

ESG Risk and Financial Performance in Apparel Supply Chains: Evidence from NYSE and NASDAQ Listed US Companies (2021–2024)

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Abstract

This study investigates the relationship between Environmental, Social, and Governance (ESG) risk and the financial performance of apparel companies listed on the New York Stock Exchange and the NASDAQ. The apparel industry is highly vulnerable to sustainability-related risks in its supply chains, and existing evidence on the relationship between ESG and financial performance remains fragmented and inconsistent across industries and regions. Therefore, this study examines whether the relationship between ESG and financial performance has existed in one specific market, the apparel industry, after the COVID-19 pandemic. Using a panel of 30 US-listed apparel companies observed from 2021 to 2024 (120 firm-year observations), pooled Ordinary Least Squares regression with standard errors clustered by firm was used to test the relationship between Sustainalytics' ESG Risk Score and two measures of financial performance: Return on Assets (ROA) and Net Profit Margin (NPM). The results reveal a statistically significant negative relationship between the ESG Risk Score and ROA and with NPM, respectively, suggesting that companies with a lower ESG Risk Score (better ESG Risk Management) have better financial performance. This relationship strengthens when the analysis is limited to the years 2022–2024, excluding the atypical post-pandemic recovery year of 2021, and is significant in most robustness checks, including outlier and multicollinearity tests. The results provide context-specific evidence for a body of literature with mixed findings across industries and regions, and could be relevant to apparel company managers and investors assessing the financial relevance of ESG risk management.

Keywords

ESG risk, financial performance, apparel industry, supply chain, panel data regression, United States

1. Introduction

1.1 Introduction to the Problem

Apparel companies face many sustainability risks, many of which are in the supply chain and outside the company's control. Most apparel supply chains are long and span multiple countries. No company can fully control or manage these risks.

High water consumption, chemical pollution from dyeing and finishing processes, and high waste generation are among the environmental risks in apparel supply chains (Bailey et al., 2022). Social risks include working conditions and labor rights issues for garment workers, especially in supplier factories in countries where labor laws are inadequately enforced (Macchion, 2024). Governance risk is the extent to which a company can control suppliers and ensure adherence to its own standards across the supply chain, beyond its own premises (Velluti, 2024). Empirical studies of the textile sector in Bangladesh support this perspective, showing that traditional, linear modes of working continue to hinder the adoption of sustainable and circular supply chain practices in the industry (Affan et al., 2024). Supply chain management practices have been correlated with financial performance across various levels of the apparel industry, from micro-enterprises to large publicly listed companies, further underscoring the importance of supply chain factors for the industry's financial outcomes (Hawladar, 2026).

One of the primary methods investors use to assess a company's environmental, social, and governance (ESG) risk score is the company's transparency and the level of sustainability it practices (Garz & Volk, 2021). Several independent rating agencies developed these ratings using publicly available information and their own research about the companies. Lower scores indicate that a company is more adept at managing environmental, social, and governance (ESG) risks. The higher the scores are, the more vulnerable the company is in these areas.

Based on data collected from 2021 to 2024, this study examines whether ESG risk scores of apparel companies listed on the New York Stock Exchange (NYSE) and the NASDAQ are related to their financial performance. The period 2021-2024 was chosen to reflect the aftereffects following the COVID-19 pandemic, when there were substantial disruptions in apparel supply chains due to shipping delays, rising raw material prices, and shifting consumer demand (Castañeda-Navarrete et al., 2021). The study of this period enables the analysis to reveal how ESG risk management relates to financial performance under recent, real-world conditions, not just those prior to the disruption.

1.2 Exploration of the Importance of the Problem

There is a substantial body of research on how ESG performance relates to financial performance across many industries and countries. A detailed analysis of more than 2,000 separate studies published since the 1970s has shown that most studies find no negative correlation between ESG performance and financial performance, but the evidence is inconsistent and varies by industry, region, and time period (Friede et al., 2015). A study revealed quantifiable relationships to both financial and environmental outcomes in the restaurant sector, suggesting that this is a very industry-specific relationship (Das Gupta et al., 2025).

Such a relationship has been specifically studied in some research on the apparel and fashion industry. The study of 108 publicly listed clothing companies from 11 countries revealed a significant positive correlation between ESG performance and stock price, whereas no significant correlation was found between ESG performance and profitability measures (Arduini et al., 2024). A research paper that examined the relationship between ESG performance and the corporate value of textile and apparel companies in China during 2013-2023 also found a positive relationship (Tian et al., 2025). On the contrary, some other studies found null or even negative relationships between them in different national contexts, as discussed further in Section 1.3. While these studies are useful resources, they neither focused on companies specializing in apparel in a single national market (e.g., the USA) nor on the immediate post-pandemic COVID-19 period, during which apparel supply chains operated under very different conditions than in previous years.

The U.S. is one of the largest apparel markets in the world and thus is a very significant environment for examining this relationship (Cardona, 2025). Given the size of the US apparel market, it is of practical relevance for investors, company managers, and policymakers alike to understand whether ESG risk management is associated with financial performance among companies operating in it.

As the literature on ESG-financial performance in the apparel industry is disorganized, narrow, and geographically varied, more research is necessary to understand this relationship. In particular, in a clear market at an economically important time. This study aims to investigate this need by examining the relationship between ESG risk scores and the financial performance of apparel companies on the NYSE and NASDAQ from 2021 to 2024.

1.3 Description of the Relevant Scholarships

Research on ESG and financial performance is based on two related theories. First, stakeholder theory holds that businesses can be successful over the long term if they meet the needs of a broad spectrum of stakeholders, not just shareholders. These groups include employees, customers, suppliers, and the communities in which a company operates (Freeman, 1984). In that context, firms that develop strong relationships with these groups, including effective environmental, social, and governance management, are likely to create more sustainable and resilient businesses in the long term, thereby improving financial results. This is backed up by the survey evidence of the Bangladeshi manufacturing companies that have indicated that green purchasing and green manufacturing practices are directly correlated to the companies' environmental performance; therefore, there is a definite correlation between the stakeholder-oriented management practices mentioned above and the measurable outcomes in the companies (Helal et al., 2024).

The other view is legitimacy theory, which holds that businesses are more likely to do what ESG calls for to secure approval and acceptance from the broader society they serve (Suchman, 1995). From this perspective, companies that do not conform to social and environmental norms will face reputational risks, loss of investor trust, and increased regulatory scrutiny, which could indirectly affect their financial performance through shifts in investor trust and market perceptions.

Empirical studies of these theoretical approaches have yielded variable results. Multiple studies have found a positive correlation between ESG performance and various financial metrics, including company value and profitability, but other research has found less positive or even inverse relationships (Arduini et al., 2024; Tian et al., 2025). In line with this, a study on the adoption of green supply chain management in the textile and apparel sector in Bangladesh revealed that the implementation of green SCM can have a positive impact on the environment as well as the economy, although this can be achieved to a certain extent, depending on the successful implementation of the approach by the firms, which can be hindered by their limited sustainability knowledge and high implementation costs (Fahim et al., 2024). A study of 95 companies listed on India's National Stock Exchange found no significant correlation between the overall score and their individual environmental and social scores, as well as Return on Assets (Shobhwani & Lodha, 2024). Likewise, a sample of 188 non-financial firms quoted on the London Stock Exchange revealed a strong negative correlation between ESG scores and firm value, as measured by Tobin's Q, with a particularly strong negative correlation for the governance dimension of ESG (Al-Tarawneh et al., 2024). The conflicting results indicate that the correlation between ESG performance and financial performance is not consistent across markets, industries, and time periods, underscoring the importance of considering market-, industry-, and time-specific factors.

This is also observed separately in the context of the COVID-19 pandemic. A recent study on the relationship between ESG performance and corporate financial stability, both before and during the pandemic, showed that the connection between ESG performance and financial outcomes has changed over this period, indicating that significant economic events can impact the relationship between ESG and financial performance (Al Azizah & Haron, 2025). This also raises a new question: Do the outcomes of the pre-pandemic studies hold up in the post-pandemic world, given numerous disruptions to apparel supply chains during and since the pandemic?

Taken together, this research provides a solid theoretical basis for the hypothesis that there is a relationship between ESG and financial performance, albeit with limited empirical evidence on the direction, magnitude, or duration of the relationship, either within industries or over time. This reflects the importance of research specifically focused on the US apparel industry as opposed to more general findings following the COVID-19 pandemic.

1.4 Hypotheses

Based on the theoretical background presented in Section 1.3, the objective of this study is to examine the relationship between the financial performance of NYSE- and NASDAQ-listed US apparel firms during 2021–2024 and ESG risk. This study hypothesizes that a firm's ESG risk management is related to its financial performance through two interrelated mechanisms. First, in the context of stakeholder theory, companies that manage environmental, social, and governance risks well should have improved relations with employees, suppliers, customers, and communities, thereby reducing the risk of employee strikes, supplier failures, and consumer boycotts (Freeman, 1984). Second, the legitimacy theory suggests that companies with lower ESG risk should receive less regulatory scrutiny and face lower reputational risk, which could help minimize the risk of fines, litigation, and loss of investor confidence (Suchman, 1995). The two theories indicate that companies that perform well on ESG dimensions may also enjoy better financing opportunities, such as a lower cost of capital, as ESG performance is linked to lower overall business risk perceptions among lenders and investors (Le, 2024).

As mentioned in Section 1.1, environmental, social, and governance (ESG) risks in the apparel industry are highly supply chain-dependent, including environmental impacts related to manufacturing processes, labor conditions in supplier factories, and the effectiveness of supplier oversight and governance (Velluti, 2024; Macchion, 2024). This is a significant portion of the total ESG risk exposure of apparel companies, so a study of the correlation between ESG Risk Score and financial performance in the apparel sector provides valuable insight into the effect of managing supply chain risk on financial performance. We

explore this correlation at the overall level of ESG risk; given the information available for this study, it is not possible to separate the apparel supply chain's risk from a company's overall ESG risk profile.

This research expects that companies with lower (better) ESG Risk Scores will achieve higher financial performance, because a lower score indicates better ESG risk management.

Based on this logic, the following hypotheses are assumed:

H1: There is a significant negative association between ESG Risk Score and Return on Assets (ROA) among NYSE and NASDAQ-listed US apparel companies.

H2: There is a significant negative association between ESG Risk Score and Net Profit Margin (NPM) among NYSE and NASDAQ-listed US apparel companies.

A panel regression design is used to test the hypotheses, and each company is observed over a number of years (2021–2024), which allows for the control of time and company effects. The company size, leverage, revenue growth, and year-specific effects are included as control variables to isolate the relationship between ESG Risk Score and financial performance. This design enables two distinct but related financial performance measures to be used to test each hypothesis, which is more comprehensive than using a single measure.

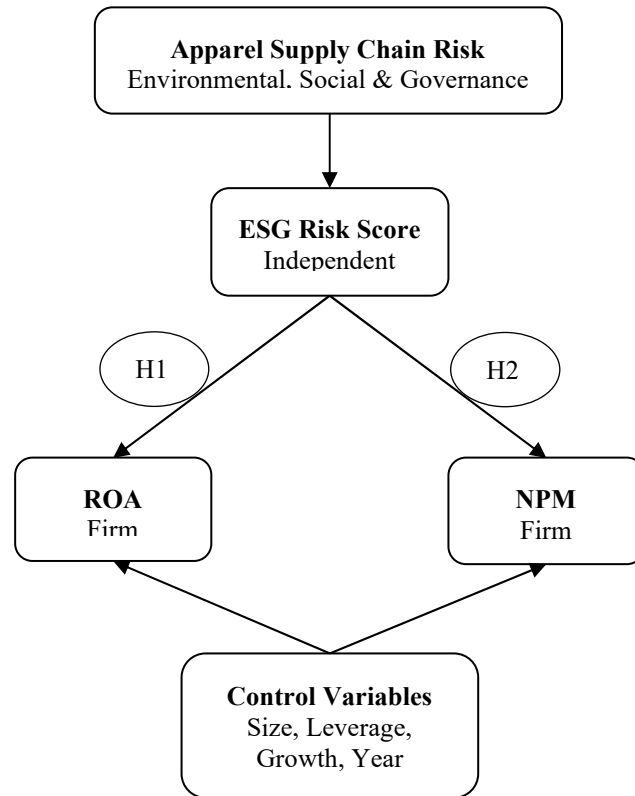


Fig: Conceptual framework of the study

2. Method

This section explains the type of sample used, the variables examined, and the method used to test the study's hypotheses. This research is quantitative research and secondary data. This approach is similar to other studies that look at the link between ESG performance and financial performance using panel data regression (Zhou et al., 2022; Lee, 2024). The sample and variable measurements are explained in the next sections, followed by the regression design. This involves a way to handle the same company data over the years and checks to determine whether the variables are too similar.

2.1 Sample Characteristics

This study uses a sample of 30 United States-based apparel companies that are listed on the New York Stock Exchange (NYSE) or NASDAQ.

This study explores the apparel industry for a clear reason: its long history of environmental problems. Approximately 92 million tons of waste are generated annually in this industry (Shamsuzzaman et al., 2025). The industry uses large amounts of water, energy, and chemicals during production and, as a

result, faces growing pressure from regulators and customers to become more sustainable (Abbate et al., 2023; Moazzem et al., 2021). Social issues have long been a concern of the industry, especially in supplier factories in less strictly regulated countries, where workers' safety and labor conditions are of concern (Macchion, 2024). From a governance perspective, apparel companies continue to struggle to manage suppliers and ensure adherence to standards across long, complex supply chains (Velluti, 2024). These risks, taken together, are increasingly driving the industry to adopt better overall ESG performance in response to increased regulatory and customer pressures. The study focuses on the U.S. companies for two specific reasons. Firstly, the apparel market in the United States is the largest in the world, and is projected to reach \$399.77 billion in 2026 (Fortune Business Insights, 2026). Secondly, all publicly listed apparel companies must file their financial reports with the SEC's EDGAR database. This ensures that the data collection process is more reliable and consistent (Lizárraga, 2022).

The sample companies were identified following a two-step verification check. The first step was to obtain the samples from government records and from the public database, called EDGAR. This database is maintained by the U.S. Securities and Exchange Commission (SEC). The companies in this database are sorted by their Standard Industrial Classification (SIC) codes. The first list of companies was created using codes 2300-2399 (Apparel and Other Finished Products) and 5600-5699 (Apparel and Accessory Stores). Secondly, the Yahoo Finance Industry Screener was used, and the Apparel Manufacturing and Apparel Retail categories were filtered to ensure no major companies were omitted from the list.

The authors implemented four rules to narrow down the sample list. Firstly, companies that sell only footwear or accessories, or operate solely as contract manufacturers, were eliminated because they have different supply chains and revenue patterns than core apparel companies. Secondly, unlisted companies on a U.S. exchange or companies not based in the U.S. were removed. Thirdly, companies without financial information for the 2021-2024 financial years were excluded to improve the accuracy of the results. Lastly, companies that do not have their ESG Risk Score publicly published were removed, as this is the primary variable used in this study.

After applying these rules, 30 companies remained. All these companies, along with their ticker symbols, the exchanges where they are traded, and the reasons for excluding other companies, are provided in the attached Appendix A. The data available for each company is 4 years, and the total number of firm-year observations is 120, which is considered a balanced short panel.

2.2 Data Collection and Handling Procedures

This study used financial data for sample companies obtained from Macrotrends.net. This is a public website that provides information on sample companies in a consistent format. ESG risk scores were collected from Morningstar.com. This platform shows the Sustainalytics ESG risk scores. Sustainalytics is widely accepted by companies as an ESG risk-scoring provider. The platform offers a single, actionable measure to assess the financial materiality of ESG risks to a company's long-term enterprise value and performance (Sustainalytics, 2024). All financial information was double-checked, and any missing or incomplete data was obtained directly from the company's official annual report (Form 10-K). Those data were filed with the U.S. Securities and Exchange Commission (SEC) through its EDGAR database (U.S. Securities and Exchange Commission, n.d., Financial Information and Results of Operations section).

The data collection process was unusual for two companies due to real events that happened during the study period.

Hanesbrands Inc. was the first, as it was acquired by another company during the study period. As a result, Macrotrends stopped publishing the company's financial data. In response to that, financial data were retrieved directly from its official 10-K filings on the SEC EDGAR database, so that all four years of data could still be included. The decision to include this company was made because it existed from 2021 to 2024.

Under Armour Inc. was the second one. This time, the problem was that the company changed its fiscal year-end date during the study period. It moved its fiscal year-end date from December 31 to March 31 in 2022. It resulted in a 3-month reporting period (January to March 2022), which does not represent a full year. For every year after this change, the closest full 12-month period reported by the company was used instead, matching the same approach used for every other company in the sample. A full explanation of this process is mentioned in Appendix A.

Describing these two adjustments aims to clarify the data collection process and to enable future researchers to replicate it.

2.3 Measures and Variables

Sustainalytics' ESG Risk Score is an independent variable. The risk scores provide an overview of the financial risk a company is exposed to from environmental, social, and governance (ESG) issues. These are risk scores, so a lower score means the company is doing a good job of managing its ESG risks, and a higher score means that the company has more ESG risks.

This study is directed towards the apparel supply chain, specifically at material sustainability risks associated with environmental, labor, and sourcing governance, as part of ESG risk management (Abbate et al., 2023). In this way, the ESG Risk Score can serve as a proxy for quantifying the effectiveness of a company's sustainability risk management, encompassing environmental, social, and governance aspects across its operations and supply chain. It is important to note that the scores are composites of environmental, social, and governance risk factors. Sustainalytics' methodology backs this decision, including supply chain management as one of the main ESG issues (Sustainalytics, 2021). The assessment of a company's green supply chain management includes the company's own operations, suppliers' operations, and green procurement policies (Garz et al., 2021).

This study does not use alternative measures of supply chain practices, mainly due to data limitations and the lack of verified data sources. LEED certifications and self-reported sustainability surveys were considered, but not implemented. LEED certifications are mostly held by privately owned companies. As a result, fetching financial data would yield missing or incorrect information. Also, only a small number of companies have self-reported sustainability surveys and publish their financial reports, and none of them follow a single method to measure their supply chain management performance. Therefore, the ESG Risk Score was chosen because Sustainalytics measures and scores most large, publicly listed companies, and every publicly listed company must publish its financial reports, making this approach preferable to others. An alternative to Sustainalytics was also considered. LSEG has a newly launched environment-specific scoring system, launched in March 2026. As a result, no academic article is available to verify this data source, making Sustainalytics a more defensible choice for the study.

The first dependent variable is Return on Assets (ROA), which shows the amount of profit per dollar of total assets. It is calculated by dividing the Net Profit After Tax by Total Assets. ROA is commonly employed in similar studies to assess a company's profitability relative to its assets and to enhance the credibility of the methodology (Syafira & Rokhayati, 2025; Giannopoulos et al., 2025; Lunawat et al., 2024; Li et al., 2024).

The second dependent variable is Net Profit Margin (NPM), which measures the profit a company generates relative to its revenue. Net Profit After Tax / Total Revenue. In other similar studies, NPM is also widely used, including those by Li et al. (2024), Handoyo & Anas (2024), and Bour et al. (2024).

This study uses four control variables to control for other factors that could explain differences in financial performance among the companies.

The first control variable is company size. The size of the company can have an impact on the company's financials, regardless of their ESG Risk Score, because of the access to more resources, market power, and funding (Zhou et al., 2022; Naeem et al., 2022; Detthamrong et al., 2026; Chininga et al., 2023). The logarithm of total assets is a common measure of a company's size in similar studies (Zhou et al., 2022; Naeem et al., 2022; Detthamrong et al., 2026; Chininga et al., 2023).

The second control variable in this study is leverage, the ratio of total debt to total capital, which represents the financial pressure a company experiences. This is because, regardless of their ESG Risk Score, companies with high leverage ratios are under greater financial pressure, which directly impacts their financial performance (Detthamrong et al., 2026; Chininga et al., 2023). The formula for calculating leverage is Total Liabilities / Total Assets.

The study includes revenue growth as the third control variable to explore the rate of a company's revenue growth over the course of a year. Faster-growing companies may naturally show stronger financial performance, regardless of their ESG practices.

Year is the fourth and final control variable of this study. This study uses data from four years (2021-2024); as a result, year variables are included to account for events that affected all companies in a given year.

2.4 Research Design

We used a panel study design in which each company was observed over several years. We included 30 companies in this study, and each company was observed over four years (2021-2024), yielding a total of 120 firm-year observations.

This study used a pooled Ordinary Least Squares (OLS) regression model to test the relationship between the ESG Risk Score and the financial performances of the sample companies. We ran two separate models: one uses ROA as the dependent variable, and the other uses NPM. ESG Risk Scores, four control variables, and year dummy variables for 2022, 2023, and 2024 are included in both models, with 2021 as the reference year.

Although firm fixed effects are a common technique in panel data research, this study did not employ them. The firm-fixed effects remove the effect of any variable that remains constant over time for a company (Wooldridge, 2002, pp. 265–267). The current single ESG Risk Score of each company was used throughout the four years of this study. So, it did not change over time within the same company. The

model would not allow estimation of the impact of the ESG Risk Score if it were treated as constant over time, as would occur with firm fixed effects. Year dummy variables were instead used to enable the model to account for year-specific conditions without sacrificing the ability to measure the impact of the ESG score. The model would be activated, for instance, during any year with a financial crisis. The observations from the same company are not completely independent, since the company is observed 4 times in the data (one observation per year). If this assumption is not met, it would lead to an artificially small standard error, as standard regression methods assume independence among observations. Thus, conclusions drawn from the findings would appear more statistically significant than they actually are.

This study clustered the standard errors by company to adjust for this, a common suggestion in panel data (Petersen, 2008). The ESG Risk Score is constant within firms over the study period; thus, most of the variation in the ESG Risk Score is across firms rather than over time. Standard errors are clustered at the firm level to directly counteract potential overstatement of precision, thereby aligning statistical inference with the actual number of independent pieces of information available in the panel.

To assess multicollinearity among the independent and control variables, Variance Inflation Factors (VIF) were calculated for each predictor in every model. VIF values of 10 or greater are generally considered indicative of multicollinearity (Kutner et al., 2005; Hair et al., 2019; Alin, 2010).

3. Results

The results are presented for the full set of 120 firm-year data sets (30 industries, 2021-2024) and include regression results, a common correlation analysis, and descriptive analyses of the research variables and hypotheses. The descriptive statistics and correlations, the regression results for the Panel as a whole and for a subsample (2022-2024), and a series of additional robustness tests are presented in the following sections.

3.1 Descriptive Statistics and Correlation Analysis

Descriptive statistics and correlation results are provided for the variables employed in this study for the overall sample of 120 firm-years (30 companies, 2021-2024).

Table 1. Descriptive Statistics (N = 120)

Variable	Mean	Std. Dev.	Min	Max
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ESG Risk Score	17.97	4.41	10.45	29.60
ROA	0.053	0.095	-0.281	0.327
NPM	0.040	0.079	-0.327	0.208
Log Assets	3.30	0.49	2.45	4.16
Debt Ratio	0.670	0.223	0.203	1.446
Revenue Growth	0.050	0.208	-0.382	0.597

Table 1: The descriptive statistics for each study variable are displayed. The average ESG Risk Score for the sample is 17.97; the lowest is 10.45 (low risk), and the highest is 29.60 (high risk). Wide variation in the financial indicators of sample organizations over the study period is observable in the ROA, which ranges from a loss of 28.05% to a high of 32.65%, with an average of 5.34%. The net profit margin ranges widely, with an average of 3.99%. Revenue growth spans from a steep decrease of 38.21% to a high gain of 59.70% in a single year, showing the volatility experienced by apparel companies over the study period. On the other hand, company size (the logarithm of total assets) shows moderate changes.

Table 2. Correlation Matrix

	ESG Score	ROA	NPM	Log Assets	Debt Ratio	Rev. Growth
ESG Score	1.000					
ROA	-0.296	1.000				
NPM	-0.301	0.955	1.000			
Log Assets	-0.539	0.110	0.176	1.000		
Debt Ratio	0.107	-0.308	-0.369	-0.114	1.000	

Revenue Growth	-0.065	0.540	0.572	-0.006	-0.222	1.000
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Table 2: The Pearson correlation matrices of all variables involved in this study are listed in Table 2. To briefly explain, this matrix is a tool for calculating the strength of correlations between variables, and the correlation data for all variables used in the study are compiled in this table. The construction logic of the two indicators, ROA and NPM, is inherently very similar, and we had previously predicted that their correlation would be very high. The results calculated this time are consistent with expectations, with a correlation coefficient of $r=0.955$ between the two. This discussion was addressed in the robustness analysis in Section 3.4 of the article and fully aligns with this study's results.

The ESG Risk Score showed a moderate negative correlation with both ROA ($r = -0.296$) and NPM ($r = -0.301$), consistent with the hypotheses of this study, which suggest that a lower ESG Risk Score (better ESG risk management) is associated with higher profitability.

One correlation warrants particular attention: The ESG Risk Score is moderately negatively correlated with company size (Log Assets; $r = -0.539$), meaning that the larger the company in this sample, the lower (the better) the ESG Risk Score. It is a familiar trend in ESG research that larger corporations are more likely to devote more resources to sustainability management and reporting (Liang & Wu, 2026; Krishnan et al., 2024). Based on this correlation and the Variance Inflation Factor results found in Section 3.4, certain data on the company's size and ESG risk score overlap, which is discussed further in the Discussion section below.

3.2 Regression Results — Full Panel (2021–2024)

The results of the pooled OLS regression tests for H1 and H2 are reported below, using the full sample of 120 firm-year observations (30 companies, 2021–2024), with standard errors clustered at the firm level. Table 3 presents the results for the ROA model. The model explains 43.1% of variance in ROA ($R^2 = 0.431$, Adjusted $R^2 = 0.395$), and the overall model is highly statistically significant ($F = 16.00$, $p < 0.001$). H1 is consistent with the results of the ESG Risk Score: Companies that have a lower (better) ESG risk score tend to have a higher ROA ($\beta = -0.0060$, $p = 0.002$). Revenue growth is also a strong and significant predictor ($\beta = 0.2126$, $p < 0.001$). The size of the company (Log Assets) and the debt ratio are not statistically significant. Only 2023 is significantly different from the reference year of 2021 ($\beta = 0.0544$, $p = 0.002$) among the year dummies.

Table 3. Regression Results — ROA (Full Panel, N = 120)

Variable	Mean	Std. Dev.	Min	Max
ESG Risk Score	17.97	4.41	10.45	29.60
ROA	0.053	0.095	-0.281	0.327
NPM	0.040	0.079	-0.327	0.208
Log Assets	3.30	0.49	2.45	4.16
Debt Ratio	0.670	0.223	0.203	1.446
Revenue Growth	0.050	0.208	-0.382	0.597
Variable	Mean	Std. Dev.	Min	Max

$R^2 = 0.431$, $Adjusted\ R^2 = 0.395$, $F(7, 29) = 16.00$, $p < 0.001$

Table 4: Results of the NPM model are shown in Table 4. The model explains 49.2% of the variance in NPM ($R^2 = 0.492$, $Adjusted\ R^2 = 0.460$), and the overall model is highly significant ($F = 15.45$, $p < 0.001$). The coefficient (beta) of the ESG Risk Score is negative and statistically significant, as was also the case for H2 (beta = -0.0041, $p = 0.009$). Revenue growth is still a significant positive predictor ($\beta = 0.1967$; p -value < 0.001). The debt ratio is marginally significant ($p = 0.096$) and suggests a possible negative correlation between leverage and profit margin that is not statistically significant. Both of the year dummies (2023 and 2024) are statistically significant.

Table 4. Regression Results — NPM (Full Panel, N = 120)

Variable	Coefficient	Std. Error	P-value	Significant?
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ESG Score	-0.0041	0.0016	0.009	Yes
Log Assets	0.0054	0.0195	0.781	No
Debt Ratio	-0.0770	0.0462	0.096	Marginal
Revenue Growth	0.1967	0.0386	<0.001	Yes
Is2022	0.0172	0.0153	0.263	No
Is2023	0.0447	0.0155	0.004	Yes
Is2024	0.0297	0.0144	0.039	Yes

$R^2 = 0.492$, $Adjusted\ R^2 = 0.460$, $F(7, 29) = 15.45$, $p < 0.001$

Taken together, the two models support H1 and H2, showing that the ESG Risk Score has a significant negative relationship with ROA and with NPM, respectively, in the hypothesized direction. These, however, do not seem to form two independent confirmations of the tested relationship between ROA and NPM, as all these values are very close to each other in the study, and there is a high correlation between these facts, according to the results of the rating in Section 3.1, $r = 0.955$.

3.3 Regression Results — Subsample (2022–2024)

The regression models were re-estimated on a subsample covering 2022–2024 (30 companies, 90 firm-years) to check the robustness of the main results to the unusual post-COVID recovery conditions in 2021. Because 2021 is not included in this subsample, 2022 is used for the year of reference, and Is2023 and Is2024 are year dummy variables.

The results for the ROA model are given in Table 5. The model explains 36.1% of the variance in ROA ($R^2 = 0.361$, adjusted $R^2 = 0.315$), and the overall model is highly significant ($F = 8.25$, $p < 0.001$). The ESG Risk Score has a negative and significant coefficient ($\beta = -0.0087$, $p < 0.001$), and this is stronger than that of the full panel (Section 3.2). Revenue growth remains significant ($\beta = 0.2076$, $p < 0.001$).

Consequently, company size, debt ratio, and both year dummies are not statistically significant in this subsample.

Table 5. Regression Results — ROA (Subsample, N = 90)

Variable	Coefficient	Std. Error	P-value	Significant?
ESG Score	-0.0087	0.0022	<0.001	Yes
Log Assets	-0.0366	0.0275	0.182	No
Debt Ratio	-0.0606	0.0468	0.195	No
Revenue Growth	0.2076	0.0483	<0.001	Yes
Is2023	0.0250	0.0177	0.157	No
Is2024	-0.0022	0.0207	0.914	No

$R^2 = 0.361$, $Adjusted\ R^2 = 0.315$, $F(6, 29) = 8.25$, $p < 0.001$

Table 6: The results for the NPM model are presented here. The model explains 41.2% of the variance in NPM ($R^2 = 0.412$, $Adjusted\ R^2 = 0.369$), and the overall model is highly significant ($F = 9.15$, $p < 0.001$). In line with the ROA model, the ESG Risk Score is likewise negative and highly significant ($\beta = -0.0060$, $p < 0.001$). Revenue growth is still strong, but not quite as strong as in the full panel. All of the company size, marginal debt ratio ($p = 0.080$), and year dummies are not statistically significant at conventional levels.

Table 6. Regression Results — NPM (Subsample, N = 90)

Variable	Coefficient	Std. Error	P-value	Significant?
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ESG Score	-0.0060	0.0015	<0.001	Yes
Log Assets	-0.0128	0.0164	0.435	No
Debt Ratio	-0.0618	0.0353	0.080	Marginal
Revenue Growth	0.1439	0.0393	<0.001	Yes
Is2023	0.0143	0.0139	0.302	No
Is2024	-0.0016	0.0140	0.907	No

$R^2 = 0.412$, $Adjusted\ R^2 = 0.369$, $F(6, 29) = 9.15$, $p < 0.001$

The results strengthen across both financial indicators, as excluding the 'recovery year' of 2021 makes the p-values more significant: from 0.002 to <0.001 for ROA and from 0.009 to <0.001 for NPM. This indicates that the relationship between ESG risk management and financial indicators may have been muted by the non-normal operating conditions in 2021 and is more apparent under the more normal operating conditions of 2022-24.

3.4 Ancillary Analyses

This section presents the four additional tests conducted to assess the robustness of the results, as shown in Sections 3.2 and 3.3: sensitivity to outlier firms, multicollinearity diagnostics, the correlation between the two dependent variables, and a comparison of clustered versus naive standard errors.

Three companies were determined as statistical outliers using a test where the average of their ESG Score, ROA, or NPM for those 4 years is more than 2 standard deviations away from the sample average: Lands' End, Inc. (extreme ESG Score), Buckle Inc. (extreme ROA and NPM), and Gildan Activewear Inc. (extreme NPM). The statistical significance of the ESG Score coefficient for all four combinations of study period and sample composition is compared in Table 7.

Table 7. Outlier Sensitivity Summary

Period	Sample	N	ESG→ROA p	ESG→NPM p
2021–2024 (Full Panel)	All 30 firms	120	0.002	0.009
2021–2024 (Full Panel)	Outliers removed (27 firms)	108	0.083	0.149
2022–2024 (Subsample)	All 30 firms	90	<0.001	<0.001
2022–2024 (Subsample)	Outliers removed (27 firms)	81	0.017	0.010

In three of four combinations, there is a statistically significant relationship between the ESG and financial indicators. It is rendered non-significant only when 2021 is added, and outliers are not removed. If the outliers are eliminated from the sub-sample, however, then both ROA and NPM become significant. This suggests that the weaker result is due to the unusual 2021 period and a few extreme firms, indicating that the relationship between ESG risk score and financial performance still holds.

A subset model was developed for each predictor, and the variance inflation factors (VIFs) were calculated for both the full panel and the subset model. Table 8 shows that the VIF values for the ESG Score, Log Assets, and Debt Ratio are typically above the usual threshold of 10, ranging from 9.5 to 14.1 (Kutner et al., 2005; Hair et al., 2019; Alin, 2010). This demonstrates a meaningful link among these three predictors, consistent with the association between ESG Score and firm size ($r = -0.539$) reported in Section 3.1. In most specifications, the ESG Score remains statistically significant. Still, the coefficient should be interpreted with the understanding that the effect of the ESG Score could be attributable to size and leverage effects.

Table 8. Variance Inflation Factors

Variable	VIF (Full Panel)	VIF (Subsample)
ESG Score	11.19	12.17

Log Assets	12.81	14.13
Debt Ratio	10.12	9.51
Revenue Growth	1.72	2.29
Year dummies	1.98–2.87	3.22–3.34

The correlation coefficient between ROA and NPM is high, as noted in section 3.1 ($r = 0.955$). This indicates that the two regression results are the same underlying relationship and do not indicate differences between ESG risk and financial performance.

The non-independence of observations from different companies was addressed by clustering standard errors by company, since each company provides four observations. Table 9 shows the ESG Score p-value for both “naive” (or “unclustered”) and “clustered” standard errors for the full panel models.

Table 9. Naive vs Clustered Standard Errors (Full Panel)

Model	Naive P-value	Clustered P-value
ROA	0.0015	0.0020
NPM	0.0059	0.0087

The p-value increases slightly for both models, as one would expect when accounting for repeated observations of firms. Still, the effect of the ESG Score remains statistically significant in the full panel.

4. Discussion

Support/Non-Support of H1 and H2

Both H1 and H2 hypotheses are confirmed. The ESG Risk Score in the full panel (2021-2024) was statistically significantly and negatively correlated with ROA ($p = 0.002$) and NPM ($p = 0.009$). This

association increased in strength when the analysis was limited to the subsample of 2022-2024, and both became highly significant ($p < 0.001$ for both ROA and NPM). These findings support the theoretical mechanisms mentioned in Section 1.4: Stakeholder Theory and Legitimacy Theory (Freeman, 1984; Suchman, 1995), indicating that the stability and reputational benefits of effective ESG risk management translate into measurable financial outcomes in this sample. However, there is meaningful overlap among ESG Risk Score, company size, and leverage in this sample (Section 3.4), which makes it difficult to separate the ESG coefficient from these related effects; this caveat is discussed in more detail below.

Not all of the robustness checks were consistent, however, for H1 and H2. Removing the three outlier firms from the full 2021-2024 panel reduced the coefficient for the ESG Score to marginal significance for ROA ($p = 0.083$) and removed significance for NPM ($p = 0.149$). This weaker result was observed only in one combination of conditions and was not observed in the subsample analysis in which the same three firms were removed ($p = 0.017$ for ROA, $p = 0.010$ for NPM). Combined across four combinations of study period and sample composition, H1 and H2 were supported in three of the four and, in the fourth, were supported but with a weaker effect. This pattern is explored in more detail below.

Comparison with Prior Literature

The negative correlation between the ESG Risk Score and financial performance is in line with the general ESG-financial performance literature. The findings of the present study are consistent with the overall trend reported in a large-scale review aggregating over 2000 studies, which indicated a non-negative relationship between ESG performance and financial performance (Friede et al., 2015).

But when compared with studies done specifically for the apparel and textile sector, the picture is not as clear. The study of 108 publicly listed clothing companies from eleven countries revealed a significant positive relationship between ESG performance and stock price, but no significant relationship with profitability measures (Arduini et al., 2024). This is the opposite of what this study shows, as the significant relationship was found only for profitability measures, namely ROA and NPM, not a market-based measure. The difference may be due to the differing designs of the two studies: the former was a cross-sectional study of companies from eleven countries with varying accounting practices and regulatory environments, whereas the latter was a panel study of a single, consistent market (the United States) in which year-specific conditions were taken into account. In contrast, another study on the ESG performance of Chinese textile and apparel companies from 2013 to 2023 found that ESG performance is positively related to corporate value (Tian et al., 2025), which is more consistent with the current study's results.

The results of the present study also contradict a study of 95 companies listed on the National Stock Exchange of India, which found no significant relationship between ESG disclosure scores and ROA (Shobhwani & Lodha, 2024). The context of the institutions and markets in this study (India) also differs significantly from the context of the present study (US-listed apparel companies), which may be due to the fact that the relationship between ESG and financial performance is different across countries and industries, thus supporting the need for context-specific research as outlined in Section 1.2.

Discussion of the 2021 COVID-Recovery Sensitivity Finding

One key theme that stood out in the robustness checks reported in Section 3.4 was that the correlation between the ESG Risk Score and financial performance was consistently higher when excluding 2021. The ESG Score coefficient was significant at $p = 0.002$ (ROA) and $p = 0.009$ (NPM) in the full panel, and became even more significant at $p < 0.001$ in the subsample 2022–2024. This was true even after excluding outlier firms: the subsample result was significant, whereas the full-panel result was not.

This sensitivity can plausibly be attributed to the atypical economic environment apparel companies faced in 2021. The world's apparel supply chains were severely affected during this time, with shipping delays, port congestion, and shifting consumer preferences as economies went through uneven stages of recovery from the pandemic (Castañeda-Navarrete et al., 2021). These disruptions occurred across the companies in the sample simultaneously and were not directly related to the companies' individual ESG risk management practices, which could have introduced noise into the relationship between ESG Risk Score and financial performance in this particular year. After removing this atypical sample, the relationship between ESG risk management and financial performance appears clearer, as evidenced by the more robust and consistent outcomes in the 2022-2024 subsample.

The result shows that research on the relationship between ESG and financial performance should be assessed by whether the disrupted or faulty periods are included or excluded in the analysis. It also notes that the results for the subsample 2022-2024 may be more representative of the true underlying relationship between ESG risk management and financial performance in this sample than the full panel results, although both are presented transparently in this study, as it is valuable to test across different specifications.

Discussion of the Outlier Sensitivity Finding

A related pattern, different from the timing effect in 2021, is the impact of the three companies on the results. The ESG Score coefficient was reduced to marginal (ROA) or non-significant (NPM) when Lands' End, Buckle Inc., and Gildan Activewear were dropped from the full 2021-2024 panel. These three

companies were flagged for several reasons: Lands' End had an abnormally high ESG Risk Score compared to the rest of the sample, and Buckle Inc. and Gildan Activewear had abnormally high profitability (ROA and/or NPM) compared to the rest of the sample. These three companies were each a close approximation of very high or very low levels of ESG risk and financial performance, and their inclusion in a sample of just 30 companies was sufficient to meaningfully affect the estimated relationship.

This sensitivity is an expected result of the small sample size. The estimated relationship is influenced by individual firm observations, as 30 companies represent a relatively large share of the total, and a small number of atypical companies can shift the results outside the conventional bounds of statistical significance. Importantly, however, the associations between the ESG Score and ROA and NPM remained statistically significant in the 2022–2024 subsample, but not in the full panel, when the same three firms were excluded. This implies that the weakening of the outlier effect observed across the entire panel is due to the combined effect of the timing effect in 2021 and these three firms, rather than to either effect alone.

The sensitivity analyses suggest that the relationship between the ESG risk score and financial performance in this sample is real but not necessarily strong: It is stronger and more consistent once atypical years and atypical firms are excluded from the analysis, and weaker when more atypical years or firms are included in the estimation window.

Limitations

This study has several limitations that should be considered when interpreting its findings.

Measurement limitations

Historical scores were not available, and the ESG Risk Score employed in this study is a single, current score for each company over the four years. Recent research indicates that ESG rating providers are more likely to maintain ratings over time, sometimes intentionally, to not upset institutional investors' portfolios, meaning that a company's current rating is a good proxy for its relative ESG position during the study period (Berg et al., 2026), though this finding has been disputed by at least one major rating provider, MSCI. The study is also based on a single ESG rating provider, Sustainalytics. It is well established that rating agencies differ greatly in their ratings of the same company due to their different methodologies, weightings, and definitions of ESG criteria (Billio et al., 2021). This means the results presented in this report are specific to Sustainalytics' methodology and cannot be extrapolated to ESG scores from other rating agencies. Further, financial data for this study were obtained from a free, publicly available financial data aggregator (Macrotrends.net) rather than from institutional-grade financial databases such as

Compustat or the Wharton Research Data Services (WRDS), which are more commonly used in published academic finance research and have more comprehensive data-verification and audit procedures. The quality of the underlying financial data is further limited by reliance on a retail-facing data aggregator rather than an institutional one, although discrepancies were cross-checked against companies' official SEC filings (Section 2.2).

Statistical limitations

The two dependent variables, ROA and NPM, are highly correlated, as reported in section 3.1 ($r = 0.955$). This implies that the two sets of regression results are to be understood as supporting evidence for a single relationship, not as complete confirmations of the study's hypotheses. Further, ESG Score, Log Assets, and Debt Ratio have high VIFs across all models, suggesting that the impact of ESG Risk Score is not readily distinguishable from that of company size and leverage. The panel design of the study also has fewer than 30 firm-level clusters, which is the range of 30-50 clusters commonly recommended for the use of cluster-robust standard errors in order to obtain fully reliable estimates of the clustered standard errors; the cluster-robust standard errors reported in this study should therefore be interpreted as a reasonable but imperfect correction for the repeated observations in the panel. Finally, this study, like most others that have explored the link between ESG and financial performance using observational panel data, cannot claim causality. Better ESG risk management may be associated with better financial performance; more profitable companies may have more resources to spend on ESG risk management; or an unobserved third factor (e.g., overall management quality) may affect both. The associations reported in this study are to be interpreted accordingly.

Sample and scope restrictions

The sample of 30 companies is not random and comprises NYSE- and NASDAQ-listed US apparel companies for which Sustainalytics has coverage and for which full financial data is available for 2021–2024, and may be skewed towards larger, more established, and more visible companies. The findings may not be fully representative of the US apparel industry, as smaller or newer apparel companies are underrepresented, and the sample excludes companies that are not rated for ESG. Lastly, this study uses only accounting measures of financial performance (ROA and NPM). This study did not include market-based measures, which could reflect a different aspect of financial performance, especially investor perceptions of a company's ESG risk management.

Conclusion

The purpose of this study was to investigate whether there is a correlation between the financial performance of US apparel companies listed on the New York Stock Exchange (NYSE) and the NASDAQ National Market (NASDAQ) and their ESG risk as measured by Sustainalytics' ESG Risk Score during the immediate aftermath of the COVID-19 pandemic. This question has real-world implications for the companies that work in the apparel industry and the investors who invest in those companies, as the apparel industry is one of the largest consumer sectors in the United States (Cardona, 2025), and it is well known that the apparel industry is exposed to environmental, social, and governance risk along its global supply chains.

The results provide reasonably consistent evidence that ESG risk management is associated with financial performance in this sample. In three of the four combinations of study period and sample composition, a negative relationship between ESG Risk Score and ROA and NPM was found, while the fourth combination showed a negative relationship, albeit weaker, that was consistent in direction after controlling for an atypical recovery year and a small number of extreme firms. This trend, albeit marginally, supports the theoretical prediction, based on stakeholder and legitimacy theory (Freeman, 1984; Suchman, 1995), that companies that manage ESG-related risk well tend to have more stable operations and better relationships with the stakeholders who rely on their performance.

These findings provide company managers with reason to believe that ESG risk management is not just about compliance or reputation but is also potentially linked to financial results – even within a single, clearly defined industry and over a relatively short, volatile period. The results indicate that although ESG Risk Scores have the drawbacks outlined above, they could also provide investors with information to consider when evaluating the financial future of apparel companies, specifically, not just as a general sustainability indicator.

These findings should, however, be interpreted as a first step rather than as final conclusions. This relationship is an association between two variables observed within a specific industry, market, and time frame, with a small sample size and a single ESG rating provider. This work could be expanded to explore if the relationship is present when using environment-specific rating data, as this becomes more widespread and academically validated by using market-based measures of financial performance like Tobin's Q, by investigating a longer time period than the immediate post-pandemic years, or by applying the same methodology to other industries with similar supply chain exposure. As the overall ESG-financial performance literature covered in Section 1.2 is quite fragmented, it is a worthwhile line of research to

pursue in the future, using more specific, well-defined contexts rather than broader, more heterogeneous samples.

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Appendix A

List of Sample Companies

Company Name	Ticker	Exchange	Notes
Abercrombie & Fitch Co	ANF	NYSE	
American Eagle Outfitters Inc.	AEO	NYSE	
Buckle Inc. (The)	BKE	NYSE	
Carter's Inc.	CRI	NYSE	
Cato Corporation (The)	CATO	NYSE	
Children's Place, Inc.	PLCE	NASDAQ	
Citi Trends Inc	CTRN	NASDAQ	
Columbia Sportswear Company	COLM	NASDAQ	
Destination XL Group, Inc.	DXLG	NASDAQ	
Duluth Holdings Inc.	DLTH	NASDAQ	
FIGS Inc.	FIGS	NYSE	

Company Name	Ticker	Exchange	Notes
G-III Apparel Group Ltd.	GIII	NASDAQ	
Gap Inc. (The)	GAP	NYSE	
Gildan Activewear Inc.	GIL	NYSE	
Guess? Inc.	GES	NYSE	
Hanesbrands Inc.	HBI	NYSE	Acquired during study period; data for 2021–2024 sourced directly from Form 10-K filings via SEC EDGAR (see Section 2.2)
J.Jill Inc.	JILL	NYSE	
Kontoor Brands Inc.	KTB	NYSE	
Lands' End, Inc.	LE	NASDAQ	
Levi Strauss & Co	LEVI	NYSE	
Lululemon	LULU	NASDAQ	
Oxford Industries Inc.	OXM	NYSE	

Company Name	Ticker	Exchange	Notes
PVH Corp.	PVH	NYSE	
Ralph Lauren Corporation	RL	NYSE	
Ross Stores, Inc.	ROST	NASDAQ	
Tilly's Inc.	TLYS	NYSE	
Torrid Holdings Inc.	CURV	NYSE	
Under Armour Inc.	UA	NYSE	Changed fiscal year-end from December 31 to March 31 in 2022; the resulting 3-month transition period was excluded (see Section 2.2)
Urban Outfitters	URBN	NASDAQ	
Victoria's Secret & Co.	VSCO	NYSE	

Note. Companies are listed alphabetically by company name. N = 30. See Section 2.1 for sample selection criteria and Section 2.2 for data handling procedures for Hanesbrands Inc. and Under Armour Inc.

Appendix B

Table B1 Regression Results — ROA (Full Panel, Outliers Removed, $N = 108$)

Variable	Coefficient	Std. Error	P-value	Significant?
ESG Score	-0.0041	0.0024	0.083	Marginal
Log Assets	0.0071	0.0210	0.735	No
Debt Ratio	-0.0511	0.0443	0.248	No
Revenue Growth	0.2069	0.0467	<0.001	Yes
Is2022	0.0293	0.0211	0.165	No
Is2023	0.0543	0.0190	0.004	Yes
Is2024	0.0330	0.0164	0.044	Yes

Note. $R^2 = 0.4435$, Adjusted $R^2 = 0.4045$, $F(7, 26) = 12.72$, $p < 0.001$. Sample excludes three outlier firms: Lands' End, Inc., Buckle Inc. (The), and Gildan Activewear Inc. See Appendix C for outlier identification method.

Table B2 Regression Results — NPM (Full Panel, Outliers Removed, $N = 108$)

Variable	Coefficient	Std. Error	P-value	Significant?
ESG Score	-0.0023	0.0016	0.149	No
Log Assets	0.0188	0.0147	0.202	No
Debt Ratio	-0.0548	0.0366	0.135	No
Revenue Growth	0.1918	0.0406	<0.001	Yes
Is2022	0.0214	0.0168	0.203	No
Is2023	0.0474	0.0173	0.006	Yes
Is2024	0.0351	0.0154	0.023	Yes

Note. $R^2 = 0.5074$, Adjusted $R^2 = 0.4729$, $F(7, 26) = 13.01$, $p < 0.001$. Sample excludes three outlier firms: Lands' End, Inc., Buckle Inc. (The), and Gildan Activewear Inc.

Table B3 Regression Results — ROA (Subsample 2022–2024, Outliers Removed, $N = 81$)

Variable	Coefficient	Std. Error	P-value	Significant?
ESG Score	-0.0068	0.0028	0.017	Yes
Log Assets	-0.0177	0.0242	0.464	No
Debt Ratio	-0.0403	0.0365	0.269	No
Revenue Growth	0.1975	0.0528	<0.001	Yes
Is2023	0.0228	0.0201	0.257	No
Is2024	0.0011	0.0227	0.963	No

Note. $R^2 = 0.3322$, Adjusted $R^2 = 0.2781$, $F(6, 26) = 4.36$, $p = 0.004$. The reference year is 2022. Sample excludes three outlier firms: Lands' End, Inc., Buckle Inc. (The), and Gildan Activewear Inc.

Table B4 Regression Results — NPM (Subsample 2022–2024, Outliers Removed, $N = 81$)

Variable	Coefficient	Std. Error	P-value	Significant?
ESG Score	-0.0042	0.0017	0.010	Yes
Log Assets	-0.00002	0.0136	0.999	No
Debt Ratio	-0.0436	0.0255	0.087	Marginal
Revenue Growth	0.1464	0.0415	<0.001	Yes
Is2023	0.0145	0.0154	0.345	No
Is2024	0.0014	0.0151	0.925	No

Note. $R^2 = 0.3979$, Adjusted $R^2 = 0.3491$, $F(6, 26) = 5.99$, $p < 0.001$. The reference year is 2022. Sample excludes three outlier firms: Lands' End, Inc., Buckle Inc. (The), and Gildan Activewear Inc.

Appendix C

Outlier Identification: Company-Level Averages and Z-Scores (N = 30)

Company	Avg ESG Score	ESG Z	Avg ROA	ROA Z	Avg NPM	NPM Z
Abercrombie & Fitch Co	10.45	-1.68	0.070	0.25	0.055	0.28
American Eagle Outfitters Inc.	18.52	0.12	0.034	-0.30	0.021	-0.34
Buckle Inc. (The)	17.85	-0.03	0.258	3.09*	0.176	2.53*
Carter's Inc.	16.00	-0.44	0.094	0.62	0.079	0.72
Cato Corporation (The)	24.20	1.40	-0.017	-1.06	-0.017	-1.06
Children's Place, Inc.	17.30	-0.15	-0.034	-1.33	-0.023	-1.17
Citi Trends Inc	21.28	0.74	0.066	0.19	0.038	-0.04
Columbia Sportswear Company	15.17	-0.63	0.094	0.62	0.085	0.84
Destination XL Group, Inc.	14.45	-0.79	0.081	0.42	0.031	-0.16
Duluth Holdings Inc.	24.86	1.54	0.017	-0.55	0.013	-0.50
FIGS Inc.	19.64	0.37	0.019	-0.52	0.016	-0.44
G-III Apparel Group Ltd.	22.63	1.04	0.025	-0.43	0.025	-0.28

Company	Avg ESG Score	ESG Z	Avg ROA	ROA Z	Avg NPM	NPM Z
Gap Inc. (The)	14.51	-0.77	-0.0001	-0.81	-0.003	-0.80
Gildan Activewear Inc.	12.17	-1.30	0.153	1.50	0.166	2.34*
Guess? Inc.	19.86	0.42	0.043	-0.16	0.037	-0.05
Hanesbrands Inc.	14.30	-0.82	-0.024	-1.17	-0.026	-1.22
J.Jill Inc.	19.32	0.30	-0.042	-1.44	-0.062	-1.89
Kontoor Brands Inc.	13.34	-1.04	0.143	1.35	0.089	0.91
Lands' End, Inc.	29.60	2.60*	-0.033	-1.30	-0.017	-1.06
Levi Strauss & Co	14.95	-0.68	0.066	0.18	0.067	0.49
Lululemon	13.59	-0.98	0.177	1.87	0.139	1.84
Oxford Industries Inc.	19.26	0.29	0.055	0.03	0.036	-0.08
PVH Corp.	15.43	-0.57	0.017	-0.55	0.010	-0.56
Ralph Lauren Corporation	14.00	-0.89	0.059	0.09	0.062	0.41
Ross Stores, Inc.	19.75	0.40	0.094	0.62	0.068	0.52
Tilly's Inc.	23.34	1.20	0.016	-0.56	0.010	-0.56

Company	Avg ESG Score	ESG Z	Avg ROA	ROA Z	Avg NPM	NPM Z
Torrid Holdings Inc.	25.47	1.68	0.026	-0.41	0.013	-0.51
Under Armour Inc.	15.22	-0.61	0.039	-0.22	0.033	-0.13
Urban Outfitters	16.68	-0.29	0.049	-0.07	0.039	-0.01
Victoria's Secret & Co.	15.84	-0.48	0.057	0.06	0.039	-0.02

Note. Z-scores are calculated as (company average – sample mean) ÷ sample standard deviation, across all 30 companies, for the 2021–2024 average of each variable. **Bolded** values with an asterisk (*) indicate $|Z| > 2$, the threshold used to flag statistical outliers (Section 3.4). Three companies were flagged: Lands' End, Inc. (ESG Score), Buckle Inc. (ROA and NPM), and Gildan Activewear Inc. (NPM). These three firms were excluded from the robustness checks reported in Appendix B (Tables B1–B4).