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)

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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

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 consumption. 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 compared 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 (Hernama 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 atmosphere. Next, the Section of 29A (1) of the Environmental Quality Act 1974 states that no person is allowed to conduct for open burning. Thus, to ensure and promote environmental sustainability in palm oil industry, non-governmental organization (NGO) developed for sustainability certification or Certified Sustainable Palm Oil (CSPO). Moreover, this is in line with the current agenda of 2030 for Sustainable Development Goals (SDGs) Goal 12 which urged the whole production 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 principles. 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 enlightened 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 approximately per hectare (RSPO 2015). Meanwhile, the average membership fee for RSPO is RM9,580 bi-annually (RSPO 2015), while MSPO is currently subsidized. Furthermore, the average of a man-day cost for both certifications is around RM3,000 (Ganeswaran 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, Sarumpet 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 stakeholders (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 & Veng 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 are 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 sustainability 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 Orhunbile (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 (Padrtova & 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.

\[
ROA = \beta_0 + \beta_{CSPO} \cdot CSPO + \beta_{LEV} \cdot LEV + \beta_{LIQ} \cdot LIQ + \\
\beta_{SIZE} \cdot SIZE + \beta_{GROW} \cdot GROW + \beta_{P} \cdot P + \epsilon
\]  

(1)

**TABLE 1. Description of variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Proxy</th>
<th>Measurement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>Profitability</td>
<td>EBIT/Total Assets</td>
<td>Wahab and Ramli (2013)</td>
</tr>
<tr>
<td>CSPO</td>
<td>Sustainable certifications</td>
<td>Dummy variable equals to 1 for firm with at least one CSPO, otherwise 0.</td>
<td>Heras-Saizarbitoria et al. (2011)</td>
</tr>
<tr>
<td>LEV</td>
<td>Leverage</td>
<td>Total Liabilities/Total shareholder Equities</td>
<td>Tailab (2014)</td>
</tr>
<tr>
<td>LIQ</td>
<td>Liquidity</td>
<td>Current Asset/Current liabilities</td>
<td>Gupta et al. (2011)</td>
</tr>
<tr>
<td>SIZE</td>
<td>Size of firms</td>
<td>Log of Total Assets</td>
<td>Ramasamy et al. (2005)</td>
</tr>
<tr>
<td>GROW</td>
<td>Company growth</td>
<td>(Revenue, Revenue)_0/Revenue_0)</td>
<td>Ramasamy et al. (2005)</td>
</tr>
<tr>
<td>P</td>
<td>CPO Price</td>
<td>Annual average price of CPO</td>
<td>Asari et al. (2011)</td>
</tr>
</tbody>
</table>

**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 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 2. Descriptive statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>264</td>
<td>0.0637</td>
<td>.0533</td>
<td>0.7316</td>
<td>4.1607</td>
</tr>
<tr>
<td>CSPO</td>
<td>264</td>
<td>0.3182</td>
<td>.4667</td>
<td>0.7807</td>
<td>1.6095</td>
</tr>
<tr>
<td>LEV</td>
<td>264</td>
<td>0.5122</td>
<td>0.4461</td>
<td>1.3307</td>
<td>4.9254</td>
</tr>
<tr>
<td>LIQ</td>
<td>264</td>
<td>4.5647</td>
<td>7.4353</td>
<td>3.6413</td>
<td>18.7519</td>
</tr>
<tr>
<td>SIZE</td>
<td>264</td>
<td>6.1372</td>
<td>0.6033</td>
<td>0.5595</td>
<td>2.9203</td>
</tr>
<tr>
<td>GROW</td>
<td>264</td>
<td>7.3208</td>
<td>6.0472</td>
<td>8.5139</td>
<td>105.5573</td>
</tr>
<tr>
<td>P</td>
<td>264</td>
<td>7.8440</td>
<td>0.1384</td>
<td>0.5742</td>
<td>2.0779</td>
</tr>
</tbody>
</table>

**TABLE 3. Pearson correlation matrix**

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>LEV</th>
<th>LIQ</th>
<th>SIZE</th>
<th>GROW</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>-0.2172***</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIQ</td>
<td>0.0544</td>
<td>-0.4245***</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.2008***</td>
<td>0.0711</td>
<td>-0.1325***</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROW</td>
<td>0.0531</td>
<td>0.0288</td>
<td>-0.0563</td>
<td>0.0185</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>0.3291***</td>
<td>-0.0913</td>
<td>0.0128</td>
<td>-0.0574</td>
<td>0.2267***</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

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 GLS 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 firms 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

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-1.0138 (0.1759)</td>
</tr>
<tr>
<td>CSPO</td>
<td>0.0178*** (0.0085)</td>
</tr>
<tr>
<td>LEV</td>
<td>-0.0235*** (0.0055)</td>
</tr>
<tr>
<td>LIQ</td>
<td>0.0000 (0.0004)</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.0110 (0.0068)</td>
</tr>
<tr>
<td>GRW</td>
<td>-0.0000 (0.0004)</td>
</tr>
<tr>
<td>P</td>
<td>0.1296*** (0.0218)</td>
</tr>
<tr>
<td>Observations (N)</td>
<td>264</td>
</tr>
<tr>
<td>Wald test</td>
<td>76.46***</td>
</tr>
</tbody>
</table>

Notes: Dependent variable is ROA. Value in the parentheses are the standard errors (SE), ***$p < .01$, **$p < .05$ and *$p < .10$.

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 GILS 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.

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APPENDIX

APPENDIX 1. List of listed palm oil companies in Malaysia

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

Notes: As per RSPO and MSPO 2015