

# Early Mover Advantage in Roundtable on Sustainable Palm Oil (RSPO) Certification: Evidence from ASEAN Countries Study

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**Abstract**—The purpose of this study is to examine the effect of entry order of RSPO adoption towards the palm oil company's profitability. To further understand the effect on firm's financial performance, this study also explores the relationship between liquidity, CPO extraction rate, and CPO prices; and palm oil company's profitability. The sampling technique in this study uses purposive sampling with considerations in sampling determined by the selected criteria. The object of this research is 27 listed palm oil companies in ASEAN. This study uses secondary data obtained from company's annual reports and Thomson Reuters for the period of 2003–2013 (excluding 2008). This study uses multiple linear regression analysis with pooled Ordinary Least Square (OLS) model. The result found that RSPO timing of entry has no impact on palm oil companies' profitability. The study may serve as a recommendation and basis for palm oil companies to consider adopting RSPO certification.

**Keywords**—financial performance, palm oil, roundtable on sustainable palm oil, sustainability

## I. INTRODUCTION

The opening of the palm oil sector is a hot issue in every growing country. Environmental issues such as air pollution, land displacement, and deforestation, which have repercussions for lowering the world's biodiversity, are frequently debated (Obidzinski *et al.*, 2012; Vijay *et al.*, 2016). Global market demands for responsible plantation processing and palm oil management that consider environmental, social, and economic factors are becoming increasingly prevalent and affect international trade. As a result, to be approved on the worldwide market, palm oil must be produced in a sustainable and environmentally acceptable manner. The global market's demands created the concept of sustainable palm oil, developed by a group called the Roundtable on Sustainable Palm Oil (RSPO). RSPO is a global sustainability standard as a parameter for products made from palm oil (RSPO, 2023). This study examines the relationship between early adopters of RSPO certification and financial performance using ROIC framework to analyze how efficiently a business allocates resources in exchange for profitable investments (Koller *et al.*, 2010). Previous studies have shown the positive impact of RSPO certification (Levin *et al.*, 2012; Preusser, 2015). However, the plantation companies are still less likely to attempt to adopt the standard due to the factors mentioned in previous studies: lack of clarity of the influence of the certification adoption on the companies' financial performance that causes the RSPO sustainability standards failure to gain widespread acceptance amongst palm oil growers; not to mention the adoption of sustainable palm oil standards remains voluntary, making the

groups reluctant to proceed the standards. Therefore, the financial implications should include the timing of entry with the adoption of the RSPO standard to provide evidence of whether the certifications have positive or negative economic impacts.

## II. LITERATURE REVIEW

### A. Early Mover Advantage Theory

First mover advantage theory emphasizes that the advantage earned by a business result from being the first to market with a new product or service. The first movers have the opportunity to pull the long-term benefits from their early entry to a new market. Two of the first mover's benefits are creating significant entry barriers for competitors and redefining the business by providing a more outstanding quality of service at a significantly lower cost (Channon and Sammut-Bonnici, 2015); being the first mover results in a competitive advantage. A firm is identified as the first mover when it enters the market early, while firm that enter later in the market is categorized as follower. Ironically, the first mover is not always more successful than the followers. Therefore, many research studies have examined whether the timing of market entry or to be a pioneer in a new market resulting in a significant advantage towards the firm. It is also argued that being the first mover, the firm has a competitive advantage over the follower firms (Penrose, 1959). Being the first mover has the growth advantages with the knowledge of creation process through specialization and more efficient allocation of resources. In addition, the first mover advantage also likely to happen depending on the firm's characteristics and resources. Therefore, the advantage and the timing of entry could differ between firms, depending on the industry and its products.

Due to the voluntary nature of the RSPO standard, palm oil companies are reluctant to implement the standard. Despite being the most well-known indicator of sustainable production, its usefulness in terms of environmental or economic aspects is still debated (Cattau *et al.*, 2016; Carlson *et al.*, 2017; Tey *et al.*, 2020). Due to the expense of certification maintenance and the lack of economic proof that certification benefits adopters, adopters have been removing their certification (Yusof and Yew, 2016). It means the RSPO certification only upholds the sustainability process, while the sales do not derive economic benefits. In contrast, sustainable production systems proved to be increasing a firm's performance in term of sales and competitive advantages. The early adopters of the RSPO standards are expected to do

better financially than the late adopters, based on the sequence in which the standards were implemented.

H1: Lag time of entry has positive impact on firm's profitability.

Profitability is one of the measures used to assess a company's performance. The ability of a corporation to earn profits over a period of time at a specific level of sales, assets, and share capital is measured by its profitability. A company's profitability can be measured in various ways based on the profits and assets or capital that will be compared. One of them is using Return on Invested Capital (ROIC). ROIC is the profitability ratio of the money invested in the company. ROIC measures a company's ability to leverage its capital to generate profits and returns for capital. Considering ROIC encompasses operational and capital efficiency, financial performance can be determined by company-specific business strategies (Tey *et al.*, 2019). Previous studies have used ROIC to reflect a company's profitability specifically in a particular industry. Based on this statement, ROIC can be used to assess the competitive position of a business. If firms have a competitive advantage, they should generate a superior ROIC compared to their competitors.

Liquidity is one of the measurements of the performance of a company. The liquidity of a company shows the company's ability to pay short-term obligations. This could be because the company does not have any funds at all. The liquidity ratio is used to show whether the company is able (liquid) or unable in paying the company's obligations. Liquidity is measured by comparing all components in current assets with components in current liabilities. One of the liquidity ratios is Current Ratio. This ratio is calculated by dividing the value of current assets by current liabilities. The greater the value of the ratio, the more smoothly the company will fulfill its obligations. Consequently, excessive liquidity shows accumulated excess capital that generates no profit for the organization.

In contrast, low liquidity harms the firm's financial health and significantly impairs its earning potential. Therefore, better business liquidity management has always been vital to the company's seamless operation. Such a situation makes investors interested in investing their capital to distribute profits in the form of dividends. Reference (Ulfana, 2015) argues that the liquidity of Malaysian public listed corporations during the financial crisis has a favorable impact on company profitability. Furthermore, another study indicated that liquidity influences palm oil firms' operational and market performance (Suroso *et al.*, 2020). This result affirms this study that there is a potential relationship between liquidity and firm's profitability.

CPO (Crude Palm Oil) extraction is a method of transforming palm fruit bunches into palm oil that uses a solvent. The income of palm oil enterprises heavily relies on the amount of palm oil produced. Operational actions that are efficient can increase the performance of a company (Utomo *et al.*, 2018). Another research also shows that CPO extraction affects firm's performance by having greater yield and extraction rates, and certified palm oil companies are expected to be more profitable (Tey *et al.*, 2020; Mubarak *et al.*, 2019). Consequently, the degree of CPO extraction from palm oil firms significantly impacts the firm's performance (Mubarak *et al.*, 2019)

One of the factors driving the increase in profits for palm oil companies is the increase in CPO prices. An item's or service's price is the total of the worth of money that customers trade for the advantages they receive from owning or using it (Hidayat *et al.*, 2015; Veeck and Burns, 2010). Therefore, while supply and demand have a role in determining the price of CPO, speculation in the market also has an impact. The higher the price, the greater the advantage to the company. Specifically, in the case of RSPO certification, it has been emphasized that the additional income differential arising from premium payments is a critical factor of profitability (Armstrong *et al.*, 2012; Rietberg and Slingerland, 2016). Such result affirms this study that there is potential relation between CPO price and firm's profitability.

H2: Liquidity has positive impact on firm's profitability.

H3: CPO extraction rate has a positive impact on firm's profitability.

H4: CPO price has positive impact on firm's profitability.

#### *B. Roundtable on Sustainable Palm Oil*

Regarding environmental issues, international standardization for Sustainable Palm Oil products has also been established through the Roundtable on Sustainable Palm Oil (RSPO) Certification. Although the RSPO standard adoption remains voluntary and unconstrained, the palm oil plantation company is expected to employ SPO production standards in order to compete in the global market.

To obtain RSPO certification, companies shall meet the applicable requirements and procedures. To carry out a sustainable palm oil plantation business that is environmentally friendly, the RSPO has eight principles, thirty-nine criteria, and seventy-two indicators that palm oil products must meet (Darussamin *et al.*, 2012). The introduction of RSPO schemes may be environmentally enticing. However, certified palm oil companies' economic performance should be improved to encourage more palm oil companies to adopt the certification. Past studies have done further research regarding the impacts of the RSPO implementation. According to research on the barriers to entry for palm oil smallholders, pre-certification expenditures are not properly recognized as separate from other operations. The financial costs and benefits of certification cannot be measured, given the lack of baseline data (Reitberg and Skingerland, 2016). While Hutabarat *et al.* (2018) show that although producing higher revenue of up to 21 percent from sales, certification resulted in an 8 percent loss of net income per hectare on average per smallholder in the first year following certification, as compared to the before certification. The higher product price for certified palm oil has also caused the weak market demand for certified palm oil (Hutabarat *et al.*, 2018). According to research on Malaysian listed palm oil firms, there is no substantial difference in operational profitability related to sustainability certification between palm oil exporting and non-exporting enterprises (Laurance *et al.*, 2010; Ramasamy *et al.*, 2005). In the long run, however, the profitability of certified palm oil will be determined by other criteria including production costs and the availability of a premium. According to research, sustainability accreditation does not substantially impact the operating profitability of palm oil exporting and non-exporting enterprises.

Contrary to the studies that found the negative impacts after the RSPO certification implementation, several studies

also describe the benefits after certification. A study undertaken from Malaysian and Indonesian certified palm oil companies uses CPO selling price to shows the correlation between profitability and sustainability. It shows that companies with higher certification degrees have higher average CPO selling prices. Certified companies tend to have higher return due to the higher selling price from the demanded certified trademarks (Preusser, 2015). Several studies also find the positive correlation between financial performance in terms of profitability and firm’s efficiency and RSPO certification (Levin *et al.*, 2012; Preusser, 2015; Tey *et al.*, 2019; Mubarok *et al.*, 2019; Shahida *et al.*, 2018). Therefore, RSPO-certified palm oil companies are more resilient and able to recover from financial loss from adopting the certification with greater operational efficiency.

### III. MATERIALS AND METHODS

The subject of this research is ASEAN countries which consist of Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam companies listed in Stock Exchange of each country. The study aims to examine the adoption of RSPO certification in the ASEAN region, where previous research has only been conducted in two countries. Most of the previous research has been conducted in Malaysia (Basiron and Yew, 2016; Tey *et al.*, 2019; Shaogu, 2021), and Indonesia Carlson *et al.*, 2017; Hafizuddin-Syah *et al.*, 2018; Kunene and Chung, 2020; Suroso *et al.*, 2021), which are the largest palm oil producers in the world (Watts *et al.*, 2021). The population for this study was adjusted to include four of the five countries that are members of RSPO: Indonesia, Singapore, Malaysia, and Thailand, as well as Cambodia. A total of 27 samples were selected based on the study’s criteria, resulting in 270 firm-year observations over ten years (excluding 2008). In this study, researchers collected data from Thomson Reuters and companies’ financial statements. The data will be presented annually according to availability.

The quantitative analysis will be utilized using the STATA statistical software. The analysis techniques applied in this research will encompass descriptive statistics, classical assumption tests, and multiple linear regression analysis. The purpose of conducting the classical assumption test is to evaluate the assumptions in multiple linear regression modeling and to ensure that the panel data analysis is free of biased data (Ramadhani and Santoso, 2019). Furthermore, these techniques aim to determine the extent of the independent variable’s influence on the dependent variable.

This study uses one dependent variable, which is Return on Invested Capital (ROIC) and four independent variables, namely Lag Time of Entry (LTE), Current Ratio (CR), CPO extraction rate (CPOER), and CPO price (CPOP). Return on Invested Capital, or ROIC is a financial ratio used to calculate the benefits investors will receive for the investment costs incurred. It reflects the firm’s operating and capital efficiency of plantation companies (Tey *et al.*, 2019). LTE measures the time between the initial investment and the first revenue-generating activity, while CR indicates a company’s ability to pay short-term debts. CPOER reflects the percentage of oil recovered from processed fruit bunches and highlights operational efficiency, and CPOP represents the market price of crude palm oil, which can be influenced by factors such as supply and demand, government policies, and sustainability certifications like RSPO. The equation for the multiple regression model is formulated as follows:

$$[[ROIC]]_{it} = \alpha + \beta_1 LTE + \beta_2 [[CR]]_{it} + \beta_3 [[CPOER]]_{it} + \beta_4 [[CPOP]]_{it} + e$$

where,

- $\alpha$  = Constant
- $\beta$  = Regression Coefficient
- $e$  = Error estimated
- ROIC = ROIC of firm i in period t
- LTE = Timing of entry of RSPO certification of firm
- CR = Current ratio of firm i in period t
- CPOER = CPO extraction rate of firm i in period t
- CPOP = CPO price of firm i in period t

## IV. RESULTS

### A. Descriptive Statistics

Table 1 provides the descriptive statistics of the variables for prior 2008 periods. Based on the result, the value is varied due to the difference in the unit for each variable. In addition, the result clearly shows zero value for the lag of entry. The lag time of entry will be zero throughout the data analysis for the data prior year 2008. Meanwhile, the mean of the current ratio is 4.68, the CPO extraction rate is 0.20, and the CPO price is 483.78. This model consists of 64 observations from a total of 17 listed companies that have annual reports data years, at least from 2003–2007.

Table 1. Descriptive statistics prior 2008

Variable	Obs	Mean	Std. Dev.	Min	Max
ROIC	64	0.1616902	0.2875717	-1.498514	1.197266
LTE	64	0	0	0	0
CR	64	4.682882	5.464072	0.1766827	23.97637
CPOER	64	0.2039828	0.0202642	0.15	0.301
CPOPPrice	64	483.7839	137.2631	352.1053	835

As shown in Table 2, the descriptive statistics for the period following 2008 differ from those for the period before 2008. Consequently, the mean of each variable score has further increased; for CPO price with the mean of 792.21, CPO extraction rate with a slight increase to 0.21, and current ratio with the mean of 4.40. As for the dependent variable (ROIC), the mean is slightly lower, with 1.07, compared to the previous period, despite having a significantly higher maximum score of 77.25.

Table 2. Descriptive statistics after 2008

Variable	Obs	Mean	Std. Dev.	Min	Max
ROIC	114	1.066216	7.249037	-0.1314202	77.24682
LTE	114	-4.052632	3.659978	-11	0
CR	114	4.400819	5.974437	0.1361742	32.93001
CPOER	114	0.2102561	0.0163307	0.164	0.2448154
CPOPPrice	114	792.2131	269.7846	382.6478	2684.314

### B. Regression Analysis

This study uses the Partial Least Squares (PLS) model for panel data regression analysis. Nevertheless, classical assumption tests indicate the presence of heteroscedasticity in the panel data, which implies that each period has a unique expected error and error variance. To address this issue, the researchers utilize the Robust Standard Error method. Consequently, the Robust Standard Error method is expected to generate higher P-values than the PLS method.

Table 3. Regression results

	2003–2007	2009–2013	Pooled Sample
LTE	0	0.00206	-0.0469
	-	(0.978)	(0.201)
CR	-0.00132	-0.0948	-0.0663
	(0.749)	(0.327)	(0.324)
CPOER	1.644	2.543	2.033
	(0.057)	(0.0476)	(0.0500)
CPOPrice	0.000469	0.000793	0.00114
	(0.075)	(0.0464)	(0.0405)
LTE	0	-0.00206	-0.0469

Table 3 shows the regression model after Robust Standard Error. Based on the output, for panel data prior 2008's lag time of entry ( $\beta = 0$ ), firm's current ratio ( $\beta = -0.0013$ ) and CPO price ( $\beta = 0.000469$ ) have a coefficient below the significant value of 0.05, while CPO extraction rate (1.644) is the only variable that has larger value than the significant of 0.05. Similar to the prior 2008, regression model after 2008 shows that lag time of entry ( $\beta = -0.00206$ ), firm's current ratio ( $\beta = -0.0948$ ), and CPO price ( $\beta = 0.000793$ ) has coefficient below the significant value of 0.05, while CPO extraction rate ( $\beta = 2.543$ ) is the only variable that has larger value than the significant of 0.05. Consequently, the significant between variables is below the alpha level of 0.05. Therefore, only CPO extraction rate has positive impact on the ROIC. In the table it is also shown for the pooled sample, similar to prior 2008 and after 2008, only CPO extraction rate ( $\beta = 2.133$ ) that has a value more extensive than the significant value of 0.05.

## V. DISCUSSION

### A. Impact of Firm's RSPO Certification Time of Entry on Firm's Profitability

Based on the statistical output analysis, the result shows no influence between the timing of RSPO certification adoption and the firm's profitability. The results of multiple regression analysis in the previous section shows the coefficient and t-statistics of time of entry are respectively -0.0469 and 0.201 ( $>0.05$ ). Therefore, the decision of plantation companies on their timing on adopting the RSPO does not improve returns. This study's findings contradict the previous research. Nevertheless, the result of this study is aligned with previous studies by Hafizuddin-Syah *et al.* (2018) and Suroso *et al.* (2021) which found no significant difference in a firm's profitability due to sustainability certification. Previous studies have shown that the RSPO certification does not significantly impact plantation companies' financial performance. The rejection of the hypothesis indicates that the RSPO certification does not significantly improve the firm's profitability. However, the lack of impact on profitability may be caused by the financial costs to maintain the RSPO production standard, assessment certification costs, and other RSPO implementation costs. This statement is also supported by Basiron and Yew (2016) of how the certification implementation cost highly that the premium the firm receives cannot cover the cost. The benefits of the certification adoption may not compensate for the returns, therefore the lack of improvement in profitability.

### B. Impact of Firm's Liquidity on Firm's Profitability

The statistical analysis shows that liquidity has a negative impact on firm's profitability. The statistical output shown in Table 3 presents that the current ratio has a low significant

impact on the firm's ROIC. The results of multiple regression analysis in the previous section shows that the coefficient and t-statistics of current ratio are respectively -0.00206 and 0.978 ( $>0.05$ ). The rejection of the hypothesis indicates that the firm's liquidity does not affect the profitability of the firm. This result aligns with previous findings from Wei (2012) that liquidity does not affect financial performance. The previous study argues that agricultural companies specifically, the ability of paying back short-term debt cannot be used to fully reflect a firm's profitability due to the more substantial significance of other factors, namely the company products' price index. The finding of this study shows the negative association between the liquidity and profitability of plantation companies. Consequently, several studies suggest otherwise and show a positive correlation between liquidity and profitability. The lack of significant may be due to the low current ratio, which led to the lack of excess working capital. It means the capital efficiency is low. While in the context of RSPO compliance, capital efficiency is crucial to maximizing the returns value.

### C. Impact of Firm's CPO Extraction Rate and Price on Firm's Profitability

Based on the results of the previous section, the CPO extraction rate and price positively affects the firm's profitability. The results of multiple regression analysis in the previous section shows that the coefficient and t-statistics of current ratio are respectively -2.033 and 0.0500 ( $<0.05$ ). The result of this study is consistent with Tey *et al.* (2020) and Chew *et al.* (2021) that there is a positive association between CPO extraction rate and price towards firm's profitability. The CPO extraction rate is the tool to measure the company's efficiency on the operation of the plantation company based on how much oil produced from the oil mills during that period. This study suggests that there is a positive correlation between CPO extraction rate and price toward firm's profitability. It means that the company with the greater CPO extraction rate and price are more profitable than firms with lower rates.

## VI. CONCLUSION

This study examines the effect of RSPO certification on the profitability of palm oil plantation companies. The study utilizes panel data from 2003 to 2013 and finds that RSPO certification timing has no significant effect on profitability, while CPO extraction rate and price strongly influence profitability. The study highlights the importance of operational efficiency in determining firms' profitability as they rely heavily on the amount of CPO extracted and sold. Furthermore, the study shows no significant effect of RSPO certification adoption and liquidity on profitability, potentially due to the higher maintenance costs associated with certification. The findings have implications for academics, economists, and investors, highlighting the influence of RSPO certification on a company's financial performance and the significance of sustainable certification in decision-making. The scope of the study is limited by its sample design, which constrains its application to broader populations, and by its reliance on a limited set of four independent variables to assess profitability.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## AUTHOR CONTRIBUTIONS

Kirana A. L. M. Trino was responsible in overall writing or the article, ideating, and data collection; Kenny Fernando handled methodology and results. Budi Kurniawan interpreted the results in discussion and conclusion; all authors had approved the final version.

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