



# Export and Performance Analysis of Indonesian Palm Oil Companies Facing Sustainability Policies in The European Markets Using PLS-SEM

Khoirul Anam<sup>1\*</sup>, Akhmad Fauzi<sup>1</sup>, Hamidah Hendrarini<sup>1</sup>, Maroeto<sup>1</sup>

<sup>1</sup> Doctoral Study Program of Agribusiness, UPN Veteran Jawa Timur, Surabaya, Indonesia

Received: May 24, 2025

Revised: July 08, 2025

Accepted: August 25, 2025

Published: August 31, 2025

Corresponding Author:

Khoirul Anam

[20661030010@student.upnjatim.ac.id](mailto:20661030010@student.upnjatim.ac.id)

DOI: [10.29303/jppipa.v11i8.12463](https://doi.org/10.29303/jppipa.v11i8.12463)

© 2025 The Authors. This open access article is distributed under a (CC-BY License)



**Abstract:** The primary goal of this research is to investigate the effect of the European Union's Renewable Energy Directive (RED) on the financial performance and overall value of palm oil businesses in Indonesia. Since this directive has established substantial non-tariff hurdles and generated market instability for these companies, a thorough examination of its direct impacts is required. This article confronts the issue by examining the influence external factors, such as macroeconomic conditions and export levels, alongside internal corporate strategies like risk management and sustainability reporting, on the overall value of a company. The research constructs and validates a model to determine how sustainability management can be utilized as a strategic instrument for reducing policy-related risks and improving corporate performance. This study adopts a quantitative approach and applies Partial Least Squares Structural Equation Modeling (PLS-SEM) as the method for data analysis. The sample for the study was composed of 11 palm oil companies traded on the Indonesian Stock Exchange, for which comprehensive annual report data were available for the 2019-2023 period. These companies in the name of stock codes are specifically: AALI, ANJT, DSNG, BWPT, LSIP, PALM, SIMP, SGRO, SSMS, SMAR, and TBLA. The results of the analysis show that a company's value is significantly and positively influenced by macroeconomic factors, palm oil exports, and risk management practices. Of critical importance, the study identified environmental sustainability management as a key moderating factor, which amplifies the beneficial effects that both export activities and risk management have on company value. Transparent sustainability integration practices are essential to building resilience and driving long-term value.

**Keywords:** Environmental Sustainability; Exports; Palm Oil Performance; Partial Least Square; Renewable Energy Directive (RED)

## Introduction

Palm oil represents a key agricultural commodity for Indonesia that is focused on exports and significantly impacts the nation's economy. In 2021, the palm oil sector accounted for 3.5 percent of the national Gross Domestic Product (GDP) and created employment for

16.2 million people, comprising 4.2 million direct workers and 12 million indirect workers. The total area of oil palm cultivation in that same year was recorded at 16.83 million hectares, which produced 45.12 million tonnes of palm oil. From this total production, the export volume in 2021 reached 27.11 million tons, or 60.08%,

### How to Cite:

Anam, K., Fauzi, A., Hendrarini, H., & Maroeto. (2025). Export and Performance Analysis of Indonesian Palm Oil Companies Facing Sustainability Policies in The European Markets Using PLS-SEM. *Jurnal Penelitian Pendidikan IPA*, 11(8), 1206-1216. <https://doi.org/10.29303/jppipa.v11i8.12463>

earning a sales value of USD 28.77 billion. (Aditya & Naomi, 2017).

The European Union represents a significant potential market for exports, driven by its consistently growing demand for vegetable oils for use as both industrial raw materials and biofuels. In 2016, for instance, the EU imported a total of 7.2 million tons of palm oil, in addition to 1.3 million tons of sunflower oil, 0.3 million tons of rapeseed oil, and 0.25 million tons of soybean oil. Despite this demand, export operations to the European Union frequently encounter difficulties.

The European Union implemented the Renewable Energy Directive (RED) as a regulatory framework to guide the advancement and utilization of renewable energy within its member countries. This policy outlines specific standards that vegetable oils must meet to be considered sustainable for use in the biodiesel industry. Under this framework, palm oil is classified as an unsustainable vegetable oil, primarily because its cultivation is considered to violate sustainability principles related to environmental damage, greenhouse gas emissions, and deforestation (Heilmayr et al., 2020; Searle et al., 2017; Searle & Jacopo, 2018).

The core objective of the Renewable Energy Directive (RED) is to mitigate the environmental impact of fossil fuel use by promoting cleaner energy alternatives within the European Union, thereby addressing global climate change. The EU's initial biofuel policy was established through the (2003/30/EC) Directive, which promoted the use of biofuels in transportation (Commission of The European Communities, 2006). Subsequently, a renewable energy roadmap released in 2007 updated the objectives set in the 2003 directive. This new roadmap established a target of 20% renewable energy usage by 2020, including a mandatory minimum of 10% biofuel use in the transport sector (Amezaga et al., 2010).

Indonesia is recognized as the largest exporter of palm oil globally. For many years, it has served as a principal source of Crude Palm Oil (CPO) for the international market, contributing roughly half of the total global supply. Based on data from 2007, the country's oil palm plantations spanned approximately 14.03 million hectares and yielded around 38.17 million tons of palm oil (BPS, 2021). This level of production represented about 55% of the entire world's output, which was 58.9 million tons at the time. Consequently, CPO is evidently a foundational commodity for Indonesia's participation in the global marketplace.

The original concept of company value was first introduced by (Miller & Modigliani, 1961). They posited that a company's worth is fundamentally established by its capacity to produce earnings and manage business-related risks. Essentially, a greater company value corresponds to enhanced prosperity for the company's

owners (Husnan & Pudjiastuti, 2015). The value of a company is understood as its selling price as a going concern (Sartono, 2015). For publicly traded companies, company value is indicated by their stock price, which is influenced by market supply and demand and reflects investors' perceptions of the company's operational effectiveness. A rise in stock price contributes to an increase in company value. For shareholders, the fundamental objective is to maximize this value, as it reflects the growth of their personal wealth (Brigham & Houston, 2014).

Company value may also be defined as the present value of expected future surplus cash flows, discounted at the weighted average cost of capital. Free cash flow represents the amount of cash accessible to all capital providers both creditors and shareholders after accounting for operational costs, capital expenditures, and adjustments in working capital (Harmono, 2017; Gitman, 2006).

Macroeconomics is a branch of economics that focuses on analyzing the overall functioning of an economy, particularly in relation to factors driving economic growth. It involves the study of economic behavior over both short-term and long-term periods, addressing issues related to economic stability and national development. The application of macroeconomic analysis serves several key objectives: (1) Preserving economic stability; (2) Lowering the rate of inflation; (3) Boosting national income; (4) Stabilizing the international balance of payments; (5) Aiding in the distribution of income; (6) Fostering an increase in national production capacity; (7) Diminishing the number of unemployed individuals; and (8) Promoting economic growth (Boediono, 2014).

Managerial decisions within a company are shaped by a combination of internal and external influences (Sukirno, 2015). A comparable definition from Bank Indonesia states that inflation can happen if there is a general and continuous rise in the prices of goods (Bank Indonesia, 2025). Inflation is also characterized as a sustained and widespread rise in overall price levels over time. Importantly, a price hike limited to one or two items does not qualify as inflation unless it leads to broader increases across a wide range of goods and services (Boediono, 2014). Bank Indonesia defines the BI Rate as its policy rate, which mirrors the monetary policy stance determined by the central bank and is disclosed to the public (Natsir, 2014).

According to Fahmi (2018) as a state of uncertainty regarding a future situation that results from decisions made in the present based on various considerations. Therefore, an effective strategy must also account for potential risks that may arise from both internal and external sources within the organization and should include plans for risk mitigation if these scenarios

unfold. Since companies cannot entirely eliminate risks, they are required to establish measures for their anticipation. According to Hery (2016) Enterprise Risk Management is characterized as a methodical and continuous process developed and carried out by management to provide reasonable assurance that all risks that could potentially harm company value are handled in a way that aligns with the organization's accepted level of risk.

Similarly, Enterprise Risk Management, according to the (COSO (Committee of Sponsoring Organizations of the Treadway Commission), 2017) is a process that is shaped by company management, integrated into every corporate strategy, and formulated to supply adequate assurance for achieving the company's objectives. According to Hoyt & Liebenberg (2011), concluded that risk management constitutes an integral component of a company's overall business strategy, aimed at contributing to the protection and enhancement of shareholder value (Aditya & Naomi, 2017b). Another expert view describes risk management as a scientific field that examines how an organization systematically and comprehensively applies various management approaches to map out existing problems (Fahmi, 2018).

According to Ordóñez & Duinker (2010) highlight that sustainable development comprises several essential dimensions: (1) the ability to ensure ecological, social, and economic stability during the adaptation of natural resources for human purposes; (2) meeting and enhancing the needs of current and future populations; (3) sustaining vital systems both natural and socio-political over the long term; (4) integrating ethical, economic, environmental, and social concerns to enable all life forms to thrive across generations; (5) achieving aspirations while respecting environmental, societal, and technological boundaries; (6) fostering coexistence in balance with nature and other people; and (7) preserving the integrity of the relationship between humanity and the natural environment.

Sustainability reports are guided by the GRI Standards (Global Reporting Initiative) GRI (2016) which serve as a framework for sustainable operations by aiming to measure company performance, establish corporate goals, and manage change. The GRI Standards are formulated for organizations to report on their economic, environmental, and social effects. In this way, the GRI Standards help publicly listed companies adopt sustainability reporting as a routine practice by facilitating transparent communication of both the positive and negative impacts of their operations in relation to sustainable development objectives.

The practice of environmental accounting is utilized to denote the classification of financing related to environmental conservation. The success of environmental accounting is not measured by any

leniency afforded to costs; rather, its principal objective is the capability and precision of a company's accounting data in reducing the environmental impact stemming from its business activities (Suartana, 2010; Lako, 2014).

## Method

### *Population and Sample*

A population refers to a collection of objects or subjects that share specific traits and characteristics, as defined by the researcher, and serves as the basis for investigation and drawing conclusions. (Sugiyono, 2020). The population type in this research is a finite population, specifically encompassing all 24 palm oil companies listed on the Indonesian Stock Exchange (IDX).

This research used purposive sampling to select palm oil companies from the Indonesia Stock Exchange (IDX) based on the following criteria: 1) The palm oil companies were listed on the Indonesia Stock Exchange (IDX) throughout the 2019-2023 period; 2) Each company consistently published annual reports during the 2019-2023 timeframe; 3) The companies maintained positive financial performance and did not experience any trading suspensions on the IDX during the 2019-2023 study period.

Based on the application of these criteria, a final sample of 11 (eleven) oil palm plantation companies was used for the study. These companies are PT. Astra Agro Lestari (AALI), PT. Austindo Nusantara Jaya (ANJT), PT. Dharma Satya Nusantara (DNSG), PT. Eagle High Plantation (BWPT), PT. PP London Sumatra Indonesia (LSIP), PT. Provident Agro (PALM), PT. Salim Ivomas Pratama (SIMP), PT. Sampoerna Agro (SGRO), PT. Sawit Sumbermas Sarana (SSMS), PT. Sinar Mas Agro Resources and Technology (AMAR), and PT. Tunas Baru Lampung (TBLA).

### *Data Analysis Technique*

This study employed a component-based Structural Equation Modeling (SEM) approach, using Partial Least Squares (PLS) as the primary analytical tool. PLS was selected for its effectiveness in handling complex causal and predictive models, making it well-suited for theory development and forecasting, as required in this research. In contrast, Covariance-based SEM is dependent on many parametric assumptions, such as the requirement for observed variables to have a multivariate normal distribution, which can only be satisfied when a large sample size (between 200-800) is utilized. The use of a small sample size with that method will produce poor parameter results and statistical models (Ghozali, 2016).

## Analysis and Result

### PLS Models

Figure 1 illustrates the factor loadings for each indicator, represented by arrows linking the latent variables to their respective observed indicators. It is also observable that the path coefficients are indicated

by the arrows between the variables. These variables consist of the exogenous variables, namely macroeconomic variables and palm oil industry exports; the study's mediating variables, which are risk management and environmental sustainability management; and the endogenous variable, identified as company value.

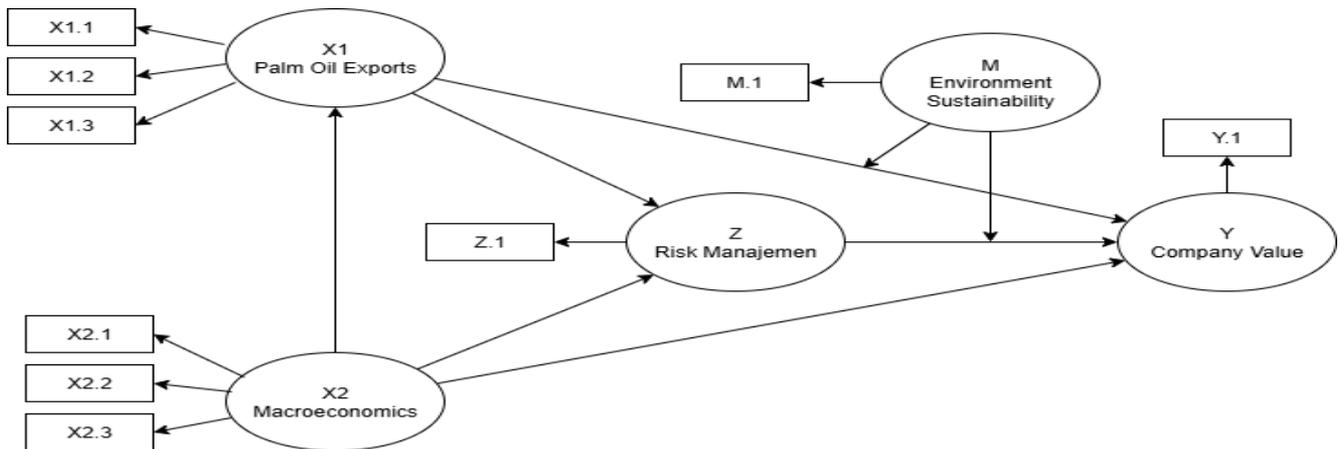


Figure 1. Partial Least Square (PLS) models

### Notes:

- X1 : Palm Oil Exports
- X1.1 : Export Sales Growth
- X1.2 : Revealed Competitive Advantage Index
- X1.3 : Export Competitive Index
- X2 : Macroeconomic
- X2.1 : Inflation Rate
- X2.2 : Bank Interest Rate
- X2.3 : Currency Exchange Rate
- Z : Risk Management
- Z.1 : Risk Management Disclosure Index
- M : Environmental Sustainability
- M.1 : Sustainability Report Disclosure Index
- Y : Company Value
- Y.1 : Price Book Value

The diagram in Figure 1 visually illustrates the proposed structural model. It positions the exogenous variables (X1, X2) on the left, showing their influence on the mediating variable Risk Management (Z) and the final endogenous variable, Company Value (Y). The model also incorporates the moderating effects of Environmental Sustainability Management (M) through interaction terms (X1\*M, Z1\*M) that directly impact Company Value, with specific path coefficient values displayed on each respective pathway.

## Result and Discussion

### Validity test

A Factor Loading is the measure of correlation between an indicator and its variable; an indicator is

considered valid as a measure of the variable if this loading is greater than 0.5 and/or its p-value is significant (p-value < 0.05). The analytical results presented in Table 1 demonstrate that all indicators for the palm oil industry's export variable and the macroeconomics variable have a loading factor that exceeds 0.5, thus indicating that these indicators fulfill the criteria for convergent validity.

Table 1. Factor Loading Value of Elimination Results

	Original sample	standard	T Statistics	P
	sample	Deviation	( O/	Values
	(O)	(M)	STDEV )	
X 1.1 <- X1	0.611	0.591	0.221	2.733 0.008
X 1.2 <- X1	0.962	0.922	0.102	10.120 0.002
X 1.3 <- X1	-0.633	-0.962	0.181	2.232 0.022
X 2.1 <- X2	-0.684	-0.648	0.171	2.910 0.008
X 2.2 <- X2	0.538	0.502	0.195	2.699 0.009
X 2.3 <- X2	0.859	0.863	0.122	7.101 0.001

The subsequent step in evaluating the measurement model focuses on the Average Variance Extracted (AVE), which indicates how much of the variance in the indicators is captured by the underlying latent construct. An AVE value exceeding 0.5 suggests sufficient validity for the latent variables. For constructs with reflective indicators, validity is assessed using the Average Variance Extracted (AVE) value for each variable. A value greater than 0.5 for each construct's AVE is a requirement for a good model.

**Table 2.** Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
Environmental Sustainability (M)	1.000
Palm Industry Exports (X1)	1.000
Palm Oil Industry Export Moderation and Environmental Sustainability (X1*M)	0.989
Macroeconomics (X2)	1.000
Company Value (Y)	0.988
Risk Management (Z1)	1.000
Moderation of Risk Management and Environmental Sustainability (Z1*M)	0.998

As shown in Table 2, the results indicate that the Average Variance Extracted (AVE) values for all research constructs including palm oil exports, macroeconomic factors, risk management, environmental sustainability management, and company value exceed the threshold of 0.5. Therefore, each construct is considered to have satisfactory convergent validity.

*Reliability Test*

Composite reliability serves as an indicator of how dependable and consistent a measurement instrument is. A tool is deemed reliable if it yields stable and similar outcomes when used to assess the same phenomenon under comparable conditions. In essence, reliability reflects the consistency of an instrument across repeated applications. The detailed results of this assessment are presented in Table 3.

**Table 3.** Data Reliability

	Cronbach's rho_A		Composite reliability
	Alpha		
Environmental Sustainability (M)	1.000	1.000	1.000
Palm Industry Exports (X1)	1.000	0.720	1.000
Palm Oil Industry Export Moderation and Environmental Sustainability (X1*M)	1.000	1.000	0.988
Macroeconomics (X2)	1.000	0.891	1.000
Company Value (Y)	1.000	1.000	0.823
Risk Management (Z1)	1.000	0.930	1.000
Moderation of Risk Management and Environmental Sustainability (Z1*M)	1.000	1.000	1.000

Composite reliability is used to assess the internal consistency of a construct. A construct is considered reliable when its composite reliability score exceeds 0.70, indicating that the associated indicators consistently measure the intended latent variable. In this study, all

constructs namely palm oil exports, macroeconomic conditions, risk management, environmental sustainability management, and company value achieved composite reliability values above the 0.7 threshold, confirming their reliability.

*Structural Model Testing (Inner Model)*

The structural, or inner, model is assessed to analyze the relationships among variables, determine their significance levels, and evaluate the R-square values of the research model. Once the significance of these relationships is established, conclusions can be drawn regarding the proposed hypotheses. To test these hypotheses, the study employs the bootstrap resampling technique, using the t-test as the primary statistical method (Ghozali, 2016). The adequacy of the structural model is evaluated by examining the R-Square values, which serve as indicators of the model's goodness-of-fit. These values, reflecting the explanatory power of the relationships between latent variables, are presented in Table 4.

**Table 4.** R-Square

	R Square	R Square Adjusted
Palm Oil Exports (X1)	0.412	0.389
Company Value (Y)	0.793	0.722
Risk Management (Z)	0.532	0.488

The model yields an R-Square value of 0.793, indicating it can explain 79.3% of the variance in Company Value, with the remaining 20.7% is explained by other variables (aside from palm oil industry exports, macroeconomics, risk management, and environmental sustainability management) that were not included in the model, as well as by error.

This means that 79.3% of company value is influenced by exports of the palm oil industry, macroeconomics, risk management, and environmental sustainability management, while 20.7% is influenced by variables outside of this research. Following this, the path coefficients within the inner model can be examined.

*Result from Inner Weights*

Based on the data in Table 5, the following conclusions for the hypotheses are reached: 1) The palm oil industry variable has a statistically significant positive influence on company value, indicated by a T value of 2.785 and a p-value of 0.015, which is below the significance threshold of  $\alpha = 0.05$  (5%); 2) The palm oil industry variable also shows a significant positive impact on risk management, supported by a T value of 2.328 and a p-value of 0.020, both of which are below  $\alpha = 0.05$ ; 3) Macroeconomic variables have a significant positive effect on palm oil exports, with a T value of

8.936 and a p-value of 0.000, demonstrating a highly significant relationship ( $p < 0.05$ ); 4) These variables also exhibit a significant positive relationship with company value, as reflected by a T value of 2.005 and a p-value of 0.015, both meeting the significance criterion of  $\alpha = 0.05$ ; 5) Macroeconomic factors do not significantly influence risk management, as evidenced by a T value of 1.374 and a p-value of 0.170, which exceeds the  $\alpha = 0.05$  threshold; 6) Risk management has a significant positive effect on company value, shown by a T value of 2.193 and a p-

value of 0.029, both within the accepted significance level; 7) Risk management also significantly enhances company value through the moderating role of environmental sustainability, with a T value of 2.188 and a p-value of 0.029 ( $p < 0.05$ ); 8) Palm oil exports significantly affect company value when moderated by environmental sustainability, as indicated by a T value of 2.228 and a p-value of 0.021, which is statistically significant at  $\alpha = 0.05$ .

**Table 5.** Inner Weight

	Original Sample (O)	sample Means (M)	standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
X1 -> Y	-0.248	-0.230	0.185	2.791	0.018
X1 -> Z	0.351	0.332	0.152	2.333	0.023
X2 -> X1	-0.642	-0.644	0.076	9.002	0.002
X2 -> Y	-0.272	-0.240	0.170	2.102	0.018
X2 -> Z	0.290	0.271	0.209	1.379	0.176
Z -> Y	0.173	0.170	0.089	2.223	0.032
Z1*M -> Y	-0.231	-0.232	0.112	2.192	0.033
X1*M -> Y	0.270	0.209	0.191	2.233	0.027

*Discussion*

*The Effect of Palm Oil Industry on Company Value*

The findings of this study indicate that palm oil export activities have a significant impact on the value of companies within the industry. This finding suggests that exports provide the advantage of generating profits and national income, which can then be managed by the state or the industry to foster greater economic growth. Exports also serve the function of market expansion for particular commodities or services and motivate the industry to enhance productivity as a result of a progressively larger market (Griffin & Pustay, 2015).

A nation's ability to export can increase its foreign exchange reserves; additionally, if exports grow continuously, a surplus in the trade balance can be achieved. According to the IMF (International Monetary Fund), foreign exchange reserves encompass all foreign assets that are controlled by monetary authorities and are available for use at any time for purposes such as financing balance sheets (Mildyanti & Triani, 2019). The importance of exports is not limited to their capacity for generating foreign exchange; they also serve as an indicator of increased trade productivity, a fact confirmed in many studies. These results are consistent with the study by (Sari et al., 2020), which found that the rupiah exchange rate, export volume, and economic growth all positively and significantly influence profitability.

*The Effect of Palm Oil Industry Exports on Risk Management*

Based on the research findings, the results indicate that the Palm Industry Export variable influences risk

management. This outcome suggests that export trade involves significantly more risk compared to domestic trade, which is particularly true for the export of palm oil. Every international trade transaction carry risk that must be effectively borne by the exporter. It is essential for both exporters and importers to be well-informed when conducting international transactions to reduce the risks that may emerge in the future. While risk can lead to problems, it may also present lucrative opportunities for companies and individuals. Certain risks are often analyzed and managed consciously, yet at times, other risks are ignored because the concerned parties do not realize the consequences that will occur. Risk is related to the probability of a loss, and the possibility of that loss is what creates a problem. When the likelihood of a loss occurring is known, it can be planned for from the beginning to overcome it. The implementation of various methods to counter risks and the management of those methods is what is defined as risk management.

The findings of this study align with the research conducted by (Purnama et al., 2014), which suggests that a high-risk awareness culture and corporate management support are demonstrated through the proven commitment of top management. The study detailed a company that applied risk management practices specifically for Letter of Credit payment transactions, following a structured framework comprising planning, execution, and monitoring stages. Additionally, the company had equipped itself with the necessary hardware and software to effectively support the implementation of its risk management system. The

research recommended that companies should involve management or heads of work units responsible for risk management in relevant courses and seminars and should enroll them in the Risk Management Certification program at the Risk Management Certification Agency.

#### *The Effect of Macroeconomics on the Export of The Palm Oil Industry*

The research findings show that macroeconomic factors have an influence on palm oil export performance, with the rupiah exchange rate emerging as the most influential indicator. The findings indicate a positive relationship between the real exchange rate and the volume of exports, suggesting that a depreciation of the rupiah enhances the competitiveness of Indonesian export commodities, thereby boosting export volumes. The weakening of the exchange rate enhances the competitiveness of these export goods. This is because the price of export commodities in the destination country appears lower as a result of the strengthening of that country's own currency. For the exporters, a weakening domestic currency can give the impression that the price received for the exported goods has increased. The foreign currency exchange rate is a crucial factor for any country involved in international trade, as it has a major impact on the costs and benefits of exports and imports. Exchange rates can influence the prices of domestic commodities being exported to another country. For example, if the rupiah experiences an appreciation, the domestic currency strengthens, and foreign currencies weaken, which in turn will reduce the purchasing power of importing nations for domestic commodities due to the rise in selling prices; however, the power to purchase imported commodities within the country will normally increase. From the supply side, if the domestic currency depreciates, the export volume will rise. Thus, the foreign exchange rate has a direct relationship with export volume. If a nation's exchange rate depreciates against the USD, the country's export volume will also increase, a principle that applies to other currencies as well (Sukirno, 2015).

These outcomes are consistent with the Purchasing Power Parity (PPP) Theory, which clarifies the connection between a currency's purchasing power for goods and services and the resulting impact on a country's economy, viewed through movements in the exchange value. Purchasing Power Parity (PPP) is divided into two types: absolute PPP, which is based on the Law of One Price asserting that identical goods should sell for the same price internationally and relative PPP, which describes how changes in exchange rates correspond to differences in price levels, assuming that external inflation expectations have minimal influence on the exchange rate. This Purchasing Power

Parity theory approach uses the Law of One Price as its foundation, which states that an identical item should be sold at the same price in all locations (Marina & Amiruddin, 2016). A country with a high inflation level can anticipate a depreciation of its exchange rate, while a country with low inflation can expect its exchange rate to appreciate. According to Purchasing Power Parity (PPP), the real exchange rate remains stable when fluctuations in the nominal exchange rate are driven by differences in inflation rates. The real exchange rate reflects the nominal rate adjusted for anticipated future inflation relative to that of another country. These results are also in agreement with research by (Yatik, 2017) which states that long-term export demand is positively and significantly influenced by several variables, with the exchange rate being one of them. A disapproval of the exchange rate will cause an increase in export demand. This reinforces that an appreciating currency exchange rate will lead to a decrease in demand for Indonesia's cocoa exports, and conversely, a depreciating currency exchange rate will result in an increase in demand for Indonesian cocoa exports.

#### *The Influence of Macroeconomics on Company Value*

The study's findings indicate that macroeconomic factors do not exert a direct influence on company value. However, these findings suggest that while macroeconomic conditions may play a significant role in shaping a company's broader development, they do not necessarily translate into immediate changes in company valuation. Important indicators often used as references in this area are interest rates, inflation, and currency exchange rates. Inflation is an economic phenomenon that is feared by all countries and is defined as the tendency for prices to increase in a general and continuous manner. The findings of this study are observed to align with the research conducted by (Oktarina & Africa, 2020), which obtained the result that the macroeconomic indicator with a significant influence on company value is inflation.

In contrast, research by (Putri et al., 2015) indicates that neither exchange rates nor bank interest rates have a significant impact on company value. The presence of these two studies underscores the variability of findings concerning the influence of macroeconomic factors on company value.

#### *Effect of Macroeconomics on Risk Management*

The results of the study indicate that macroeconomic variables do not have a significant influence on risk management. This suggests that macroeconomic policy measures do not directly affect how companies implement their risk management strategies. The results of this study are presented as being in comparatively with research by (Rizal et al.,

2019), which examined the role of the banking sector in the economy and found that macroeconomic conditions do influence the occurrence of non-performing loans (NPLs). Another study conducted by (Febrianto, 2020), which examined the influence of macroeconomics on the banking industry in Indonesia, also showed results that were in line. In contrast, the study by (Ginting, 2017) found different results, concluding that macroeconomic conditions had a downside effect on NPL. This means that if the economy improves, which is marked by increasing economic growth, it will further reduce NPLs and have a useful influence on the loan interest rate variable and inflation.

#### *Effect of Risk Management on Company Value*

According to the completed research, the findings indicate that the Risk Management variable has an effect on Company Value. These results suggest that companies executing risk management at the highest level possess greater corporate value than companies with a lower level of risk management implementation. This can be substantiated by the observation that the average company value increases as the level of risk management implementation, which is disclosed in financial reports, improves. This aligns with signal theory, which explains that management consistently seeks to disclose private information that it considers to be of significant interest to potential investors and shareholders, particularly if this information constitutes good news. Moreover, management is often driven to disclose information that enhances its credibility and demonstrates the company's performance, even when such disclosure is not mandatory. In practical terms, the study's findings can be applied to the adoption of risk management strategies in non-financial companies.

These findings align with the study conducted by (Aditya & Naomi, 2017a), which posits that risk management is a component of the overall business strategy intended to help protect and increase shareholder value. Research by (Jannah et al., 2020) investigated whether enterprise risk management disclosure had an effect as a moderating variable on the relationship between a risk management committee and company value. Using a checklist developed from ISO 31000:2009 to measure enterprise risk management disclosure, that study found that a risk management committee has a significant promising effect on company value and that this disclosure strengthens the committee's influence on company value. The risk management committee provides positive signals to stakeholders, thereby preventing information asymmetry. Another study by (Cristofel & Kurniawati, 2021), which investigated the effects of enterprise risk management, corporate social responsibility, and

institutional ownership on company value, and reported findings that are in line with the results of this study.

#### *The Effect of Palm Oil Industry Export on Corporate Value Through Environmental Sustainability*

The research findings indicate that palm oil export activities have a significant positive impact on corporate value when mediated by environmental sustainability practices. These results suggest that exports play a part in expanding the market for certain commodities or services and in encouraging the industry to raise its productivity due to an increasingly broad market. Research by (Purwitasari et al., 2021) investigates the impact of exchange rates, crude palm oil (CPO) prices, and profitability on systematic risk, along with their implications for stock prices. The findings indicate that, individually, exchange rates, CPO prices, and profitability each have a significant negative influence on systematic risk. Conversely, these same variables were shown to have a significant positive effect on stock prices. Moreover, systematic risk itself was found to negatively affect stock prices. The results of the path analysis also indicate that systematic risk serves as a mediating factor between exchange rates and profitability in relation to stock prices, but it does not mediate the relationship between CPO prices and share prices.

#### *The Influence of Risk Management on Corporate Values Through Environmental Sustainability*

Based on the research that has been completed, the results indicate that the Risk Management variable has a Significant Positive effect on Corporate Value when channeled through Environmental Sustainability. This outcome suggests the importance of environmental sustainability management, which is described as management within a company that is focused on corporate activities aimed at preserving the environment and reducing the environmental impacts that arise from the company's operations (Khaerani & Bulkis, 2022). A company's environmental performance can influence its sales. When a company demonstrates strong environmental performance, it tends to earn higher levels of public trust and customer satisfaction toward its products; conversely, if the performance is poor, the public tends to be punitive by avoiding its products, as they are deemed not environmentally friendly and damaging to the ecosystem (Ikhsan & Muharam, 2016).

The results of this study are in line with the findings presented in the research carried out by (Cristofel & Kurniawati, 2021), which explored the impact of enterprise risk management, corporate social responsibility, and institutional ownership on company value. The study found that enterprise risk management

had a significant negative influence on company value, likely due to ERM disclosures focusing primarily on identifying risks or incidents without providing adequate detail on how those risks are assessed, addressed, or mitigated leading investors to perceive such disclosures as negative signals. In contrast, the study reported that both corporate social responsibility initiatives and institutional ownership had a promising and significant effect on company value.

## Conclusion

The performance of Indonesian palm oil companies is influenced by complex interactions between external market factors and internal strategic decisions. Key factors that significantly drive company value include macroeconomic conditions, export performance, and risk management. Macroeconomic conditions have a significant positive impact on company value, risk management, and palm oil industry exports. The export performance of the palm oil industry has a significant positive impact on company value. Risk management has a significant positive impact on company value through environmental sustainability. Palm oil industry exports have a significant positive impact on corporate value through environmental sustainability.

However, the most critical finding of this study is the strong moderating role of environmental sustainability. This study shows that the positive financial impact of exports and risk management on corporate value increases significantly when companies implement strong environmental sustainability management. This shows that in the face of international regulatory pressures such as the EU's RED policy, sustainability reporting is not just a compliance cost, but a vital strategic tool that enhances the effectiveness of commercial activities and corporate risk. Transparent sustainability integration practices are essential to building resilience and driving long-term value.

## Acknowledgments

We would like to thank all parties involved in the completion of this research.

## Author Contributions

K.A.: Developing ideas, analyzing, writing, reviewing, responding to reviewers' comments; A.F., H.H., M.T.: analyzing data, overseeing data collection, reviewing scripts, and writing.

## Funding

This research received no external funding.

## Conflicts of Interest

The authors declare no conflict of interest.

## References

- Aditya, O., & Naomi, P. (2017). Penerapan Manajemen Risiko Perusahaan dan Nilai Perusahaan di Sektor Konstruksi dan Properti [Implementation of Enterprise Risk Management and Enterprise Value in the Construction and Property Sector]. *Esensi: Jurnal Bisnis Dan Manajemen*, 7(2), 167-180. <https://doi.org/10.15408/ess.v7i2.4981>
- Amezaga, J. M., Boyes, S. L., & Harrison, J. A. (2010). Biofuels policy in the European Union. *7th International Biofuels Conference, New Delhi*. [https://www.researchgate.net/publication/265037791\\_Biofuels\\_Policy\\_in\\_the\\_European\\_Union](https://www.researchgate.net/publication/265037791_Biofuels_Policy_in_the_European_Union)
- Bank Indonesia. (2025). *Bank Indonesia*. <https://www.bi.go.id/id/default.aspx>
- Boediono. (2014). *Ekonomi Makro [Macroeconomics]*. Penerbit BPFE.
- BPS. (2021). *Statistik Kelapa Sawit Indonesia 2020 [Indonesian Palm Oil Statistics 2020]*. Directorate of Food Crops, Horticulture, and Plantation Statistics. Central Statistics Agency. <https://www.bps.go.id/id/publication/2021/11/30/5a3d0448122bc6753c953533/statistik-kelapa-sawit-indonesia-2020.html>
- Brigham, E. F., & Houston, J. F. (2014). *Dasar-Dasar Manajemen Keuangan [Financial Management Basics]* (14th ed.). Salemba Empat.
- Commission of the European Communities. (2006). *Communication From the Commission to the European Parliament and the Council*. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52006DC0649>
- COSO (Committee of Sponsoring Organizations of the Treadway Commission). (2017). *COSO ERM Integrated Framework: Aligning Risk with Strategy and Performance*. <https://static.poder360.com.br/2023/09/Diretriz-Enterprise-Risk-Management-Coso-2017.pdf>
- Cristofel, C., & Kurniawati, K. (2021). Pengaruh Enterprise Risk Management, Corporate Social Responsibility Dan Kepemilikan Institusional Terhadap Nilai Perusahaan [The Effect Of Enterprise Risk Management, Corporate Social Responsibility And Institutional Ownership On Company Value]. *Jurnal Akuntansi Bisnis*, 14(1), 1-12. <https://doi.org/10.30813/jab.v14i1.2468>
- Fahmi, I. (2018). *Pengantar Manajemen Keuangan [Introduction to Financial Management]*. Alfabeta.
- Febrianto, G. N. (2020). Analisis Makro Ekonomi, Profil Risiko Terhadap Kinerja Perusahaan Dan Nilai Perusahaan Pada Bank Umum Yang Terdaftar di Bursa Efek Indonesia [Analysis of Macroeconomic, Risk Profile on Company Performance and

- Company Value In Commercial Banks Listed on The Indonesia Stock Exchange]. *JEM17: Jurnal Ekonomi Manajemen*, 5(2), 47–66. <https://doi.org/10.30996/jem17.v5i2.4607>
- Ghozali, I. (2016). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 23 [Multivariate Analysis Application with IBM SPSS 23 Program]* (8th ed.). Publisher: Universitas Diponegoro. [https://www.researchgate.net/publication/301199668\\_Aplikasi\\_Analisis\\_Multivariate\\_SPSS\\_23](https://www.researchgate.net/publication/301199668_Aplikasi_Analisis_Multivariate_SPSS_23)
- Ginting, A. M. (2017). Pengaruh Makroekonomi Terhadap NonPerforming Loan (NPL) Di Indonesia: Studi NonPerforming Loan Perbankan [The Effect of Macroeconomic on NonPerforming Loan (NPL) In Indonesia: A Study of Banking Non performing Loan]. *Jurnal Ekonomi Dan Kebijakan Publik*, 7(2), 159. <https://doi.org/10.22212/jekp.v7i2.669>
- Gitman, L. J. (2006). *Principle of Managerial Finance* (12th ed.). Pearson Education Inc.
- GRI. (2016). *GRI Standards*. Global Sustainability Standards Board (GSSB). <https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/>
- Griffin, R., & Pustay, M. (2015). *Bisnis Internasional [International Business]* (8th ed.). Salemba Empat.
- Harmono. (2017). *Manajemen Keuangan Berbasis Balance Scorecard [Balanced Scorecard Based Financial Management]*. Penerbit Bumi Angkasa Raya.
- Heilmayr, R., Carlson, K. M., & Benedict, J. J. (2020). Deforestation spillovers from oil palm sustainability certification. *Environmental Research Letters*, 15(7), 075002. <https://doi.org/10.1088/1748-9326/ab7f0c>
- Hery. (2016). *Analisis Laporan Keuangan [Financial Report Analysis]*. Center for Academic Publishing Service (CAPS).
- Hoyt, R. E., & Liebenberg, A. P. (2011). The Value of Enterprise Risk Management. *Journal of Risk and Insurance*, 78(4), 795–822. <https://www.jstor.org/stable/41350401>
- Husnan, S., & Pudjiastuti, E. (2015). *Dasar-dasar Manajemen Keuangan [Basics of Financial Management]* (7th ed.). UPP STIM YKPN.
- Ikhsan, A. A. N., & Muharam, H. (2016). Pengaruh Kinerja Lingkungan terhadap Kinerja Keuangan [The Impact of Environmental Performance on Financial Performance]. *Diponegoro Journal Of Management*, 5(3), 1–11. <https://ejournal3.undip.ac.id/index.php/djom/article/view/14225>
- Jannah, L., Aulia, D., & Sumunar, K. I. (2020). Enterprise Risk Management Disclosure, Komite Manajemen Risiko Dan Nilai Perusahaan [Enterprise Risk Management Disclosure, Risk Management Committee and Enterprise Value]. *Syntax Literate; Jurnal Ilmiah Indonesia*, 5(8), 595. <https://doi.org/10.36418/syntax-literate.v5i8.1557>
- Khaerani, T. R., & Bulkis, M. (2022). Pengelolaan Lingkungan Hidup Berbasis Masyarakat Melalui Gerakan Memungut Sehelai Sampah Sungai Karang Mumus [Community-Based Environmental Management Through the Movement to Pick Up a Piece of Trash in the Karang Mumus River]. *International Journal of Community Service Learning*, 6(4), 410–419. <https://doi.org/10.23887/ijcsl.v6i4.50092>
- Lako, A. (2014). *Green Economy Menghijaukan Ekonomi, Bisnis dan Akuntansi [Green Economy Greening the Economy, Business and Accounting]*. Penerbit Erlangga.
- Marina, & Amiruddin. (2016). Analisis Pengaruh Tingkat Inflasi dan Jumlah Uang Beredar Terhadap Nilai Tukar Rupiah di Indonesia [Analysis of the Influence of Inflation Rate and Money Supply on the Rupiah Exchange Rate in Indonesia]. *Economics, Sosial, and Development Studies*, 3(1), 101–115. <https://doi.org/https://doi.org/10.24252/ecc.v3i1.2894>
- Mildyanti, R., & Triani, M. (2019). Analisis Faktor-faktor Yang Mempengaruhi Cadangan Devisa (Studi Kasus Di Indonesia Dan China) [Analysis of Factors Affecting Foreign Exchange Reserves (Case Study in Indonesia and China)]. *Jurnal Kajian Ekonomi Dan Pembangunan*, 1(1), 165. <https://doi.org/10.24036/jkep.v1i1.5363>
- Miller, M. H., & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. *Journal of Business*, 34(4), 411–433. <http://www.jstor.org/stable/2351143>
- Natsir, M. (2014). *Ekonomi Moneter dan Kebanksentralan [Monetary Economics and Central Banking]*. Mitra Wacana Media.
- Oktarina, D., & Africa, L. A. (2020). Peran Kinerja Perusahaan Dalam Menentukan Pengaruh Indikator Makroekonomi dan Kebijakan Perusahaan Terhadap Nilai Perusahaan [The Role of Company Performance in Determining the Influence of Macroeconomic Indicators and Company Policies on Company Value]. *Jurnal Ecopreneur*.12, 3(1), 1–11. <https://ejournal.umaha.ac.id/ecopreneur/article/view/671>
- Ordóñez, C., & Duinker, P. N. (2010). Interpreting Sustainability for Urban Forests. *Sustainability*, 2(6), 1510–1522. <https://doi.org/10.3390/su2061510>
- Purnama, M. H., Topowijoyo, & Husaini, A. (2014). Analisis Penerapan Manajemen Risiko Pada Perusahaan Eksportir yang Menggunakan Metode

- Pembayaran Letter of Credit [Analysis of the Implementation of Risk Management in Export Companies Using the Letter of Credit Payment Method]. *Jurnal Administrasi Bisnis (JAB)*, 16(1), 1-10.  
<https://administrasibisnis.studentjournal.ub.ac.id/index.php/jab/article/view/676>
- Purwitasari, N. M. I., Mendra, N. P. Y., & Bhegawati, D. A. S. (2021). Pengaruh Return on Asset (RoA), Debt to Equity Ratio (DER), Dan Earning Per Share (EPS) Terhadap Return Saham Pada Perusahaan Manufaktur Yang Terdaftar di Bursa Efek Indonesia (BEI) Tahun 2016-2018 [The Effect of Return on Asset (RoA), Debt to Equity Ratio (DER), And Earning Per Share (EPS) on Stock Return in Manufacturing Companies Listed on The Indonesia Stock Exchange (IDX) In 2016-2018]. *Widya Akuntansi Dan Keuangan*, 3(1), 23-32.  
<https://doi.org/10.32795/widyaakuntansi.v3i1.800>
- Putri, A. Y., Mardani, R. M., & Salim, M. A. (2015). Pengaruh Faktor Ekonomi Makro dan Kinerja Keuangan Terhadap Nilai Perusahaan (Studi Empiris Pada Sektor Property & Real Estate di BEI Periode 2015-2017) [The Influence of Macroeconomic Factors and Financial Performance on Company Value (Empirical Study on the Property & Real Estate Sector at the IDX for the 2015-2017 Period)]. *Jurnal Riset Manajemen*, 10-23.  
<https://jim.unisma.ac.id/index.php/jrm/article/view/9073>
- Rizal, Abd., Zulham, T., & Asmawati, A. (2019). Analisis Pengaruh Pertumbuhan Ekonomi, Inflasi, Dan Suku Bunga Terhadap Kredit Macet di Indonesia [Analysis of The Effect of Economic Growth, Inflation, And Interest Rates on Nonperforming Loans in Indonesia]. *Jurnal Ekonomi Dan Kebijakan Publik Indonesia*, 6(1), 1-16.  
<https://doi.org/10.24815/ekapi.v6i1.14255>
- Sari, R. P., Romli, H., & Marnisah, L. (2020). Pengaruh Faktor Fundamental Makro dan Mikro Perusahaan Terhadap Nilai Perusahaan (Pada Industri Pulp and Paper Yang Terdaftar Di BEI) [The Influence of Macro and Micro Fundamental Factors of Companies on Company Value (In The Pulp and Paper Industry Listed on The IDX)]. *Jurnal Ecoment Global*, 5(2), 237-250.  
<https://doi.org/10.35908/jeg.v5i2.1109>
- Sartono, A. (2015). *Manajemen Keuangan: Teori dan Aplikasi [Financial Management: Theory and Application]* (4th ed.). BPFE.
- Searle, S., & Jacopo, G. (2018). Analysis of high and low indirect land-use change definitions in European Union renewable fuel policy. *Icct*, 26.  
<https://theicct.org/wp-content/uploads/2021/06/High-low-ILUC-Fact-Sheet-20181113.pdf>
- Searle, S., Pavlenko, N., El Takriti, S., & Bitnere, K. (2017). *Potential Greenhouse Gas Savings From A 2030 Greenhouse Gas Reduction Target with Indirect Emissions Accounting For the European Union*. International Council on Clean Transportation.  
[https://theicct.org/wp-content/uploads/2021/06/RED-II-Analysis\\_ICCT\\_Working-Paper\\_05052017\\_vF.pdf](https://theicct.org/wp-content/uploads/2021/06/RED-II-Analysis_ICCT_Working-Paper_05052017_vF.pdf)
- Suartana, I. W. (2010). *Akuntansi Keperilakuan [Behavioral Accounting]*. ANDI.  
<https://doi.org/9789792916317>
- Sugiyono. (2020). *Metode Penelitian Kuantitatif, Kualitatif dan Kombinasi (Mixed Methods) [Quantitative, Qualitative and Mixed Methods Research Methods]* (2nd ed.). Alfabeta.
- Sukirno, S. (2015). *Makroekonomi : Teori & Pengantar [Macroeconomics : Introductory & Theory]*. PT Raja Grafindo Persada.
- Yatik, V. (2017). Pengaruh Variabel Ekonomi Makro Terhadap Ekspor Biji Kakao Indonesia Ke Malaysia, Singapura, Thailand, India Dan China [The Influence of Macroeconomic Variables on Indonesian Cocoa Bean Exports to Malaysia, Singapore, Thailand, India and China]. *Jurnal Ilmiah Mahasiswa FEB*, 6(2).  
<https://repository.ub.ac.id/id/eprint/162902>