundtable Sustainable Palm Oil and Malaysia Sustainable Palm Oil had been introduced towards achieving sustainable development governance in this industry and fulfilling the needs of importing countries on certified palm oil. However, the number of companies with sustainability certification is relatively low due to the concern on potential additional cost, which then could affect firm profitability. Therefore, this study aims to examine the impact of sustainability certification on financial profitability among 39 palm oil companies in Bursa Malaysia, from 2009 to 2016. Based on the GLS estimation model, the finding shows that the profitability of firms with sustainability certification is almost 2% higher than firms without certification. The finding of this study provide useful input for industry players and could encourage palm oil companies to subscribe sustainability certifications to improve their sustainability practices and good governance as well as increase their profits.

Keywords: Malaysia; MSPO; RSPO; profitability; SDG; oil palm

ABSTRAK

Sebagai pengeluar minyak sawit kedua terbesar di dunia, industri minyak sawit di Malaysia merupakan penyumbang utama kepada KDNK negara. Walau bagaimanapun, industri ini dikritik disebabkan oleh penebangan hutan yang serius dan pembakaran terbuka, yang jelas bertentangan dengan objektif Amalan Pertanian Baik dalam industri kelapa sawit, iaitu polisi pembakaran sifar. Hasilnya, pensijilan kelestarian Roundtable Sustainable Palm Oil dan Malaysia Sustainable Palm Oil telah diperkenalkan untuk mencapai pembangunan lestari dalam industri kelapa sawit dan memenuhi keperluan negara-negara pengimport minyak sawit. Walau bagaimanapun, bilangan syarikat yang melanggan pensijilan kelestarian ini agak rendah kerana timbul kebimbangan terhadap potensi kos tambahan, yang kemudiannya boleh menjejaskan keuntungan syarikat. Oleh itu, kajian ini bertujuan untuk mengkaji kesan pensijilan kelestarian terhadap keberuntungan dalam kalangan 39 syarikat minyak sawit di Bursa Malaysia, dari tahun 2009 hingga 2016. Berdasarkan model penganggaran GLS, penemuan kajian ini menunjukkan bahawa syarikat sawit dengan pensijilan kelestarian mempunyai keuntungan hampir 2 peratus lebih tinggi daripada syarikat tanpa pensijilan. Dapatan daripada kajian ini memberikan input berguna kepada industri dan boleh menggalakkan syarikat minyak sawit melanggan dan memiliki persijilan kelestarian untuk meningkatkan amalan kemampanan dan tadbir urus yang baik serta meningkatkan keuntungan.

Kata kunci: Malaysia; MSPO; RSPO; keuntungan; SDGs; kelapa sawit

INTRODUCTION

The benefits of palm oil such as low cholesterol and rich in vitamin have significantly boosted the demand for palm oil in various industries such as culinary, hygiene, and skin care products. In 2016, palm oil consumptions recorded 34.77% or 64.02 million tonnes of the total world oil consumption¹. Malaysia alone exports more than 16 million tonnes in 2016 (MPOB 2016a). Indeed,

the advantages of having the suitable type of the soil, temperature, and enough rainfall have made Malaysia the second largest producer and exporter of palm oil in the world. Furthermore, the rapid growths of palm oil industry are also driven by the high productivity per unit at low cost, attractive price and strong support from the government (Simeh & Kamarudin 2009). Agricultural industry contributes 8.9% to the national GDP in 2015, with 47% come from palm oil industry (Department of Statistic

Malaysia 2016). It indicates the significance of palm oil industry contribution to the total Malaysian economic growth compare to Indonesia (Jaafar et al. 2015). In fact, high demands and attractive earnings of palm oil have motivated high participation in palm oil industry. As such, palm oil companies have aggressively increased their planting activities by open up more cultivation areas. In 2016, the total Malaysian land area of oil palm plantation reached 5.7 million hectares (MPOB 2016b).

However, promising returns in palm industry had also forced industry players to act against the law. For example, a total of 7,248 hectares of reserved forests has been illegally occupied for oil palm cultivations and open up for new settlements (BERNAMA 2016). According to Section 32(2) of National Forestry Act 1984, the offenders should be liable to a fine not more than RM50,000 or imprisonment, not more than five years or both. The issues arose when deforestation and open burning for new cultivation areas by this industry lead to air pollution, severe flood as well as global warming due to meet the high demand for palm oil from all over the world. These activities violated the Environmental Quality Act 1974 Section 22(1) where no person permitted to conduct any environmentally hazardous substances, pollutants or wastes to the atmosphere². Next, the Section of 29A (1) of the Environmental Quality Act 1974 states that no person is allowed to conduct for open burning³. Thus, to ensure and promote environmental sustainability in palm oil industry, non-governmental organization (NGOs) developed for sustainability certification or Certified Sustainable Palm Oil (CSPO)⁴. Moreover, this is in line with the current agenda of 2030 for Sustainable Development Goals (SDGs) Goal 12 which urged the whole production of palm oil at the upstream level and downstream level to avoid environmental harms and to use certified palm oil in the output of goods at a particular level⁵ (Le Blanc 2015).

In the Malaysia context, Roundtable Sustainable Palm Oil certification (RSPO) and Malaysia Sustainable Palm Oil certification (MSPO) are the most practiced sustainability certification in the palm oil industry. The RSPO is an international certificate standard by NGOs to protect the environment, social equity and economic development in its member countries (Suhaila 2012). Accordingly, Malaysian government also take the initiative to introduce MSPO, a national certification standard to improve sustainability practices of Malaysian palm oil players. MSPO is under the supervision of Malaysian Palm Oil Board (MPOB) and consists of seven principles⁶. It also supports to protect local smallholders in palm oil industry. The importance of sustainability certification can be illustrated by the recent case of IOI Corporation Bhd. (IOI). In April 2016, the RSPO for IOI had been suspended due to serious open burning by its subsidiaries in Indonesia. As results, some of IOI global customers such as Cargill Inc. and Unilever Global take this suspension seriously and subsequently switched to other palm oil suppliers. In fact, the withdrawal by its main buyers shrinking IOI's

share price by 9% and may not achieve the estimated profits of 7% for 2017 (Meena 2016). In fact, these issues can adversely affect the operations, profits, and investors trust as well as increase the reputational risks of palm oil companies.

As one of the leading producers of palm oil in the world, the subscriptions of sustainability certification among Malaysian companies are supposed to be high. However, only 17 out of 39 palm oil companies have at least one certification. The primary hindrance is the cost associated with the certification that might affect firm profitability (Yusuf & Yew 2016). In fact, the mandatory MSPO by the end of 2019 in Malaysia had further enlighten the possible additional cost to comply with the requirement (Hemananthani 2017). Currently, the costs for obtaining RSPO or MSPO include subscription and audit fee, membership fees and man-day cost. For instance, MSPO subscription fee is RM2,500 per hectare (MSPO 2015), while RSPO costs RM3,808 approximately⁷ per hectare (RSPO 2015). Meanwhile, the average membership fee for RSPO is RM9,580 bi-annually (RSPO 2015), while MSPO is currently subsidized⁸. Furthermore, the average of a man-day cost for both certifications is around RM3,000 (Ganeshwaran 2017).

Generally, operating costs including subscription fee of certification would reduce firm profitability. Therefore, it raises the concern among Malaysian palm oil companies on how to remain profitable after taking consideration the requirement of sustainable certification. As environmental issues in palm oil industry have been a major concern globally for the last two decades, the demand for certified palm oil increases significantly. For instance, the purchase of certified palm oil in the UK has increased by almost triple from 155,000 million tons in 2009 to 457,294 million tons in 2015 (CPET 2017). Therefore, the certified palm oil companies have huge potential to tap the market and subsequently increase their revenues. By increasing the revenue, the companies would be able to bear the additional cost i.e. subscription fee and remain profitable. Consistently, empirical evidence in the past literature show positive relationship between certification and profitability (see Haslinda & Glen 2006; Ferron et al. 2012; Gijs et al. 2015).

However, empirical findings remain inconclusive, as some studies find no relationship (for instance, Sarumpaet 2005; Rahman et al. 2009; Segarra-Oña et al. 2012; Nor et al. 2016). While there are studies on the effect of sustainability certification on profitability in Malaysian palm oil industry, none of existing studies consider both RSPO and MSPO at firm level. Therefore, this study aims to examine the direct effect of sustainability certification i.e. RSPO and MSPO on financial profitability among Malaysian palm oil companies. This study enriches the growing literature of palm oil certification by providing evidence on how certification contributes to profitability at firm level. Furthermore, it promotes the sustainability practices among palm oil companies including upstream and downstream level. This study also helps the Malaysia

RSPO Secretariat and the National Committee of MSPO in promoting sustainable practices among the producers, buyers, and consumers.

This paper is organized as follows. Part 1 describes the research background, problem statement, objective and significances of study. Part 2 presents the review of relevant literature on sustainability and its governance, sustainability certification and firm profitability. 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 study.

LITERATURE REVIEW

SUSTAINABILITY CERTIFICATION AND ITS GOVERNANCE

Although Malaysian palm oil industry has been grown well for a century, but negative perceptions remain inevitable from the stakeholders⁹ (Lim 2014; Noor 2017). One of the reasons is the awareness and concern on the environmental sustainability. Stakeholders claim that most of the palm oil players could possibly harm the environment through deforestation or the usage of inappropriate planting materials. For example, smallholders use inappropriate planting materials, unsystematic fertilizer and harvesting of unripe fruit bunches (Ayat Rahman et al. 2008), which could impose high cost of treatment (Nawawi et al. 2013). Hence, the effectiveness of sustainability certification in the agriculture industry had become debates in the past decades (Nikoluyuk et al. 2010).

According to Holdren et al. (1995), environmental sustainability define as maintaining and improving the standard of life supporting system on the earth by sustaining the biological diversity and conservation of air, water, and land resources. Sustainability in palm oil industry is achieved when palm oil companies protect the environment, use the sources efficiently, provide value added to the labors, risk reduction and secure corporate reputation (Basiron & Weng 2004). In Malaysia, corporate reporting on environment is relatively low (Buniamin et al. 2011; Che-Adam et al. 2012), which reflect to lower governance on environmental issues. In fact, governance issue on environment had force Malaysian government to shift its palm oil exports from European countries to smaller countries.¹⁰

However, environment sustainability standards in palm oil industry such as RSPO fail to consider certain stakeholders, especially the smallholders (Giovannucci & Purcell 2008). It may due to the absence of government intervention and lack of governance on the sustainability standards (Nikoluyuk et al. 2010). Without the intervention of public policies maker, the private sustainability certification developers may find it hard to solve the environment related issues (Brandi 2017). Consequently, Nawawi et al. (2013) highlight the necessity of government to introduce a tax incentive on the waste treatment processes to encourage sustainable operation.

Policymakers also must play vital roles to introduce proper policies in minimizing the environmental impact in palm oil industry (Klara 2011). In fact, some companies unable to demonstrate high level of environmental performance due to significant investment and insurance cost (Welford & Gouldson 1993).

In similar vein, Malaysian government and relevant authorities have taken proactive action to tackle sustainability issues in palm oil industry by improving the existing laws to protect the ecology, habitats, and hundreds of flora and fauna species. Indeed, Malaysian palm oil industry has 17 major regulations covering land, environment and comprehensive protection (Mahat 2012). The favorable relationship with international non-governmental organizations (NGOs) through RSPO has further assist the government and industry players in promoting sustainable development of palm oil industry in Malaysia.

According to Chandran (2010), palm oil companies must increase oil palm cultivation by 1.5% annually to remain profitable in the industry. Therefore, palm oil companies side should shift their current environmental management model to the full coverage of environmental harm for entire product lifecycle (Handfield et al. 2005). In combating pollution, green activities should be expanded to the source of contamination at each level of product lifecycle including raw material extraction, transportation, manufacturing recycling, and disposal (Matos & Hall 2007).

SUSTAINABILITY CERTIFICATION AND FIRM PROFITABILITY

The effect of sustainability certification on firms' profitability have been documented in the previous studies. For instance, Joshua et al. (2012) suggest that RSPO certification helps firms to reduce the cost of sales expenses and improves revenues. Indeed, RSPO certification also enhances the relationship between the firms and the stakeholders as well as reduces the labor turnover by 6%. Accordingly, Preusser (2015) finds a positive correlation between the area of plantation certified by CSPO and CPO prices. Specifically, firms with at least 40% plantation area certified by the RSPO have 7% premium on the CPO price compared to firms with 20% or less certified area. In fact, the implementation of the RSPO standard has a positive relationship with the firm's performance for those companies that have at least 45% certified palm oil (Teoh 2010). This result shows that new RSPO standard improves operational efficiency and reduction in costs. At the corporate level, the RSPO certification enhances the corporate image, reputation and improve access to international markets.

Gijs et al. (2015) on their study on forest sustainable certification, known as The Forest Stewardship Council (FSC) certification, finds that the FSC certification has a positive impact towards the net present value of tropical

forest producers for both small and medium manufacturers. The companies gain significant benefits by owning the FSC certification such as tax incentives, research fees, and government supports. Moreover, FSC certification provides a brighter opportunity to access the European markets for forest operators (Humphries & Kainer 2006). Consistently, Brazilian companies with environmental management system certificates tend to be more profitable than firms without the certification (Ferron et al. 2012). In Malaysia, public listed companies with environmental disclosure be likely to have higher profit margin (see Haslinda & Glen 2006; Perry et al. 2011). Indeed, companies that publicly disclose their environmental activities attract investor's interest and fulfill the demand of the stakeholder's groups. As the largest palm oil producer in the world, Indonesia should heavily consider suitability practices. However, Ainia and Deddy (2014) find a weak positive relationship between sustainability practices with the financial profitability of firms. The authors suggest that sustainability practices have less impact towards the financial profitability of Indonesian companies because of the few stakeholders that concern on sustainability disclosure as their practices.

In contrast, Segarra-Oña et al. (2012) find that the economic performance of rural hotels in Spain has no relationship with the ISO 14001 since their environmental awareness is at the high level compared to urban and beach hotels. Hotel with natural surrounding is essentially forced to appreciate the environments as part of their core concept. Meanwhile, entire environmental disclosure has no significant relationship towards the ROA, ROE, and EPS in Malaysia (Nor et al. 2016). Consequently, Sarumpaet (2005) discovers that financial performance of excellent rating in Indonesian companies is not significantly associated with the environmental performance. Certainly, green products or services are typically more expensive due to lack of incentive from government and become unfavourable by Indonesian consumers. It then affect the companies' financial performance. Similar findings reported by Rahman et al. (2009) and Yusof and Yes (2016). In fact, Yusof and Yew (2016) reveal that the subscription of RSPO adversely affects the economy due to the high cost incurred, warm demand and low sales from the customers.

OTHER ATTRIBUTES OF FIRM FINANCIAL PROFITABILITY

Profitability is important for firms to attract potential investors. Generally, higher profitability enhances firm capacity to sustain competitiveness and ensuring business continuity. In fact, profitability depends on many factors and might differ from one firm to another. Therefore, the discussion in this section focus on the determinant of profitability that mostly discussed in the past studies, including studies in the palm oil industry (see for instance

Ramasamy et al. 2005; Adlina 2015; John & Adebayo 2013).

Leverage 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 Malaysia 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 performance and governance. The above findings contradict with the study conducted by Ogebe et al. (2013) on the impact of capital structure on firm performance. They find that leverage has a negative and statistically influence the relationship with firm performance. It indicates that the firms use more equity than debt to finance their business activities. Indeed, it consistent with the findings in Bayyurt and Orhunbilge (2007).

Liquidity Liquidity may affect firm profitability as firms could have the incentive to invest in the more successful project. A study by Jose et al. (2010) among Chinese ports shows that high current ratio indicates the efficiency of the firm 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 Wei (2012) shows that liquidity does not affect the financial performance of listed agricultural companies in China due to the ineffectiveness of capacity to pay back short-term debt as compared to long-term debt.

Firm Size Larger companies entail a variety of abilities and enjoy the economies of scale, which provide advantages to improve the profitability of the firms (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 limited source of financing and prefer to use internal financing over external debts due to higher cost and risk (Abor & Biekpe 2009). Consistent with trade-off theory, Muritala (2012) and Sheikh and Wang (2013) find that firm size has a positive relationship with 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 organizational ineffectiveness.

Company Growth High growth rate indicates a high debt by companies to equity ratio (Zeitun & Tian 2007). Indeed, 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 growth rate has a positive correlation with the profitability of palm oil

companies. One possible explanation for this finding is that positive growth rate will increase the good impression towards the firm. Similar results reported in Adlina (2015) and Katherine and Subiakto (2012).

Price 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's debt. Meanwhile, fluctuation of price will increase business risk and reduce tax charges (Deng & Luo 2009), that may cause the firm to engage in hedging to reduce the price vitality risk. Indeed, hedging activities could further increase the operating costs and may adversely affect the firm profitability.

RESEARCH DESIGN

SAMPLE AND DATA COLLECTION

This study collects the data from annual reports of the respective palm oil companies, which publicly available in Bursa Malaysia website. The sample consists of 39 palm oil companies listed in Bursa Malaysia. These companies are operating in the upstream and downstream industry. The companies in the upstream industry are involved in the early stages of planting, collecting and milling of the oil palm. Meanwhile, the downstream companies refine and produce palm-based products such as cooking oil, oleochemicals, and specialty fats. Out of the 39 companies, only 17 companies have subscribed for sustainability certification, either RSPO and/ or MSPO. There are five companies that subscribed both certifications, while 10 companies only had RSPO and only two companies comply with the principles of MSPO. The list of sample companies is attached in the Appendix 1. The membership of sustainability certification is obtained from the RSPO and MSPO website respectively. As the RSPO only available at the end of 2008, this study only covers the period from 2009 to 2016.

EMPIRICAL MODEL

A multiple regression analysis is conducted to examine the effect of sustainability certification towards the profitability of Malaysian palm oil companies. The panel data analysis is used since the data is cross-sectional and time series data. However, the panel data analysis has 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 expose to the problem on not normally distributed. As a result, the estimation using Ordinary Least Square (OLS) will

become less efficient (Gujarati 2009). In fact, Generalize Least Square (GLS) estimation provides remedy to these problems (Wooldridge 2002; Atanlogun 2014). Therefore, this study employs GLS estimation to examine the effect of sustainability certification toward profitability among Malaysian palm oil companies, using Stata Version 12.

The dependent variable of this study is financial profitability, as proxy by the ratio of return on assets (ROA). ROA is the most popular measurement to measure profitability of a firm (Bayyurt & Orhunbilge 2007; Helfert 2002; Wahab & Ramli 2013). ROA measures firm efficiency to utilize its asset to generate profits. The higher the ROA, the more efficient the firms in managing their assets to earn higher profits. It is also provides clearer information regarding the financial strength of firms for long-term (see for instance Ross et al. 2002; Stoltz et al. 2007; Gadoiu 2014). Following Wahab and Ramly (2013), ROA is calculated by dividing the earnings before interest tax (EBIT) with total assets. By using EBIT as the nominator than net profit in ROA, it is particularly useful on sample size (palm oil companies) with different financing structures. As mentioned before, Malaysian palm oil companies consist of shariah and non-shariah compliant companies. Shariah-compliant palm oil companies are bounded with guideline under Shariah Advisory Council of Securities Commission (SC) on capital structure and business activities, unlike the conventional. Hence, EBIT is more appropriate in measuring ROA (Padrtová & Vochozka 2011; Heras-Saizarbitoria et al. 2011).

This study uses CSPO to represent the sustainability certification. CSPO is an important data since it provides information regarding the status of companies on sustainability certification. CSPO is represented by dummy variable, which takes the value of 1 for a firm with at least one sustainability certification i.e. RSPO or/and MSPO certification, otherwise 0. According to Gujarati (2003), dummy variable is an important data and valid to be incorporated in a regression model. Similar measurement has been also employed by Heras-Saizarbitoria et al. (2011) in their study of the impact of ISO certification on financial performance. This study hypothesizes that the sustainability certification is positively related to profitability of palm oil companies in Malaysia. Other independent variables of study have been categorized as control variables which are leverage (LEV), liquidity (LIQ), firm size (SIZE), company growth (GROW) and price (P). These five variables are mostly used as control variables in the past studies (see Marcus 1969; Li & Yang 2012; Dogan 2013; John & Adebayo 2013). Control variable is important to produce reliable results on the effect of independent variable towards dependent variable. For example, larger firm is more efficient in utilizing their resources to increase profits than small size firms. Furthermore, larger firm has the financial capability and afford to subscribe sustainability certification. Hence, firm size must be included in the model to control the effect of sustainability certification on firm profitability.

The regression model of this study is shown in equation (1) that consist one main independent variable and five control variables. Indeed, five variables are the minimum numbers of independent variable to be included in multiple regression (Green 1991; Tabachnick & Fidell 2013).

Furthermore, Table 1 present the description of each variable in regression model.

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

TABLE 1. Description of variables

Variable	Proxy	Measurement	Source
ROA	Profitability	EBIT/ Total Assets	Wahab and Ramli (2013)
CSPO	Sustainable certifications	Dummy variable equals to 1 for firm with at least one CSPO, otherwise 0.	Heras-Saizarbitoria et al. (2011)
LEV	Leverage	Total Liabilities/Total shareholder Equities	Tailab (2014)
LIQ	Liquidity	Current Asset/ Current liabilities	Gupta et al. (2011)
SIZE	Size of firms	Log of Total Assets	Ramasamy et al. (2005)
GROW	Company growth	(Revenue ₁ -Revenue ₀)/ Revenue ₀)	Ramasamy et al. (2005)
P	CPO Price	Annual average price of CPO	Asari et al. (2011)

RESULTS AND DISCUSSION

DESCRIPTIVE STATISTICS

Descriptive data reports the mean, standard deviation, skewness test, and kurtosis test. Indeed, these tests explain the data distribution. Sample data is normally distributed when the value of mean is equal to the median. Furthermore, a normally distributed data should have the value of skewness near to zero while kurtosis near to three (Park 2015). Based on Table 2, the data are not normally distributed. For instance, the skewness and kurtosis for LIQ and GROW are remote from zero and three. According to Gujarati (2009), Generalized Least Square (GLS) can tackle the issue of non-normal distribution of data. Therefore, this study employs GLS to examine the effect sustainability certification on firm profitability.

PEARSON CORRELATION MATRIX

Pearson correlation analysis is used to explain the strength and direction of the linear relationship between

TABLE 2. Descriptive statistics

Variable	N	Mean	Std. Dev.	Skewness	Kurtosis
ROA	264	0.0637	.0533	0.7316	4.1607
CSPO	264	0.3182	.4667	0.7807	1.6095
LEV	264	0.5122	0.4461	1.3307	4.9254
LIQ	264	4.5647	7.4353	3.6413	18.7519
SIZE	264	6.1372	0.6033	0.5595	2.9203
GROW	264	7.3208	60.6472	8.5139	105.5573
P	264	7.8440	0.1384	0.5742	2.0779

continuous variables. In fact, Pearson correlation also detect the presence of multicollinearity problem. The multicollinearity occurs when the independent variables are highly related to each other, which then lead to high R^2 , large standard error, and small t value. According to Gujarati (2009) and Wei (2012), the acceptable level of the Pearson correlation coefficient is 0.8 and below. Based on Table 3, the correlation coefficient of each variable is well below 0.8 which indicates the absence of severe multicollinearity problem. Hence, all variables can be included in the model.

TABLE 3. Pearson correlation matrix

	ROA	LEV	LIQ	SIZE	GROW	P
ROA	1.0000					
LEV	-0.2172***	1.0000				
LIQ	0.0544	-0.4245***	1.0000			
SIZE	0.2008***	0.0711	-0.1325***	1.0000		
GROW	0.0531	0.0288	-0.0563	0.0185	1.000	
P	0.3291***	-0.0913	0.0128	-0.0574	0.2267***	1.0000

Notes: Dependent variable is ROA. Value in the parentheses are the standard errors (SE), ***p < .01, **p < 0.5 and *p < .10. CSPO is excluded from the table as it represented by non-continuous variable i.e. binary.

REGRESSIONS RESULT

The panel data of this study is unbalanced due to limited access to the unpublished data. In addition to multicollinearity problem, the data employed in this study may also expose to heteroscedasticity and autocorrelation. Therefore, White test is used to detect the presence of heteroscedasticity. The result from the White test shows the presence of heteroscedasticity as shown the insignificant chi-square value of ($\chi^2 = 18.24$; p -value = 0.8670). On autocorrelation, it occurs when error term of the observations in the regression model are related. Accordingly, Wooldridge test is performed to detect the autocorrelation as it is a better fit for panel data (Wooldridge 2010). The Wooldridge test results show that F-stat is significant at 5% level (F-stat: 6.255, p -value: 0.0169), which demonstrates the presence of autocorrelation. Therefore, the null hypothesis of no-first order autocorrelation is rejected.

As the data are not normally distributed as well as heteroscedasticity and autocorrelation problem, estimation using OLS become less efficient (Gujarati 2009; Hsiao 2007). Therefore, this study employs GLS to estimate the effect of sustainability certification on firm profitability. Indeed, the GLS is able to handle the data in better way by giving equal weights and errors of GLS model are not correlated (Ahmad & Bano 2015). Generally, R^2 is the common measure of model's goodness of fit in linear model. However, Magee (1990) suggests that Wald test can be an alternative to R^2 in GLS model. The Wald test evaluates the significance of particular independent variables to be included in a statistical model. If the parameter is equal to zero, the independent variables should be omitted from the model. The result of Wald test in Table 4 shows that chi-square is significant at 1% level ($\chi^2 = 76.46$; p -value: 0.0000). Hence, the null hypothesis of the parameters associated with the independent variable is failed to reject. In other words, all the independent variables contribute in explaining the dependent variable.

Based on the results of GLS regression in Table 4, CSPO is highly significant to influence ROA, after controlling for LEV, LIQ, SIZE, GROW and P. Specifically, sustainability certification has a positive effect on the profitability of Malaysian palm oil companies at one percent significant level. It shows that palm oil companies with at least one sustainability certification (i.e. RSPO or/ and MSPO subscriber) generates profitability by almost 2% higher than non-certified companies. Indeed, this finding is consistent with Gijs et al. (2015), which demonstrate a positive relationship between environmental management system certificates and firm financial performance. Similarly, Brazilian companies with environmental management system certificates tend to be more profitable than firm without the certification (Ferron et al. 2012). Furthermore, Humphries and Kainer (2006) also find that the forest operators with Forest Stewardship Council certification tend to be more profitable than firms without certification.

TABLE 4. Regression results

Variables	β
C	-1.0138 (0.1759)
CSPO	0.0178*** (0.0088)
LEV	-0.0235*** (0.0055)
LIQ	0.0000 (0.0004)
SIZE	0.0110 (0.0068)
GRW	-0.0000 (0.0004)
P	0.1296*** (0.0218)
Observations (N)	264
Wald test	76.46***

Notes: Dependent variable is ROA. Value in the parentheses are the standard errors (SE), *** $p < .01$, ** $p < 0.5$ and * $p < 0.10$.

This study finds that palm oil companies with at least one RSPO or MSPO enjoy higher profit than the non-certified companies. This empirical evidence provides response to the concerns of non-member certification companies on the additional cost associated with sustainability certification subscription. Since the demand on certified palm oil increased due to huge concern on environmental sustainability issues, Malaysian palm oil companies have the opportunity tap the market and increase their revenue by having sustainability certification. Indeed, these companies would be able to sell their certified palm oil at premium price, higher than non-certified palm oil (Preusser 2015). As result, they are able to cover the costs of sustainability certification subscription. Meanwhile, Noorhayati et al. (2016) highlight that investors and customers prefer a company that disclosure their sustainability practice. Perhaps, sustainability certification tends to enhance their reputation, image, investors' trust and reduce reputation risk (Basiron & Weng 2004). Indeed, the current announcement by Malaysian government to make MSPO as a mandatory requirement is pretty relevant to improve the transparency and profitability among palm oil companies in Malaysia. In short, subscribing for sustainability certification would provide strong support to achieve the objective of the oil palm Good Practice (GAP) by operating sustainably and producing certified palm oil without adversely affects their profitability. Moreover, the introduction of MSPO indicates that Malaysian government guarantees to produce sustainable palm oil by strengthening the existing laws towards protection of ecology, habitats, and species (Lappeenranta 2009).

On control variables, only LEV and P are significant in influencing firm profitability. LEV is negatively correlated with ROA, with 1% increase in firm leverage (LEV) would decrease more than 2% in firm profitability. One possible explanation is higher leverage i.e. high debt level, would

increase interest expenses and subsequently lower down firm profitability. Moreover, the negative effect of leverage on profitability further suggests that Malaysian palm oil companies tend to use more equity capital than debt capital in their capital structure. Although high debt provides potential high tax-incentive (Zhang 2010; Ding & Sha 2011), it also exposes firms to higher default risk. Therefore, firms more prefer to utilize equity capital than debt, which consistent with the findings by Ogebe et al. (2013) and Bayyurt and Orhunbilge (2007).

Finally, CPO price shows a significant and positively affects the firm profitability of palm oil companies in Malaysia. Specifically, 1% increase in average price of crude palm oil increases firms' profitability of Malaysian palm oil companies by 13%. It is consistent to Ramasamy et al. (2005), which find the positive relationship between average crude palm oil (CPO) price and profitability. As the price of crude palm oil is determined by the world market, high price could results in higher profit for palm oil companies. Consequently, Deng and Luo (2009) suggest that commodity price has a positive relationship with total export of palm oil and increase the profitability of producer companies. Indeed, firms with at least 40% plantation area certified by RSPO earn 7% premium on CPO price compare to firms with 20% or less certified plantation area (Preuser 2015).

CONCLUSION

This study analyses the effect of sustainability certifications, as a proxy by CSPO certifications on the profitability of Malaysian palm oil companies from 2009 to 2016. In fact, limited empirical studies have been conducted to examine the relationship of both RSPO and MSPO toward profitability in the Malaysian context, as past studies more focus to qualitative approach such as content analysis on sustainability certifications. Indeed, this study enriches the existing literature considering the lack of empirical evidence on the relationship between sustainability certification and profitability. The GLS regression results show a positive effect of sustainability certification on firm profitability in Malaysian palm oil industry. It suggests that Malaysian palm oil companies with at least one sustainability certification generate more profit by producing certified palm oil than those non-certified companies. Furthermore, this finding indicates that RSPO or MSPO certification improve not only firm profitability but also sustainable responsibility and fulfilling stakeholders demand on certified palm oil. Finally, compliance with the principles of sustainability certification would minimize the possibility of being penalized under the Environmental Quality Act 1974 that subsequently affect the firm's reputation and profitability.

As sustainability certification, particularly MSPO helps to enhance the profitability of Malaysian palm oil companies, the mandatory requirement to have MSPO by end of 2019 is quite relevant. As one of the largest palm

oil producers in the world, the mandatory MSPO would provide competitive advantages and help to promote Malaysian products worldwide. Hence, Malaysian palm oil companies are highly recommended to subscribe at least one RSPO or MSPO certification to enjoy more benefits. Furthermore, companies with lower financial capability may start with MSPO as it costs lower than RSPO. Meanwhile, future researchers should consider extending the research context by including a sample of other countries such as Indonesia to provide a generalization of current empirical evidence.

NOTES

- ¹ The statistic obtained from www.statista.com/statistics/263937/vegetable-oils-global-consumption
- ² The offenders should be liable with not more than RM100, 000 or imprisonment for not more than five years or both.
- ³ The liability under this criminal is a fine not exceeding RM500,000 or imprisonment less than 5 years or both.
- ⁴ CSPO focuses on the palm oil that has been handled and certified according to the principle and criteria of the Roundtable on Sustainable Palm Oil (RSPO)
- ⁵ SDGs include a set of 17 specific goals to diminish poverty, inequality and injustice, and tackle climate change by the year 2030. The Goal No. 12 of SDGs which is "Ensure Sustainable Consumption and Production Patterns" relates to the environmental sustainability.
- ⁶ The seven principles of MSPO are management commitment and responsibility; transparency; compliance to legal requirements; social responsibility, health, safety and employment conditions; environment, natural resources, biodiversity and ecosystem services, best practices and development of new planting.
- ⁷ Exchange rate of RM4.79/Euro
- ⁸ The information is as per 2018
- ⁹ According to Freeman (1984), stakeholders comprise of society, customers, suppliers, media, government, managers, shareholders and employees. In addition, Clarkson (1995) also classified NGOs as part of stakeholders.
- ¹⁰ Food Information Regulation was enforced in December 2014 that require all the products with vegetable oils must be labeled. In fact, Europe is strongly reject palm oil in their products.

ACKNOWLEDGEMENT

This research was funded by the MPOB-UKM Endowment Chair Research Grant (EP-2016-028: Financial Sustainability of Palm Oil Companies with regard to

Environmental Certification). We thank our colleagues from UKM and MPOB who provided insights and expertise that greatly assisted the research, although they may not agree with all of the interpretations/conclusions of this paper. We are also immensely grateful to the reviewers for their comments on an earlier version of the manuscript, although any errors are our own and should not tarnish the reputations of these esteemed persons.

REFERENCES

- 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* 36(1): 83-97.
- Adams M. & Buckle M. 2003. The determinants of corporate financial performance in the Bermuda insurance market. *Applied Financial Economics* 13(2): 133-143.
- Adlina, U.N. 2015. *The determinants of the profitability of Malaysian public listed companies*. Doctoral dissertation, Universiti Utara Malaysia.
- Ahmad, A. & Bano, S. 2015. Working capital management matters profitability of textile sector: With GLS model. *International Journal of Economics and Empirical Research* 3(11): 543-549.
- Ainia, P.A. & Deddy, P. Koesrindartoto. 2014. Sustainability practices and financial performance: An empirical evidence from Indonesia. *International Conference on Trends in Economics, Humanities and Management*, 11-15. Pattaya Thailand.
- Asari, F.F.A.H., Rahman, N.H.A., Razak, E.A.A., Ahmad, B.A.S., Harun, N.F.A. & Jusoff, K. 2011. A time series analysis of the relationship between total area planted, palm oil price and production of Malaysian palm oil. *World Applied Sciences Journal* 12(BES): 34-40.
- Atanlogun, S.K., Edwin, O.A. & Afolabi, Y.O. 2014. On comparative modeling of GLS and OLS estimating techniques. *International Journal of Scientific & Technology Research* 3(1): 125-128.
- Ayat Rahman, Ramli Abdullah, Faizah Mohd Shariff & Mohd Arif Simeh. 2008. The Malaysian palm oil supply chain: The role of the independent smallholder. *Oil Palm Industry Economic Journal* 8(2): 17-27
- Barclay, M.J. & Smith, C.W. 1995. The maturity structure of corporate debt. *Journal of Finance* 50: 609-32.
- Basiron, Y. & Weng, C.H. 2004. The oil palm and its sustainability. *Journal of Palm oil Research* 16(1): 1-10.
- Bayyurt, N. & Orhunbilge, N. 2007. Measuring business performance in the context of the Turkish manufacturing industry. *Sosyal Bilimler Dergisi*: 138-148.
- BERNAMA. 2016. 7,000 Hektar hutan simpan kekal kelantan diteroka secara haram sejak 1980. Utusan Online, 29 September. Available at <http://www.utusan.com.my/berita/nasional/7-000-hektar-hutan-simpan-kekal-kelantan-diteroka-secara-haram-sejak-1980-1.388628>.
- Booth, L.V., Aivazian, A., Demircuc, A. & Maksimovic, V. 2001. Capital structure in developing countries. *Journal of Finance* 58: 87-130.
- Brandi, C.A. 2017. Sustainability standards and sustainable development—synergies and trade-offs of Transnational Governance. *Sustainable Development* 25(1): 25-34.
- Buniamin, S., Alrazi, B., Johari, N.H. & Rahman, N.R.A. 2011. Corporate governance practices and environmental reporting of companies in Malaysia: Finding possibilities of double thumbs up. *Jurnal Pengurusan* 32(2011): 55-71.
- Chandran, M.R. 2010. The palm oil industry: Contributing towards sustainable global business. Presentation at 2010 NIOP Annual Convention, California, USA.
- Che-Adam, N., Kee, P.L. & Taib, F.M. 2012. Determinants of non-reporting of social and environmental information by Malaysian companies. *Jurnal Pengurusan* 36: 101-112.
- CPET. 2017. UK consumption of sustainable palm oil. Department for Environment Food & Rural Affairs. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/590474/cpet-annual-review-palm-oil-consumption.pdf
- Deng, L. & Luo, H. 2009. An empirical study of the macroeconomic factors that affect capital structure of agricultural listed companies. *Journal of Market Modernization* 11: 28-29.
- Department of Statistic Malaysia. 2016. Selected agricultural indicators, Malaysia, 2016. Available at https://www.dosm.gov.my/v1/index.php?r=column/cthemByCat&cat=72&bul_id=T2Z3NkhLSFk2VjZ5dkdUL1JQUGs4dz09&menu_id=Z0VTZGU1UHBUT1VJMF1paXRRR0xpdz09
- 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* 31(2): 141-144.
- Doğan, M. 2013. Does firm size affect the firm profitability? Evidence from Turkey. *Research Journal of Finance and Accounting* 4(4): 53-59.
- Ferron, R.T., Funchal, B., Nossa, V. & Teixeira, A.J. 2012. Is ISO 14001 certification effective? An experimental analysis of firm profitability. *BAR-Brazilian Administration Review* 9(SPE): 78-94.
- Gadoiu, M. 2014. Advantages and limitations of the financial ratios used in the financial diagnosis of the enterprise. *Scientific Bulletin-Economic Sciences* 13(2): 87-95.
- Ganeshwaran, K. 2017. Certification to be the basis for branding Malaysia CPO in international market. The Star Online, 11 December. Available at <https://www.thestar.com.my/business/business-news/2017/12/11/ensuring-sustainable-palm-industry/>
- Gijs Breukink, Joshua Levin & Karen Mo. 2015. Profitability and sustainability in responsible forestry: Economic impact of FSC certification on forest operators. WWF.
- Giovannucci, D. & Purcell, T. 2008. Standards and Agricultural Trade in Asia. ADBI Discussion Paper No. 107. Tokyo.
- Green, S.B. 1991. How many subjects does it take to do a regression analysis? *Multivariate Behavioral Research* 26(3): 499-510.
- Gujarati, D.N. 2003. *Basic Econometrics*. New York: McGraw Hill Book Co.
- Gujarati, D.N. 2009. *Basic Econometrics*. New Delhi: Tata McGraw-Hill Education.
- Gupta, S., Jain, P.K. & Yadav, S.S. 2011. Impact of MoU on financial performance of public sector enterprises in India. *Journal of Advances in Management Research* 8(2): 263-284.
- Handfield, R.B., Sroufe, R. & Walton, S.V. 2005. Integrating environmental management and supply chain strategies. *Business Strategy and the Environment* 14(1): 1-19.
- Haslinda, Y. & Glen, L. 2006. International differences on corporate environment disclosure practice: A comparison between Malaysia and Australia. *International Conference on Accounting and Finance in Transition (ICAFT)*, 1-17.

- Helfert E.A. 2002. *Techniques of Financial Analysis: A Guide to Value Creation*. New York: McGraw Hill Education.
- Hemananthani, S. 2017. MSPO certification mandatory by 2019. The Star Online, 25 February. Available at <https://www.thestar.com.my/news/nation/2017/02/25/mspo-certification-mandatory-by-2019-govt-aims-for-sustainable-oil-palm-industry/>
- Heras-Saizarbitoria, I., Molina-Azorin, J.F. & Dick, G.P. 2011. ISO 14001 certification and financial performance: Selection-effect versus treatment-effect. *Journal of Cleaner Production* 19(1): 1-12.
- Holdren, J.P., Daily, G.C. & Ehrlich, P.R. 1995. The meaning of sustainability: Biogeophysical Aspects. defining and measuring sustainability: *The Biological Foundations*: 3-17.
- Hsiao, C. 2007. Panel data analysis—advantages and challenges. *Test* 16(1): 1-22.
- Humphries, S. & Kainer, K. 2006. Local perceptions of forest certification for community-based enterprises, *Forest Ecology Management* 235(1-3): 30-43.
- Jaafar, A. H., Salleh, N. H. M. & Manaf, Z. A. 2015. Intersectoral linkages in oil palm industry between Malaysia and Indonesia. *Jurnal Ekonomi Malaysia* 49(1): 25-35.
- John, A.O. & Adebayo, O. 2013. Effect of firm size on profitability: Evidence from Nigerian manufacturing sector. *Prime Journal of Business Administration and Management (BAM)* 3(9): 1171-1175.
- Jose, H.A.R.H., 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 System* 27(5): 349-362.
- Joshua L., Ginny N., Desmond,F., Sarah, G., Samantha, L. & Donald, G. 2012. Profitability and sustainability in palm oil production, s.l. WWF.
- 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* 61-65. Bali, Indonesia.
- Klara, A. 2011. *Environmental consequences of the palm oil industry in Malaysia*. Degree thesis in Physical Geography Ecosystem Analysis, Department of Earth and Ecosystem Sciences.
- Lappeenranta. 2009. Sustainability of palm oil production and opportunities for Finnish technology and know-how-transfer. *University of Technology*.
- Le Blanc, D. 2015. The sustainable development goals as a network of targets. monitoring and evaluation NEWS. *Sustainable Development* 23(3): 176-187.
- Li, O. Z., Su, X. & Yang, Z. 2012. State control, access to capital and firm performance. *China Journal of Accounting Research* 5(2): 101-125.
- Lim, C.Y. 2014. Addressing palm oil concerns, The Star Online, 8 September. Available at <https://www.thestar.com.my/news/environment/2014/09/08/addressing-palm-oil-concerns/>
- Magee, L. 1990. R2 measures based on Wald and likelihood ratio joint significance tests. *The American Statistician* 44(3): 250-253.
- Mahat, S. 2012. *The palm oil industry from the perspective of sustainable development: A case study of Malaysian palm oil industry*. Doctoral Dissertation, Ritsumeikan Asia Pacific University Japan.
- Mahfuzah, S. & Raj, Y. 2012. Capital structure and firm performance: Evidence from Malaysia listed companies. *Social and Behavioral Sciences* 65: 156-166.
- Malaysia Palm Oil Board. 2016a. Selected export of palm kernel oil by destination 2016. Available at <http://bepi.mpob.gov.my/index.php/en/statistics/export/171-export-2016.html>
- Malaysia Palm Oil Board. 2016b. Oil palm planted area 2016. Available at <http://bepi.mpob.gov.my/index.php/en/statistics/area/176-area-2016.html>
- Marcus, M. 1969. Profitability and size of firm: Some further evidence. *The Review of Economics and Statistics* 51(1): 104-107.
- 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* 25(6): 1083-1102.
- Meena Lakshana. 2016. IOI Corp suffers another blow, loses big customers. The Edge Financial Daily Online, 8 April. Available at <http://www.theedgemarkets.com/article/ioi-corp-suffers-another-blow-loses-big-customers>.
- Muritala, T.A. 2012. An empirical analysis of capital structure on firms' performance in Nigeria. *International Journal of Advances in Management and Economics* 1(5): 116-124.
- Nawawi, M.N., Ali, J. & Lim, H.E. 2013. Pematuhan industri pembuatan terhadap peraturan alam sekitar di utara semenanjung Malaysia. *Jurnal Ekonomi Malaysia* 47(2): 111-121.
- Nikoloyuk, J., Burns, T.R. & 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* 10(1): 59-72.
- Nor, N.M., Bahari, N.A.S., Adnan, N.A., Kamal, S.M.Q.A.S. & Ali, I.M. 2016. The effects of environmental disclosure on financial performance in Malaysia. *Procedia Economics and Finance* 35: 117-126.
- Noor, F.M.M., Gassner, A., Terheggen, A. & Dobie, P. 2017. Beyond sustainability criteria and principles in palm oil production: Addressing consumer concerns through insetting. *Ecology and Society* 22(2): 5.
- Noorhayati, M., Wan, A.W.A., Asniati, B. & Alif, F.H.S. 2016. Palm oil sustainability certification and firm performance: Is there a conflict between RSPO and MSPO? *Proceedings of the European Business & Management Conference 2016*, the International Academic Forum.
- Ogebe, P., Ogebe, J. & Alewi, K. 2013. The impact of capital structure on firms' performance in Nigeria. Munich Personal RePEc Archive (MPRA).
- Padrtová, M. & Vochozka, M. 2011. The value statements according to IFRS in comparison with the financial statements in accordance with Czech accounting standards. *Economics and Management* 16: 80-85.
- Park, H.M. 2015. Univariate analysis and normality test using SAS, Stata, and SPSS.
- Perry, M. & Singh, S. 2001. Corporate environmental responsibility in Singapore and Malaysia: The potential and limits of voluntary initiatives. programme paper of technology. *Business, and Society* 3.
- Preusser, S. 2015. Correlating economic and financial viability with sustainability for palm oil plantations, s.l.: RSPO.
- Rahim, N. 2013. Theoretical investigation on determinants of government-linked companies capital structure. *Journal of Accounting* 3(2): 72-85.

- Rahman, S.A., Yusoff, R.b. & Mohamed, W.N. 2009. Environmental disclosure and financial performance: An empirical study of Malaysia, Thailand, and Singapore. *Social and Environmental Accountability Journal* 29(2): 46-58.
- Ramasamy, B. Darryl, O. & Matthew. 2005. Firm size, ownership, and performance in the Malaysia palm oil industry. *Asian Academy of Management Journal of Accounting and Finance* 1: 81-101.
- Roundtable Sustainable Palm Oil (RSPO). 2015. The statutes of the roundtable on sustainable palm oil. Report of RSPO Statutes 2015. Available at <https://rspo.org/publications/download/b21516d7ea9996d>
- Ross, S., Westerfield, R. & Jaffe, J. 2002. Corporate Finance. New York: McGraw-Hill/Irwin.
- Sarkaria, M. & Shergill, G.S. 2000. Market structure and financial performance – An Indian evidence with enhanced controls. *Indian Economic Journal* 48(2): 98-105.
- Sarumpaet, S. 2005. The relationship between environmental performance and financial performance of Indonesian companies. *Jurnal Akuntansi & Keuangan* 7(2): 89-98.
- Segarra-Oña, M.D.V., 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* 53(3): 242-256.
- Sheikh, N.A & Wang, Z. 2013. The impact of capital structure on performance. *International Journal of Commerce and Management* 23(4): 354-368.
- Simeh, M.A. & Kamarudin, M.F. 2009. An overview of Malaysian palm oil market share in selected markets. *Oil Palm Industry Economic Journal* 9(1): 29-36.
- Suhaila, B.A.M. 2012. *The Palm oil industry from the perspective of sustainable development: A case study of Malaysian palm oil industry*. Master Dissertation, Ritsumeikan Asia Pacific University Japan.
- Stoltz, A., Viljoen, M., Gool, S. & Meyer, C. 2007. *Financial Management A Fresh Perspective*. Cape Town: Pearson Prentice Hall South Africa.
- Tabachnick, B.G. & Fidell, L.S. 2013. *Using Multivariate Statistics*. 7th ed. Boston: Pearson.
- Tailab, M.M.K. 2014. The effect of capital structure on profitability of energy American firms. *International Journal of Business and Management Invention* 3(12): 54-61.
- Teoh, C.H. 2010. Key sustainability issues in the palm oil sector. A Discussion Paper for Multi-Stakeholders Consultations (Commissioned By The World Bank Group).
- Wahab, S.N.A. & Ramli, N.A. 2013. Determinants of capital structure: An empirical investigation of Malaysian listed government-linked companies (GLCs). *International Journal of Economics and Financial Issues* 4(4): 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*. London: Pittman.
- Wooldridge J.M. 2002. *Econometric Analysis of Cross-Section and Panel Data*. London: MIT Press.
- Wooldridge, J.M. 2010. *Econometric Analysis of Cross Section and Panel Data*. 2nd edition. London: 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* 7(12): 19-27.
- Zeitun, R. & Gang, T. 2007. Does ownership affect a firm's performance and default risk in Jordan? *The International Journal of Business in Society* 7(1): 66-82.
- Zhang, X. 2010. Based on factor analyzing: Performance evaluation of listed companies in SME Board and its factors analysis. *Journal of Liuzhou Teachers College* 25(3): 74-78.

Hafizuddin-Syah B.A.M
Faculty of Economics and Management
Universiti Kebangsaan Malaysia
43600 UKM Bangi, Selangor, MALAYSIA.
E-Mail: m_hafiz@ukm.edu.my

S. Shahida (corresponding author)
Faculty of Economics and Management
Universiti Kebangsaan Malaysia
43600 UKM Bangi, Selangor, MALAYSIA.
E-Mail: shahida@ukm.edu.my

Siti Hanisah Fuad
UKM-Graduate School of Business
Universiti Kebangsaan Malaysia
43600 UKM Bangi, Selangor, MALAYSIA.
E-Mail: shanisahf@gmail.com

APPENDIX

APPENDIX 1. List of listed palm oil companies in Malaysia

No	Companies	Type of Operation	RSPO Cert	MSPO Cert.
1	Boustead Plantation Bhd	Upstream	Yes	Yes
2	Felda Global Venture Bhd	Upstream & Downstream	Yes	Yes
3	Genting Plantations Bhd	Upstream & Downstream	Yes	Yes
4	Sime Darby Bhd	Upstream & Downstream	Yes	Yes
5	PPB Group Bhd	Downstream	Yes	Yes
6	Hap Seng Plantations Holdings Bhd	Upstream	Yes	No
7	Innoprise Plantations Bhd	Upstream & Downstream	Yes	No
8	IOI Corp. Bhd	Upstream & Downstream	Yes	No
9	Keck Seng (Malaysia) Bhd	Upstream & Downstream	Yes	No
10	Kretam Holdings Bhd	Upstream & Downstream	Yes	No
11	Kuala Lumpur Kepong Bhd	Upstream & Downstream	Yes	No
12	Kulim Malaysia Bhd	Upstream & Downstream	Yes	No
13	Kwantas Corp. Bhd	Upstream & Downstream	Yes	No
14	TSH Resources Bhd	Upstream & Downstream	Yes	No
15	United Plantations Bhd	Upstream & Downstream	Yes	No
16	IJM Plantations Bhd	Upstream & Downstream	No	Yes
17	Sarawak Oil Palm Bhd	Upstream & Downstream	No	Yes
18	Astral Asia Bhd	Upstream	No	No
19	Batu Kawan Bhd	Upstream & Downstream	No	No
20	BLD Plantation Bhd	Upstream & Downstream	No	No
21	Chin Teck Plantations Bhd	Upstream	No	No
22	Dutaland Bhd	Upstream	No	No
23	Far East Holdings Bhd	Upstream	No	No
24	Golden Land Bhd	Upstream	No	No
25	Gopeng Bhd	Upstream	No	No
26	Harn Len Corp. Bhd	Upstream	No	No
27	Kim Loong Resources Bhd	Upstream	No	No
28	MHC Plantations Bhd	Upstream & Downstream	No	No
29	Negeri Sembilan Oil Palms Bhd	Upstream	No	No
30	NPC Resources Bhd	Upstream	No	No
31	Paos Holdings Bhd	Downstream	No	No
32	Pinehill Pacific Bhd	Upstream	No	No
33	PLS Plantations Bhd	Upstream	No	No
34	Rimbunan Sawit Bhd	Upstream	No	No
35	Sarawak Plantation Bhd	Upstream	No	No
36	Sin Heng Chan (Malaya) Bhd	Upstream	No	No
37	TDM Bhd	Upstream & Downstream	No	No
38	TH Plantations Bhd	Upstream	No	No
39	United Malacca Bhd	Upstream	No	No

Notes: As per RSPO and MSPO 2015