

The Effect of Sustainability Certification for Export on Operational Profitability of Malaysian Palm Oil Companies

(Kesan Pensijilan Lestari untuk Eksport ke atas Keberuntungan Operasi Syarikat Sawit Malaysia)

S. Shahida

Universiti Kebangsaan Malaysia

Hafizuddin-Syah B.A.M

Universiti Kebangsaan Malaysia

Siti Hanisah Fuad

Universiti Kebangsaan Malaysia

ABSTRACT

Malaysia is the world's second largest palm oil producer with 17.4 million tonnes palm oil produced in 2016. The production is for both domestic and export which contribute towards country's income and economic growth. Despite the significant contribution to the economy, being one of the plantation sectors, Malaysian palm oil has been criticized by the western communities for causing environmental problems such as deforestation and open burning. Hence, it is important for the palm oil companies to ensure sustainable operation and production. The introduction of certified sustainable palm oil (CSPO) or sustainability certification, for instance, Roundtable on Sustainable Palm Oil (RSPO) and Malaysian Sustainable Palm Oil (MSPO), encourages the sustainable practices by the industry players. Recently, the government had announced the mandatory MSPO-certification in Malaysia by end of 2019. At present, there are only 43.6% Malaysian palm oil companies with at least one certification. The mandatory certification had raised concern among companies on additional costs of adoption which eventually will affect profitability. Moreover, sustainability certifications will only benefit the exporting companies for international market penetration. The question is how important does this certification to the exporting companies as compared to others? This study will analyse the effect of sustainability certification on operational profitability of Malaysian palm oil exporting companies. This study employs generalised least square (GLS) estimation on 17 listed palm oil companies in Bursa Malaysia from 2009 to 2015. The result shows that there is no significant difference in operating profitability due to sustainability certification between the palm oil exporting than the non-exporting companies. The findings indicate that sustainability practice through RSPO or/and MSPO motivates Malaysian palm oil companies to produce certified palm oil for international and domestic markets, which in line with sustainable development goal (SDG) no. 12 (Ensure Sustainable Consumption and Production Patterns) by the United Nations (UN).

Keywords: CSPO; RSPO; MSPO; SDGs; performance

ABSTRAK

Malaysia merupakan pengeluar minyak sawit kedua terbesar dunia dengan pengeluaran sebanyak 17.4 juta tan pada tahun 2016. Pengeluaran ini merangkumi pengeluaran domestik dan eksport yang menyumbang kepada pendapatan negara dan pertumbuhan ekonomi. Meskipun sumbangan industri ini penting kepada ekonomi, sebagai sebuah sektor perladangan, minyak sawit Malaysia menerima kritikan dari negara barat kerana dikatakan telah menyebabkan masalah alam sekitar seperti penebangan hutan dan pembakaran terbuka yang serius. Oleh itu, adalah sangat penting bagi syarikat sawit untuk mengamalkan operasi dan pengeluaran yang lestari. Pengenalan 'certified sustainable palm oil' (CSPO) atau pensijilan lestari seperti Roundtable on Sustainable Palm Oil (RSPO) dan pensijilan Malaysian Sustainable Palm Oil (MSPO), menggalakkan amalan kelestarian dalam kalangan pemain industri. Baru-baru ini kerajaan telah mengumumkan pelaksanaan pensijilan MSPO secara mandatori di Malaysia selewat-lewatnya pada akhir tahun 2018. Pada masa ini, terdapat hanya 43.6% syarikat sawit yang memiliki sekurang-kurangnya satu pensijilan lestari. Pengumuman ini telah menimbulkan keresahan dalam kalangan syarikat sawit kerana pensijilan MSPO dijangka akan melibatkan kos tambahan dan sekaligus akan menjejaskan keberuntungan syarikat. Tambahan pula, pensijilan lestari penting bagi syarikat yang terlibat dengan aktiviti eksport sawit bertujuan menembusi pasaran antarabangsa. Persoalannya, sejauh manakah pensijilan lestari ini penting bagi syarikat pengeksport sawit berbanding yang tidak mengeksport? Kajian ini bertujuan menganalisa kesan pensijilan lestari ke atas keberuntungan operasi syarikat pengeksport sawit di Malaysia. Kajian ini menggunakan model penganggaran 'generalised least squares' (GLS) yang melibatkan 17 buah syarikat sawit tersenarai di Bursa Malaysia bagi tempoh 2009 hingga 2015. Keputusan kajian menunjukkan tidak terdapat perbezaan



yang signifikan dalam keberuntungan operasi bagi syarikat pengeksporth dengan bukan pengeksporth sawit disebabkan pensijilan lestari. Dapatan ini menunjukkan bahawa amalan kelestarian melalui RSPO atau/dan MSPO menggalakkan syarikat sawit di Malaysia untuk menghasilkan minyak sawit yang diperakukan untuk pasaran antarabangsa dan domestik. Amalan ini adalah selari dengan matlamat ke-12 (Memastikan Bentuk Penggunaan dan Pengeluaran yang Lestari) oleh Pertubuhan Bangsa-Bangsa Bersatu (PBB).

Kata kunci: CSPO; RSPO; MSPO; SDGs; prestasi

INTRODUCTION

Palm oil has worldwide high demand and becomes the first choice among other vegetable oils. There are studies scientifically show that palm oil consumption will not increase cholesterol levels in human body and it is not atherogenic (Odia et al. 2015). Palm oil also is well accepted mainly due to its competitive price compared to other vegetable oils (Simeh & Kamarudin 2009). The advantages of having suitable land and temperature, as well as rainfall frequency, enable Malaysia to become the world's second largest palm oil producer by producing 17.4 million tonnes (MPOB 2016a) and exports of palm oil is about 16.0 million tonnes from its productions in 2016 (MPOB 2016b). The industry also contributes to the GDP of agricultural sector at 46.9% (Department of Statistic Malaysia 2016). In this regard, the contribution of palm oil industry is highly significant to the total Malaysian economic growth compared to Indonesia (Jaafar et al. 2015). The major importing countries of Malaysian palm oil are India, European Union (EU), China, Pakistan, Turkey, Philippines and United States of America (USA) (MPOB 2017a). Palm oil industry is considered as a profitable business where many palm oil companies have expanded their cultivation area to other potential Asian countries (Zainul 2013). This industry also provides significant benefits towards society such as job opportunities in rural areas, improves the social living standard of the people and contributes to the economic growth (Basiron 2002).

However, there are debates regarding the environmental protection issues in palm oil industry such as deforestation and huge habitat loss (Alam et al. 2016) especially from the non-governmental organization (NGOs). As the demand for palm oil increases, the opening for new plantation areas is needed. Indeed, the statistics show that the areas of forest have been cut or burned down every year for oil palm plantation. The area of oil palm cultivation expanded significantly from 3.4 million hectares in 2000 (MPOB 2001) to 5.8 million hectares for the next seventeen years (MPOB 2017b). Due to the expansion of new planting areas, environment as well as habitat of endangered animals has been destroyed. For example, the deforestation has destructed the natural habitat of flora and fauna and threatened endangered animals like Orangutans, tigers and elephants (Asimopoulos 2016). In response to these issues, European Parliament has approved a plan to ban the use of palm oil in biofuels by 2021 (The Star Online 2018). This ban could give big

impact to the Malaysia's economy, as 90% of biodiesel exports go to Europe (Syafiq 2018). At the same time, the ban would threaten the livelihood of 650,000 Malaysian smallholders that survive by cultivating the crop (The Star Online 2018). Besides, it can adversely affect the operations, profits, and investors trust as well as increase the reputational risks of palm oil companies (Basiron & Weng 2004). Indeed, the demands for certified palm oil are high among the stakeholders. Hence, an improvement in the sustainability of environment in palm oil industry is important in order to achieve a holistic, inclusive and futuristic economic viability.

As a result of the adverse effects of palm oil industry regarding environmental issues, an introduction on sustainability certification which is certified sustainable palm oil (CSPO) certification is very much relevant. There are few kinds of sustainability certifications in palm oil industry namely RSPO-certification, Malaysia Sustainable Palm Oil (MSPO) certification, International Sustainability & Carbon Certification (ISCC) certification, Indonesian Sustainable Palm Oil (ISPO) certification, Palm Oil Innovation Group (POIG), and Sustainable Agriculture Network (SAN). In the context of Malaysian palm oil industry, the most practiced sustainability certifications are RSPO and MSPO. The RSPO-certification is an international certification standard and voluntarily that requires its members to comply with its principles and guarantees for certified palm oil production (Suhaila 2012). Besides, this certification is established to protect the environment, social equity and economic development of its member countries. Moreover, this is in line with the current agenda of 2030 for Sustainable Development Goals (SDGs)¹, Goal 12² (Le Blanc 2015) where the whole production of palm oil at the upstream level and downstream level is suggested to avoid environmental harms and to use certified palm oil in the output of goods at a particular level. Meanwhile, the Malaysian government also takes the initiative to have a Malaysian standard for the sustainable production of palm oil by introducing MSPO-certification. The government has announced MSPO-certification as mandatory by the end of 2019 (Eugene 2016). The primary objectives of this certification are to improve sustainability practices of Malaysian palm oil player with its seven principles and as a tool to ensure that all palm oil premises in Malaysia are sustainably certified (Kuntom et al. 2015). Besides, the mandatory of MSPO is to counter the negative perception toward palm oil by branding Malaysian palm

oil as sustainably produced, safe and widely accepted in the global market. This is because the principles of MSPO certification are developed to match with the ISCC sustainability requirements and European regulations (MPOCC 2018). Besides, MSPO certification reflects best practices in solving sustainability issues by regulating the supply chain which from oil palm cultivation to the palm oil processing.

Figure 1 shows the different of supply chain between certified sustainable palm oil and non-certified. The supply chain is covering the upstream and downstream level industry. Generally, the companies in the upstream industry are involved in planting, collecting and milling of the oil palm, while refining and producing end products are classified as downstream industry. The members of sustainability certification in upstream industry have to avoid from deforestation, manage the waste efficiently and comply with best fertilizer management practices. Meanwhile, the downstream industry players should only buy or use certified palm oil as raw material for their production. It is shows that sustainability certification regulates sustainable operation holistically from the planting process to the output of finished products (RSPO 2018). For example, companies that produce end products with RSPO-certification are free to use RSPO trademark as a guarantee their product are certified to the buyers.

In tandem with the increase awareness on environment sustainability, Malaysian government had announced to mandatory MSPO certification for each levels supply chain of palm oil by 2019 (Hemananthani 2017). The announcement on mandatory

MSPO certification poses a shock toward palm oil supply chain (Ni et al. 2016). Previously, requirement to obtain sustainability certification is not made compulsory plus the punishment for the supply chain that does not fulfill CSPO's principle is absent. Therefore, it is not surprising that there are only 43.6% or 17 from 39 Malaysian palm oil companies certified their palm oil with at least one certification. This is due to the additional cost and profitability effects (Yusuf & Yew 2016). They were worried that the sustainability certification would benefit more on the exporting companies' profitability. This is because some importing countries such as EU and the USA are stringent in requiring Malaysia to only export certified palm oil to other importing countries (Novelli 2016). This is due to the issues of deforestation for palm oil cultivations and destruction of Orangutan species. Hence, it is important for palm oil exporting companies to export only certified palm oil to remain in the European markets (Novelli 2016). Same goes to the companies that already certified their palm with RSPO-certification are in a dilemma whether they should adopt another certification which is MSPO since it will increase their operational cost. Moreover, there are several companies that hesitant to move away from RSPO standards, which have opened up global avenues. Moreover, there is a notable paucity of empirical research that focuses specifically on MSPO-certification in the context of Malaysia and the consequences of exporting certified palm oil by sustainability certifications towards financial profitability. Previous studies such as Nikoloyuk et al. (2010), Mahat (2012), and Schouten et al. (2012) explained qualitatively about the RSPO in general, while it has to be added that

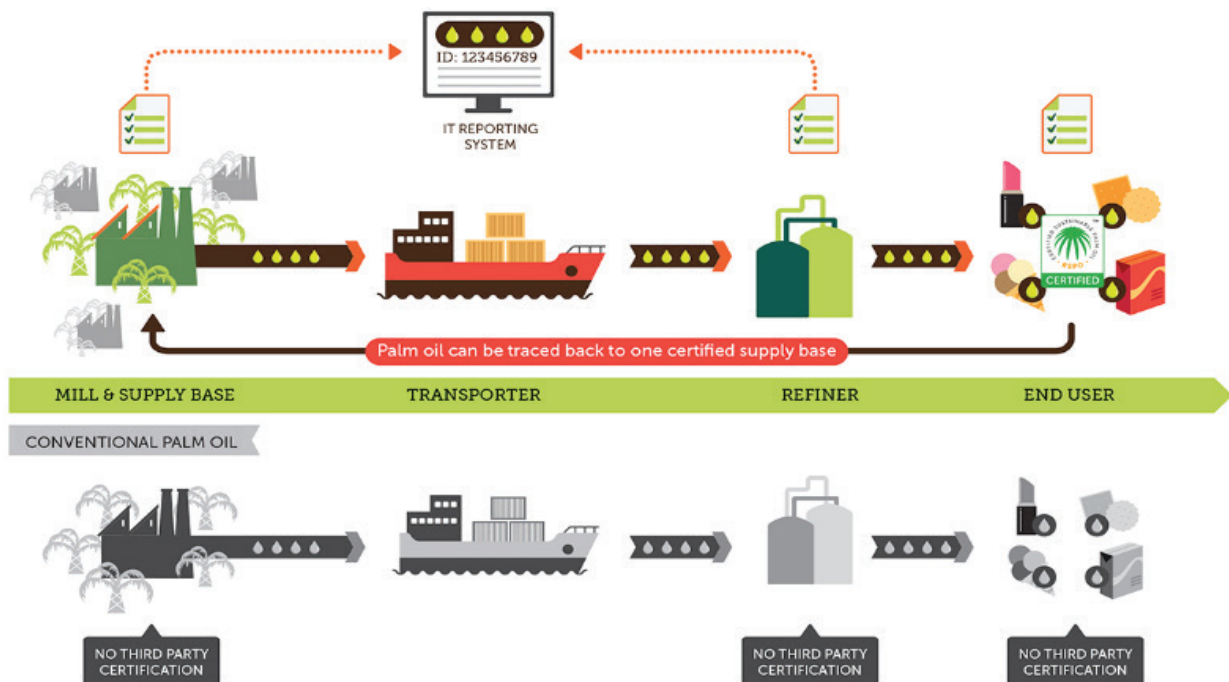


FIGURE 1. Supply chain of sustainable palm oil and conventional palm oil

Source: RSPO (2018)

the study on MSPO is still scarce. Hence, the objective of this study is to analyse the effect of sustainability certification on the operational profitability of palm oil exporter companies. This study helps palm oil companies to improve their sustainability practices by understanding the rationale of latest announcement by Malaysian government to mandatory MSPO certification and encourages the non-members to be certified with sustainability certifications.

The organisation of this paper is as follows. Part 1 describes the research background, problem statement, objective and significances of study. Part 2 presents the review of relevant literature of motivation to obtain sustainability certification, Sustainability in Export and Profitability 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 study.

LITERATURE REVIEW

COMPANIES' MOTIVATION TO OBTAIN SUSTAINABILITY CERTIFICATION

As the stakeholders are debating the sustainability issues in palm oil industry, the Malaysian government and relevant regulators take proactive and necessary action by improving the existing laws to protect the ecology, habitats and hundreds of flora and fauna species. Currently, Malaysian palm oil industry has 17 major regulations covering land, environment and comprehensive protection (Suhaila 2012). Accordingly, non-compliance with environmental criteria could potentially expose the Malaysian palm oil companies to the legal liability, financial responsibility, property damage and property loss (Schaltegger & Figge 2000). Unfortunately, some companies are unable to demonstrate a high level of environmental performance due to significant investment and insurance cost (Welford & Gouldson 1993). Some companies ignore the protection of environment due to the high cost for treatment (Nawawi et al. 2013). The study suggests that government should provide a tax incentive for the companies to operate strictly related to the environment as well as to motivate them to produce sustainably.

Previous studies prove that compliance with an environmental regulation such as RSPO positively affects the financial performance. The study by Preusser (2015) discovers a positive correlation between the area of plantation certified by sustainability certification and crude palm oil (CPO) price. Specifically, firms with at least 40% plantation area certified by RSPO have higher CPO price compared to firms with 20% or less certified area. Joshua (2012) on their analysis of incremental financial cost and benefits of RSPO compliance

indicates that RSPO-certification reduces the cost of sales expenses, labour turnover by 6% and improves revenues. The finding is consistent with Gijs et al. (2015) where the Forest Stewardship Council (FSC) certification gives positive impact towards the net present value of tropical forest producers and small/medium growers. The companies receive significant benefits by own FSC certification such as tax incentives, research fees, and government supports.

Research finding by Ainia and Deddy (2014) also point towards advantages of sustainability certification where there is a weak positive correlation between sustainability practices with the financial profitability of firms. Also, Humphries and Kainer (2006) show that FSC certification provides brighter opportunity to access to the European markets for forest operators. Anderson et al. (1999) state that certified companies tend to comply the export and government requirements as well as to improve the quality of products. The fact implies that the international market believes more on environmental management system (EMS) certification than the price and quality of products.

THE IMPORTANCE OF SUSTAINABILITY CERTIFICATION FOR EXPORT AND PROFITABILITY

Export markets are important for exporting countries particularly developing countries to promote their industries. The current development on environmental sustainability requires all the industries that operate strictly with the environment such as plantation, agricultural and construction industry to operate sustainably. Hence, many sustainability certifications had been established as a deal to function without harming the environment and promote sustainable products. EU and USA are among the strictest importing countries on the sustainable products and against the environment violation. A study by El Ammari et al. (2014) figures that exports certified food in Morocco increased and it was accompanied by an increase of certification number delivered to these companies. Also exporters are more likely to be certified than non exporting companies. For example, the coffee that labelled under the Fair Trade Certified (FT) certification have higher export prices about five per cents per pound as compared to the non-label product of the certification (Dragusanu & Nunn 2014).

However, some studies discover the existence of significant differences, albeit findings are somewhat contradictory. Noorhayati et al. (2016) recognise that the financial performance of certified plantation companies has a negative relationship with the export earnings. In that case, the prices of certified palm oil from the Western countries are same as the non-certified palm oil. Hence the RSPO's members companies need to bear the highest cost. Other studies like Lazaro et al. (2008), and Auld (2009) confirm the similar results.

Some studies find the sustainability certification alone does not matter for exports. In an analysis of sustainability certification for the timber industry, Fisher et al. (2017) verify that certification alone is not enough for companies to tap into the export markets. The authors suggest that a combination of sustainability certification with dedicated managers as well as depth knowledge related the certifications are necessary for improving the export activities. Van Kooten et al. (2005) recommend that the primary objective of firms to obtain Forest Sustainable Certification (FSC) is not for economic reasons but simply out of concern for the environment.

Based on the discussions above, the importance of exporting certified commodities become a popular topic now a day among the researchers. However, on the basis of the comprehensive literature review, the studies focusing on exporting certified palm oil had been rarely been reported. There is also very few studies have provided quantitative evidence empirical research focuses specifically on the RSPO-certification and MSPO-certification in the Malaysian context. As the current announcement by Government to mandatory MSPO-certification had raised concern among palm oil players, it is important to have more study on the continuous effect on it. Hence, this study is intended to fill the research gaps by examined the effect of sustainability certification palm oil exporter companies on operating profitability.

THE DETERMINANTS OF FIRM'S PROFITABILITY

Leverage Previous studies find leverage significantly affects the financial performance of the firm. Financial leverage refers to the ability of a firm to manage its economic exposure to unpredicted losses (Adams & Buckle 2003). In a study by Ramasamy et al. (2005), leverage has a positive relationship with financial performance among palm oil companies in Malaysia. It is due to the expectation that firms could earn more to offset the cost of debt capital. Leverage can bring a tax-sheltered benefit that positively improves firm governance and performance (Zhang 2010; Ding & Sha 2011). However, the findings by Ogebe et al. (2013) contradict with the finding above where leverage has a negative and statistically significant relationship with firm profitability. Hence, the firm is suggested to use more equity than debt to finance the business operations. Bayyurt and Orhunbilge (2007) reports the same finding. The study by Tailab (2014) uses debt to equity ratio as proxy to leverage in determining the effect of capital structure by energy American firms toward their profitability.

Growth Growth is an increase in company's sale, profits, product development and some workers of the firm. Many studies use growth of sale since it is

easy to be determined. According to Zeitun and Gang Tian (2007), high growth rate signifies a high debt by companies to equity ratio. Likewise, high growth firm poses the ability to borrow from banks (Rahim 2013). On the empirical evidence, a study on the profitability and Malaysian palm oil companies by Ramasamy et al. (2005) find that growth rate has a positive correlation with the profitability of palm oil companies. One possible argument for this finding is that positive growth rate will increase the good impression towards the firm. Similar results elaborated in Adlina (2015) and Katherin and Subiakto (2012).

Price Booth et al. (2001) claim that high inflation rate (high CPI) improves firm performance due to a lower level of firm debt. In palm oil industry, 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). 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. Undeniably, hedging activities could further increase the operating costs and may adversely affect the firm profitability.

Liquidity The profitability of firm might be affected by liquidation by the company. Firms could have the incentive to liquidate and invest in the more successful project. A study by Jose et al. (2010) on the Chinese ports presents that high current ratio explains the efficiency of the firm in meeting its short time commitment. Consequently, liquidity is positively related to firm profitability among Malaysian public listed companies during the financial crisis (Adlina 2015). Such results are in contrast with the study of Wei (2012) which affirms that liquidity does not affect the financial performance of listed agricultural companies in China. In other words, the capacity to pay back short-term debt is ineffective compared with the ability to pay back long-term debt. The study by Thirunavukkarasu and Rajendran (2013) is equally consistent with the literature.

Firm Size Larger companies have a better variety of abilities and enjoy the economies of scale that gives advantages to improve the profitability of the firms (Mahfuzah & Raj 2012). In particular, a larger firm tends 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. Unfortunately, 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) signify that firm size has a positive relationship toward firms' profitability. On the contrary, Ramasamy et al. (2005) explain that firm

size is less significant and negatively correlated with profitability. In this regard, organisational ineffectiveness occurs in the case that larger firms are complex and challenging to manage.

METHODOLOGY

The study applies quantitative approach by empirically analysing the effect of sustainability certification on the operational profitability of palm oil exporter companies. This study employs model by Ramasamy et al. (2005) and Noorzaleha (2011) on profitability of Malaysian palm oil companies, with modification. The base model is as below:

$$\text{Profitability} = f(\text{Leverage, Liquidity, Size, Growth, Price}) \quad (1)$$

The studies by Ramasamy et al. (2005) and Noorzaleha (2011) used return on asset (ROA) to measure profitability. However, this study uses *OPROF* as the dependent variable and a proxy for operational profitability as proposed by Wahab and Ramli (2013). *OPROF* is measured by dividing earning before interest tax (EBIT) with total assets. This ratio indicates the efficiency of firm uses their assets in generating profits. High *OPROF* shows that the firms are efficient enough in managing their assets to obtain higher profits. From the other perspectives, creditors will analyze closely the operating profits of companies to ensure the ability to pay back their debts. Furthermore, this study includes a new independent variable, *CERT_EXP* in the base model. *CERT_EXP* refers to certified palm oil exporter companies listed in Bursa Malaysia, which represented by dummy variable which takes the value of 1 for certified palm oil exporter companies, otherwise 0. Five (5) control variables included in the model are leverage (*LEV*), liquidity (*LIQ*), firm size (*SIZE*), sales growth (*GROWTH*) and price of crude palm oil (*P*). The extended model of the study is as follows:

$$OPROF = f(CERT_EXP, LEV, LIQ, SIZE, GROWTH, P) \quad (2)$$

This study employs panel data model to recognise cross-sectional and time series data. According to Hsiao (1986), panel data able to provide larger data sets with more variability and reduce collinearity among variables compared to time series or cross-section data alone. There are three possibilities of options in selecting the model which are Pooled OLS model, fixed effects model (FE) and random effect model (RE). In order to decide the best model, Hausman test and Breuch-Pagan Lagrangian Multiplier test are performed. A significant value of the Hausman statistics argues in favour of the fixed effects estimation over the random effects estimation (Green, 2008). A rejection on the null hypothesis of Breuch-Pagan Lagrangian Multiplier test indicates that RE is an appropriate model for the regression models.

The Pooled OLS assumes that all coefficients are constant across time and individuals. There is no differences among the data matrices of the cross sectional dimension. The data is pooled and run for an OLS regression model as below:

$$OPROF_{it} = \beta_0 + \beta_1 CERT_EXP_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 P_t + \varepsilon_{it} \quad (3)$$

where i indicates the i^{th} firm, while t indicates time period, β_0 is the constant, β_n is the coefficient, ε_{it} is the error term *OPROF_{it}* is earnings before interest tax of certified palm oil companies, *CERT_EXP_{it}* is certified palm oil exporter, *LEV_{it}* is leverage, *LIQ_{it}* is liquidity, *SIZE_{it}* is size of firm, *GROWTH_{it}* is growth sale, P_t is price of Crude palm oil.

Meanwhile, The FE grouped the constant where it allows for different constant for each section. The FE analyzes the relationship between predictor and outcome variables within the individual (i). Each individual has its own characteristic that may or may not influence predictor variables. Time-invariant characteristics will be removed in this model to obtain the net effect of the predictors on the outcome variables. The u_i in the FE model is the unknown individual specific effect. The FE model of the study is shown as below:

$$OPROF_{it} = \beta_0 + \beta_1 CERT_EXP_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 P_t + u_i \quad (4)$$

The RE method handles the constants for each group randomly. It is means that the coefficient of each cross-sectional unit will arise from a common coefficient. The heterogeneity in the cross-sectional dimension occurs through the ε_i where it measures the random deviation of each coefficient. In RE model, ε_i is random error with a mean value of zero and variance of σ^2 i while v_{it} is remainder disturbance. The RE model as follow:

$$OPROF_{it} = \beta_0 + \beta_1 CERT_EXP_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 P_t + \omega_{it} \quad (5)$$

$$\omega_{it} = \varepsilon_i + v_{it} \quad (6)$$

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. As the study uses unbalanced panel data, the study has the potential to not normally distribute. Besides, this kind of method assumes that the error term will be uncorrelated over time and the standard deviations of the error term will be consistent. Hence, estimation using Ordinary Least Square (OLS) will become less efficient (Gujarati 2009).

An alternative to remedy these problems, Generalize Least Square (GLS) estimation is a suitable method (Wooldridge 2002; Atanlogun et al. 2014). The method of GLS is an extension from OLS to estimate the parameters of this module. According to Atanlogun et al. (2014), GLS is a technique to estimate the unknown

TABLE 1. The description of variables

Variable	Proxy	Measurement	Past Study
<i>OPROF</i>	Operational profitability of certified palm oil companies	EBIT/ Total Assets	Wahab and Ramli (2013)
<i>CERT_EXP</i>	Certified palm oil exporter	Dummy variable equals to 1 for certified palm oil exporter, otherwise 0.	Noorhayati et al. (2016)
<i>LEV</i>	Leverage	Total Liabilities/Total shareholder Equities	Tailab (2014)
<i>LIQ</i>	Liquidity	Current Asset/ Current liabilities	Seema Gupta et al. (2011)
<i>SIZE</i>	Size of firm	Log of Total Assets	Ramasamy et al. (2005)
<i>GROWTH</i>	Growth of sales	(Revenue ₁ -Revenue ₀)/Revenue ₀)	Ramasamy et al. (2005)
<i>P</i>	Price of CPO	Log of yearly average price of CPO from 2009 until 2015	Asari et al. (2011)

parameters in a linear regression model. GLS estimation helps to tackle the issue of non-normality distribution of the variables, which may be due to the presence of heteroscedasticity (Gujarati 2009). Hsio et al. (2002) suggest that if the model has autocorrelation or moving average errors, the GLS corrected for errors may be used. Indeed, GLS estimation helps the researcher to avoid from breach the assumptions in OLS. In addition, Wooldridge (2002) and Atanlogun (2014) conclude that GLS turns out to be asymptotically more efficient than OLS estimations.

SAMPLE, DATA AND SOURCES

The sample consists of 17 listed palm oil companies in Bursa Malaysia which have MSPO and/or RSPO certifications from the year 2009 to 2015 that involved in upstream and/or downstream industry. Meanwhile, out of the 17 companies, seven (7) are exporters of palm oil (41.2%). These exporter companies are operating in upstream and downstream industry. The summary of companies is explained in Table 2. The data used for the study starts from year 2009 because the RSPO-certification only available in the market at the end of 2008. The membership of sustainability certifications is

obtained from the RSPO and MSPO websites respectively. The study collects the secondary data from the annual report of palm oil companies in the Bursa Malaysia.

DATA ANALYSIS

A panel data analysis is conducted to analyse the effect of sustainability certification palm oil exporter companies on the operational profitability. As the data contain time series and cross sectional observations, this study uses panel data model and estimates using Stata 12.

RESULTS AND DISCUSSION

DESCRIPTIVE STATISTICS

Descriptive data reports the mean, standard deviation, skewness test and kurtosis test are tested. In obtaining an accurate statistical test in a linear panel data analysis, it is important that the data is normally distributed. The normality data can be tested based on the value of the skewness and kurtosis. Skewness explains the asymmetry distribution while kurtosis measures the

TABLE 2. List of palm oil exporter companies with sustainability certifications listed in Bursa Malaysia

No.	Companies	Type of Operation	RSPO-Certification	MSPO-Certification
1.	Felda Global Venture Bhd	Upstream & Downstream	Yes	Yes
2.	Sime Darby Bhd	Upstream & Downstream	Yes	Yes
3.	IOI Corp. Bhd	Upstream & Downstream	Yes	No
4.	Keck Seng (Malaysia) Bhd	Upstream & Downstream	Yes	No
5.	Kuala Lumpur Kepong Bhd	Upstream & Downstream	Yes	No
6.	Kwantas Corp. Bhd	Upstream & Downstream	Yes	No
7.	IJM Plantations Bhd	Upstream & Downstream	No	Yes

Source: Bursa Malaysia, MPOB, RSPO and MSPO websites (2016)

TABLE 3. Descriptive statistics

Variable	Mean	Std. Dev.	Skewness	Kurtosis	N
<i>OPROF</i>	0.0750	0.0545	0.2316	2.7629	110
<i>CERT_EXP</i>	0.2818	0.4921	0.4082	1.1667	110
<i>LEV</i>	0.5232	0.3847	0.6808	2.9234	110
<i>LIQ</i>	3.3384	2.9655	1.3995	4.3598	110
<i>SIZE</i>	6.5772	0.5704	-0.0457	2.8796	110
<i>GROWTH</i>	7.3287	31.6644	0.6829	3.9269	110
<i>P</i>	7.8412	0.1381	0.6075	2.1273	110

TABLE 4. Pearson correlation matrix

	<i>LEV</i>	<i>LIQ</i>	<i>SIZE</i>	<i>GROWTH</i>	<i>P</i>
<i>LEV</i>	1.0000				
<i>LIQ</i>	-0.5530	1.0000			
<i>SIZE</i>	0.2824	-0.0538	1.0000		
<i>GROWTH</i>	-0.0739	-0.1066	-0.0900	1.000	
<i>P</i>	-0.1499	0.1259	-0.0358	0.3117	1.0000

peaked of the distribution. According to Park (2015), normal distribution of data should be near to 0 for skewness while kurtosis near to 3. Based on the result of descriptive statistics in Table 3, the values of skewness and kurtosis for all the variables have near to zero and three except for *LIQ*. This result indicates that the data is not normally distributed. Hence the data unable to fulfil the assumption of Ordinary Least Square on the error term should normally be distributed.

PEARSON CORRELATION MATRIX

Pearson correlation analysis is used to explain the strength and direction of the linear relationship between variables. Multicollinearity problem exists when the correlation coefficient larger than 0.8 (Gujarati & Porter, 2003; Wei, 2012). As a result, it causes a high R^2 , large standard error, and small t value. Based on Pearson correlation analysis as reported in 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 estimation.

REGRESSION RESULT

This study uses an unbalanced panel data model where some data are unavailable due to limited access to the unpublished data. The data are not normally distributed and suffers heteroscedasticity and autocorrelation problems. The presence of heteroscedasticity problem is detected by performing the White test. The White test shows the presence of heteroscedasticity problem is significant at 1% significance level when the chi2 is 46.63, and p-value equals to 0.0078. It signifies that the variance of the error terms in constant and differ across observations. The result of White test is as below:

TABLE 5. White General Heteroscedasticity Test

	Result
Chi-square	46.63
Probability	0.0078
Accept/Reject H0 (Null)	Reject

Meanwhile, autocorrelation occurs when error term of the observations in the regression model are related. Consequently, the standard errors are inconsistent. This study runs for Wooldridge test to detect autocorrelation as it is a better fit for panel data (Wooldridge 2010). The Wooldridge test demonstrates the presence of serious autocorrelation problem. The f-statistic is 11.441, and the p-value is 0.0041. Therefore, the null hypothesis of there is no first order autocorrelation is rejected. The result is as below:

TABLE 6. Wooldridge Test

	Result
F-Statistics	11.441
Probability	0.0041
Accept/Reject H0 (Null)	Reject

The Hausman test shows that Chi-square is not significant (Chi2 = 6.22, p-value = 0.3986) thus, RE is more appropriate. Meanwhile, the Breuch-Pagan Lagrangian Multiplier test shows a significant result (Chi2 = 34.20, p-value = 0.0000) and reject null hypothesis of Pooled. All regression results are in Appendix A. However, as the data exposed to the non-normality data distributed issue and heteroscedasticity and autocorrelation problems, estimation using Ordinary Least Square (OLS) become less efficient (Gujarati 2009). Moreover, GLS is more appropriated when data are not

normally distributed (Gujarati, 2009) and expose to autocorrelation (Wooldridge 2002). Therefore, this study employs GLS to estimate the relationship between export and profitability. The GLS able to handle the data better by giving equal weights and the error of models are not correlated (Ahmad & Bano 2015).

In GLS, Wald test is an alternative for R-squared that measure the goodness of fit of the estimation (Magee 1990). The Wald test evaluates the significance of particular independent variables in a statistical model. The importance of this test indicates the parameters associated with the independent variables are not zero; hence the variables should be included in the model. If the parameter is equal to zero, the independent variables should be omitted. The null hypothesis of Wald test is failed to reject (Chi2: 51.19, p-value: 0.0000) as represent in TABLE 7 which indicates that all the explanatory variables connected and explained well the dependent variable.

Based on the results of GLS regression in Table 7, *CERT_EXP* is not significant in influencing *OPROF*, after controlling *LEV*, *LIQ*, *SIZE*, *GROWTH* and *P*. Specifically, exporter companies with sustainability certification have the same operational profitability with the non-exporters. This finding is consistent with Van Kooten et al. (2005) that suggest the sustainability certification for export insignificantly affect the firm performance. Meanwhile, only the control variables of *LIQ*, *SIZE* and *P* are significant to the profitability of Malaysian palm oil companies with sustainability certification. The variable of firm's size (*SIZE*) has a positive relationship with operational profitability of palm oil companies which signify that 1% increase will increase *OPROF* by around

1.45%. *P* is positively correlated with *OPROF*; with 1% increase in CPO price (*P*) would increase more than 13% in firm's operational profitability. Although *LIQ* is highly significant, the positive effect towards *OPROF* is rather minimal, i.e. 0.01%.

Our result on *CERT_EXP* implies that sustainability certification palm oil exporter companies have no effect toward operational profitability. In this regard, the finding is consistent with Van Kooten et al. (2005) that reveal sustainability certification for export insignificantly affects the firm performance. Originally, sustainability certifications are an alternative by the NGOs and government that offer certified palm oil when the stakeholders raise the sustainability issues in palm oil industry. In fact, this study provides empirical evidence on the insignificant effect of sustainability certification on firm profitability of palm oil exporter and subsequently responds to the concerns of non-member of certification on the additional cost associated with CSPO subscription. They are concerned whether the sustainability certification is just worth for export companies or not since some importing countries required only certified palm oil. In real, the Malaysian certified palm oil companies are motivated to operate sustainably and improve their sustainability practices as compared for exporting purposes. Obviously, the sustainability certification is not for economic importance particularly but merely for the sake of the environment (Van Kooten et al. 2005). Moreover, EU is the only importer country that strict on the certified palm oil compared to the other larger importer countries. Malaysia may channel his palm oil to other importer countries which do not require for the sustainability certification such as India, China and Pakistan. The mandator of MSPO certification is able to fulfill the current demand of stakeholders to be more transparency in this industry compared to the export values. Hence, it is the reason why non-export companies are also subscribing for sustainability certification. In addition, knowledge, past experiences, and personal value of the stakeholders about the sustainability of environment positively affect the decision to adopt any sustainability certification (Huat et al. 2017). Indirectly, Malaysian palm oil companies tend to enhance their reputation, image, investors' trust and reduce reputation risk (Basiron & Weng 2004). For that reason, San Ong et al. (2016) point a significant positive between environmental disclosures with financial performance. Clearly, the current announcement by Malaysia government to make MSPO-certification as a mandatory requirement is pretty relevant to counter negative perception on Malaysian palm oil and improve profitability of palm oil companies (Preusser 2015; Palmer & Truong 2017).

The control variable of firm size is positively and significantly related with firm profitability of Malaysian palm oil companies. The same result obtained by Salim and Yadav (2012) where larger company poses a variety of abilities and able to benefit from the economies of

TABLE 7. The GLS regression results

Variable	Beta Coefficient
<i>C</i>	-1.0744*** (0.2666)
<i>CERT_EXP_{it}</i>	0.0025 (0.0098)
<i>LEV_{it}</i>	0.0142 (0.0148)
<i>LIQ_{it}</i>	0.0075*** (0.0019)
<i>SIZE_{it}</i>	0.0145* (0.0083)
<i>GROWTH_{it}</i>	0.0002 (0.0001)
<i>P_t</i>	0.1300*** (0.0334)
Observations	49.49
Wald (chi2)	51.19***

Notes: Value in the parentheses are the standard errors (SE), ***, **, * and * denote 1%, 5% and 10% significant levels respectively.

scale. Beside, larger firms have higher potential to obtain more debts compared to small firms (Abor & Biepe 2009). This situation provides advantages for companies to improve their profitability due to lower cost of production per unit. Other studies by Muritala (2012), Wang (2013) and Rahim (2013) are consistent with this finding. Hence the palm oil companies in Malaysia are suggested to increase their assets to enjoy the benefits of credibility and this makes it easier to obtain more capital. These companies also are suggested to invest more in tangible assets such as lands and equipment due to less cost of funding compared to the intangible assets.

Meanwhile, the price shows a significant and positively affects the firm profitability of palm oil companies in Malaysia. Similarly, Ramasamy et al. (2005) find that average CPO price has a positive relationship with probability. The world markets determine the price which would affect the performance of firms where higher price will associate with higher profits. In this view, Deng and Luo, (2009) assert that commodity price has a positive relationship with total export of palm oil and increase the profitability of producer companies. Preuser (2015) supports such argument by stating that firms with at least 40% plantation area certified by RSPO earn 7% premium on CPO price compared to firms with 20% or less certified plantation area. As the liquidity has a positive relationship with the profitability, it is important to the palm oil companies to hold more cash to increase their financial profitability. The shortage of money results in the companies with the inability to pay debt and operations' cost (Velnampy 2005). After all, companies with more money expressing a good condition in meeting financial liabilities (Jose et al. 2010). What is more, low liquidity ratio signals for financial distress and bankruptcy risk (Shafaai & Masih 2013).

CONCLUSION

This study analyses the effect of sustainability certification palm oil exporter companies on the operational profitability. This study obtains a yearly secondary data of 17 certified Malaysian palm oil companies listed on Bursa Malaysia from 2009 to 2015. The GLS regression results show that certified palm oil exporter companies has no difference with the non-exporter companies on their operational profitability. The motivations to adopt for sustainability certification, operate sustainably and produce certified palm oil are more valuable rather than exporting purposes. Indeed, there are numbers of non-exporter companies that certified their palm oil with RSPO and MSPO certifications. These companies tend to provide a good image to the investors by highlighting their certified palm oil. Hence, the sustainability certifications are not only applicable to the export requirement, but it is relevant more to take responsibility for environmental protection and sustainability. Accordingly, the new

policy for a mandatory of the MSPO-certification to all Malaysian palm oil companies supports such scenario. This study provides current knowledge related to profitability and sustainability certifications regarding RSPO and MSPO certification and highlights the importance of continuously improve their sustainability practices. The lack of previous empirical research related to sustainability certification encourages this study to assist other researchers with additional knowledge and increases the source of literature reviews.

As the sustainability certifications are more towards enhancing sustainability practices rather than firms' profitability, the decision of mandatory MSPO-certification by Malaysian government commencing 2019 is a welcoming effort. The implementation of MSPO-certification from time to time can be at par with RSPO-certification, provides competitive advantages and promotes Malaysia products worldwide. Future researchers should incline their works by continuing the period of study from the year 2016 onwards as a replacement for an earlier time because the data price of palm oil keep on changing and the empirical studies on sustainability issues are extremely few. The current study appoints the variable of sustainability certification, CSPO, as a binary variable; hence further study can be conducted by using a qualitative approach to obtain accurate information regarding sustainability certification and its effect towards financial profitability.

ACKNOWLEDGEMENT

This research was funded by the MPOB-UKM Endowment Chair Research Grant (EP-2016-012: Financial Sustainability of Palm Oil Companies with regard to Environmental Certification). We thank our colleagues from UKM and MPOB whom 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.

NOTES

- ¹ SDGs include a set of 17 specific goals to diminish poverty, inequality and injustice, and tackle climate change by the year 2030.
- ² The Goal No. 12 of SDGs which is "Ensure Sustainable Consumption and Production Patterns" relates to the environmental sustainability.

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.U. & Deddy P. K. 2014. Sustainability practices and financial performance: An empirical evidence from Indonesia. *International Conference on Trends in Economics, Humanities and Management*, Pattaya Thailand, 11–15.
- Ainie, K. & Mohd Shahrin, R. 2016. Sustainability on sustainable palm oil. *Selected Reading*, 36th Palm Oil Familiarization Programme, Kuala Lumpur, Malaysia.
- Alam, A. S. A., Er, A. C., Begum, H., & Siwar, C. 2016. Smallholders the prominent contributor towards sustainable oil palm sector. *International Journal of Advanced and Applied Sciences* 3(2): 20–24.
- Alias, S. 2018. (MSPO-ISCC) Assessment of the Robustness of the MSPO Certification. <https://www.mpocc.org.my/single-post/2018/01/25/MSPO-ISCC-Assessment-of-the-robustness-of-the-MSPO-Certification>
- Anderson, S.W., Daly, J.D., & Johnson, M.F. 1999. Why firms seek ISO 9000 certification: Regulatory compliance or competitive advantage? Production and operations management. *International Journal of Economics, Commerce and Management* 8(1): 28–43.
- 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 areas planted, palm oil price and production of Malaysian palm oil. *World Applied Sciences Journal* 12(BES): 34–40.
- Asimopoulos, S. 2016. *Human-Wildlife Conflict Mitigation in Peninsular Malaysia*. Master Thesis of Rural Development and Natural Resource Management, Uppsala.
- 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.
- Auld, G. 2009. *Reversal of Fortune: How Early Choices Can Alter the Logic Of Market-Based Authority*. Doctoral dissertation of Yale University, New Haven, CT.
- Basiron, Y. 2002. Palm oil and its global supply and demand prospects. *Oil Palm Industry Economic Journal* 2: 1–10.
- 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.
- Booth, L.V., Aivazian, A., Demirguc, & Maksimovic, V. 2001. Capital structure in developing countries. *Journal of Finance* 56 (1): 87–130.
- 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(14): 28–29.
- Department of Statistic Malaysia. 2016. Selected Agricultural Indicators, Malaysia, 2016. https://www.dosm.gov.my/v1/index.php?r=column/cthemByCat&cat=72&bul_id=T2Z3NkhLSFk2VjZ5dkdUL1JQUGs4dz09&menu_id=Z0VTZGU1UHBUT1VJMFpXRRR0xpdz09, accessed 10 August 2017
- 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.
- Dragusanu, R. & Nunn, N. 2014. *The Impacts of Fair Trade Certification: Evidence from Coffee Producers in Costa Rica*. Harvard University.
- El Ammari, Y., Harmouzi, A., Chaouch, A., Hadiri, H., & El Ammari, S. 2014. Relationship between certification and export in Moroccan food industry. *BioTechnology: An Indian Journal* 10(24): 16379–16386.
- Eugene Mahalingam . 29 September, 2016. What is the impact of suspending IOI's RSPO certification? *The Star Online*. <http://www.thestar.com.my/business/business-news/2016/04/04/impact-of-suspension-by-rspo-on-ioi-corp/>
- Fisher, M., Maryudi, A., & Sahide, M. A. K. 2017. Forest and society: Initiating a Southeast Asia journal for theoretical, empirical, and regional scholarship. *Jurnal Administrasi dan Kebijakan Kesehatan Indonesia* 1(1): 1–7.
- Gijs, B., Joshua, L. & Karen, M. 2015. *Profitability and Sustainability in Responsible Forestry*, s.l.: WWF.
- Green, W., 2008. *Econometric Analysis of Panel Data*. 6th edition. s.l.: Upper Saddle River, N.J.: Prentice Hall.
- Gujarati, D. N., & Porter, D. C. 2003. *Basic Econometrics*. 5th edition. New York: McGraw-Hill, New York.
- Gujarati, D. N. 2009. *Basic Econometrics*. Tata McGraw-Hill Education.
- Hsiao, C., 1986. *Analysis of Panel Data*. Cambridge: Cambridge University Press.
- Hsiao, C., Pesaran, M. H., & Tahmiscioglu, A. K. 2002. Maximum likelihood estimation of fixed effects dynamic panel data models covering short time periods. *Journal of Econometrics* 109(1): 107–150.
- Hemananthani, S. 2017. MSPO Certification Mandatory by 2019. *The Star Online*, 25 February. <https://www.thestar.com.my/news/nation/2017/02/25/mspo-certification-mandatory-by-2019-govt-aims->
- Huat, L. K., Sidin, J. P., & Sondoh Jr, S. L. 2017. Did RSPO overlook the unwelcome thoughts amongst Growers and Millers? *Jurnal Pengurusan (UKM Journal of Management)* 49 (2017): 13–24.
- 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. Inter sectoral linkages in oil palm industry between Malaysia and Indonesia. *Jurnal Ekonomi Malaysia* 49(1): 25–35.
- Jose, H. A., Hongman Gao, Xiaochuan Zheng, Bahram, A. & Haibo Wang. 2010. A study of the relative efficiency of Chinese ports: A financial ratio-based data envelopment analysis approach. *Expert Systems* 27(5): 349–362.
- Joshua, L. 2012. *Profitability and Sustainability in Palm Oil Production*. WWF Report
- 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, 61–65.
- Kuntom, A., Kushairi, A. & Choo, Y.M. 2003. Malaysian Sustainable Palm Oil, *Oil Palm Bulletin*, Mei, 15–27.
- Lazaro, E. A., Makindara, J., & Kilima, F. T. 2008. *Sustainability Standards and Coffee Exports from Tanzania*, DIIS Working Paper.
- Le Blanc, D. 2015. The sustainable development goals as a network of targets. monitoring and evaluation *NEWS. Sustainable Development* 23(3): 176–187.
- Mahat, S. 2012. The palm oil industry from the perspective of sustainable development: A case study of Malaysian Palm Oil Industry. Doctoral Dissertation at Ritsumeikan Asia Pacific University Japan.
- Magee, L. 1990. R 2 Measures based on wald and likelihood ratio joint significance tests. *The American Statistician* 44(3): 250–253.
- 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. 2001. Malaysian Oil Palm Statistics 2000. 20th edition. MPOB, Bangi. 128.
- Malaysia Palm Oil Board. 2016a. Production of Crude Palm Oil for the Month of December 2016. Retrieved from Economics & Industry Development Division. Available at <http://bepi.mpob.gov.my/index.php/en/statistics/production/168-production-2016/746-production-of-crude-oil-palm-2016.html>
- Malaysia Palm Oil Board. 2016b. Selected Export of Palm kernel Oil by Destination, 2016. Retrieved from Economics & Industry Development Division. Available at <http://bepi.mpob.gov.my/index.php/en/statistics/export/171-export-2016.html>
- Malaysia Palm Oil Board. 2017a. Export of Palm Oil by Destination, 2017. Retrieved from Economics & Industry Development Division. Available at <http://bepi.mpob.gov.my/index.php/en/statistics/export/180-export-2017/813-export-of-palm-oil-to-major-destinations-2017.html>
- Malaysia Palm Oil Board. 2017b. Oil Palm Planted Area 2017. Retrieved from Economics & Industry Development Division. Available at http://bepi.mpob.gov.my/images/area/2017/Area_summary.pdf
- 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.
- Ni, L. X., Ali, F., & Zainudin, Z. H. 2016. Factors influencing the implementation of Malaysia Sustainable Palm Oil (MSPO) among oil palm smallholders in Malaysia. *International Journal of Academic Research in Business and Social Sciences* 6(12): 272–284.
- 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.
- Noorzaleha, A.T. 2011. Factors Affecting the Financial Performance in Malaysian Palm Oil Industry, Thesis degree of Bachelor University Malaysia of Sarawak.
- Novelli, E. 2016. Sustainability as a success factor for palm oil producers supplying the European vegetable oil markets. *Oil Palm Industry Economic Journal* 16: 8–17.
- Odia, O. J., Ofori, S., & Maduka, O. 2015. Palm oil and the heart: A review. *World Journal of Cardiology* 7(3): 144.
- Ogebe, P., Ogebe, J., & Alewi, K. 2013. *The Impact of Capital Structure on Firms' Performance in Nigeria*. University Library of Munich, Germany.
- Palmer, M., & Truong, Y. 2017. The impact of technological green new product introductions on firm profitability. *Ecological Economics* 136: 86–93.
- Park, H. M. 2015. Univariate Analysis and Normality Test Using SAS, Stata, and SPSS.
- Preusser, S. 2015. *Correlating Economic and Financial Viability with Sustainability for Palm Oil Plantations*, s.l.: RSPO. <https://www.rspo.org/news-and-events/announcements/the-correlation-between-economic-and-financial-viability-with-sustainability-for-palm-oil-plantations-study>
- Rahim, N. A. 2013. Theoretical investigation on determinant of government linked companies capital structure. *Journal of Accounting, Finance and Economics* 3(2): 72–85
- 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* 1: 81–101.
- RSPO. 2018. How RSPO Certification Works. Available at <https://rspo.org/certification/how-rspo-certification-works>
- Salim, M., & Yadav, R. 2012. Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia-Social and Behavioral Sciences* 65:156–166.
- San Ong, T., Tho, H.S., Goh, H.H., Thai, S.B., & Teh, B.H. 2016. The relationship between environmental disclosures and financial performance of public listed companies in Malaysia. *International Business Management* 10(4): 461–467.
- Schaltegger, S. & Figge, F. 2000. Environmental shareholder value: Economic success with corporate environmental management. *Eco-Management and Auditing* 7(1): 29–42.
- Schouten, G., Leroy, P., & Glasbergen, P. 2012. On the deliberative capacity of private multi-stakeholder governance: The roundtables on responsible soy and sustainable palm oil. *Ecological Economics* 83: 42–50.
- Seema Gupta, P.K. Jain, Surendra S. Yadav. 2011. Impact of MoU on financial performance of public sector enterprises in India. *Journal of Advances in Management Research* 8(2): 263–284.
- Shafaa, S., & Masih, M. 2013. *Determinants of Cost of Equity: The Case of Shariah-Compliant Malaysian firms*. MPRA Paper: 1–56.
- 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.
- Syafiq, A. 2018. How Far Will the EU's Palm Oil Ban Affect Our Improverished Farmers? Malaysian Digest. Com, 15 February, Retrieved from <http://www.malaysiandigest.com>

- com/frontpage/282-main-tile/723198-hopefully-the-eu-can-see-how-bad-the-palm-oil-ban-would-affect-the-livelihood-of-our-smallholders.html
- 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.
- The Star Online. 2018. European Parliament Approves Plan to Restrict Palm Oil Use in Biofuels. The Star Online, 18 January, Retrieved from <https://www.thestar.com.my/business/business-news/2018/01/18/european-parliament-approves-plan-to-restrict-palm-oil-use-in-biofuels/>
- Thirunavukkarasu, V. & Rajendran, A. 2013. Cash position and profitability of telecommunication sector in Sri Lanka. *Greener Journal of Social Science* 3(6): 324–333.
- Van Kooten, G.C., Nelson, H.W. & Vertinsky, I. 2005. Certification of sustainable forest management practices: A Global perspective on why countries certify. *Forest Policy and Economics* 7(6): 857–867.
- Velnampy, T. 2005. A study on investment appraisal and profitability. *Journal of Business Studies* 2(1): 23–35.
- 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 Economic and Financial Issues* 4(4): 930–945.
- Wang, N.A. 2013. The impact of capital structure on performance. *International Journal of Commerce and Management* 23(4): 354–368.
- 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.
- Wooldridge J. 2002. *Econometric Analysis of Cross-Section and Panel Data*. MIT Press.
- Wooldridge, J.M. 2010. *Econometric Analysis of Cross Section and Panel Data*. MIT Press, London, England
- 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.
- Zainul, I.F. 2013. Analysts See Huge Potential in the Palm Oil Industry for Small-Time Players. *The Star Online*, 27 April. <https://www.thestar.com.my/business/business-news/2013/04/27/analysts-see-huge-potential-in-the-palmoil-industry-for-small-time-players/>
- Zeitun, R. & Gang Tian, G. 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.
- S. Shahida
Islamic Economics Cluster (EKONIS)
and
Center for Inclusive and Sustainable Development
Faculty of Economics and Management
Universiti Kebangsaan Malaysia
43600 Bangi, Selangor
MALAYSIA
E-mail: shahida@ukm.edu.my
- Hafizuddin-Syah B.A.M*
Risk Management, Insurance and Takaful (RMIT)-UKM
and
Center of Governance Resilience and Accountability (GRACE)
Faculty of Economics and Management
Universiti Kebangsaan Malaysia
43600 Bangi, Selangor
MALAYSIA
E-mail: m_hafiz@ukm.edu.my
- Siti Hanisah Fuad
Graduate School of Business
UKM-Graduate School of Business
Universiti Kebangsaan Malaysia
43600 Bangi, Selangor
MALAYSIA
E-mail: shanisahf@gmail.com

*Corresponding author

