RSPO CERTIFICATION AS A MODERATOR IN THE ESG–FIRM VALUE NEXUS: EVIDENCE FROM SOUTHEAST ASIAN PALM OIL INDUSTRY

Khalilul Rahman[1*], Sanda Patrisia Komalasari[2], Muhammad Wafiq[3], Yana Mustika[4]

[1]Department of Accounting, Tidar University, Jalan Kapten Suparman No. 39, Potrobangsan, Magelang Utara, Jawa Tengah, 56116 Indonesia

[2]Department of Accounting, Andalas University, Padang, Jalan Perintis Kemerdekaan No.77, Kota Padang, Sumatera Barat, Indonesia

[3]Department of Accounting, Mohammad Natsir University, Jalan Tan Malaka, Bukik Cangang Kayu Ramang, Guguk Panjang, Bukittinggi, Sumatera Barat, 25136, Indonesia

[4]Department of Accounting, Pattimura University, Jalan Ir. M. Putuhena, Kampus Poka, Ambon, Maluku, Indonesia

ABSTRAK

This study is necessary to measure the effects of variables that can provide insights into firm value, particularly for palm oil companies in Southeast Asia. The impact of Environmental, Social, and Governance (ESG) performance on firm value in Southeast Asia's palm oil industry, emphasizing the moderating role of Roundtable on Sustainable Palm Oil (RSPO) certification. Data from 26 publicly listed companies in Indonesia, Malaysia, and Singapore are analyzed using OLS regression with STATA 17. ESG data are sourced from SPOTT (2019–2023), and financial data from Thomson Reuters up to December 2023. Results reveal a significant negative effect of ESG performance on firm value, likely due to short-term cost perceptions. However, RSPO certification positively moderates this relationship by improving market perception and mitigating negative effects. This study contributes new insights into the ESG–firm value nexus, highlighting the strategic importance of sustainability certification. Firms are encouraged to adopt integrated sustainability strategies, while regulators should promote sustainable practices through incentive-based policies.

ARTIKEL INFO

Keyword:
ESG; firm value; palm oil industry; RSPO certification; sustainability.

* Corresponding Author at Department of Accounting, Tidar University, Jalan Kapten Suparman No. 39, Potrobangsan, Magelang Utara, Jawa Tengah, 56116 Indonesia
E-mail address: Khalilul@untidar.ac.id

INTRODUCTION

Southeast Asia stands at the heart of the global palm oil industry, with Indonesia, Malaysia, and Thailand leading the way as the world's top producers in 2024. According to USDA (2024) data, Indonesia alone is responsible for about 58% of the world's palm oil output, while Malaysia contributes 24% and Thailand adds another 5%. For millions of people in Indonesia and Malaysia, the palm oil sector is more than just an industry, it's a vital source of jobs, economic growth, and export income (Safitri et al., 2021). The livelihoods of farmers, workers, and entire communities depend on this crop, making palm oil a cornerstone of local economies. These countries not only meet their own needs but also help satisfy the world's growing appetite for palm oil, highlighting Southeast Asia's essential role in the global market.

The rapid expansion of palm oil plantations has brought serious environmental and social challenges. In 2022 alone, Indonesia, Malaysia, and Papua New Guinea lost around 19,000 hectares of forest due to land clearing and fires (Chain Reaction Research Sustainability Risk Analysis, 2022), with Indonesia experiencing 4.4 million hectares of land fires between 2015 and 2019, much of it in palm oil and pulp concessions (Greenpeace, 2020), and Malaysia seeing 17,115 hectares burned in 2015 on company-owned land (Laia, 2022). These actions have not only caused haze crises and economic losses but have also hurt the reputations of companies involved. Beyond the environment, the palm oil sector faces tough social issues like land conflicts with indigenous people and human rights violations against workers, including low wages and poor protection (Alaika, 2024; Amnesty International, 2022).

Today, companies are under growing pressure to show strong Environmental, Social, and Governance (ESG) performance, as investors and other stakeholders increasingly use ESG as a key measure of corporate responsibility (Pierce, 2024). Remarkably, research by Bassen et al., (2015) found that in 90% of 2,200 studies, better ESG performance was linked to better overall corporate performance. However, in the palm oil industry, the situation is more complicated because of intense global scrutiny over environmental and social issues. This makes it especially important to understand how ESG efforts impact the value of palm oil companies in Southeast Asia.

Research exploring how ESG performance influences the value of palm oil companies is still quite limited and often yields mixed results. Most studies so far have focused on other industries or only looked at ESG impacts in general, without addressing the unique challenges and characteristics of the palm oil sector. Because of this, there's still much we don't know about how ESG practices truly affect the valuation of palm oil firms. For example, Fardillah &

Honggowati (2024) and Khin et al., (2022) found that environmental performance and accounting can actually reduce company value, while Alaika & Firmansyah (2024) and Oppenheimer et al., (2021) saw no significant impact from sustainability disclosures or ESG performance. Meanwhile, other researchers like Abdullah et al., (2020), Chong & Loh (2023) and Jagannathan et al., (2017) discovered that the relationship is complex and can depend on factors such as company size and how investors view the company, highlighting the need for more focused research in this area.

One major way the palm oil industry is working to improve sustainability is by adopting certification from the Roundtable on Sustainable Palm Oil (RSPO), which sets global standards for responsible production (RSPO, 2023). The RSPO emphasizes protecting forests, respecting the rights of local communities, and managing waste sustainably. Mark (2024) found that companies with RSPO certification often enjoy a stronger social reputation attract more investors, and maintain a more stable market value than those without certification (Johnson, 2022; Limaho et al., 2022; Schouten & Glasbergen, 2011). This shows how important certification can be for both a company's image and its financial health.

Despite Southeast Asia's dominance in global palm oil production, there's surprisingly little quantitative research on whether RSPO certification actually boosts company value in this region. Some studies, like Feng et al., (2020), Hafizuddin-Syah et al., (2018), Hellmeister (2019) and Shahida & Fuad (2023), suggest certified companies see better financial performance and investor trust. However, others including Shahida et al., (2018), Shahimi et al., (2023) and Suroso et al., (2021), found no measurable impact on profits or market appeal. With sustainability becoming a global priority, resolving these contradictions is critical for companies and policymakers aiming to align economic goals with environmental responsibility.

This groundbreaking study tackles a key question in sustainability: Does RSPO certification help palm oil companies turn ESG efforts into real value? Focusing on Southeast Asia, the world's palm oil powerhouse, the research reveals a surprising twist: while strong ESG performance alone lowers company value, RSPO certification acts as a game-changer, flipping this relationship into a positive one. For businesses, this means adopting holistic sustainability strategies isn't just about ethics, it's a smart way to build trust with investors and regulators. The findings also push policymakers to create stronger incentives for certified sustainable practices, from tax breaks to market access. Ultimately, the study shows how RSPO certification can reshape market perceptions, ease concerns about ESG risks, and help palm oil companies thrive in an increasingly sustainability-driven global economy.

Foundational theories

Being open about a company's ESG (Environmental, Social, and Governance) efforts isn't just good practice, it's deeply rooted in how organizations build trust and credibility. According to legitimacy theory, companies need to align their actions with society's expectations if they want to earn public approval and keep their business running smoothly (Deegan, 2019). By actively reporting on ESG performance, companies show they're serious about doing the right thing, which helps them avoid backlash or social sanctions that could threaten their future (Ali et al., 2024; Soschinski et al., 2024). Signaling theory adds another layer, suggesting that by sharing clear ESG information, companies help bridge the information gap with stakeholders (Spence, 1973). This transparency not only boosts a company's reputation but also reassures investors, customers, and the wider public that the business is committed to responsible and sustainable practices (Moktar et al., 2023).

Direct relationship

Research on the relationship between Environmental, Social, and Governance (ESG) performance and corporate value shows mixed results. Outside the palm oil industry, strong ESG practices generally have a positive or neutral impact on financial performance, as ESG transparency can reduce perceived risk and attract investors, aligning with the rise of ESG investments and regulatory support such as the EU Taxonomy (Bassen et al., 2015; Financial Times, 2024; Chong & Loh, 2023). However, some studies argue that firms with high ESG scores may be undervalued in the stock market despite their potential to deliver better long-term returns (Basu, 1977; Tseng, 1988). Strong ESG performance helps companies manage environmental, social, and governance risks while building market trust, as shown by palm oil companies with RSPO certification that tend to perform better (Kurucz et al., 2008; Feng et al., 2020; Hafizuddin-Syah et al., 2018; Shahida & Fuad, 2023). Nevertheless, strict environmental policies can increase short-term costs and reduce firm value (Suryani & Jumaida, 2022), while high ESG transparency can sometimes lead to undervaluation because markets have yet to fully recognize the long-term benefits (Fardillah & Honggowati, 2024; Khin et al., 2022). Therefore, the relationship between ESG performance and corporate value remains contextual and complex, influenced by investor perceptions, implementation costs, and long-term benefits (Abdullah et al., 2020; Astuti & Juwenah, 2017; Dhar et al., 2022; Jagannathan et al., 2017; Zulhaimi, 2015).

H1a : ESG performance positively and significantly influences corporate value **H1b** : ESG performance negatively and significantly influences corporate value.

Moderating role of RSPO certification

A number of studies suggest that sustainability certifications like RSPO can boost a company's value by making them more profitable. For example, Preusser (2015) found that companies with at least 40% of their plantations RSPO-certified are able to sell their crude palm oil at higher prices, showing that the market values these sustainable practices. Levin (2012) also noted that following RSPO standards helps companies cut operational costs and increase revenue, which ultimately raises their overall value, a trend supported by similar findings from Shahida et al., (2018) and Tey et al., (2020). Certification doesn't just help with profits; it also opens doors to global markets, indirectly enhancing corporate value (Anderson et al., 2009). However, not all research agrees, Suroso et al., (2021) found no significant financial or market impact from RSPO certification, and Basiron & Yew (2016) saw little effect for Malaysian exporters. Timing also matters: if companies adopt RSPO certification too late, they may miss out on its full benefits (Feng et al., 2020; Hafizuddin- Syah et al., 2018; Shahida & Fuad, 2023).

H2a : RSPO certification strengthens the relationship between ESG performance and corporate value.

H2b : RSPO certification weakens the relationship between ESG performance and corporate value.

METHODOLOGY

This study takes a structured, deductive approach to explore two key questions about the palm oil industry in Southeast Asia between 2019 and 2023. First, it investigates whether there's a direct link between a company's Environmental, Social, and Governance (ESG) performance and its overall value. Second, it looks at how RSPO (Roundtable on Sustainable Palm Oil) certification might influence or "moderate" this relationship, potentially changing how ESG efforts impact company value. To answer these questions, the research uses advanced statistical methods specifically, multiple linear regression (OLS) and Moderated Regression Analysis (MRA) with the help of STATA version 17 software.

The ESG (Environmental, Social, and Governance) disclosure scores of palm oil companies from 2019 to 2023 were obtained from the SPOTT assessment, which evaluates producers, processors, and traders—the segments most exposed to ESG risks—based on 196 indicators across 10 categories such as traceability, deforestation, certification, and workers' rights, supporting the UN Sustainable Development Goals. Each indicator is rated from 0 (no disclosure) to 1 (full disclosure), with final scores expressed as percentages to reflect the level of transparency in a company's sustainability practices. Financial data were sourced from

Thomson Reuters up to December 2023 to ensure the analysis captured recent developments following the release of SPOTT scores. Company fiscal year-ends and reporting currencies were verified through annual reports and official websites, and all figures were converted into US dollars using the latest exchange rates to ensure consistency and comparability across firms and countries.

In this study, we set out to capture a clear picture of the world's publicly listed palm oil companies by using ESG scores from the SPOTT assessment. We focused on public companies because their information is more transparent and accessible to investors, who are key drivers of sustainable investment choices. Interestingly, across all of ASEAN, there are only 30 publicly listed palm oil companies, and these are found exclusively in Indonesia, Malaysia, and Singapore. Other ASEAN countries—such as Thailand, Vietnam, Cambodia, Brunei, the Philippines, Laos, and Myanmar—do not have any publicly listed palm oil companies. Out of the original 30 companies assessed by SPOTT from 2019 to 2023, we had to exclude four due to unavailable financial data on Thomson Reuters, often because of delisting or restructuring. Ultimately, our analysis is based on 26 companies, providing 130 observations over five yars (**Table 1**).

Table 1. Purposive Sampling

	Indonesia	**Malaysia**	**Singapore**	**Total**
Total Public Palm Oil Companies with ESG Scores from SPOTT	10	13	7	30
Less:				
Incomplete Financial Data from Refinitiv Eikon	1	3	0	4
Final Sample Size	9	10	7	26
Total Observations over the 5-Year Study Period	45	50	35	130

Source : Table by Authors (2025)

In this study, the total ESG score serves as the independent variable. Tobin's Q is the dependent variable, calculated as the sum of market equity value and book value of liabilities divided by total book assets. The interaction term between ESG score and RSPO certification is represented by ESG score x RSPO. To control for inter-firm differences, the control variables used include ROA, firm size, firm age, and DAR. Meanwhile, to account for cross-country differences, GDP growth and inflation rate are employed as control variables. A detailed description of each variable used can be found in **Table 2.**

Table 2. Variable Definition

Independent Variables	Definition
Direct Total ESG score	The ESG scores were obtained from the SPOTT assessment for palm oil companies during the period of 2019-2023.
Interactive: ESG score x RSPO Certification,	Values were multiplied by each score (direct variable) to test for interaction.
Control : ROA	Net Income / Total Assets
Control : Firm Age	Company age from the year of initial public offering (IPO) to the observation year
Control : Firm Size	The natural logarithm of the market capitalization
Control : DAR	Total Liability / Total Assets
Control : GDP Growth	Annual GDP Growth Rate of a country based on World Bank data
Control : Inflation	Annual Consumer Price Index (CPI) Change based on World Bank data
Dependent Variables	**Definition**
Tobins'Q	(Total Market Value + Total Book Value of Liabilities)/ Total Book Value of Asset

Source : Table by Authors (2025)

This study employs ordinary least squares (OLS) regression by running two testing models. To evaluate the impact of ESG performance on firm value in palm oil companies (Hypothesis 1), the equation for the direct relationship is formulated as follows:

$$Tobins'Q_{i,t} = ß_0 + ß_1ESG_{i,t} + ß_2ROA_{i,t} + ß_3SIZE_{i,t} + ß_4AGE_{i,t} + ß_5DAR_{i,t} + ß_6GDP_{i,t} + ß_7INF_{i,t} + e_i \quad (1)$$

Specifications:

- Tobin's Q: Firm value of company I at time t
- ESG: Total ESG score of company I at time t
- Control Variables (ROA, Firm Size, Firm Age, DAR, GDP Growth, Inflation): Control variables for company I, including return on assets ratio, natural logarithm of market capitalization, company age, debt-to-asset ratio, GDP growth rate, and inflation rate of the country where the company operates at time t.
- e: Error term.

To evaluate the moderating role of RSPO certification on the relationship between ESG performance and firm value (Hypothesis 2), the equation with interaction effects is formulated as follows:

$$Tobins'Q_{i,t} = ß_0 + ß_1ESG_{i,t} + ß_2RSPO_{i,t} + ß_3ESG*RSPO_{i,t} + ß_4ROA_{i,t} + ß_5SIZE_{i,t} + ß_6AGE_{i,t} + ß_7DAR_{i,t} + ß_8GDP_{i,t} + ß_9INF_{i,t} + e_i \quad (2)$$

Additional Specifications :

- RSPO Certification : A moderating variable that equals 1 if company I holds an active RSPO certification at time t, and 0 otherwise.
- ESG*RSPO$_{i,t}$: An interaction variable between the ESG score and the RSPO certification status of company I at time t.

RESULT AND DISCUSSION

Descriptive statistics

Table 3 presents descriptive statistics analyzing data from 130 observations of publicly listed palm oil companies. The average Tobin's Q of 0.924 indicates substantial variation in market value relative to asset value, ranging from 0.349 to 3.724. The mean ESG score is 0.574, reflecting varied performance levels, while 69.2% of companies hold RSPO certification. The average return on assets (ROA) is 0.039, suggesting relatively low asset performance, with some companies exhibiting negative performance (minimum -0.582). The average firm size is 20.17, and the average age is 20.6 years, indicating that most companies have operated for a considerable period. The average debt-to-asset ratio (DAR) is 0.561, highlighting variability in capital structure, with some companies having high leverage (maximum 2.206). Macroeconomic factors, such as GDP growth and inflation, show averages of 2.94% and 2.35%, respectively, reflecting diverse economic conditions during the study period.

Table 3. Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Tobins'Q	130	0.924249	0.569362	0.349135	3.724116
ESG	130	0.573954	0.240113	0.053	0.947
RSPO Certification	130	0.692308	0.463324	0	1
ROA	130	0.03927	0.083451	-0.58253	0.217864
Size	130	20.1701	1.646054	16.60781	23.82649
AGE	130	20.61538	12.44235	6	54
DAR	130	0.560983	0.328197	0.109727	2.206711
GDP Growth	130	2.939231	4.061456	-5.5	9.7
Inflation	130	2.344615	1.810908	-1.1	6.1

Source : Table by Authors (2025)

Correlation analysis

Before diving deeper into the analysis, we first checked whether the independent variables in our study were too closely related to each other, which could distort the results. **Table 4** shows how each of the main variables—such as Tobin's Q, ESG scores, RSPO

Certification, ROA, firm size, age, DAR, GDP growth, and inflation—relate to one another. The good news is that most of these relationships are fairly weak, with correlation values below 70%, meaning we don't have to worry about multicollinearity affecting our findings. This allowed us to proceed confidently with regression analysis and include extra tests to make sure our results are reliable. The analysis found that companies with higher profitability (ROA) and larger size tend to perform better, as shown by a positive link with Tobin's Q, while higher inflation seems to hurt firm performance. Additionally, companies with RSPO Certification and greater profitability are more likely to have higher ESG scores, suggesting that being certified and profitable goes hand-in-hand with better ESG disclosure.

Table 4. Pearson Correlation Matrix (Dependent Variable : Tobins'Q)

	Tobins'Q	ESG	RSPO Certification	ROA	Size	AGE	DAR	GDP Growth	Inflation
Tobins'Q	1								
ESG	-0.1322	1							
RSPO Certification	-0.1022	0.5869***	1						
ROA	0.171*	0.2421***	0.0924	1					
Size	0.3943***	0.1165	0.0089	0.3752***	1				
AGE	0.3527***	0.1066	0.095	0.1968**	0.3319***	1			
DAR	-0.0586	-0.1526*	0.1803**	-0.3638***	-0.4627***	-0.1098	1		
GDP Growth	-0.0398	0.0122	-0.0038	0.0778	-0.042	0.0397	-0.0133	1	
inflation	-0.2041**	0.0574	-0.0057	0.0832	-0.144	-0.117	0.0694	0.5815***	1

Source : Table by Authors (2025)

Regression results

Table 5 presents a summary of the results from both model tests, encompassing the findings from the ordinary least squares (OLS) regression and the robustness test using robust standard errors.

Table 5. Regression Results for Model 1 and Model 2

Tobins'Q	Model 1		Model 2	
	OLS	Robustness Test	OLS	Robustness Test
ESG	-0.4528268** 2.4)	-0.4528268* (-(-1.68)	-1.164536*** 3.03)	-1.164536** (-(-2.03)
RSPO Certification			-0.7759776*** 2.9)	-0.7759776** (-(-2.27)
ESG X RSPO			1.357697*** (2.78)	1.357697** (2.18)
ROA	0.7179662 (1.2)	0.7179662 (1.08)	0.7085154 (1.21)	0.7085154 (0.96)
Size	0.1202186*** (3.7)	0.1202186*** (3.37)	0.1350776*** (4.21)	0.1350776*** (3.43)

AGE	0.0105725*** (2.79)	0.0105725*** (3.01)	0.0097419** (2.63)	0.0097419*** (2.67)
DAR	0.2591952* (1.67)	0.2591952*** (2.7)	0.4422627*** (2.64)	0.4422627*** (3.13)
GDP Growth	0.0085545 (0.64)	0.0085545 (0.63)	0.0093525 (0.72)	0.0093525 (0.69)
Inflation	-0.0536765* 1.76)	-0.0536765* (- (-1.97)	-0.0530383* 1.78)	-0.0530383* (- (-1.88)
Constant	-1.53152** (-2.22)	-1.53152** (-2.49)	-1.602011** 2.37)	-1.602011** (- (-2.44)
F	6.96***	9.39***	6.67***	6.8***
R-Square	0.2855	0.2855	0.3334	0.3334

Standard errors in parentheses
*p<0.1; **p<0.05;
***p<0.01 Source : Table by Authors (2025)

Direct effect of ESG on firm value

The findings from Model 1 (**Table 6**) reveal that the ESG variable is significantly negatively related to firm value at a 95% confidence level. This negative association persists as significant at a 90% confidence level after conducting a robustness test. This suggests that enhanced ESG performance in palm oil companies correlates with a decline in firm value. As a result, Hypothesis H1a is not verified, whereas the alternative Hypothesis H1b is confirmed as valid.

Moderating role of RSPO certification

The results from Model 2 (**Table 6)** demonstrate that the interaction between RSPO Certification and ESG is significantly positively associated with firm value at a 99% confidence level. Following the robustness test, this positive association remains significant at a 95% confidence level. These findings indicate that RSPO Certification enhances the positive impact of ESG on firm value. Consequently, Hypothesis H2a is supported, whereas the alternative Hypothesis H2b is rejected.

Endogeneity test

To address potential causality issues in the model, endogeneity testing was performed using a one-period lag regression. The results of this lag regression, as detailed in table 6, align with those from the standard regression analysis. Notably, the coefficients for key variables remain consistent, indicating that the observed relationships are robust and not significantly influenced by endogeneity concerns. This consistency reinforces the stability of the findings regarding the effects of ESG, ESG component performance, RSPO certification, and control variables on Tobin's Q, thereby bolstering the validity of the initial regression results despite

potential bidirectional causality.

Table 6. Lagged one-period regression of variables

Tobins'Q	Model 1	Model 2
ESG	-0.4709537	-1.164307
	(-2.47)***	(-3.02)***
RSPO Certification		-0.7651654
		(-2.84)***
ESG X RSPO		1.338894
		(2.72)***
ROA	0.7224719	0.711006
	(1.20)	(1.21)
SIZE	0.1238068	0.1367608
	(3.75)***	(4.21)***
AGE	0.0104758	0.0097024
	(2.76)***	(2.60)**
DAR	0.2584734	0.4393174
	(1.66)*	(2.61)**
GDP Growth	0.0097136	0.0099517
	(0.72)	(0.76)
Inflation	-0.0566861	-0.0546311
	(-1.83)*	(-1.80)*
Constant	-1.590295	-1.631957
	(-2.28)**	(-2.39)**
F	6.89***	6.55***
R-Square	0.2851	0.3313

Standard errors in parentheses
*p<0.1; **p<0.05; ***p<0.01
Source : Table by Authors (2025)

Additional analysis

A more detailed analysis separates the ESG components into Environmental (ENV), Social (SOC), and Governance (GOV) to elucidate their effects on the value of palm oil companies. The findings reveal that each of these components has a significant negative impact on firm value (as shown in **Table 7**). Nonetheless, RSPO certification positively moderates this relationship, thereby enhancing market perceptions of ESG initiatives. The analytical models demonstrate that RSPO certification strengthens the association between ENV, SOC, and GOV and firm value, with a significant positive moderating effect. Additionally, control variables such as ROA, firm size (SIZE), and firm age (AGE) also exhibit significant positive effects. These results reinforce the notion that RSPO certification can reduce the negative impact of ESG on firm value.

Table 7. Additional Analysis

	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Tobins'Q	Tobins'Q	Tobins'Q	Tobins'Q	Tobins'Q	Tobins'Q
ENV	-0.4789936 (-6.26)***			-1.365506 (-4.25)**		
SOC		-0.4444805 (-5.56)***			-1.037734 (-5.25)***	
GOV			-0.3839576 (-3.90)**			-0.7039236 (-3.51)**
RSPO Certificated				-0.781765 (-8.86)***	-0.6896252 (-8.40)***	-0.4498192 (-5.15)***
ENV*RSPO				1.56741 (5.57)***		
SOC*RSPO					1.152754 (6.75)***	
GOV*RSPO						0.7205426 (3.93)**
ROA	0.7107974 (0.96)	0.7194441 (0.98)	0.6444618 (0.90)	0.6839863 (0.94)	0.711705 (0.96)	0.7038774 (0.92)
SIZE	0.1184904 (7.71)***	0.1203484 (8.13)***	0.1217213 (7.65)***	0.1325112 (6.82)***	0.1332764 (7.40)***	0.1276944 (7.35)***
AGE	0.0107397 (5.27)***	0.0104709 (5.14)***	0.0107484 (5.27)***	0.0097326 (4.98)***	0.0098753 (5.03)***	0.0103461 (4.77)***
DAR	0.2543544 (6.35)***	0.2559241 (6.03)***	0.2628566 (5.94)***	0.4349917 (8.47)***	0.4282265 (8.63)***	0.3872543 (7.37)***
GDP	-0.0086781 (0.68)	0.0083776 (0.66)	0.0095736 (0.70)	0.0092982 (0.61)	0.0094848 (0.63)	0.0103735 (0.66)
Inflation	-0.536513 (-2.68)*	-0.0540543 (-2.75)*	-0.0556111 (-2.64)*	-0.0519093 (-2.01)	-0.0534078 (-2.18)*	-0.0560042 (-2.24)*
Cons	-1.500872 (-5.55)***	-1.527188 (-5.84)***	-1.626283 (-6.15)***	-1.540175 (-5.03)***	-1.595798 (-5.45)***	-1.635967 (-2.36)**
F (Sig)	9.30 (0.000)***	9.53 (0.000)***	9.54 (0.000)***	7.18 (0.000)***	6.34 (0.000)***	5.55 (0.000)***
R2	0.2908	0.2857	0.2740	0.3502	0.3224	0.2938

Notes : * p<0.1, ** p<0.05, *** p<0.01
Source : Table by Authors (2025)

Direct relationship

The findings from Model 1 reveal that ESG performance in palm oil companies has a significant negative impact on firm value, as measured by Tobin's Q. The data indicate that companies with high ESG performance tend to experience a decline in value compared to those with lower performance. This is attributed to investors' negative perceptions of the palm oil sector, which is fraught with risks such as deforestation, social conflicts, and weak governance. Additionally, the extra costs required to comply with sustainability standards are perceived as a burden by market participants (Erian, 2016), thereby reducing the attractiveness of investments (Priyanto & Suhandi, 2023).

The results from this study diverge from those reported by Abdullah et al., (2020), Almeyda & Darmansya (2019) and Orlitzky et al., (2003), which generally suggest that ESG performance has a positive impact on corporate performance. Nofsinger et al., (2019) contend that the net effect of ESG typically varies across sectors and contexts. Even research by Lam et al., (2018) reveals a mixed relationship between ESG performance and financial indicators, which is not uniformly negative. In the context of the palm oil sector, Model 1 reveals that the net effect of ESG is perceived as minimal and lacks sufficient heterogeneity to significantly enhance firm value.

Several factors contribute to this negative phenomenon, which deserve consideration. The high environmental and social risks inherent in the palm oil sector, such as forest fires and land conflicts, are key reasons. Furthermore, the additional costs incurred to comply with regulations like the Roundtable on Sustainable Palm Oil (RSPO) often impose a financial burden on companies in the short term (Liana et al., 2023). Research from the National University of Singapore (2024) indicates that heightened scrutiny of ESG risks in the palm oil sector causes investors to become more cautious, even tending to avoid companies with high ESG performance. Consequently, this results in the undervaluation of stocks of companies that actually exhibit strong ESG performance.

The findings of Model 1 are consistent with research by Svensson (2020) and Krüger (2015), which demonstrate a relatively weak market response to positive ESG news. Similarly, studies by Fardillah & Honggowati (2024), Khin et al., (2022) and Luo et al., (2012) suggest that companies with high ESG performance often attract more negative attention, leading to adverse valuation effects. To address these challenges, palm oil companies must intensify their ESG risk mitigation efforts and enhance communication with investors and other stakeholders. The implications of these findings underscore the importance of adopting proactive and innovative ESG management strategies to foster market trust and mitigate long-term financial risks.

Moderating role of RSPO certification

The results from Model 2, demonstrating that RSPO certification positively and significantly moderates the relationship between ESG and firm value, offer valuable insights into the role of sustainability certifications in the palm oil industry. These findings indicate that palm oil companies holding RSPO certification tend to achieve higher market valuations compared to those without certification, even when both exhibit comparable ESG performance. This is consistent with studies by Shahida et al., (2018) and Tey et al., (2020),

which report that sustainability certifications positively impact the profitability of palm oil companies, as well as research by Malau & Rambe (2022) highlighting the benefits of certifications like RSPO in enhancing corporate performance. This phenomenon can be explained through the perspective of signaling theory, where RSPO certification serves as a credible signal to investors regarding a company's commitment to sustainable practices, thereby reducing information asymmetry and enhancing market trust.

The positive moderating effect of RSPO certification on the relationship between ESG and firm value suggests that the market assigns a valuation premium to palm oil companies that not only exhibit strong ESG performance but also possess external validation through RSPO certification (Preusser, 2015). This phenomenon reflects the increasing awareness among investors of the importance of sustainable practices in the palm oil industry, which is frequently criticized for its environmental and social impacts. These findings align with the argument by Levin (2012) that the adoption of sustainability standards is linked to enhanced financial performance, as it offers opportunities to improve competitiveness. However, it is important to note that these results diverge from previous studies, such as those by Suroso et al., (2021) and Basiron & Yew (2016), which found that RSPO certification has not yet yielded significant financial benefits relative to the costs of certification.

The findings have important implications, suggesting that RSPO certification can function as an effective mechanism for aligning ESG performance with market expectations, thus bridging the gap between sustainable practices and corporate valuation. The results indicate that investing in RSPO certification is not solely a compliance cost but can be regarded as a long-term value creation strategy that assists palm oil companies in overcoming market skepticism regarding their ESG commitments. These findings support the argument that credible sustainability standards, such as RSPO, can play a pivotal role in transforming the palm oil industry towards more sustainable practices while maintaining economic competitiveness (RSPO, 2024).

Despite the potential benefits of RSPO certification highlighted in this study, it is crucial to consider the complexities involved in implementing these standards in practice. Criticisms of RSPO, as illustrated in case studies such as that of Wilmar, indicate that certification alone may not be adequate to ensure comprehensive sustainable practices (Chrimes & Macdonald, 2016). Consequently, additional research is required to investigate how companies can maximize the benefits of RSPO certification while ensuring the effective implementation of ESG practices throughout their operations. Furthermore, longitudinal studies could offer a

deeper understanding of how the moderating effect of RSPO certification develops over time, taking into account the evolving market dynamics and changing stakeholder expectations regarding sustainability in the palm oil industry.

CONCLUSION AND RECOMMENDATION

The study reveals that, in Southeast Asia's palm oil sector, strong ESG (Environmental, Social, and Governance) performance can actually lower a company's value, likely because the market views these efforts as costly in the short term. However, RSPO (Roundtable on Sustainable Palm Oil) certification changes this dynamic by improving how the market perceives ESG initiatives and helping to offset the negative impact on corporate value. This research makes important contributions by examining how palm oil companies respond to ESG scrutiny, highlighting the unique influence of RSPO certification, and offering practical insights for policymakers and NGOs to promote sustainability. It also empowers consumers to make more informed choices about the palm oil products they buy, based on a clearer understanding of company practices.

The findings provide actionable guidance for everyone involved in the palm oil industry, from companies to investors and regulators. Palm oil firms are encouraged to adopt comprehensive sustainability strategies to strengthen their legitimacy and boost their value in the eyes of the market. RSPO certification stands out as a key factor in building trust and reducing skepticism about ESG risks, while financial institutions and investors have a vital role in supporting ESG innovation through their investment choices. Policymakers can further advance sustainable practices by offering incentives, certification bodies should make RSPO more accessible for small companies, and consumers can drive change by demanding greater transparency and traceability in palm oil products.

Even with these insights, the study acknowledges several limitations that future research should address. Because the analysis is based on a specific period, it may not capture long-term trends in how ESG affects company value, so expanding the time frame would offer a deeper perspective. Including other financial metrics like return on assets (ROA) or return on equity (ROE) could also enrich the analysis and provide a fuller picture of ESG's impact on financial performance. Additionally, future studies should look beyond publicly listed companies and include other parts of the supply chain, while also exploring whether ESG transparency truly reflects real-world practices in both large and small palm oil businesses.

REFERENCES

Abdullah, M., Hamzah, N., Ali, M. H., Tseng, M.-L., & Brander, M. (2020). The Southeast Asian haze: The quality of environmental disclosures and firm performance. Journal of Cleaner Production, 246, 118958. https://doi.org/10.1016/j.jclepro.2019.118958

Alaika, A. A., & Firmansyah, A. (2024). Unveiling The Impact of Green Accounting and Sustainability Disclosure On The Firm Value. Journal of Governance Risk Management Compliance and Sustainability, 4(2). https://doi.org/10.31098/jgrcs.v4i2.2436

Ali, M., Alamgir, M., & Hanif, M. (2024). Environmental , Social , and Governance Controversies and Firm Performance : Moderating Role of Governance Mechanisms. Pakistan Social Sciences Review, 8(3), 93–104. https://doi.org/10.35484/pssr.2024(8-III)07

Almeyda, R., & Darmansya, A. (2019). The Influence of Environmental, Social, and Governance (ESG) Disclosure on Firm Financial Performance. Iptek Journal of Proceedings Series, 5, 278–290. https://doi.org/10.12962/j23546026.y2019i5.6340

Amnesty International. (2022). Laporan Amnesty International 2021/22 : Kondisi Hak Asasi Manusia Dunia.

Anderson, S., Daly, J., & Johnson, M. (2009). Why Firms Seek ISO 9000 Certification: Regulatory Compliance or Competitive Advantage. Production and Operations Management, 8, 28–43. https://doi.org/10.1111/j.1937-5956.1999.tb00059.x

Anita, M., Shveta, S., Yadav Surendra, S., & Arvind, M. (2023). When do ESG controversies reduce firm value in India? Global Finance Journal, 55(April). https://doi.org/10.1016/j.gfj.2023.100809

Astuti, A. D., & Juwenah, J. (2017). Pengaruh Pengungkapan Sustainability Report Terhadap Nilai Perusahaan Yang Tergabung Dalam LQ 45 Tahun 2012-2013. Accounthink : Journal of Accounting and Finance, 2(01), 301–313. https://doi.org/10.35706/acc.v2i01.733

Banjade, D. (2024). ESG (Environmental, Social, and Governance) Controversy Scores and Firm Performance. A Case Study of US Firms. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.4846119

Basiron, Y., & Yew, F.-K. (2016). The Burden of RSPO Certification Costs on Malaysian Palm Oil Industry and National Economy. Environment & Health, 7, 19–27. https://doi.org/10.5366/jope.2016.02

Bassen, A., Friede, G., & Busch, T. (2015). ESG and Financial Performance: Aggregated Evidence From More Than 2000 Empirical Studies. Journal of Sustainable Finance &Amp; Investment. https://doi.org/10.1080/20430795.2015.1118917

Basu, S. (1977). Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of the Efficient Market Hypothesis. The Journal of Finance, 32(3), 663–682. https://doi.org/10.2307/2326304

Chain Reaction Research Sustainability Risk Analysis. (2022). The Chain: Deforestation Driven by Oil Palm Falls to a Four-Year Low. Chain Reaction Research Sustainability Risk Analysis. https://chainreactionresearch.com/the-chain-deforestation-driven-by-oil-palm-falls-to-a-four-year-low/

Chong, T., & Loh, L. (2023). Innovating ESG Integration as Sustainable Strategy: ESG Transparency and Firm Valuation in the Palm Oil Sector. Sustainability (Switzerland), 15(22), 1–36. https://doi.org/10.3390/su152215943

Chrimes, S. B., & Macdonald, K. (2016). Wilmar: The Promise and Pitfalls of Problem Solving. http://corporateaccountabilityresearch.net/njm-report-viii-wilmar

de Abreu Passos, G., & de Campos-Rasera, P. P. (2024). Do ESG Controversies Influence Firm Value? An Analysis with Longitudinal Data in Different Countries. Brazilian Business

Review, 21(4). https://doi.org/10.15728/bbr.2022.1326.en
Deegan, C. M. (2019). Legitimacy theory: Despite its enduring popularity and contribution, time is right for a necessary makeover. Accounting, Auditing and Accountability Journal, 32(8), 2307–2329. https://doi.org/10.1108/AAAJ-08-2018-3638
Dhar, B. K., Sarkar, S. M., & Ayittey, F. K. (2022). Impact of social responsibility disclosure between implementation of green accounting and sustainable development: A study on heavily polluting companies in Bangladesh. Corporate Social Responsibility and Environmental Management, 29(1), 71–78. https://doi.org/https://doi.org/10.1002/csr.2174
Elamer, A. A., & Boulhaga, M. (2024). ESG controversies and corporate performance: The moderating effect of governance mechanisms and ESG practices. Corporate Social Responsibility and Environmental Management, 31(4), 3312–3327. https://doi.org/10.1002/csr.2749
Erian, N. (2016). ESG issues in the palm oil investments. Universeteit Twente, 1–62. https://essay.utwente.nl/fileshare/file/69102/Erian_MA_BMS.pdf
Fardillah, D., & Honggowati, S. (2024). The Influence of Corporate Governance, Leverage and Environmental Performance on Firm Value (Case Study of Plantation Subsector Companies Listed on the Indonesia Stock Exchange 2014-2022). Asian Journal of Engineering, Social and Health, 3(8), 1783–1799. https://doi.org/10.46799/ajesh.v3i8.398
Faure, C., Nys, E., & Tarazi, A. (2024). Subcategories of ESG controversies and firm value. https://hal.science/hal-04654818v1
Feng, Y., Lai, K., & Zhu, Q. (2020). Legitimacy in operations: How sustainability certification announcements by Chinese listed enterprises influence their market value? International Journal of Production Economics, 224, 107563. https://doi.org/10.1016/j.ijpe.2019.107563
Fernandes, C. G., Luna, M. S. de F., Junior, E. M., & Maria, M. M. L. (2024). THE IMPACT OF CONTROVERSIAL ESG ON THE MARKET VALUE AND FINANCIAL CONSTRAINTS OF BRICS COMPANIES. Revista De Gestão Social E Ambiental, 18(4), 1–18. https://doi.org/10.24857/rgsa.v18n4-042
Financial Times. (2024). 'Monstrous' Run for Responsible Stocks Stokes Fears of a Bubble. Financial Times. https://www.ft.com/content/73765d6c-5402-11ea-90ad-25e377c0ee1f
Greenpeace Indonesia. (2020). Karhutla dalam Lima Tahun Terakhir. https://www.greenpeace.org/indonesia/publikasi/44219/karhutla-dalam-lima-tahun-terakhir/
Hafizuddin-Syah, B. A. M., Shahida, S., & Fuad, S. H. (2018). Sustainability certifications and financial profitability: An analysis on palm oil companies in Malaysia. Jurnal Pengurusan, 54(2018), 143–154. https://doi.org/10.17576/pengurusan-2018-54-12
Hellmeister, A., & Richins, H. (2019). Green to gold: Beneficial impacts of sustainability certification and practice on tour enterprise performance. Sustainability (Switzerland), 11(3), 1–17. https://doi.org/10.3390/su11030709
Jagannathan, R., Ravikumar, A., Sammon, M. (2017). Environmental, Social, and Governance Criteria: Why Investors are Paying Attention. NBER Working Paper No. w24063, Available at SSRN: https://ssrn.com/abstract=3082225.
Johnson, A. (2022). The Roundtable on Sustainable Palm Oil (RSPO) and transnational hybrid governance in Ecuador's palm oil industry. World Development, 149, 105710. https://doi.org/10.1016/j.worlddev.2021.105710
Khin, A. A., Khai, K. G., & Chiek, A. N. (2022). Company Values of Malaysian Listed Companies'

Sustainability for Palm Oil Industry: Financial Panel Data Model Approach. GATR Accounting and Finance Review, 6(4), 1–16. https://doi.org/10.35609/afr.2022.6.4(1)

Krüger, P. (2015). Corporate goodness and shareholder wealth. Journal of Financial Economics, 115(2), 304–329. https://doi.org/10.1016/j.jfineco.2014.09.008

Kurucz, E. C., Colbert, B. A., & Wheeler, D. (2008). 83 The Business Case for Corporate Social Responsibility. In A. Crane, D. Matten, A. McWilliams, J. Moon, & D. S. Siegel (Eds.), The Oxford Handbook of Corporate Social Responsibility (p. 0). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199211593.003.0004

Laia, K. (2022). Membongkar Luas dan Cuan Kebun Sawit Malaysia di Indonesia. BETAHITA. https://betahita.id/news/detail/7297/membongkar-luas-dan-cuan-kebun-sawit-malaysia-di-indonesia.html.html?utm_source=chatgpt.com

Lam, S.-S., Zhang, W., & Chien, C. Y. K. (2018). Can Corporate Social Responsibility Fill Institutional Voids? In P. S. Hoffmann (Ed.), In Firm Value—Theory and Empirical Evidence (p. Ch. 5). IntechOpen. https://doi.org/10.5772/intechopen.76164

Levin, J. (2012). Profitability and Sustainability in Palm Oil Production : Analysis of Incremental Financial Costs and Benefits of RSPO Compliance. https://d2ouvy59p0dg6k.cloudfront.net/downloads/profitability_and_sustainability_in_palm_oil_production__update_.pdf

Liana, L., Siregar, H., Marulitua Sinaga, B., & Budiman Hakim, D. (2023). Kendala Penerapan Sertifikasi Keberlanjutan oleh Perkebunan Kelapa Sawit Rakyat Di Indonesia: Sebuah Tinjauan Empiris. Jurnal Dinamika Pertanian Edisi XXXIX Nomor, 2(2023), 131–140. https://doi.org/10.25299/dp.2023.vol39(2).16426

Limaho, H., Sugiarto, Pramono, R., & Christiawan, R. (2022). The Need for Global Green Marketing for the Palm Oil Industry in Indonesia. Sustainability (Switzerland), 14(14). https://doi.org/10.3390/su14148621

Luo, J., Meier, S., & Oberholzer-Gee, F. (2012). No News is Good News: CSR Strategy and Newspaper Coverage of Negative Firm Events. Harvard Business School, 12(091). https://www.hbs.edu/ris/Publication%20Files/12-091_6d3f52ce-ab93-4cc6-82cd-e4fc7624c3b6.pdf

Malau, L. R. E., & Rambe, K. R. (2022). Efek sertifikasi RSPO dan determinan lainnya terhadap kinerja keuangan perusahaan perkebunan kelapa sawit di Indonesia . Jurnal Ekonomi Modernisasi, 18(2 SE-Articles), 184–198. https://doi.org/10.21067/jem.v18i2.7270

Mark, E. M. H. (2024). Enhancing sustainable palm oil production : a roundtable on sustainable palm oil (RSPO) jurisdictional approach in Sabah and Central Kalimantan. Doctoral Thesis, Nanyang Technological University, Singapore, 1–207. https://doi.org/10.32657/10356/181598

Moktar, N., Mat Deli, M., Abdul Rauf, U. A., Idris, F., & Purwati, A. A. (2023). ESG Disclosure: The Extent of Investors' Confidence In Stock Market. International Journal of Academic Research in Progressive Education and Development, 12(3), 1008–1027. https://doi.org/10.6007/ijarped/v12-i3/18989

National University of Singapore. (2024). National University of Singapore Business School study uncovers that investors are responsible for Palm Oil companies not meeting Environmental, Social and Governance (ESG) standards globally. NUS Business School. https://bschool.nus.edu.sg/blog/press-release/article/national-university-of-singapore-business-school-study-uncovers-that-investors-are-responsible-for-palm-oil-companies-not-meeting-environmental-social-and-governance-esg-standards-globally/

Nofsinger, J. R., Sulaeman, J., & Varma, A. (2019). Institutional investors and corporate social responsibility. Journal of Corporate Finance, 58, 700–725.

https://doi.org/10.1016/j.jcorpfin.2019.07.012
Oppenheimer, P., Clarke, E., Cupit, O., Delabre, I., Dodson, A., Guindon, M., Hatto, A., Lam, J., Lawrence, L., Melot, C., Spencer, E., Wainwright-Déri, E., Freeman, R., & Hoffmann, M. (2021). The SPOTT index: A proof-of-concept measure for tracking public disclosure in the palm oil industry. Current Research in Environmental Sustainability, 3, 100042. https://doi.org/10.1016/j.crsust.2021.100042
Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate Social and Financial Performance: A Meta-Analysis. Organization Studies, 24(3), 403–441. https://doi.org/10.1177/0170840603024003910
Pierce, R. (2024). Asia In Focus: ESG Investing And The Business And Human Rights Agenda. Business and Human Rights, United Nations Development Programme (UNDP), 1–49. https://www.undp.org/sites/g/files/zskgke326/files/2024.06/final_esg_investment_in_asia_report.pdf
Preusser, S. (2015). Correlating Economic and Financial Viability with Sustainability for Palm Oil Plantations. https://www.rspo.org/wp-content/uploads/Correlating-Economic-and-Financial-Viability-with-Sustainability-for-Palm-Oil-Plantations-Report-English.pdf
Priyanto, P., & Suhandi, N. P. M. (2023). Unraveling the Link: Relationship Firm Value Shapes ESG Ratings. Journal of Accounting and Business Education, 8(2), 61–71. https://doi.org/10.17977/jabe.v8i2.44972
RSPO. (2024). Sebagai sebuah organisasi Sertifikasi. RSPO. https://rspo.org/id/sebagai-sebuah-organisasi/sertifikasi/
Safitri, I., Hidayat, A., & Bustami, S. Y. (2021). Strategi Council of Palm Oil Producing Countries Dalam Melindungi Ekspor Komoditas Kelapa Sawit Negara Anggota Dari Ancaman Kebijakan Proteksionis Uni Eropa. Indonesian Journal of Global Discourse, 3(2), 64–82. https://doi.org/10.29303/ijgd.v3i2.36
Schouten, G., & Glasbergen, P. (2011). Creating legitimacy in global private governance: The case of the Roundtable on Sustainable Palm Oil. Ecological Economics, 70(11), 1891–1899. https://doi.org/10.1016/j.ecolecon.2011.03.012
Shahida, S., & Fuad, S. H. (2023). The Effect of Sustainability Certification Towards Firms' Profitability: The Case of Malaysian Shariah Compliant Palm Oil Companies. Journal of Social Transformation and Regional Development, 5(2), 11–21. https://doi.org/10.30880/jstard.2023.05.02.002
Shahida, S., Hafizuddin-Syah, B. A. M., & Fuad, S. H. (2018). The effect of sustainability certification for export on operational profitability of Malaysian palm oil companies. Jurnal Ekonomi Malaysia, 52(2). https://doi.org/10.17576/jem-2018-5202-5
Shahimi, S., B.A.M., H.-S., & S.F., H. (2023). Sustainability Practices and Financial Profitability: The Case of the World's Top 20 Crude Palm Oil Producers. Sage Open, 13(4). https://doi.org/10.1177/21582440231203832
Soschinski, C. K., Mazzioni, S., Dal Magro, C. B., & Leite, M. (2024). Corporate controversies and market-to-book: the moderating role of ESG practices. Revista Brasileira de Gestao de Negocios, 26(1), 1–18. https://doi.org/10.7819/rbgn.v26i01.4255
Spence, M. (1973). JOB MARKET SIGNALING. The Quarterly Journal of Economics, 87(3), 355–374. https://doi.org/10.1055/s-2004-820924
Suroso, A. I., Tandra, H., & Wahyudi, I. (2021). The Impact of Sustainable Certification on Financial and Market Performance: Evidence from Indonesian Palm Oil Companies. International Journal of Sustainable Development and Planning, 16(8), 1495–1500. https://doi.org/10.18280/ijsdp.160810
Suryani, A., & Jumaida, S. (2022). Green Accounting and Corporate Social Responsibility on Company Performance to Mining Companies in Indonesian. GATR Accounting and

Finance Review, 7(3), 160–166. https://doi.org/10.35609/afr.2022.7.3(3)
Svensson, E. (2020). ESG and Expected Returns : A study using alternative measures on European firms to review the relationship. Master Thesis, Örebro University School of Business, Swedia, 1-47. https://www.diva-portal.org/smash/get/diva2:1438735/FULLTEXT01.pdf
Tey, Y. S., Brindal, M., Darham, S., Sidique, S. F. A., & Djama, M. (2020). Early mover advantage in Roundtable on Sustainable Palm Oil certification: A panel evidence of plantation companies. Journal of Cleaner Production, 252, 119775. https://doi.org/10.1016/j.jclepro.2019.119775
The Roundtable on Sustainable Palm Oil (RSPO). (2023). DRAF 2 Prinsip & Kriteria RSPO (P&C) 2023. https://rspo.org/wp-content/uploads/IND_Draft-2_Principles-Criteria-2023.pdf
Tseng, K. C. (1988). Low Price, Price-Earnings Ratio, Market Value, And Abnormal Stock Returns. Financial Review, 23(3), 333–343. https://doi.org/10.1111/j.1540-6288.1988.tb01271.x
USDA. (2024). Foreign Agriculture Service. U.S Department of Agriculture. https://ipad.fas.usda.gov/
Zulhaimi, H. (2015). Pengaruh Penerapan Green Accounting Terhadap Kinerja Perusahaan (Studi Pada Perusahaan Peraih Penghargaan Industri Hijau Yang Listing Di BEI). Jurnal Riset Akuntansi Dan Keuangan, 3(1), 603–616. https://doi.org/10.17509/jrak.v3i1.6607