



Implementation of Green Accounting to Support High-Quality SDGs Disclosure and Enhance Stock Prices

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Abstract

Natural resources are the primary raw materials produced by companies within the Mining Sector. Their products are not only needed by the Indonesian community but also by people in other countries. In the context of business expansion, the mining sector requires significant funding. In reality, based on data obtained from the Indonesia Stock Exchange, the stock prices in this sector continue to decline. The fact that many companies disclose Sustainability Development Goals in a non-detailed manner is a cause of the decline in a company's reputation in the eyes of the public. The suboptimal disclosure of Sustainable Development Goals is due to the fact that many companies in the mining sub-sector are neglecting their obligations for reclamation funds, commonly referred to as Green Accounting. The aim of this research is to analyze that relationship. The total research observations are 45 companies and will be tested using path analysis. The research results indicate that the implementation of Green Accounting can enhance the quality of Sustainability Development Goals disclosure, High-quality Sustainability Development Goals disclosure can increase Stock Prices, and the implementation of Green Accounting can boost Stock Prices through high-quality SDGs disclosure.



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1 Introduction

Considering Indonesia's rich natural resources, it becomes a unique advantage that not all countries can possess (Brooks et al., 2021). Natural resources such as coal, petroleum, and natural gas are the primary products produced by companies in the Mining Sector (Asyik et al., 2023). These products are not only needed by the Indonesian population but also by people in other countries (Golubeva, 2022). This situation underscores the significant role that the Mining Sector plays in Indonesia's economy and sustainable development (Rounaghi, 2019). The sector's contribution to forming gross domestic product (GDP) is substantial, and this needs to be consistently maintained (Eweje & Sajjad, 2020). To expand their operations,

the mining sector requires substantial funding (Katadata Media, 2022). However, based on data obtained from the Indonesia Stock Exchange, the stock prices in this sector have been continuously declining for the past three years (IDX, 2023), as shown in the following figure:



Figure 1: Mining Sector Share Prices (IDX, 2023)

From the data, it can be observed that mining sector company values are currently in an unfavorable condition (Asyik et al., 2023). This decline is closely tied to the information presented by the companies. To create high-quality information in the financial reports of companies, especially in the mining sector, attention must be given to both financial and non-financial aspects (Mahdi, 2019). This aligns with the concept of the triple bottom line, which emphasizes that in conducting business, companies should not only focus on profits but also contribute to society and play an active role in protecting the planet (Golubeva, 2022). Through this concept, companies are required to disclose information about sustainable development in their annual reports (Maama & Apipah, 2018). Sustainable development, or Sustainability Development Goals, aims to provide companies with a roadmap for development that meets the needs of the current generation without sacrificing the needs of future generations (Sajjad, 2020). The disclosure of Sustainability Development Goals is mandatory; however, many companies still provide them in a non-detailed manner, making it difficult to analyze and assess the development efforts (Arifianti, 2022). The data on the quality of Sustainability Development Goals disclosure by national companies in some ASEAN countries at the end of 2021 are as follows:

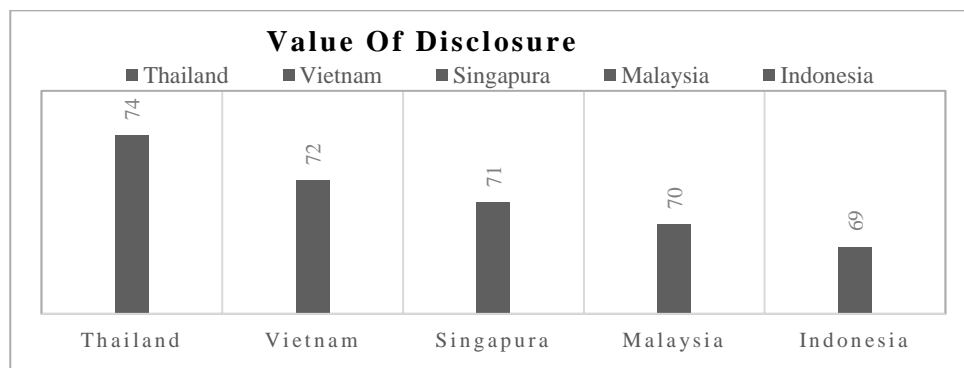


Figure 2: Value of Disclosure in ASEAN Countries (Katadata Media, 2022)

Based on the data on the quality of Sustainable Development Goals disclosure above, it can be concluded that Indonesia ranks the lowest when compared to other ASEAN countries in disclosing Sustainable Development Goals activities (Brooks et al., 2021). Meanwhile, multi-stakeholder partnerships between the government, businesses, civil society, financial institutions, and academia are required to achieve maximum Sustainable Development Goals disclosure (Eweje & Sajjad, 2020).

The suboptimal disclosure of Sustainable Development Goals is attributed to the fact that many companies in the mining sub-sector still neglect their reclamation fund obligations, as stated by Nur Hidayati, the Executive Director of the Indonesian Environmental Forum (Andi, 2021). Until now, the mining industry in Indonesia has not adhered to environmental standards (Katadata Media, 2022). When mining activities are completed, some mining companies leave behind abandoned mine pits (Golubeva, 2022).

Reclamation obligations are often not adequately fulfilled, which negatively impacts the environmental well-being of the community from upstream to downstream (Andi, 2021). The allocation of environmental reclamation costs is a concept in green accounting (Mahdi, 2019). When green accounting is effectively implemented, it can create a better relationship between a company's value and the environment through the necessary information for decision-making to minimize commercial risks (Rounaghi, 2019). Without green accounting calculations, the accuracy of decision-making would be questionable, especially for the future (Maama & Apipah, 2018). Environmental factors are one of the crucial aspects in determining performance and business decision-making (Sajjad, 2020).

Several studies, based on field practices, literature reviews, as well as empirical and academic research, indicate that green accounting has a positive impact on the quality of Sustainable Development Goals disclosure and is one of the factors influencing a company's value (Arifianti, 2022). This can be demonstrated by consumer perceptions when product sales occur (Brooks et al., 2021).

Based on the problem description above, the researcher is interested in conducting research with the aim of analyzing the implementation of green accounting in supporting the achievement of high-quality Sustainability Development Goals disclosure for stock price enhancement (Eweje & Sajjad, 2020). This research is expected to provide input for mining sector companies to pay attention to post-mining reclamation obligations (Andi, 2021). This is done for the common good, benefiting both companies in terms of improving the quality of Sustainability Development Goals disclosure, which has an impact on stock prices, and the wider community (Golubeva, 2022)

2 Literature Review

The Theory of Legitimacy

The legitimacy theory emphasizes that community support is essential for the sustainability and continued existence of a company (Suchman, 1995). Companies need to secure this support by voluntarily disclosing specific information to convince the public that their activities are legitimate, appropriate, and aligned with societal norms (Deegan, 2002). This theory highlights that legitimacy is achieved by showing that the organization operates in a manner that society views as proper and justifiable (Dowling & Pfeffer, 1975). By demonstrating legitimacy, companies can maintain or improve their position within their operational environment (Gray, Kouhy, & Lavers, 1995). This theory forms a foundation for corporate transparency, encouraging companies to disclose environmental and social responsibilities to sustain public trust (Maama, 2018).

Green Accounting

Green Accounting is a framework that integrates environmental costs into a company's financial reporting (Bebbington & Gray, 2001). This system helps management evaluate, operate, control, make decisions, and report on environmental costs, safeguarding long-term sustainability (Rounaghi, 2019). Green Accounting includes expenses related to preventing or mitigating environmental damage, such as reclamation costs (Mahdi, 2019). Companies that disclose these costs demonstrate their commitment to environmental sustainability, which positively influences their reputation (Sajjad, 2020). Measurement of Green Accounting practices is based on the disclosure of environmental costs, where companies that disclose relevant information are scored 1, and those that do not are scored 0 (Golubeva, 2022). This disclosure supports companies in portraying themselves as environmentally responsible, aligning with stakeholders' growing demands for corporate sustainability (Asyik, 2023).

Sustainability Development Goals

The United Nations' Sustainability Development Goals (SDGs) serve as a global framework to address economic, social, and environmental challenges (United Nations, 2015). SDGs set 17 objectives, with one key goal being climate action, aimed at reducing environmental degradation (Sajjad, 2020). Achieving the SDGs requires contributions from both the public and private sectors, which can significantly impact a company's reputation and stock value (Maama, 2018). The disclosure of SDGs by companies is essential for maintaining transparency and achieving long-term sustainability (Eweje, 2020). Companies' SDG disclosures can be categorized into three levels: not reporting (scored 0), qualitative reporting without numerical data (scored 1), and quantitative reporting with specific data on SDG achievements (scored 2) (Arifianti, 2022). Effective SDG disclosure strengthens a company's relationship with stakeholders and improves public trust, which is critical for enhancing stock prices (Golubeva, 2022).

Stock Price

A company's stock price reflects its market value and is influenced by its performance, including its financial and non-financial disclosures (Ball & Brown, 1968). Stock prices fluctuate over time based on supply and demand in the stock market, which are in turn influenced by investor perceptions of a company's value (Fama, 1970). The financial performance, particularly as measured by earnings and revenue, plays a significant role in determining stock price movements (Asyik, 2023). Environmental sustainability practices, such as Green Accounting and SDG disclosures, can also affect stock prices, as investors increasingly consider corporate responsibility in their investment decisions (Brooks et al., 2021). Measuring stock price is typically based on the year-end stock value, providing a snapshot of a company's financial standing in the capital market (Katadata Media, 2022).

Tabel 1. State of The Art

Researcher's Name and Research Title	Year	Research Outcomes	Difference from Researchers
Haruna Maama Green accounting practices: lesson from an emerging economy	2018	Reporting on environmental sustainability has not yet received full attention from companies.	Green accounting as a part of the SDGs.
Mohammad Mahdi Rounaghi Economic analysis of using green accounting and environmental accounting to identify environmental costs and sustainability indicators	2019	Academics and practitioners agree on the existence of green accounting. This can enhance a company's branding.	Green accounting and SDGs as one of the branding factors in increasing stock prices.
Gabriel Eweje Multi-stakeholder partnerships: a catalyst to achieve sustainable development goals	2020	Multistakeholders must be mutually integrated to realize the SDGs	SDGs as a Branding Strategy for Stock Price Enhancement.
Chris Brooks, et all Green accounting and finance: Advancing research on environmental disclosure, value impacts and management control systems	2021	Stakeholders support the banking sector in addressing environmental and social issues and are proactive in handling them, as they have an impact on performance.	There is a difference in the sectors being studied, where this research focuses on mining, which is closely related to natural resources and the environment.
Olga Golubeva Sustainability and technology: the contribution of "managerial talk" to the three pillars framework	2022	The triple bottom line is currently a dominant theme.	The Implementation of the Triple Bottom Line Concept in Green Accounting and SDGs.

Nadhila Putri Arifianti Kualitas Pengungkapan Sustainable Development Goals (SDGs) dan Kinerja Keuangan: Bukti Empiris atas Perusahaan Pertambangan di Indonesia	2022	The quality of SDGs reporting does not have a significant impact on the financial performance of mining companies.	The Stock Price as an Issue in this Research
Nur Fajri Asyik Valuation of Financial Reporting Quality: is it an issue in the firm valuation?	2023	The quality of financial reporting affects a company's performance.	Information about stock prices as a representation of high-quality financial reporting.

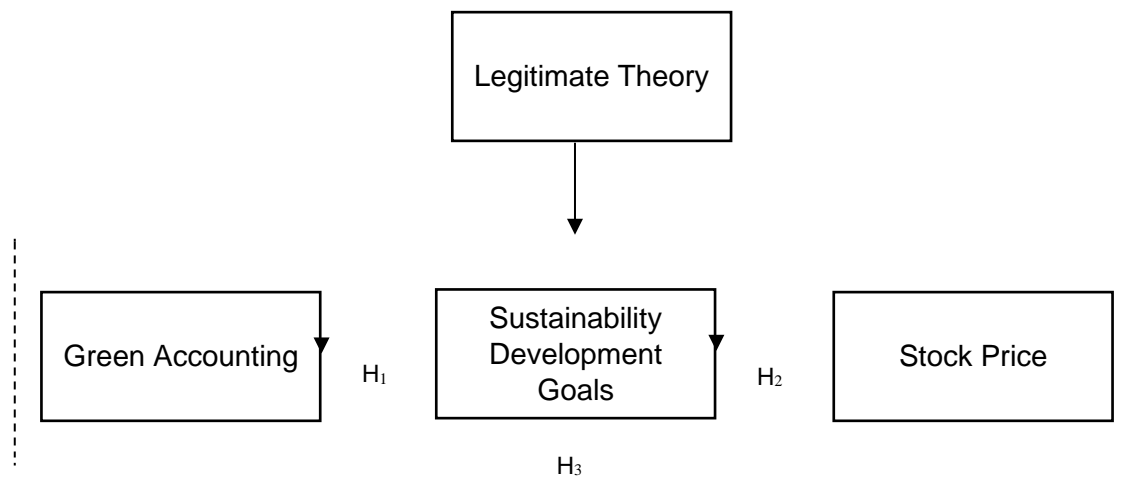


Figure 3. Research Framework (Data processed by the author, 2023)

1) The implementation of Green Accounting can enhance the quality of Sustainability Development Goals disclosure.

The implementation of Green Accounting will enhance the quality of Sustainability Development Goals disclosure as a form of corporate accountability to the environment. When Green Accounting is implemented to its fullest potential, the quality of Sustainability Development Goals disclosure will also be high.

2) High-quality disclosure of Sustainability Development Goals can lead to an increase in Stock Prices.

High-quality Sustainability Development Goals disclosure aligns with a company's branding, as reflected in its stock price. Therefore, the better the quality of Sustainability Development Goals disclosure, the stronger the company's reputation from an investor's perspective.

3) The implementation of Green Accounting can increase Stock Prices through high-quality disclosure of Sustainability Development Goals.

The implementation of Green Accounting has a positive impact on the quality disclosure of Sustainability Development Goals, which is one of the factors contributing to the enhancement of a company's branding, as reflected in its stock price.

3 Research Methodology

In this research, the research method used is quantitative research with an Associative-Descriptive research approach. The data type is panel data. The population used includes the financial statements and annual reports of manufacturing companies in the mining sub-sector listed on the Indonesia Stock Exchange in

the years 2019 to 2021. Sample selection in this research is done using purposive sampling technique with the following criteria:

1. Mining sub-sector companies listed on the Indonesia Stock Exchange during the period 2019 to 2021.
2. Companies that presented complete financial statements and annual reports for the period 2019 to 2021.
3. Companies that did not experience delisting during the period 2019 to 2021.

The companies that meet the criteria as samples are 15 companies with a 3-year period, resulting in a total research observation of 45 companies (*Indonesian Exchange, 2023*).

Data Analysis Technique Using:

1. Classical Assumption Test

It is divided into three tests, namely: Normality Test, Heteroskedasticity Test, and Autocorrelation Test.

2. Path Analysis

Path analysis is a technique for analyzing cause-and-effect relationships that occur when independent variables influence dependent variables, not only directly but also indirectly (*Sarwono, 2011*).

$$Q_1 = \sqrt{I - R^2}$$

3. Coefficient of Determination

The percentage of the influence of independent variables on the value of the related variable is indicated by the magnitude of the determination (R^2 /R-square). (1)

$$KD = r^2 \times 100\% \quad (2)$$

4. Hypothesis Testing as Designed

4 Result and Discussion

Classical Assumption Test

1. Normality Test

To detect whether the regression model follows a normal distribution or not, the Kolmogorov-Smirnov test is used, with the condition that the data is considered to have a normal distribution if the sig value is above 0.05.

		Unstandardized Residual
N		45
Normal Parameters ^{a,b}	Mean	0,0000000
	Std. Deviation	4,24479488
Most Extreme Differences	Absolute	0,095
	Positive	0,095
	Negative	-0,060
Test Statistic		0,095
Asymp. Sig. (2-tailed)		,200 ^{c,d}
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Figure 4. Normality test (Data processed by the author, 2023)

Based on the table above, it can be seen that the sig value is below 0.05, specifically 0.200. Therefore, it can be concluded that the regression model follows a normal distribution.

2. Heteroskedasticity Test

One way to detect the presence or absence of heteroskedasticity is by using a scatterplot test.

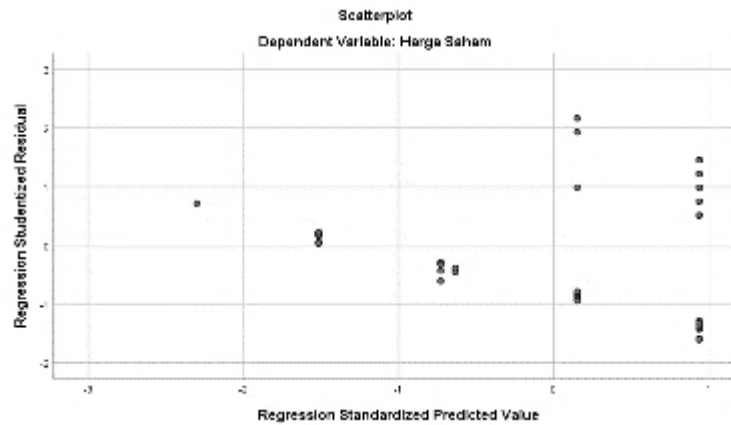


Figure 5. Heteroskedasticity test (Data processed by the author, 2023)

Based on the results of heteroskedasticity testing using a scatterplot, it can be observed that the data is evenly distributed. Therefore, it can be concluded that there is no heteroskedasticity issue in the regression model.

3. Autocorrelation Testing

Autocorrelation testing is performed using the Durbin Watson statistical test, by comparing the calculated Durbin-Watson value (DW) with its critical values (dL and dU).

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.514 ^a	0,264	0,229	4,34469	1,951

a. Predictors: (Constant), SDGs, Green Accounting
 b. Dependent Variable: Harga Saham

Figure 6. Autocorrelation test (Data processed by the author, 2023)

Based on the table above, the Durbin-Watson value obtained is 1.951. Since the DW value falls between $dL < DW < 4 - dL$, it can be concluded that there is no autocorrelation.

Path Analysis

The inferential analysis method used in this research is path analysis. Testing will be conducted in two stages, where the structural equation form is as follows:

Equation of the First Substructure Path

$$Z = \rho_Z X + \epsilon_1 \tag{3}$$

Equation of the Second Substructure Path

$$Y = \rho_Y X + \rho_Y Z + \epsilon_2 \tag{4}$$

Description:

- Y** = Stock Prices
- Z** = Sustainability Report
- X** = Green Accounting
- ε** = Influence of other factors

Coefficient of Determination

Substructure 1: The implementation of Green Accounting can enhance the quality of Sustainability Development Goals disclosure

Based on the data processing results, the coefficient of determination was obtained as follows:

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705 ^a	0,497	0,485	0,511

a. Predictors: (Constant), Green Accounting
b. Dependent Variable: SDGs

Figure 7. Coefficient of Determination Sub Structure I (Data processed by the author, 2023)

From the table above, it is obtained that the total contribution of the Green Accounting variable to the improvement in the quality of SDGs disclosure is 0.485 or 48.5%. Meanwhile, the remaining 51.5% is attributed to the influence of other factors beyond the Green Accounting variable.

Substructure 2: The implementation of Green Accounting can enhance Stock Prices through high-quality Sustainability Development Goals disclosure.

Based on the data processing results, the coefficient of determination was obtained as follows:

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.568 ^a	0,322	0,290	4,16922

a. Predictors: (Constant), Green Accounting, SDGs
b. Dependent Variable: Harga Saham

Figure 8. Coefficient of Determination Sub Structure II (Data processed by the author, 2023)

From the table above, it is obtained that the total contribution of the Green Accounting variable and the quality of SDGs disclosure to the increase in stock prices is 0.290 or 29%. Meanwhile, the remaining 71% is attributed to the influence of other factors beyond the Green Accounting and SDGs disclosure variables.

Hypothesis Testing

Hypothesis t-test

The implementation of Green Accounting can enhance the quality of Sustainability Development Goals disclosure. Based on the data processing results, the t-test for the hypothesis was obtained as follows:

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0,688	0,128		5,381	0,000
	Green Accounting	1,037	0,159	0,705	6,513	0,000

a. Dependent Variable: SDGs

Figure 9. t-Test hypothesis 1 (Data processed by the author, 2023)

From these results, it is observed that the calculated t-value is 6.513, with a t-table value of 2.016. In other words, the implementation of Green Accounting can enhance the quality of Sustainability Development Goals disclosure.

High-quality disclosure of Sustainability Development Goals can lead to an increase in Stock Prices. Based on the data processing results, the t-test for the hypothesis was obtained as follows:

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0,091	1,056		-0,086	0,932
	SDGs	5,480	1,316	0,536	4,164	0,000

a. Dependent Variable: Harga Saham

Figure 10. t-Test hypotesis 2 (Data processed by the author, 2023)

From these results, it is evident that the calculated t-value is 4.164, with a t-table value of 2.016. In other words, high-quality disclosure of *Sustainability Development Goals* can increase Stock Prices.

Sobel test

The implementation of *Green Accounting* can enhance Stock Prices through the disclosure of high-quality *Sustainability Development Goals*. Based on the data processing results, the t-test for the hypothesis was obtained as follows:

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1,353	1,348		-1,003	0,321
	Green Accounting	3,578	1,830	0,350	2,955	0,057

a. Dependent Variable: Harga Saham

Figure 11. t-Test hypotesis 3 (Data processed by the author, 2023)

From these results, it is known that the calculated t-value is 2.955, with a t-table value of 2.016. In other words, the application of *Green Accounting* can increase Stock Prices. The magnitude of the relationship can be observed through the Sobel Test conducted as follows:

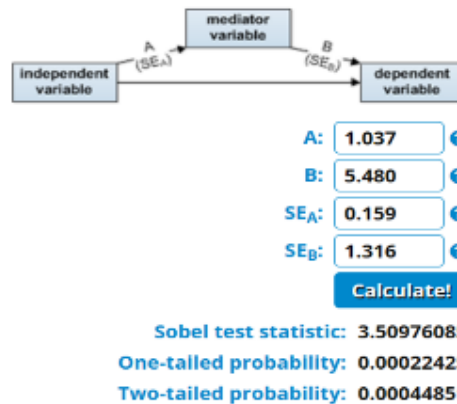


Figure 12. Sobel Test (Data processed by the author, 2023)

From the following figure, it can be concluded that the direct application of Green Accounting can increase Stock Prices by a value of 3.578. However, if the application of Green Accounting is intervened by high-quality SDGs disclosure in influencing Stock Prices, the value becomes 6.517. Thus, it can be inferred that the application of Green Accounting can enhance Stock Prices through high-quality SDGs disclosure.

5 Conclusion

This research highlights the critical role of Green Accounting in improving the quality of Sustainability Development Goals (SDGs) disclosure, which, in turn, enhances stock prices. By implementing Green Accounting, companies not only demonstrate their commitment to environmental responsibility but also improve their overall financial transparency. The findings suggest that the quality of SDGs disclosure significantly influences investor confidence, as reflected in stock price increases. Moreover, the research demonstrates that while Green Accounting directly impacts stock prices, its effect is amplified when combined with high-quality SDGs disclosure. This emphasizes the importance for companies, particularly in the mining sector, to adopt comprehensive environmental accounting practices and robust sustainability reporting. The study also reveals that Green Accounting accounts for 48.5% of the improvement in SDGs disclosure and contributes 29% to stock price enhancement, with other factors influencing the remaining percentages. Ultimately, this research provides actionable insights for companies, particularly in sectors with significant environmental impact, like mining, to focus on post-mining reclamation and sustainability practices as a means to foster long-term economic and environmental sustainability. By aligning business operations with the triple bottom line approach, companies can build stronger stakeholder relationships and enhance their market value, thus ensuring their long-term survival and success in an increasingly environmentally-conscious market.

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