

From Goodwill to Good Business: A Comparative Analysis of ESG and Earnings Performance

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ABSTRACT

This interdisciplinary paper examines the relationship between Environmental, Social, and Governance (ESG) ratings and earnings performance of publicly traded US corporations, with an emphasis on business-to-consumer (B2C) firms. The study investigates the significance of specific rating agencies, ESG metrics, and firm attributes (i.e., size and sector classification) in order to provide insight into how a company's ESG performance relates to its ability to meet market expectations – potentially fostering the improvement of investment decisions and sustainability reporting. Although significant relationships arise between ESG ratings (from three distinct providers) and earnings outperformance, inconsistencies in significant ESG components emerge between distinct subsamples of companies. Ultimately, this research contributes to a more comprehensive understanding of the correspondence between ESG and financial performance, providing insight into the value of environmental, social, and governance reporting for stakeholder value.

Keywords: Environmental, Social, and Governance (ESG) ratings; earnings expectations; stakeholder value; business-to-consumer (B2C); sustainability reporting; sector classification

INTRODUCTION

This paper attempts to distinguish how certain Environmental, Social, and Governance (ESG) facets are related to earnings reports across publicly traded US corporations. As the omnipresent progressiveness of the 21st century has crept into the economy, many managers, investors, and customers alike have faced pressure to comply with the principles of ESG – whether or not they are aware of it. Yet as ties between nonfinancial disclosures and financial valuation is a comprehensive conversation with much surrounding research and controversy, the findings of this research can expound a discrete application of the classic shareholder versus stakeholder value debate (Cornell and Shapiro 2020). Furthermore, within an era of transparency and standardization across financial markets, the advancement of ESG performance metrics has induced systematic discrepancies, and thus, a lack of credibility within the rating market. This paper adds to the existing knowledge of market participant attitudes toward ESG by distinguishing the significance of particular rating agencies, distinct ESG metrics, and firm attributes.

As opposed to preliminary studies which have chosen to focus on other financial metrics (e.g., stock prices, sell-side analyst recommendation, and investment fund portfolio compositions) concerning ESG, this research temporarily centers around gaps between firm earnings and analyst revenue expectations. Consequently, this paper sheds light on how a company's ESG performance pertains to its ability in meeting market expectations – which is valuable information for investors and other stakeholders. In addition, with a focus on sales revenue, this analysis uses a sample of business-consumer (B2C) firms in an attempt to isolate the effect of customer behavior and shopping habits. Accordingly, this investigation contributes to a more comprehensive understanding of the relationship between ESG and financial

performance, ultimately allowing for the possibility of better-informed investment decisions and more sustainable financial markets.

The findings of this analysis indicate a significant relationship between ESG ratings from three distinct providers (specifically MSCI, Refinitiv, and Sustainalytics) and corporate revenue outperformance – yet variations arise in significant ESG components based on firm size and sector. Environmental factors (ENV) seem to generally possess a significant negative association with net income across all firm samples and rating agencies. However, unlike MSCI and Refinitiv datasets, where social metrics (SOC) demonstrate an inverse relation to earnings, Sustainalytics shows a positive correlation between social factors and revenue. In contrast to the findings of Lopez, Contreras, and Bendix (2020), this analysis found that relationships between governance factors (GOV) and revenues vary based on the particular subsample and rating agency. For instance, MSCI and Sustainalytics generally exhibit a direct association between governance factors and earnings while Refinitiv data reveals an inverse relationship.

INSTITUTIONAL BACKGROUND

Corporate social responsibility (CSR) refers to endeavors that proactively balance a company's various stakeholders and the surrounding sustainability equilibria (Escrug-Olmedo, Fernández-Izquierdo, Ferrero-Ferrero, Rivera-Lirio, and Muñoz-Torres 2019). As noted by Cornell and Shapiro (2020), this concept is compatible with the Business Roundtable's (BRT) declaration in 2019 that a corporation's purpose is to deliver value to all stakeholders, rather than to solely maximize shareholder value (as famously contended by Nobel laureate Milton Friedman in 1970). Recent emphasis on the external impacts of corporate activities has led rise to ESG advocacy, which encourages companies to address three main areas of corporate

sustainability. Environmental initiatives focus on reducing the company's carbon footprint, conserving natural resources, and promoting renewable energy sources. Social leadership emphasizes developing relationships with local communities, investing in employee training and development, and creating a diverse and inclusive workplace. Governance ventures concentrate on enhancing transparency and accountability, diversifying board structure, and promoting corporate integrity across firms. ESG adoption can ultimately help companies create long-term value for their stakeholders by improving financial performance, increasing customer loyalty, and enhancing company reputation (Cornell and Shapiro 2020).

The acronym for Environmental, Social, and Governance (ESG) first appeared in the late 1990s, succeeding Corporate Social Responsibility (CSR), and has become increasingly central over the past two decades – among firms and investors alike. In 2006, the United Nations launched the Principles for Responsible Investing (UN PRI), mainstreaming ESG practices, and coined the definition of “responsible investors” as those who incorporate ESG factors into their investment process (Ioannou and Serafeim 2014). Likewise, the Sustainability Accounting Standards Board (SASB) – a nonprofit organization founded in 2011 with the intent of providing consistent, reliable sustainability information on publicly traded companies for investors and other stakeholders – has only proliferated ESG prominence. Moreover, the Global Sustainable Investment Alliance (GSIA) – an international agency that collects information across Europe, the United States, Canada, Japan, Australia, and New Zealand – reported that assets under management in 2018 with an explicit ESG mandate increased 34 percent from two years prior (Lopez et al. 2020). Over time, the legitimization of ESG enterprises has emerged due to the gradual acceptance of a broader stakeholder focus and the weakening of the agency logic (Ioannou and Serafeim 2014).

Many “responsible investors” regularly rely on metrics published by a variety of ESG rating agencies, which have generated a growing interest by financial markets and investment analysts as well (Ioannou and Serafeim 2014). First developed in the 1970s, ESG ratings have gained traction with the surrounding corporate sustainability movement. Yet as rating providers coin unstandardized definitions of ESG performance – despite the efforts of organizations like SASB – Escrug-Olmedo et al. (2019) have posed several challenges to be met for these ratings, such as a lack of transparency and commensurability. For example, some ratings are based exclusively on additional firm disclosures, while others combine financial and extra-financial data to quantify sustainability (Escrug-Olmedo et al. 2019). As the ESG rating agency market has become more concentrated within the last decade, which has allowed rating providers to develop wider and integral assessments, this research will focus on data sources such as MSCI KLD, the result of the absorption of several rating agencies. Furthermore, this paper attempts to locate and describe subsequential discrepancies among players in the ESG rating market.

THEORY AND HYPOTHESIS

As this study investigates the relationship between corporate ESG performance and net income, it is inspired by extensive prior research indicating a general finding of a positive relationship between ESG and financial performance. For instance, using a calendar-time portfolio stock return regression, Khan, Serafeim, and Yoon (2016) discovered a positive correlation between ESG ratings and stock prices. However, various sources that concur with this correspondence between ESG and shareholder value attribute it to contrasting factors. For example, a similar study by Ioannou and Serafeim (2014) argues that positive environmental performance fosters profitability due to innovation and operational efficiency (e.g. Porter and

Van der Linde 1995) and superior organizational capabilities (e.g. Aragón-Correa, 1998). In contrast, findings by Paolone, Cucari, Wu, and Tiscini (2021) point to marketing performance as the driver of financial value derived from ESG. Yet as profitability is a function of consumer behavior, this paper attempts to isolate the customer response to firmwide ESG-related initiatives or media attention by selecting earnings as the dependent variable. Consequently, the null and first hypotheses (H0 and H1, respectively) of this investigation are put formally as follows:

H0: Environmental, Social, and Governance (ESG) performance unrelated to earnings.

H1: Environmental, Social, and Governance (ESG) performance is positively related to earnings.

These hypotheses are further motivated by previous studies that have found an independent relationship between ESG performance and consumer behavior. After all, current and future customer relationships are debatably the most valuable asset of a corporation (Blattberg and Deighton 1996). As such, Derrien, Krueger, Landier, and Yao (2021) discovered that the negative revisions of analyst revenue forecasts following negative ESG-related news or events reflect expectations of lower future sales (rather than higher future costs). Accordingly, ESG activities have been found to enhance sales value, purchase intent of potential customers, and consumer satisfaction and retention (Paolone et al. 2021). Customers are even willing to pay a higher price for products and services belonging to companies with higher ESG engagement ratings (Servaes and Tamayo 2013).

This paper evaluates the relationship between ESG conduct and earnings for the entire sample and via aggregations by both firm sector and size. According to Godfrey and Hatch (2006), researchers should conduct ESG performance research for individual industries rather than combining data across the entire market as previous studies have done. For instance, the

healthcare sector may reveal distortions due to additional disclosures, as companies may have increased appreciation for their reputation and thus, patient trust (Paolone et al. 2021). In contrast, customer satisfaction is less important in industries with high switching barriers, such as regulated utilities (Ittner and Larcker 1998), potentially reducing the sales effect. Thus, the hypothesis will be tested for six sectors, including Consumer Products and Services, Financial Services, Healthcare, Energy, Information Technology, and Materials and Resources. The second segmentation of the data involves aggregating the sample by percentile ranking of net income. In line with research by Davidsson, Achtenhagen, and Naldi (2004), this approach is influenced by the fact that small-cap corporations are more likely to be socially and environmentally responsible as compared to their larger peers. Thus, the second hypothesis (H2) states:

H2: Environmental, Social, and Governance (ESG) performance is positively related to earnings, yet the significance of certain ESG components varies with firm sector and size.

SAMPLE AND DATA

Sampling Methodology

The following analyses incorporate information regarding US publicly traded corporations from the past two decades, i.e., 2002-2022, to highlight the nation's recent ESG momentum and synchronize with data availability. As a vital component of this paper is the analysis of shopping habits, the sample focuses solely on business-to-consumer (B2C) firms, backing the sampling method of Goettsche, Steindl, and Gietl (2016). More precisely, this paper's firm selection draws on the work of Srinivasan, Lilien, and Sridhar (2011) by using primary four-digit Standard Industrial Classification (SIC) codes based on the business

description provided by the Occupational Safety and Health Administration to generate a sample of consumer-oriented SIC codes. If a business provides both B2C and B2B activities, such as Shell Energy, the firm is defined as B2C (Haddock-Fraser and Tourelle, 2010). Overall, 188 unique four-digit B2C SIC codes were identified (as described in Appendix 1), yielding a sample of 797 public US customer-oriented companies.

Data Collection

Financial data was extracted from the Refinitiv (previously Thomson Reuters), Institutional Brokers' Estimate System (I/B/E/S), a financial database containing equity analysts' estimates and reports on most publicly traded companies. As multiple earnings estimates were provided per quarter, only those corresponding to a release date within four months of an ESG rating change were retained. As such, this paper will incorporate three distinct rating providers, namely MSCI, Refinitiv, and Sustainalytics in order independently compare the effects of each of them. A summary of unique data source attributes is hosted in Table 1:

[Insert Table 1 here]

Firstly, the Morgan Stanley Capital International (MSCI), formerly KLD and GMI, ESG dataset is the most widely used in past studies (Khan et al. 2016). Researchers at MSCI review companies' public documents – including their annual disclosures, website, and specific ESG reporting – and monitor media sources for developing issues daily (Ioannou and Serafeim 2014). For the purposes of this study, MSCI has several advantages, not limited to including many US companies over a long period of time and maintaining credibility within the literary community focused on the relationship between social responsibility and financial performance (Ioannou and Serafeim 2014). The MSCI historical rating data set is designed as a binary system and

comprises both strengths and weaknesses – i.e., policies, procedures, and outcomes that induce either a positive or negative impact, respectively – regarding seven focal issues. These issues include Community, Corporate Governance, Diversity, Employee Relations, Product, Environment, and Human Rights (Serafeim & Yoon, 2016), enabling this analysis to cross-section various ESG phenomena. One caveat regarding MSCI, however, is the source’s large proportion of missing data for the firms in the sample related to this paper’s analysis. Wharton Research Data Services (Wrds) is currently awaiting an update from Morgan Stanley Capital International, which could provide more conclusive findings upon availability.

More recent sources, such as Darendeli, Fiechter, Hitz, and Lehmann (2021), have instead exploited the recent increase in Refinitiv, formerly Thomson Reuters (TR), Asset4 coverage. With inputs and proprietary technology similar to that of MSCI KLD, Refinitiv provides ESG screening data for over 400 different ESG input factors on 9,000 listed companies globally – with time series data going back to 2002 (Darendeli et al. 2021). This coverage is used by major asset managers, such as BlackRock, in assessing ESG investment risk, as well as a community of academic researchers (Dyck, Lins, Roth, and Wagner 2019). Asset4 hosts categorically specific ratings as well, specifically across ten main themes – including emissions, human rights, and shareholders.

As suggested by Wharton Research Data Services, an additional database to be referenced includes Morningstar Sustainalytics, which commonly provides detailed ESG scores to “responsible” investment funds (Raghunandan and Rajgopal 2022). Unlike the MSCI and Refinitiv datasets, which have been used extensively in the past, Sustainalytics is a more recent addition to the ESG database landscape. However, its monthly reporting frequency allows for ample data to be retrieved – even with fewer years of due diligence. Additionally, as

Sustainalytics specifically provides measures of unmanaged ESG risk rather than strength, it is worth noting that for the sake of comparability, the values in this dataset were reversed such that all positive values were made negative, and all negative values were made positive.

DESIGN AND METHODS

Variable Definitions

Environment, Social, and Governance

As urged by Cornell and Shapiro (2020), environmental, social, and governance factors are distinct and should not be considered simultaneously. As this analysis utilizes more detailed ESG-related metrics, they can also be consolidated, as different raters provide diverse arrays of score breakdowns. Thus, echoing Slater and Dixton-Fowler (2009), each statistic relating to an ESG constituent was aggregated to derive an equally weighted sum of rating changes per ESG category. Table 2 depicts the definitions for Environmental (*ENV*), Social (*SOC*), and Governance (*GOV*) for each of the three rating agencies. In this manner, both singular and combined ESG metrics can be used as independent variables in this analysis.

[Insert Table 2 here]

Earnings Outperformance

To capture an outperformance of analyst earnings estimates, two dependent variables were defined – namely *Outperform* and *Outperformance*. More explicitly, *Outperform* is a binary variable designating if a firm beats expectations at a given time, and *Outperformance* is defined as the amount by which revenues are over (or under) reported. This allows for the specification of two plausible models (i.e., both linear and logistic) in predicting future financial performance.

On multiple occasions, however, the I/B/E/S dataset provided multiple earnings estimates in the four months following a rating revision. In those cases, the average expected value was taken as the variable dependent on a change in ESG ratings.

Control Variables

ESG controversies. To follow several recent articles (e.g. Strike, Gao, & Bansal, 2006; Kacperczyk, 2009; Bear, Rahman, & Post, 2010) that argue that CSR and CSiR (Corporate Social Irresponsibility) are two theoretically distinct constructs that should be treated as such empirically, ESG CONTROVERSY is selected as a control variable for datasets in which this information is provided (i.e., MSCI and Refinitiv). Although some prior studies have chosen to subtract total concerns from total strengths (e.g. Slater & Dixon-Fowler, 2009; Manner, 2010), this approach is not adopted in this analysis because of its focus on strategic ESG choices of corporations and how such policies impact consumer behavior. While Refinitiv explicitly provides a CONTROVERSEY score, the control variable for MSCI is constructed as an equally weighted sum of KLD's negative screens (Table 3).¹

[Insert Table 3 here]

Fixed effects. In order to control for variations in how companies are rated in terms of their ESG performance, fixed effects were used on both firm and year as control variables. This method is particularly useful when dealing with panel data involving multiple observations of the same entities over time.² By correcting for both time-variant homogeneity and time-invariant

¹ However, as the variance inflation factors (VIF) detect multicollinearity for many of the MSCI CONTROVERSEY metrics, this control variable is omitted some models and result summaries to follow.

² In accordance with Goettsche et al., fixed effects are preferred to random effect regressions.

heterogeneity across firms, the precise relationship between ESG ratings and earnings outperformance can be isolated (Goettsche, Steindl, and Gietl 2016).

Model Specification

General Linear Model

As a starting point, the following linear model using broad (i.e., aggregated) ESG performance metrics is specified:

$$Outperformance = \beta_0 + \beta_1 ENV_{it} + \beta_2 SOC_{it} + \beta_3 GOV_{it} + \beta_4 CONTROVERSY_{it} + \delta_i YEAR_{it} + \lambda_i + \varepsilon_{it} \quad (1)$$

where i and t are firm and time indices, respectively. Dummy variables $YEAR_{it}$ correspond to fixed effects by year, while λ_i refers to firm fixed effects. As this model can be applied across all three rating agencies, $CONTROVERSY$ is assumed to be zero in the Sustainalytics case.

Detailed Linear Model

Because different rating agencies provide varying ESG metrics, individualized models for more detailed performance metrics must be utilized for each rating provider. This approach yields Equations (2)-(4) for MSCI, Refinitiv, and Sustainalytics, respectively.

MSCI data. A linear regression on the MSCI dataset, incorporating fourteen ESG variables lacking multicollinearity, is specified as:

$$Outperformance = \beta_0 + \beta_1 CLEAN\ ENERGY_{it} + \beta_2 CLIMATE\ CHANGE_{it} + \beta_3 LAND/BIODIVERSITY_{it} + \beta_4 NONCARBON\ RELEASES_{it} + \beta_5 POLLUTION\ PREVENTION_{it} + \beta_6 CHARITY_{it} + \beta_7 HEALTH/SAFETY_{it} + \beta_8 INNOVATIVE\ GIVING_{it} + \beta_9 PRODUCT\ SAFETY_{it} + \beta_{10} ANTITRUST_{it} + \beta_{11} ECONOMIC\ RISK_{it} + \beta_{12} MANAGEMENT_{it} + \beta_{13} REGULATORY\ PROBLEMS_{it} + \beta_{14} SUPPLY\ CHAIN\ CONTROVERSIES_{it} + \beta_{15} CONTROVERSY_{it} + \delta_i YEAR_{it} + \lambda_i + \varepsilon_{it} \quad (2)$$

Refinitiv data. For Refinitiv, a linear model including its ten detailed ESG performance metrics and the CONTROVERSY control variable can be written as:

$$\begin{aligned} Outperformance = & \beta_0 + \beta_1 EMISSIONS_{it} + \beta_2 ENVIRONMENTAL\ INNOVATION_{it} + \\ & \beta_3 RESOURCE_{it} + \beta_4 COMMUNITY_{it} + \beta_5 CSR_{it} + \beta_6 HUMAN\ RIGHTS_{it} + \\ & \beta_7 WORKFORCE_{it} + \beta_8 MANAGEMENT_{it} + \beta_9 PRODUCT\ RESPONSIBILITY_{it} + \\ & \beta_{10} SHAREHOLDERS_{it} + \beta_{11} CONTROVERSY_{it} + \delta_i YEAR_{it} + \lambda_i + \varepsilon_{it} \end{aligned} \quad (3)$$

Sustainalytics data. Accordingly, the linear model for the sixteen Sustainalytics predictors is analytically put as follows:

$$\begin{aligned} Outperformance = & \beta_0 + \beta_1 CARBON_{it} + \beta_2 LAND/BIODIVERSITY_{it} + \beta_3 RESOURCE_{it} + \\ & \beta_4 WASTE_{it} + \beta_5 BASIC\ SERVICES_{it} + \beta_6 COMMUNITY_{it} + \beta_7 DATA/PRIVACY_{it} + \\ & \beta_8 HEALTH/SAFETY_{it} + \beta_9 HUMAN\ CAPITAL_{it} + \beta_{10} HUMAN\ RIGHTS_{it} + \beta_{11} PRODUCT \\ & IMPACT_{it} + \beta_{12} CORRUPTION_{it} + \beta_{13} CORPORATE\ GOVERNANCE_{it} + \beta_{14} ETHICS_{it} + \\ & \beta_{15} FINANCIALS_{it} + \beta_{16} PRODUCT\ GOVERNANCE_{it} + \delta_i YEAR_{it} + \lambda_i + \varepsilon_{it} \end{aligned} \quad (4)$$

Logistic Models

Equation (1)-(4) can be modified to replace *Outperformance* with the natural logarithm of the binary variable *Outperform* in order to ignore the magnitude of earnings for standardization purposes. This yields Equations (5)-(8), given empirically as:

General model.

$$\begin{aligned} \text{Log}(Outperform) = & \beta_0 + \beta_1 ENV_{it} + \beta_2 SOC_{it} + \beta_3 GOV_{it} + \beta_4 CONTROVERSY_{it} + \delta_i YEAR_{it} \\ & + \lambda_i + \varepsilon_{it} \end{aligned} \quad (5)$$

MSCI data.

$$\begin{aligned} \text{Log}(Outperform) = & \beta_0 + \beta_1 CLEAN\ ENERGY_{it} + \beta_2 CLIMATE\ CHANGE_{it} + \\ & \beta_3 LAND/BIODIVERSITY_{it} + \beta_4 NONCARBON\ RELEASES_{it} + \beta_5 POLLUTION \\ & PREVENTION_{it} + \beta_6 CHARITY_{it} + \beta_7 HEALTH/SAFETY_{it} + \beta_8 INNOVATIVE\ GIVING_{it} + \end{aligned}$$

$$\beta_9 \text{PRODUCT SAFETY}_{it} + \beta_{10} \text{ANTITRUST}_{it} + \beta_{11} \text{ECONOMIC RISK}_{it} + \beta_{12} \text{MANAGEMENT}_{it} + \beta_{13} \text{REGULATORY PROBLEMS}_{it} + \beta_{14} \text{SUPPLY CHAIN CONTROVERSIES}_{it} + \beta_{15} \text{CONTROVERSY}_{it} + \delta_i \text{YEAR}_{it} + \lambda_i + \varepsilon_{it} \quad (6)$$

Refinitiv data.

$$\text{Log}(\text{Outperform}) = \beta_0 + \beta_1 \text{EMISSIONS}_{it} + \beta_2 \text{ENVIRONMENTAL INNOVATION}_{it} + \beta_3 \text{RESOURCE}_{it} + \beta_4 \text{COMMUNITY}_{it} + \beta_5 \text{CSR}_{it} + \beta_6 \text{HUMAN RIGHTS}_{it} + \beta_7 \text{WORKFORCE}_{it} + \beta_8 \text{MANAGEMENT}_{it} + \beta_9 \text{PRODUCT RESPONSIBILITY}_{it} + \beta_{10} \text{SHAREHOLDERS}_{it} + \beta_{11} \text{CONTROVERSY}_{it} + \delta_i \text{YEAR}_{it} + \lambda_i + \varepsilon_{it} \quad (7)$$

Sustainalytics data.

$$\text{Log}(\text{Outperform}) = \beta_0 + \beta_1 \text{CARBON}_{it} + \beta_2 \text{CORPORATE GOVERNANCE}_{it} + \beta_3 \text{LAND/BIODIVERSITY}_{it} + \beta_4 \text{RESOURCE}_{it} + \beta_5 \text{WASTE}_{it} + \beta_6 \text{BASIC SERVICES}_{it} + \beta_7 \text{COMMUNITY}_{it} + \beta_8 \text{DATA}_{it} + \beta_9 \text{HEALTH/SAFETY}_{it} + \beta_{10} \text{HUMAN CAPITAL}_{it} + \beta_{11} \text{HUMAN RIGHTS}_{it} + \beta_{12} \text{PRODUCT}_{it} + \beta_{13} \text{BRIBERY/CORRUPTION}_{it} + \beta_{14} \text{ETHICS}_{it} + \beta_{15} \text{FINANCIALS}_{it} + \beta_{16} \text{PRODUCT GOVERNANCE}_{it} + \delta_i \text{YEAR}_{it} + \lambda_i + \varepsilon_{it} \quad (8)$$

Equations (4)-(6) may be useful in situations such that predicting the direction of earnings relative to a benchmark is the main objective, which is commonly the case for financial investors. Nonlinear regressions can also help to eliminate the impact of extreme values in the data, which may skew results and falsify conclusions.

RESULTS

By Individual Firm

Empirical Results

Table 4 provides basic summary statistics for each of the three ESG rating providers across the entire sample. Evidently, each agency relies on a unique scale and provides varying observation counts. It is also worth noting that based on the sample corresponding to this paper,

firms tended to exceed their revenue expectations (9019 counts) more frequently than they fell short (6495 counts).

[Insert Table 4 here]

Multivariate Analysis

General findings. Multivariate regression results for each rating agency are depicted in Tables 5 and 6. The first approach (Table 5) defines ESG more broadly based on its three components (i.e., ENV, SOC, and GOV) with Equations (1) and (5). Based on the general linear model for the MSCI dataset (multiple $R^2 = 0.07665$) and a ten percent significance level, ENV (p-value = 0.0520), SOC, (p-value = 0.0063) and GOV (p-value = 0.0808) are all significant predictors of exceeding earnings expectations. That said, these relationships are not necessarily all positive, as confirmed by the logistic output as well. More explicitly, while GOV is positively correlated to *Outperformance*, ENV and SOC exhibit a negative association. This supports the finding of Hassel, Nilsson, and Nyquist (2005) that environmental performance has a negative influence on the market value of firms. Consequently, although the null hypothesis (H_0) can be rejected (p-value = 0.0002), H_1 must be slightly altered before it can be accepted in favor of the null:

H_1 ': Environmental, Social, and Governance (ESG) performance is related to earnings, yet not necessarily in a positive or negative manner.

Findings from the Refinitiv data correspond to that of MSCI yet are not as strong (multiple $R^2 = 0.05117$), as again only ENV is found to be significant (p-value = 0.0478). Despite the inability to draw assumptions regarding causation, it is also worth noting the positive relationship between CONTROVERSY and earnings outperformance (p-value = 0.0450) in Refinitiv's logistic application. As this contrasts with expectations, Derrien et al. (2021) point out that forecast revisions explain most of the negative impacts of ESG incidents on firm value. Thus, it is reasonable to assume that CONTROVERSY's positive coefficient is derived from analysts' reliance on MSCI ESG data.

Finally, although the linear Sustainalytics model is insignificant (p-value = 0.3502), the logistic implementation reiterates the earlier finding of a positive association between GOV and *Outperformance*.

[Insert Table 5 here]

Detailed findings. Table 6 displays regression outputs based on Equations (2)-(4) and (6)-(8), which rely on more granular ESG performance metrics.³ According to MSCI's linear model, Pollution Prevention (p-value = 0.0014) and Charity (p-value = 0.0601) both have significant negative relationships with revenue overperformance. Moreover, while Refinitiv Environmental Innovation (p-value = 0.0229) is inversely associated with net income, Refinitiv's ESG CONTROVERSY score exhibits a positive relationship (p-value = 0.0780) as shown in the logistic implementation.⁴ Lastly, both Corporate Governance (p-value = 0.0846) and Product Governance (p-value = 0.0465) hold a positive correspondence with *Outperform* and *Outperformance* alike in the case of Sustainalytics, yet the dataset's linear model application is notably weak (p-value 0.3993). These conclusions echo those in Table 5 that support the revised H1 yet highlight significant factors within the definitions of ENV, GOV, and SOC.

[Insert Table 6 here]

By Firm Size

To divide the sample by company size, the data was partitioned into terciles – with varying cutoffs depending on the rating provider. Table 7 provides net income thresholds for MSCI, Refinitiv, and Sustainalytics – accounting for variations in model subsamples. As

³ Detailed regression outputs like Table 6 omit insignificant and multicollinear predictors variables.

⁴ CONTROVERSY's positive significance can be overlooked and taken as analyst forecast revisions (Derrien et al. 2021).

illustrated MSCI data provides the largest range of firm earnings, which is intuitive because it provides information pertaining to the greatest number of unique corporations (Table 1).

[Inset Table 7 here]

Bottom 33% of Earnings

Empirical results. Basic summary statistics for the three ESG rating providers across firms in the first tercile of actual revenue can be found in Table 8. On average, ENV, SOC, and GOV are lower for firms in this segment as compared to the entire sample. It is also worth noting that similar to the full sample, companies with the lowest earnings tended to exceed their earnings expectations (3088 counts) more frequently than they fell short (2035 counts).

[Inset Table 8 here]

Multivariate analysis. Table 9 indicates that ENV, SOC, GOV – and CONTROVERSY – are all statistically significant predictors of revenue for smaller firms, yet disparities arise across rating agencies. While MSCI again asserts a significant inverse relation between ENV and *Outperform* (p-value = 0.0596), both Refinitiv (p-value = 0.0136) and Sustainalytics (p-value = 0.0949) reveal that GOV is positively associated with earnings outperformance. Additionally, although the full sample displays a negative relationship between SOC and *Outperformance* based on the regression output for MSCI, the first tercile of firm earnings instead shows a strong positive correlation between these two variables, as indicated by Sustainalytics.

[Inset Table 9]

Additional multivariate regression outputs for the first tercile of company revenues can be found in a highly contradictory Table 10, which breaks down results in Table 9 into more concrete ESG initiatives. For example, MSCI's Clean Energy index possesses a significant

negative correlation with *Outperformance* (p-value = 0.0008). Likewise, although the Refinitiv Workforce score is also negatively related to earnings (p-value = 0.0002), Management (p-value 0.0913) and CSR strengths (p-value 0.0194) display a positive relationship for the Refinitiv rating dataset (multiple $R^2 = 0.3268$).⁵ In contrast, according to Sustainalytics Human Capital score is positively associated with *Outperformance* (p-value = 0.0903), meaning that although workforce size tends to correspond to decreased revenues, workforce strength (i.e., skills and intelligence) is congruous with an increase in earnings for the bottom tercile of firms. Finally, echoing the results of the sample-wide multivariate analysis, Sustainalytics' Product Governance (p-value = 0.0759) and Corporate Governance (p-value = 0.0553) ratings demonstrate a positive relation with exceeding earnings expectations.

[Insert Table 10 here]

Middle 33% of Earnings

Empirical results. Table 11 contains descriptive statistics for each rating agency among companies in the second tercile of actual earnings. Generally, the average scores for ENV, SOC, and GOV were diminished for firms in this group as compared to the entire sample. Likewise observe that compatible with the full sample, companies with net income in this middle bucket had a higher chance of exceeding earnings expectations (3032 counts) as opposed to missing analyst estimates (2081 counts).

[Insert Table 11 here]

Multivariate analysis. According to Table 12, only GOV is a significant predictor of earnings for mid-sized firms (p-value = 0.956), as revealed by the logistic model on the Refinitiv

⁵ The positive relationship between CONTROVERSY and *Outperformance* (p-value = 0.0014) is again attributed to the forecast revision effect described by Derrien et al..

dataset. In contrast to earlier findings regarding other firm segments, this secondary tercile appears to maintain an inverse (rather than direct) relationship between GOV and *Outperform*.

[Insert Table 12 here]

More descriptive findings for the middle category of companies can be located in Table 13. Once more, in this segment, the Clean Energy index of MSCI exhibits a significant and negative correlation with Outperformance (p-value = 0.0176). Additionally, the Refinitiv Environmental Innovation score is also negatively correlated with revenue (p-value = 0.0119), while Workforce strengths (p-value = 0.0058) and CSR (p-value = 0.0037) demonstrate a positive relationship with the Refinitiv rating dataset (with a multiple R² of 0.1919). Furthermore, Sustainalytics indicates that Product Governance is once again positively linked to *Outperformance* (p-value = 0.0119) – as well as Business Ethics (p-value = 0.0557).⁶

[Insert Table 13 here]

Top 33% of Earnings

Empirical results. Hosted in Table 14 are basic summary statistics for the top-earning companies in the sample. Overall, average ENV, SOC, and GOV scores were lower for the third tercile of firms in contrast to the full data. Specific discrepancies from this norm include elevated performance captured by Refinitive social and governance scores as well as the Sustainalytics GOV metric. Interestingly, this cross-section produced a higher proportion of underperformed earnings as compared to underestimated earnings – unlike the first two terciles.

[Insert Table 14 here]

⁶ Regardless, the linear Sustainalytics regression for mid-sized firms is quite weak, with a multiple R² of 0.09623 and a p-value of 0.3993.

Multivariate analysis. Table 15 discloses that ENV, SOC, GOV – and CONTROVERSY – are significant predictors of net income for larger firms. MSCI again possesses a significant positive correspondence between GOV and *Outperformance* (p-value = 0.0489) yet significant inverse relations between both ENV and SOC and earnings outperformance (with p-values 0.0552 and 0.0002, respectively). This finding is complemented by Refinitiv, which leads to yet another negative link between environmental factors and earnings performance (p-value = 0.0566). In addition, Refinitiv’s positive CONTROVERSY coefficient (p-value = 0.0165) can again be attributed to the forecast revision effect.

[Insert Table 15 here]

Detailed multivariate regression outputs for the top tercile of company revenues can be found in Table 16. The MSCI Pollution Prevention metric holds a highly significant negative relation with *Outperformance* (p-value = 0.0192). Similarly, while Refinitiv’s Environmental Innovation is again negatively correlated to earnings (p-value = 0.0205), CSR strengths maintain a positive relationship (p-value = 0.0732).⁷ Consistent with the environmental-related findings from the other two data providers, the Sustainalytics Land Use and Biodiversity score is negatively linked with *Outperform* (p-value = 0.0566).

[Insert Table 16 here]

By Firm Sector

Sector membership among sampled firms can be derived from a company’s assigned SIC code. For example, SIC code 5651 – Family Clothing Stores – aligns with the sector Consumer Products and Services. Similarly, SIC code 6282 – Investment Advice – matches with the

⁷ The positive association between CONTROVERSY and *Outperformance* (p-value of 0.0438) is again related to the effect of forecast revision, as previously described by Derrien et al..

Financial Services sector. In all, six sectors are represented in this sample: Consumer Products and Services, Financial Services, Healthcare, Energy, Information Technology, and Materials and Resources.

Consumer Products and Services Sector

General findings. As indicated by Table 17, ENV, SOC, and GOV are all statistically significant predictors of revenue for firms in the Consumer Products and Services sector. While MSCI again asserts significant relations between both social (p-value = 0.0387) and governance (p-value = 0.0455) factors and earnings outperformance, in this specific sector, GOV possesses a negative association with both *Outperform and Outperformance*.⁸ Furthermore, findings from the Refinitiv models (both linear and logistic) reassert the inverse relation between ENV and net income (p-value = 0.0454) from the broader model. The Sustainalytics dataset did not produce any significant results for this sector.⁹

[Insert Table 17 here]

Detailed findings. Table 18 displays regression outputs for more granular ESG performance metrics. According to MSCI's linear model, Pollution Prevention (p-value = 0.0193) has yet another significant negative relationship with *Outperformance*. Moreover, Refinitiv Environmental Innovation (p-value = 0.0229) is inversely associated with earnings for Consumer Products and Services firms. Novel findings exist within the Sustainalytics data and include positive correlations between Business Ethics (p-value = 0.0702), Carbon Reduction (p-value = 0.0393), and Product Impact (p-value = 0.0241) and firm earnings. On the contrary,

⁸ SOC, as in the full regression, has a negative relationship with *Outperformance* for Consumer Products and Services companies.

⁹ Likewise, all subsequent regression outputs are limited to significant variables lacking multicollinearity.

Human Rights (p-value = 0.0002) and Data Privacy/Security (p-value = 0.0981) both seem to be negatively related to revenue overperformance for this sector. However, it is important to consider the limited significance of this Sustainalytics multivariate analysis (multiple $R^2 = 0.07999$) upon interpreting the aforementioned results.

[Insert Table 18 here]

Financial Services Sector

General findings. Table 19 reveals that for Financial Services firms, only social and governance metrics are statistically significant predictors of earnings. MSCI reiterates that significant relationships between both SOC (p-value < 0.0001) and GOV (p-value = 0.0031) and *Outperformance* exist that match the direction of the sample-wide general model. Findings from the logistic Sustainalytics model support this positive relation between GOV and earnings (p-value = 0.0035) in the Financial Services sector. The Refinitiv dataset did not produce any significant results for this sector.

[Insert Table 19 here]

Detailed findings. According to Table 20, Refinitiv's Emissions Reduction score is inversely related to *Outperformance* (p-value = 0.0839) for companies in the Financial Services sector. Additionally, in correspondence with numerous other market segments thus far, Sustainalytics again exhibits a positive correlation between Product Governance and firm revenues (p-value = 0.0501) for Financial Services. The MSCI dataset did not produce any significant results for this sector.

[Insert Table 20 here]

Healthcare Sector

General findings. The results from Table 21 indicate only social ESG factors are statistically significant predictors of earnings outperformance for firms in the Healthcare sector (p-value = 0.0328). However, unlike past findings, SOC possesses a positive correlation with *Outperformance* for Healthcare firms, as found in the Sustainalytics model (multiple R² = 0.1433). Refinitiv maintains the prior found positive relationship between ESG CONTROVERSY and revenues for this sector as well. The MSCI dataset did not produce any significant results for this sector.

[Insert Table 21 here]

Detailed findings. As depicted by Table 22, the Refinitiv Community score has a negative association with *Outperform* (p-value = 0.0271) for the Healthcare sector. The detailed Sustainalytics report was very informative (multiple R² = 0.2518), indicating a significant positive relationship between earnings outperformance and the following predictor metrics: Access to Basic Services (p-value = 0.0054), Land Use and Biodiversity (p-value = 0.0312), Carbon Reduction (p-value = 0.0416), and Waste Reduction (p-value = 0.0759). In contrast, the Sustainalytics Resource Use variable revealed an inverse relation with net income (p-value = 0.0411). Again, the MSCI dataset did not produce any significant results for this sector.

[Insert Table 22 here]

Energy Sector

General findings. Table 23 portrays quite contradictory results for the Energy sector, particularly regarding the direction of SOC's significant correlation with earnings potential. While Refinitiv points to a negative relationship (p-value = 0.0884), Sustainalytics argues

otherwise (p-value = 0.0172). Consequently, this paper rejects the Refinitiv model in favor of Sustainalytics to minimize the p-value and AIC coefficient of the regression. The MSCI dataset did not produce any significant results for this sector.

[Insert Table 23 here]

Detailed findings. Table 24 holds multivariate regression outputs on more detailed ESG metrics for Energy companies. According to MSCI, the Supply Chain (p-value = 0.09376), Pollution Prevention (p-value = 0.0691), and Health and Safety (p-value = 0.0282) metrics have significant positive relations with the overperformance of revenues in Energy firms. In contrast, the MSCI Regulatory Problems (p-value = 0.0088) and Innovative Giving (p-value = 0.0129) scores are inversely related to earnings. Refinitiv's linear model for the Energy sector suggests alternative significant variables, namely Workforce (p-value = 0.0607), Human Rights (p-value = 0.0380), Product Responsibility (p-value = 0.0216), and Management (p-value = 0.0608). While Refinitiv's Human Rights and Management scores exhibit a positive correspondence with *Outperformance*, Workforce and Product Responsibility maintain a negative relationship. Lastly, Sustainalytics indicates further significant predictors, including ESG Financial Integration (p-value < 0.0001), Business Ethics (p-value = 0.0347), Carbon Reduction (p-value = 0.0811), Human Capital (p-value = 0.0263), and Corruption and Bribery (p-value = 0.0576). It is worth noting, however, that Business Ethics, Carbon Reduction, and Human Capital are directly related to Energy firm earnings yet ESG Financial Integration and Corruption and Bribery demonstrate an inverse correlation.

[Insert Table 24 here]

Information Technology Sector

General findings. As revealed in Table 25, the only significant variable for net income based on firms in the Information Technology sector is MSCI's environmental sum (ENV), with a p-value of 0.0401. In this case, ENV is yet again negatively associated with *Outperformance* (multiple $R^2 = 0.139$).

[Insert Table 25 here]

Detailed findings. Table 26 depicts more granular findings for the Information Technology sector. One highly significant positive association is between MSCI's Antitrust score and firm *Outperformance* (p-value = 0.0002). According to Sustainalytics, Human Capital (p-value = 0.0179) and Resource Use (p-value = 0.0443) are significant positive predictors of earnings, while Human Rights (p-value = 0.0088) and ESG Financial Integration (p-value = 0.0917) both possess a significant negative relationship.

[Insert Table 26 here]

Materials and Resources Sector

General findings. To summarize findings for the Materials and Resources sector, Table 27 exhibits general regression model outputs. While Refinitiv was the only rating provider with significant results (multiple $R^2 = 0.5088$), the multivariate analysis produced statistically significant negative coefficients for ENV (p-value = 0.0006) and GOV (p-value = 0.0205). This relationship between governance factors and revenue outperformance differs for Materials and Resources firms than for firms across the widest sample.

[Insert Table 27 here]

Detailed findings. Finally, Table 28 displays more detailed regression outputs for the Materials and Resources sector. To start, MSCI proposed that Health and Safety (p-value = 0.0009), Product Safety (p-value < 0.0001), and Antitrust (p-value = 0.0194) are all significant predictors of *Outperformance* in this last sector. While Antitrust is negatively correlated with earnings (unlike the Information Technology sector), the MSCI Health and Safety and Product Safety metrics both maintain a positive relationship with the independent variable. According to Refinitive, Management (p-value = 0.0199), CSR (p-value = 0.0570), and Workforce (p-value = 0.0215) scores are statistically significant and directly associated with firm financial performance. The strong linear Sustainability model (multiple $R^2 = 0.4871$) also yielded significant results yet diverge from past findings, marking a negative relationship between *Outperformance* and Human Capital (p-value = 0.0964), Product Governance (p-value = 0.0475), and Business Ethics (p-value = 0.0378) alike.

[Insert Table 28 here]

Ultimately, before the second hypothesis can be accepted in favor of others (i.e., H0 and H1), it must be modified as follows:

H2’: Environmental, Social, and Governance (ESG) performance is related to earnings (not necessarily positively nor negatively), yet the significance of certain ESG components varies with firm sector and size.

CONCLUSION

The analysis of this paper provides a good indication that ESG ratings are associated with earnings outperformance for US business-to-consumer firms – despite variations in significant

ESG performance metrics for firms in different size and sector segments. Table 29 is provided to summarize significant input variables of ESG across various rating providers and segmentation approaches. As shown, environmental factors have a significant inverse relationship with net income for all firms and rating providers (besides Sustainalytics, which proved to be insignificant). While social metrics are inversely associated with earnings for MSCI and Refinitiv, the opposite is the case for the Sustainalytics dataset. Lastly, in opposition to observations made by Lopez et al. (2020), the relationship between governance variables and revenue greatly depends on the subsample and rating agency. For example, the Sustainalytics governance factor exhibits a strictly positive correspondence with earnings outperformance. Similarly, among the significant regression outputs, MSCI's governance score has a positive coefficient for all samples but the Consumer Products and Services sectors. In contrast, the sole positive relationship belonging to Refinitiv's governance aggregate is within the subsample including firms in the first tercile of earnings. Despite between-sample variations in findings, this research supports the statement of Karpoff, Lott, and Wehrly (2005) that firms face the risk that regulation, changes in consumer preferences, and litigation induced by firms' environmental and social policies feed back into cash flows.

[Insert Table 29 here]

Two major limitations of this study include missing data and predictor multicollinearity. As mentioned previously, a considerable disadvantage of relying on MSCI data is incompleteness – as the initial dataset contains 174,412 missing values. This limitation applies to other data sources as well; initial Refinitiv and I/B/E/S datasets include 3281 and 248,265 omitted observations, respectively. Multicollinearity between ESG predictor metrics was also a common problem among the regression analyses, as many variables had to be discarded in

avoidance of illegitimate findings. Another shortcoming of this analysis is a lack of consistent findings among rating agencies. For example, Sustainalytics' Carbon Reduction metric has a significant negative coefficient while MSCI's Clean Energy has a positive coefficient in the analysis of the firms in the bottom tier of financial performance. While differences across ESG scores can naturally emerge if rating providers adopt divergent definitions of ESG performance, research by Lopez et al. (2020) shows that deviations arise even when agencies rely on similar definitions. Likewise, Escrug et al. (2019) note that certain ESG rating methodologies may compensate for higher scores in one domain with very low scores in another domain. Thus, this paper holds the view of Lopez et al. (2020) such that rating agencies' different emphases on ESG components can be informative as long the raters' ESG priorities are transparent.

These caveats notwithstanding, this paper raises questions about whether ESG performance metrics can be used to forecast how corporate earnings compare to analyst estimates, yet further research is necessary to draw definite conclusions about any of the discovered relationships. Supplemental investigations include an analysis of other factors that could influence the nature between ESG and financial value, such as firm ownership status or social media presence. Furthermore, the reliance on ESG materiality of Khan et al. (2016) can be incorporated into this research via intelligence published by the Sustainability Accounting Standards Board (SASB). In line with Friedman's stakeholder theory (Cornell and Shapiro 2020), the most pressing next step to this study, however, is the analysis of certain negative relationships between ESG and financial performance – and how firms can mitigate this bias.

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25. TABLES

Table 1: ESG Rating Providers

	Start Year	End Year	Number of B2C Firms in Sample	Release Frequency
MSCI	2000	2019	547	Annually, in January or February
Refinitiv	2002	2022	169	Annually, on Firm Fiscal Year End Date
Sustainalytics	2018	2022	169	Monthly

Table 2: ESG Definitions Across Raters

	MSCI	Refinitiv	Sustainalytics
ENV	Clean Energy, Climate Change, Electronic Waste, Energy Efficiency, Land Use & Biodiversity, Non-Carbon Releases, Opportunities in Green Building, Opportunities in Renewable Energy, Pollution Prevention, Product Carbon Footprint, Raw Material Sourcing, Recycling, Substantial Emissions, Water Management	Emissions, Environmental Innovation, Resource Use	Carbon - Products and Services Risk, E&S Impact of Products and Services Risk, Emissions/ Effluents/Waste Risk, Land Use and Biodiversity Risk, Resource Use Risk
SOC	Beneficial Products and Services, Board Diversity, Compensation/Benefits, Community Engagement, Employment of Underrepresented Groups, Employee Involvement, Employee Relations, Benefits to Economically Disadvantaged, Health and Safety Strength, Human Capital Development, Indigenous Peoples Relations Strength, Innovative Giving, Professional Development, Privacy & Data Security, Social Opportunities - Access to Finance, Social Opportunities - Nutrition and Health, Supply Chain Management, Women and Minority Contracting	Community, CSR, Human Rights, Workforce	Access to Basic Services Risk, Community Relations Risk, Data Privacy and Security Risk, E&S Impact of Products and Services Risk, Human Capital Risk, Human Rights Risk, Occupational Health and Safety Risk

GOV	Antitrust, Freedom of Expression & Censorship, Management Systems Strength	CSR, Management, Product Responsibility, Shareholders	Bribery and Corruption Risk, Business Ethics Risk, Corporate Governance-Risk, ESG Integration - Financials Risk, Product Governance Risk
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Table 3: Definition of ESG CONTROVERSY for MSCI KLD

ENV	Biodiversity & Land Use, Climate Change Vulnerability, Water Stress
SOC	Board of Directors - Minorities, Child Labor, Customer Relations, Employee Relations Number of Concerns, Health and Safety Concern, Human Rights Violations, Negative Impact of Products and Services, Product Safety, Supply Chain
GOV	Corruption & Political Instability, Financial System Instability, Controversial Investments, Governance Structures Controversies, Marketing-Contracting Concerns, Negative Economic Impact, Regulatory Problems

Notes: The CONTROVERSY control variable was discarded for many MSCI multivariate regression models due to multicollinearity detected by variance inflation factors (VIF).

Table 4: Sample-Wide Univariate Analysis

	MSCI	Refinitiv	Sustainalytics
Number of Observations	9009	4591	1914
ENV	Min.: 0.000 1st Q.: 5.000 Median: 6.000 Mean: 5.948 3rd Q.: 7.000 Max.: 13.000 Std. Dev.: 0.764	Min.: 0.0000 1st Q.: 0.0439 Median: 0.8148 Mean: 0.9613 3rd Q.: 1.7399 Max.: 2.9114 Std. Dev.: 2.4030	Min.: -15.360 1st Q.: -3.600 Median: 0.000 Mean: -2.361 3rd Q.: 0.000 Max.: 0.000 Std. Dev.: 11.819
SOC	Min.: 0.000 1st Q.: 6.000 Median: 7.000 Mean: 6.608 3rd Q.: 7.000 Max.: 13.000 Std. Dev.: 0.890	Min.: 0.0293 1st Q.: 0.9767 Median: 1.5961 Mean: 1.7498 3rd Q.: 2.5348 Max.: 3.8983 Std. Dev.: 2.5195	Min.: -20.941 1st Q.: -8.874 Median: -7.330 Mean: -7.691 3rd Q.: -5.999 Max.: -1.320 Std. Dev.: 7.670
GOV	Min.: 0.000 1st Q.: 2.000 Median: 2.000 Mean: 1.992 3rd Q.: 2.000 Max.: 3.000	Min.: 0.0338 1st Q.: 1.3728 Median: 1.9546 Mean: 1.9573 3rd Q.: 2.5317 Max.: 3.7757	Min.: -27.592 1st Q.: -14.854 Median: -11.562 Mean: -11.792 3rd Q.: -8.227 Max.: -3.438

	Std. Dev.: 0.619	Std. Dev.: 0.3303	Std. Dev.: 19.991
<i>Outperform</i>	FALSE: 3713 TRUE: 5296	FALSE: 1864 TRUE: 2727	FALSE: 918 TRUE: 996

Table 5: Sample-Wide General Multivariate Regression Outputs

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Intercept	-755.6	1245	-0.607	0.5438		0.3327	0.1828	1.920	0.0688	*
ENV	-100.3	51.60	-1.944	0.0520	*	-0.025	0.0076	-3.258	0.0011	***
SOC	-116.0	42.44	-2.735	0.0063	***	-0.004	0.0062	-0.563	0.5734	
GOV	250.8	143.6	1.746	0.0808	*	-0.009	0.0211	-0.442	0.6585	
CONTROVERSY										
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 3246 on 8440 DF Multiple R-squared: 0.07665 Adjusted R-squared: 0.01451 F-statistic: 1.233 on 568 and 8440 DF p-value: 0.0001944					Dispersion parameter for gaussian family taken to be 0.227219 Null deviance: 2182.7 on 9008 DF Residual deviance: 1917.7 on 8440 DF AIC: 12769 Number of Fisher Scoring iterations: 2				
Refinitiv										
Intercept	-251.2	1107.1	-0.227	0.8205		0.1905	0.1012	1.883	0.0598	*
ENV	-595.7	300.84	-1.980	0.0478	**	0.0016	0.0275	0.059	0.9531	
SOC	142.15	264.40	0.538	0.5909		0.0105	0.0242	0.434	0.6646	
GOV	157.40	251.21	0.627	0.5310		-0.016	0.0230	-0.700	0.4841	
CONTROVERSY	379.53	359.09	1.057	0.2901		0.0658	0.0328	2.005	0.0450	**
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 5143 on 4006 DF 393 observations deleted due to missingness Multiple R-squared: 0.05117 Adjusted R-squared: 0.005934 F-statistic: 1.131 on 191 and 4006 DF p-value: 0.1093					Dispersion parameter for gaussian family taken to be 0.2209799 Null deviance: 985.83 on 4197 DF Residual deviance: 885.25 on 4006 DF 393 observations deleted due to missingness AIC: 5765.2 Number of Fisher Scoring iterations: 2				
Sustainalytics										
Intercept	-1133	4391.8	-0.258	0.7964		0.5107	0.1570	3.252	0.0012	***
ENV										
SOC	466.1	297.78	1.565	0.1177		0.0044	0.0106	0.414	0.6788	
GOV	91.60	240.90	0.380	0.7038		0.0212	0.0086	2.463	0.0139	**
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				

Residual standard error: 12690 on 1739 DF Dispersion parameter for gaussian family taken to be 0.205959
 Multiple R-squared: 0.09429 Null deviance: 477.71 on 1913 DF
 Adjusted R-squared: 0.003663 Residual deviance: 358.16 on 1739 DF
 F-statistic: 1.04 on 174 and 1739 DF AIC: 2575.9
 p-value: 0.3502 Number of Fisher Scoring iterations: 2

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some rows are intentionally left blank because of multicollinearity. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 6: Sample-Wide Detailed Multivariate Regression Outputs

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Pollution Prevention Charity	-5052	1548	-3.264	0.0014	***					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
Residual standard error: 1522 on 136 DF 8811 observations deleted due to missingness Multiple R-squared: 0.7072 Adjusted R-squared: 0.5759 F-statistic: 5.386 on 61 and 136 DF p-value: < 2.2e-16										
Refinitiv										
Environmental Innovation						-0.118	0.0520	-2.277	0.0229	**
CONTROVERSY						0.0585	0.0332	1.763	0.0780	*
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
Dispersion parameter for gaussian family taken to be 0.2208379 Null deviance: 985.83 on 4197 DF Residual deviance: 883.13 on 3999 DF 393 observations deleted due to missingness AIC: 5769.2 Number of Fisher Scoring iterations: 2										
Sustainalytics										
Corporate Governance	2279.3	1321.0	1.726	0.0846	*					
Product Governance						0.0231	0.0116	1.992	0.0465	**
Firm Fixed Effects	Yes					Yes				

Year Fixed Effects	Yes	Yes
	Residual standard error: 12700 on 1733 DF	Dispersion parameter for gaussian family taken to be 0.206117
	Multiple R-squared: 0.09623	Null deviance: 477.71 on 1913 DF
	Adjusted R-squared: 0.002363	Residual deviance: 357.20 on 1733 DF
	F-statistic: 1.025 on 180 and 1733 DF	AIC: 2582.8
	p-value: 0.3993	Number of Fisher Scoring iterations: 2

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 7: Earnings Cutoffs Across Rating Agencies

	Lower Tercile (\$000)	Upper Tercile (\$000)
MSCI	11,369.57	52,803.44
Refinitiv	2905.45	11,106.92
Sustainalytics	4950.10	12,980.21

Table 8: Univariate Analysis of Bottom 33% of Earnings

	MSCI	Refinitiv	Sustainalytics
Number of Firms	333	101	80
Number of Observations	2973	1517	633
ENV	Min.: 0.000 1st Q.: 5.000 Median: 5.000 Mean: 4.966 3rd Q.: 5.000 Max.: 10.000 Std. Dev.: 1.431	Min.: 0.0000 1st Q.: 0.0000 Median: 0.1040 Mean: 0.3260 3rd Q.: 0.5196 Max.: 2.2900 Std. Dev.: 0.2201	Min.: -22.672 1st Q.: -8.930 Median: 0.000 Mean: -4.865 3rd Q.: 0.000 Max.: 0.000 Std. Dev.: 38.122
SOC	Min.: -8.000 1st Q.: -2.000 Median: 0.000 Mean: 0.681 3rd Q.: 4.000 Max.: 4.000 Std. Dev.: 10.183	Min.: 0.0324 1st Q.: 0.7453 Median: 0.9752 Mean: 0.9846 3rd Q.: 1.2129 Max.: 2.3218 Std. Dev.: 0.1526	Min.: -16.333 1st Q.: -9.919 Median: -7.748 Mean: -8.023 3rd Q.: -5.943 Max.: -1.670 Std. Dev.: 8.029
GOV	Min.: -7.000 1st Q.: -6.000 Median: -4.000 Mean: -4.517 3rd Q.: -3.000	Min.: 0.0338 1st Q.: 1.1767 Median: 1.4795 Mean: 1.4844 3rd Q.: 1.8335	Min.: -22.742 1st Q.: -8.475 Median: -15.701 Mean: -12.402 3rd Q.: -11.051

	Max.: 0.000	Max.: 2.7033	Max.: -4.928
	Std. Dev.: 1.634	Std. Dev.: 0.2649	Std. Dev.: 20.906
Outperform	FALSE: 1136	FALSE: 630	FALSE: 269
	TRUE: 1837	TRUE: 887	TRUE: 364

Table 9: General Multivariate Regression Outputs for Bottom 33% of Earnings

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Intercept						0.2978	0.4244	0.702	0.4829	
ENV						-0.028	0.0149	-1.884	0.0596	*
SOC						-0.024	0.0147	-1.601	0.1094	
GOV						0.0824	0.0631	1.305	0.1916	
CONTROVERSY										
Firm Fixed Effects						Yes				
Year Fixed Effects						Yes				
						Dispersion parameter for gaussian family taken to be 0.2239584 Null deviance: 701.93 on 2972 DF Residual deviance: 586.32 on 2618 DF AIC: 4322.5 Number of Fisher Scoring iterations: 2				
Refinitiv										
Intercept	-640.6	143.35	-4.469	9e-06	***					
ENV	3.566	36.779	0.097	0.9228						
SOC	-6.905	34.095	-0.203	0.8395						
GOV	64.737	26.206	2.470	0.0136	**					
CONTROVERSY	109.16	50.141	2.177	0.0297	**					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
						Residual standard error: 240.6 on 1205 DF 188 observations deleted due to missingness Multiple R-squared: 0.314 Adjusted R-squared: 0.2439 F-statistic: 4.484 on 123 and 1205 DF p-value: < 2.2e-16				
Sustainalytics										
Intercept	-919.7	308.18	-2.984	0.0030	***	-0.043	0.3190	-0.136	0.8918	
ENV										
SOC	67.70	21.35	3.171	0.0016	***	0.0251	0.0221	1.135	0.2570	
GOV	5.772	14.72	0.392	0.6951		0.0255	0.0152	1.673	0.0949	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				

Residual standard error: 430.2 on 547 DF Dispersion parameter for gaussian family taken to be 0.1982951
Multiple R-squared: 0.5754 Null deviance: 154.69 on 632 DF
Adjusted R-squared: 0.5094 Residual deviance: 108.47 on 547 DF
F-statistic: 8.719 on 85 and 547 DF AIC: 853.75
p-value: < 2.2e-16 Number of Fisher Scoring iterations: 2

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some rows are intentionally left blank because of multicollinearity. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 10: Detailed Multivariate Regression Outputs for Bottom 33% of Earnings

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Clean Energy	-90.42	134.10	-0.674	0.0008	****					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
Residual standard error: 142.6 on 2299 DF 321 observations deleted due to missingness Multiple R-squared: 0.8592 Adjusted R-squared: 0.8377 F-statistic: 39.86 on 352 and 2299 DF p-value: < 2.2e-16										
Refinitiv										
Workforce Management	-275	72.794	-3.782	0.0002	****					
CSR	78.181	46.255	1.690	0.0913	*					
CONTROVERSY	246.43	50.270	2.342	0.0194	***	0.2626	0.1501	1.749	0.0805	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
Residual standard error: 239.1 on 1198 DF 188 observations deleted due to missingness Multiple R-squared: 0.3268 Adjusted R-squared: 0.2537 F-statistic: 4.473 on 130 and 1198 DF p-value: < 2.2e-16										
Dispersion parameter for gaussian family taken to be 0.2185879 Null deviance: 313.82 on 1328 DF Residual deviance: 261.87 on 1198 DF 188 observations deleted due to missingness AIC: 1876.8 Number of Fisher Scoring iterations: 2										
Sustainalytics										
Human Capital	106.26	62.622	1.697	0.0903	*					
Carbon	87.78	37.806	2.321	0.0206	**	0.0695	0.0391	1.778	0.0759	*
Product Governance						0.0386	0.0201	1.921	0.0553	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				

Residual standard error: 431.5 on 543 DF
 Multiple R-squared: 0.576
 Adjusted R-squared: 0.5065
 F-statistic: 8.288 on 89 and 543 DF
 p-value: < 2.2e-16

Dispersion parameter for gaussian family
 taken to be 0.1987193
 Null deviance: 154.69 on 632 DF
 Residual deviance: 107.90 on 543 DF
 AIC: 858.46
 Number of Fisher Scoring iterations: 2

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 11: Univariate Analysis of Middle 33% of Earnings

	MSCI	Refinitiv	Sustainalytics
Number of Firms	234	65	67
Number of Observations	2973	1511	629
ENV	Min.: 2.000 1st Q.: 5.000 Median: 5.000 Mean: 5.284 3rd Q.: 6.000 Max.: 10.000 Std. Dev.: 1.489	Min.: 0.0000 1st Q.: 0.1703 Median: 0.8764 Mean: 0.9116 3rd Q.: 1.4797 Max.: 2.4216 Std. Dev.: 0.5490	Min.: -24.485 1st Q.: -7.901 Median: 0.000 Mean: -4.105 3rd Q.: 0.000 Max.: 0.000 Std. Dev.: 27.693
SOC	Min.: -9.000 1st Q.: -2.000 Median: 0.000 Mean: 0.501 3rd Q.: 4.000 Max.: 4.000 Std. Dev.: 10.231	Min.: 0.0293 1st Q.: 0.9486 Median: 1.3706 Mean: 1.3651 3rd Q.: 1.7138 Max.: 2.9196 Std. Dev.: 0.3404	Min.: -20.171 1st Q.: -9.402 Median: -7.852 Mean: -7.945 3rd Q.: -6.047 Max.: -1.320 Std. Dev.: 8.652
GOV	Min.: -7.000 1st Q.: -6.000 Median: -4.000 Mean: -4.608 3rd Q.: -4.000 Max.: 0.000 Std. Dev.: 1.628	Min.: 0.0676 1st Q.: 1.2168 Median: 1.6562 Mean: 1.5887 3rd Q.: 1.9775 Max.: 2.8587 Std. Dev.: 0.3409	Min.: -26.149 1st Q.: -15.075 Median: -11.611 Mean: -11.813 3rd Q.: -8.004 Max.: -3.651 Std. Dev.: 21.201
Outperform	FALSE: 1222 TRUE: 1751	FALSE: 565 TRUE: 946	FALSE: 294 TRUE: 335

Table 12: General Multivariate Regression Outputs for Middle 33% of Earnings

	Linear	Logistic
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	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
Refinitiv										
Intercept	0.3071	0.1368	2.246	0.0249	**					
ENV	0.0071	0.0477	0.149	0.8813						
SOC	0.0249	0.0441	0.565	0.5724						
GOV	-0.071	0.0427	-1.668	0.0956	*					
CONTROVERSY	-0.047	0.0579	-0.810	0.4178						
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
						Dispersion parameter for gaussian family taken to be 0.2154561				
						Null deviance: 323.23 on 1418 DF				
						Residual deviance: 288.06 on 1337 DF				
						92 observations deleted due to missingness				
						AIC: 1930.3				
						Number of Fisher Scoring iterations: 2				

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 13: Detailed Multivariate Regression Outputs for Middle 33% of Earnings

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Climate Change	-640.5	265.57	-2.412	0.0176	***					
Health and Safety						-0.835	0.4260	-1.961	0.0526	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
Residual standard error: 341.1 on 104 DF						Dispersion parameter for gaussian family taken to be 0.172292				
2823 observations deleted due to missingness						Null deviance: 31.093 on 149 DF				
Multiple R-squared: 0.5231						Residual deviance: 17.918 on 104 DF				
Adjusted R-squared: 0.3168						2823 observations deleted due to missingness				
F-statistic: 2.535 on 45 and 104 DF						AIC: 200.96				
p-value: 5.245e-05						Number of Fisher Scoring iterations: 2				
Refinitiv										
Environmental Innovation	-538.4	213.70	-2.519	0.0119	**	-0.152	0.0921	-1.652	0.0988	*
Workforce	712.58	257.96	2.762	0.0058	***	0.2998	0.1111	2.697	0.0071	***
CSR						-0.287	0.0986	-2.911	0.0037	***
Firm Fixed Effects	Yes					Yes				

Year Fixed Effects	Yes				Yes					
	Residual standard error: 1074 on 1330 DF 92 observations deleted due to missingness Multiple R-squared: 0.1919 Adjusted R-squared: 0.1384 F-statistic: 3.589 on 88 and 1330 D p-value: < 2.2e-16				Dispersion parameter for gaussian family taken to be 0.2140792 Null deviance: 323.23 on 1418 DF Residual deviance: 284.73 on 1330 DF 92 observations deleted due to missingness AIC: 1927.8 Number of Fisher Scoring iterations: 2					
Sustainalytics										
Product Governance	154.59	61.275	2.523	0.0119	**	0.0458	0.0255	1.800	0.0724	*
Business Ethics	246.79	128.71	1.917	0.0557	*					
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 12700 on 1733 DF Multiple R-squared: 0.09623 Adjusted R-squared: 0.002363 F-statistic: 1.025 on 180 and 1733 DF p-value: 0.3993				Dispersion parameter for gaussian family taken to be 0.1969296 Null deviance: 156.58 on 628 DF Residual deviance: 108.31 on 550 DF AIC: 838.54 Number of Fisher Scoring iterations: 2					

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 14: Univariate Analysis of Top 33% of Earnings

	MSCI	Refinitiv	Sustainalytics
Number of Firms	148	49	60
Number of Observations	3063	1563	652
ENV	Min.: 0.000 1st Q.: 5.000 Median: 5.000 Mean: 5.516 3rd Q.: 6.000 Max.: 10.000 Std. Dev.: 1.541	Min.: 0.0000 1st Q.: 0.9795 Median: 1.7792 Mean: 1.5923 3rd Q.: 2.3356 Max.: 2.9114 Std. Dev.: 0.7033	Min.: -20.447 1st Q.: -5.105 Median: -2.850 Mean: -3.596 3rd Q.: 0.000 Max.: 0.000 Std. Dev.: 17.979
SOC	Min.: -7.000 1st Q.: -2.000 Median: 0.000 Mean: 0.607 3rd Q.: 4.000 Max.: 5.000 Std. Dev.: 8.776	Min.: 0.0595 1st Q.: 1.4777 Median: 1.9846 Mean: 1.9033 3rd Q.: 2.4023 Max.: 2.9644 Std. Dev.: 0.2419	Min.: -20.941 1st Q.: -9.901 Median: -8.180 Mean: -8.597 3rd Q.: -6.748 Max.: -2.806 Std. Dev.: 8.341
GOV	Min.: -7.000	Min.: 0.2720	Min.: -27.592

	1st Q.: -5.000	1st Q.: 1.4770	1st Q.: -13.739
	Median: -4.000	Median: 1.8500	Median: -11.575
	Mean: -4.446	Mean: 1.8270	Mean: -11.178
	3rd Q.: -4.000	3rd Q.: 2.2420	3rd Q.: -7.759
	Max.: 0.000	Max.: 2.7930	Max.: -3.438
	Std. Dev.: 1.156	Std. Dev.: 0.2783	Std. Dev.: 17.256
Outperform	FALSE: 1708	FALSE: 894	FALSE: 355
	TRUE: 1355	TRUE: 669	TRUE: 297

Table 15: General Multivariate Regression Outputs for Top 33% of Earnings

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Intercept	523.91	3066.7	0.171	0.8644		0.3213	0.2700	1.190	0.2341	
ENV	-282.3	147.14	-1.918	0.0552	*	-0.034	0.0130	-2.589	0.0100	***
SOC	-481.7	130.08	-3.703	0.0002	****	-0.008	0.0115	-0.678	0.4979	
GOV	917.36	465.60	1.979	0.0489	**	-0.006	0.0410	-0.150	0.8805	
CONTROVERSY										
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 5450 on 2893 DF Multiple R-squared: 0.07332 Adjusted R-squared: 0.01919 F-statistic: 1.354 on 169 and 2893 DF p-value: 0.002058					Dispersion parameter for gaussian family taken to be 0.2302642 Null deviance: 755.58 on 3062 DF Residual deviance: 666.15 on 2893 DF AIC: 4361.4 Number of Fisher Scoring iterations: 2				
Refinitiv										
Intercept	-170.3	2536.1	-0.067	0.9465		0.4606	0.1399	3.291	0.0010	***
ENV	-1573	824.23	-1.908	0.0566	*	-0.044	0.0455	-0.975	0.3297	
SOC	192.58	705.68	0.273	0.7850		0.0013	0.0389	0.032	0.9741	
GOV	597.17	709.85	0.841	0.4004		0.0497	0.0392	1.268	0.2051	
CONTROVERSY	767.78	870.35	0.882	0.3779		0.1153	0.0480	2.402	0.0165	**
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 8637 on 1377 DF 113 observations deleted due to missingness Multiple R-squared: 0.06094 Adjusted R-squared: 0.01184 F-statistic: 1.241 on 72 and 1377 DF p-value: 0.08767					Dispersion parameter for gaussian family taken to be 0.227107 Null deviance: 347.19 on 1449 DF Residual deviance: 312.73 on 1377 DF 113 observations deleted due to missingness AIC: 2038.6 Number of Fisher Scoring iterations: 2				

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 16: Detailed Multivariate Regression Outputs for Top 33% of Earnings

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Pollution Prevention Firm Fixed Effects	-4986	2083.78	-2.393	0.0192	**					
Year Fixed Effects	Yes									
	Residual standard error: 2020 on 75 DF 2953 observations deleted due to missingness Multiple R-squared: 0.7058 Adjusted R-squared: 0.5724 F-statistic: 5.291 on 34 and 75 DF p-value: 9.64e-10									
Refinitiv										
Environmental Innovation CSR CONTROVERSY Firm Fixed Effects						-0.184	0.0754	-2.320	0.0205	**
Year Fixed Effects	Yes					0.1591	0.0887	1.793	0.0732	*
						0.0998	0.0494	2.018	0.0438	**
	Dispersion parameter for gaussian family taken to be 0.2261202 Null deviance: 347.19 on 1449 DF Residual deviance: 309.78 on 1370 DF 113 observations deleted due to missingness AIC: 2038.9 Number of Fisher Scoring iterations: 2									
Sustainalytics										
Land Use and Biodiversity Firm Fixed Effects						-0.445	0.2327	-1.910	0.0566	*
Year Fixed Effects	Yes									
	Yes									
	Dispersion parameter for gaussian family taken to be 0.2144615 Null deviance: 161.71 on 651 DF Residual deviance: 123.74 on 577 DF AIC: 918.78 Number of Fisher Scoring iterations: 2									

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ***, **, *, and *, respectively.

Table 17: General Multivariate Regression Outputs for Consumer Products and Services Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
	MSCI									
SOC	-147.3	71.18	-2.069	0.0387	**					
GOV	-409.6	204.77	-2.001	0.0455	**	-0.0655	0.0388	-1.688	0.0914	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 2510 on 2709 DF 26 observations deleted due to missingness Multiple R-squared: 0.07568 Adjusted R-squared: 0.02723 F-statistic: 1.562 on 142 and 2709 DF p-value: 3.797e-05					Dispersion parameter for gaussian family taken to be 0.2259922 Null deviance: 682.07 on 2851 DF Residual deviance: 612.21 on 2709 DF 26 observations deleted due to missingness AIC: 3993.3				
	Refinitiv									
ENV	-1192	594.94	-2.003	0.0454	**	-0.1047	0.0414	-2.530	0.0115	**
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 6709 on 1492 DF 116 observations deleted due to missingness Multiple R-squared: 0.06521 Adjusted R-squared: 0.01634 F-statistic: 1.334 on 78 and 1492 DF p-value: 0.02987					Dispersion parameter for gaussian family taken to be 0.2177093 Null deviance: 372.01 on 1570 DF Residual deviance: 324.82 on 1492 DF 116 observations deleted due to missingness AIC: 2142.1 Number of Fisher Scoring iterations: 2				

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 18: Detailed Multivariate Regression Outputs for Consumer Products and Services Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
	MSCI									
Pollution Prevention Regulatory Problems	-5113	2156.9	-2.371	0.0193	**					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
	Residual standard error: 2115 on 126 DF									

2697 observations deleted due to missingness
 Multiple R-squared: 0.5872
 Adjusted R-squared: 0.4103
 F-statistic: 3.319 on 54 and 126 DF
 p-value: 1.727e-08

Refinitiv										
Environmental Innovation	-1820	1100.2	-1.654	0.0984	*					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
	Residual standard error: 6720 on 1485 DF 116 observations deleted due to missingness Multiple R-squared: 0.06678 Adjusted R-squared: 0.01337 F-statistic: 1.25 on 85 and 1485 DF p-value: 0.06554									
Sustainalytics										
Human Rights	-3909	1058.1	-3.694	0.0002	****					
Business Ethics	2121.1	1169.4	1.814	0.0702	*					
Carbon	5886.6	2850.0	2.066	0.0393	**					
Product Impact	2489.8	1100.5	2.262	0.0241	**					
Data Privacy and Security						-0.096	0.0580	-1.657	0.0981	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 9769 on 545 DF Multiple R-squared: 0.07999 Adjusted R-squared: -0.02973 F-statistic: 0.729 on 65 and 545 DF p-value: 0.9433					Dispersion parameter for gaussian family taken to be 0.2242627 Null deviance: 152.66 on 610 DF Residual deviance: 122.22 on 545 DF AIC: 884.69 Number of Fisher Scoring iterations: 2				

Notes: Equation, sig level, only includes significant variables with not MC

Table 19: General Multivariate Regression Outputs for Financial Services Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
SOC	-332.6	68.284	-4.870	1e-06	****					
GOV	705.31	237.81	2.966	0.0031	***					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
	Residual standard error: 2634 on 1845 DF 26 observations deleted due to missingness									

Multiple R-squared: 0.1624
Adjusted R-squared: 0.1039
F-statistic: 2.774 on 129 and 1845 DF p-
value: < 2.2e-16

Sustainalytics					
GOV	0.0306	0.0124	2.478	0.0135	**
Firm Fixed Effects	Yes				
Year Fixed Effects	Yes				
Dispersion parameter for gaussian family taken to be 0.206677					
Null deviance: 142.36 on 569 DF					
Residual deviance: 107.27 on 519 DF					
AIC: 769.5					
Number of Fisher Scoring iterations: 2					

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 20: Detailed Multivariate Regression Outputs for Financial Services Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
Refinitiv										
Emissions	-2486	1437.1	-1.730	0.0839	*					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
Residual standard error: 4485 on 1075 DS										
173 observations deleted due to missingness										
Multiple R-squared: 0.03798										
Adjusted R-squared: -0.03898										
F-statistic: 0.4935 on 86 and 1075 DF										
p-value: 1										
Sustainalytics										
Product Governance	477.47	243.15	1.964	0.0501	*	0.0306	0.0183	1.671	0.0952	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
Residual standard error: 6056 on 515 DF						Dispersion parameter for gaussian family taken to be 0.2074264				
Multiple R-squared: 0.08739						Null deviance: 142.36 on 569 DF				
Adjusted R-squared: -0.008304						Residual deviance: 106.82 on 515 DF				
F-statistic: 0.9132 on 54 and 515 DF						AIC: 775.15				
p-value: 0.6509						Number of Fisher Scoring iterations: 2				

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 21: General Multivariate Regression Outputs for Healthcare Sector

	Linear					Logistic				
	Est.	Std. Error	t- Value	P(> t)	Sig.	Est.	Std. Error	t- Value	P(> t)	Sig.
Refinitiv										
CONTROVERSY	2247.1	1291.15	1.740	0.0827	*					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
	Residual standard error: 5104 on 357 DF 66 observations deleted due to missingness Multiple R-squared: 0.06376 Adjusted R-squared: -0.04376 F-statistic: 0.593 on 41 and 357 DF p-value: 0.9786									
Sustainalytics										
SOC	1125.8	521.95	2.157	0.0328	**					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
	Residual standard error: 5682 on 135 DF Multiple R-squared: 0.1433 Adjusted R-squared: 0.01637 F-statistic: 1.129 on 20 and 135 DF p-value: 0.3279									

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 22: Detailed Multivariate Regression Outputs for Healthcare Sector

	Linear					Logistic				
	Est.	Std. Error	t- Value	P(> t)	Sig.	Est.	Std. Error	t- Value	P(> t)	Sig.
Refinitiv										
Community Firm Fixed Effects						-0.452	0.2034	-2.220	0.0271	**
Year Fixed Effects						Yes				

Null deviance: 95.008 on 398 DF
 Residual deviance: 83.381 on 351 DF
 66 observations deleted due to missingness
 AIC: 605.66
 Number of Fisher Scoring iterations: 2

Sustainalytics				
Basic Services	4763.8	1682.5	2.831	0.0054 ***
Land Use and Biodiversity	377477	173095	2.181	0.0312 **
Resource Use	-163140	78999	-2.065	0.0411 **
Carbon Emissions, Effluents, and Waste	166298	80739	2.060	0.0416 **
Firm Fixed Effects	Yes			
Year Fixed Effects	Yes			
				1.6172 0.9030 1.791 0.0759 *
	Residual standard error: 5655 on 119 DF		Dispersion parameter for gaussian family taken to be 0.2123373	
	Multiple R-squared: 0.2518		Null deviance: 38.481 on 155 DF	
	Adjusted R-squared: 0.02543		Residual deviance: 25.268 on 119 DF	
	F-statistic: 1.112 on 36 and 119 DF		AIC: 234.74	
	p-value: 0.3277		Number of Fisher Scoring iterations: 2	

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 23: General Multivariate Regression Outputs for Energy Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
Refinitiv										
SOC						-0.0948	0.0556	-1.706	0.0884	*
Firm Fixed Effects						Yes				
Year Fixed Effects						Yes				
						Dispersion parameter for gaussian family taken to be 0.1684				
						Null deviance: 152.19 on 735 DF				
						Residual deviance: 117.04 on 695 DF				
						73 observations deleted due to missingness				
						AIC: 819.37				
						Number of Fisher Scoring iterations: 2				
Sustainalytics										
SOC	93.539	45.445	2.058	0.0406	**	0.0525	0.0219	2.398	0.0172	**
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				

Residual standard error: 805.9 on DF
 Multiple R-squared: 0.3165
 Adjusted R-squared: 0.2481
 F-statistic: 4.63 on 24 and 240 DF
 p-value: 1.861e-10

Dispersion parameter for gaussian family
 taken to be 0.1505884
 Null deviance: 60.943 on 264 DF
 Residual deviance: 36.141 on 240 DF
 AIC: 276.08
 Number of Fisher Scoring iterations: 2

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 24: Detailed Multivariate Regression Outputs for Energy Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Supply Chain Pollution Prevention	2993	1777.5	1.684	0.0936	*	0.2914	0.1596	1.826	0.0691	*
Regulatory Problems						-0.259	0.0982	-2.639	0.0088	***
Innovative Giving						-0.391	0.1559	-2.505	0.0129	**
Health and Safety						0.213	0.0965	2.207	0.0282	**
CONTROVERSY						-0.249	0.0905	-2.745	0.0065	***
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
Residual standard error: 4903 on 243 DF 426 observations deleted due to missingness Multiple R-squared: 0.1839 Adjusted R-squared: 0.04289 F-statistic: 1.304 on 42 and 243 DF p-value: 0.1129						Dispersion parameter for gaussian family taken to be 0.1800336 Null deviance: 71.150 on 285 DF Residual deviance: 43.748 on 243 DF 426 observations deleted due to missingness AIC: 362.66				
Refinitiv										
Workforce	-1848	983.42	-1.879	0.0607	*					
Human Rights	1445.6	695.43	2.079	0.0380	**					
Product Responsibility	-1282	556.55	-2.303	0.0216	**					
Management	1207.8	643.05	1.878	0.0608	*					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
Residual standard error: 2893 on 688 DF 73 observations deleted due to missingness Multiple R-squared: 0.1751 Adjusted R-squared: 0.1187 F-statistic: 3.106 on 47 and 688 DF p-value: 1.113e-10										
Sustainalytics										

ESG Financial Integration	-1268	277.32	-4.572	8e-06	****	-0.326	0.1381	-2.361	0.0191	**
Business Ethics	402.34	189.35	-1.613	0.0347	**					
Carbon	2006.1	1145.0	2.125	0.0811	*					
Human Capital						0.2291	0.1025	2.236	0.0263	**
Corruption and Bribery						-0.564	0.2956	-1.908	0.0576	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 764.5 on DF					Dispersion parameter for gaussian family taken to be 0.1449283				
	Multiple R-squared: 0.4053					Null deviance: 60.943 on 264 DF				
	Adjusted R-squared: 0.3233					Residual deviance: 33.623 on 232 DF				
	F-statistic: 4.942 on 32 and 232 DF					AIC: 272.94				
	p-value: 2.009e-13					Number of Fisher Scoring iterations: 2				

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 25: General Multivariate Regression Outputs for Information Technology Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
ENV	-567.7	275.22	-2.063	0.0401	**					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									
	Residual standard error: 2527 on 257 DF					26 observations deleted due to missingness				
	Multiple R-squared: 0.139					Adjusted R-squared: 0.02234				
	F-statistic: 1.191 on 35 and 257 DF					p-value: 0.2228				

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 26: Detailed Multivariate Regression Outputs for Information Technology Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										

Antitrust	3988.89	1056.2	3.777	0.0002	****
Firm Fixed Effects	Yes				
Year Fixed Effects	Yes				
	Residual standard error: 1803 on 134 DF 156 observations deleted due to missingness Multiple R-squared: 0.1838 Adjusted R-squared: 0.01321 F-statistic: 1.077 on 28 and 134 DF p-value: 0.3748				
	Sustainalytics				
Human Rights	-14110	5198	-2.715	0.0088	***
Human Capital	18660	7649	2.439	0.0179	**
ESG Financial Integration	-5814	3389	-1.716	0.0917	*
Resource Use	14670	7132	2.057	0.0443	**
Data Privacy and Security	6038	3601	1.676	0.0992	*
Firm Fixed Effects	Yes				
Year Fixed Effects	Yes				
	Residual standard error: 4488 on 56 DF Multiple R-squared: 0.2259 Adjusted R-squared: -0.03669 F-statistic: 0.8603 on 19 and 56 DF p-value: 0.6296				

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 27: General Multivariate Regression Outputs for Materials and Resources Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
	Refinitiv									
ENV	-1030	290.83	-3.543	0.0006	****					
GOV	-535.7	227.19	-2.358	0.0205	**	-0.5945	0.2228	-2.668	0.0090	***
CONTROVERSY	-846.9	495.54	-1.709	0.0908	*	-1.0739	0.4860	-2.210	0.0296	**
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 437.7 on 91 DF 28 observations deleted due to missingness Multiple R-squared: 0.5088 Adjusted R-squared: 0.3738 F-statistic: 3.77 on 25 and 91 DF					Dispersion parameter for gaussian family taken to be 0.1842468 Null deviance: 26.325 on 116 DF Residual deviance: 16.766 on 91 DF 28 observations deleted due to missingness				

p-value: 1.804e-06

AIC: 158.72

Number of Fisher Scoring iterations: 2

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 28: Detailed Multivariate Regression Outputs for Materials and Resources Sector

	Linear					Logistic				
	Est.	Std. Error	t-Value	P(> t)	Sig.	Est.	Std. Error	t-Value	P(> t)	Sig.
MSCI										
Health and Safety	3816.4	1106.5	3.449	0.0009	****	0.720	0.4144	1.738	0.0860	*
Product Safety	3368.85	637.59	5.284	1e-06	****	0.5062	0.2388	2.120	0.0371	**
Antitrust	-1579.1	662.18	-2.385	0.0194	**					
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 1283 on 82 DF 199 observations deleted due to missingness Multiple R-squared: 0.3617 Adjusted R-squared: 0.1826 F-statistic: 2.02 on 23 and 82 DF p-value: 0.01111					Dispersion parameter for gaussian family taken to be 0.2308924 Null deviance: 23.774 on 105 DF Residual deviance: 18.933 on 82 DF 199 observations deleted due to missingness AIC: 168.23				
Refinitiv										
Management	-1218	513.54	-2.373	0.0199	**					
CSR	-880.3	456.38	-1.929	0.0570	*					
Workforce						-2.031	0.8674	-2.342	0.0215	**
CONTROVERSY						-0.844	0.4720	-1.789	0.07713	*
Firm Fixed Effects	Yes					Yes				
Year Fixed Effects	Yes					Yes				
	Residual standard error: 479 on 88 DF 28 observations deleted due to missingness Multiple R-squared: 0.4309 Adjusted R-squared: 0.2499 F-statistic: 2.38 on 28 and 88 DF p-value: 0.001145					Dispersion parameter for gaussian family taken to be 0.1971397 Null deviance: 26.325 on 116 DF Residual deviance: 17.348 on 88 DF 28 observations deleted due to missingness AIC: 168.72 Number of Fisher Scoring iterations: 2				
Sustainalytics										
Human Capital	-2101	1029.2	1.700	0.0964	*					
Product	-3204	1493.4	-2.041	0.0475	**					
Governance										
Business Ethics	-14904	6143.5	-2.426	0.0378	**					
Firm Fixed Effects	Yes									
Year Fixed Effects	Yes									

Residual standard error: 773.3 on 42 DF
Multiple R-squared: 0.4871
Adjusted R-squared: 0.3406
F-statistic: 3.325 on 12 and 42 DF
p-value: 0.001891

Notes: The dependent variable for the linear regression is *Outperformance*, while the dependent variable for the logistic model is *Outperform*. Firm and time fixed effects are not provided. Note that some significant variables lacking multicollinearity are reported. Statistical significance at the 0%, 1%, 5%, and 10% levels is denoted by ****, ***, **, and *, respectively.

Table 29: Summary of Significant Input Variables Directional Relationship with Earnings

	Full Sample	Bottom 3 rd of Earnings	Middle 3 rd of Earnings	Top 3 rd of Earnings	Consumer Products and Services	Financial Services	Healthcare	Energy	Information Technology	Materials and Resources
General MSCI Model										
ENV	Negative	Negative		Negative					Negative	
SOC	Negative			Negative	Negative	Negative				
GOV	Positive			Positive	Negative	Positive				
General Refintiv Model										
ENV	Negative			Negative	Negative					Negative
SOC								Negative		
GOV		Positive	Negative							Negative
General Sustainalytics Model										
ENV										
SOC		Positive					Positive			
GOV	Positive	Positive				Positive				
Detailed MSCI Model										
Clean Energy		Negative								
Climate Change			Negative							
Land and Biodiversity										
Noncarbon Releases										
Pollution Prevention	Negative			Negative	Negative			Positive		
Charity	Negative									
Health and Safety			Negative					Positive		Positive
Innovative Giving								Negative		
Product Safety										
Antitrust									Positive	Positive
Economic Risk Management										Negative
Regulatory Problems					Negative			Negative		
Supply Chain								Positive		
Detailed Refintiv Model										
Emissions						Negative				
Environmental Innovation	Negative		Negative	Negative	Negative					
Resource Use										
Community CSR		Positive	Negative	Positive			Negative			Negative
Human Rights								Positive		
Workforce Management		Negative	Positive					Negative		Negative
Product Responsibility		Positive						Positive		Negative
Shareholders								Negative		
Detailed Sustainalytics Model										
Carbon		Positive			Positive		Positive	Positive		

Land and Biodiversity				Negative		Positive		
Resource Use						Negative		Positive
Waste						Positive		
Basic Services						Positive		
Community						Positive		
Data Security and Privacy				Negative				Positive
Health and Safety								
Human Capital		Positive				Positive	Positive	Negative
Human Rights								Negative
Product Impact				Negative				
Corruption and Bribery						Positive		
Corporate Governance	Positive	Positive						
Business Ethics			Positive		Positive		Positive	Negative
ESG Financial Integration							Negative	Negative
Product Governance	Positive	Positive	Positive			Positive		Negative

Notes: Insignificant dependent variables are omitted from the table.

APPENDICES

Appendix 1: Sample B2C SIC Codes

0191	General Farms, Primarily Crop	6099	Functions Related to Depository Banking
0291	General Farms, Primarily Livestock Veterinary Services for Animal	6141	Personal Credit Institutions Miscellaneous Business Credit
0742	Specialties	6159	Institutions
0781	Landscape Counseling and Planning	6282	Investment Advice
0782	Lawn and Garden Services	6311	Life Insurance
1521	General Contractors, Single-Family Houses	6321	Accident and Health Insurance
1522	General Contractors, Residential Buildings	6324	Hospital and Medical Service Plans
1711	Plumbing, Heating, and Air-Conditioning	6361	Title Insurance
1731	Electrical Work	6371	Pension, Health, and Welfare Funds Insurance Carriers, Not Elsewhere Classified
4111	Local and Suburban Transit	6399	Classified
4119	Local Passenger Transportation	6411	Insurance Agents, Brokers, and Service
4121	Taxicabs	6513	Operators of Apartment Buildings Operators of Dwellings other than
4131	Intercity and Rural Bus Transportation	6514	Apartment Buildings Operators of Residential Mobile Home
4311	United States Postal Service	6515	Sites
4481	Deep Sea Transportation of Passengers	6531	Real Estate Agents and Managers
4482	Ferries	7011	Hotels and Motels
4489	Water Transportation of Passengers	7021	Rooming and Boarding Houses
4512	Scheduled Air Transportation	7032	Sporting and Recreational Camps Recreational Vehicle Parks and
4724	Travel Agencies	7033	Campsites
4841	Cable and Other Pay Television Services	7216	Dry-Cleaning Plants
4931	Electric and Other Services Combined	7217	Carpet and Upholstery Cleaning
4932	Gas and Other Services Combined	7219	Laundry and Garment Services
4939	Combination Utilities	7221	Photographic Studios, Portrait
4961	Steam and Air-Conditioning Supply	7231	Beauty Shops
5231	Paint, Glass, and Wallpaper Stores	7241	Barber Shops
5251	Hardware Stores	7251	Shoe Repair Shops and Shoeshine Parlors
5261	Retail Nurseries, Lawn, and Garden Supply Stores	7261	Funeral Service and Crematories
5271	Mobile Home Dealers	7291	Tax Return Preparation Services
5311	Department Stores	7299	Miscellaneous Personal Services
5331	Variety Stores	7323	Credit Reporting Services
5399	Miscellaneous General Merchandise Stores	7342	Disinfecting and Pest Control Services Building Cleaning and Maintenance
5411	Grocery Stores	7349	Services
5421	Meat and Fish Markets		

5431	Fruit and Vegetable Markets	7377	Computer Rental and Leasing
5441	Candy, Nut, and Confectionery Stores	7378	Computer Maintenance and Repair
5451	Dairy Products Stores	7382	Security Systems Services
5461	Retail Bakeries	7384	Photofinishing Laboratories
5499	Miscellaneous Food Stores	7389	Business Services
5511	Motor Vehicle Dealers		Garment Pressing and Agents for
5521	Used Motor Vehicle Dealers	7512	Laundries and Drycleaners
5531	Auto and Home Supply Stores	7513	Truck Rental and Leasing without Drivers
5541	Gasoline Service Stations	7514	Passenger Car Rental
5551	Boat Dealers	7515	Passenger Car Leasing
5561	Recreation Vehicle Dealers		Utility Trailer and Recreational Vehicle
5571	Motorcycle Dealers	7519	Rental
5599	Automotive Dealers	7521	Automobile Parking
	Men's and Boy's Clothing and Accessory		Top, Body, and Upholstery Repair Shops
5611	Stores	7532	and Paint Shops
5621	Women's Clothing Stores		Automotive Exhaust System Repair
5632	Women's Accessory and Specialty Stores	7533	Shops
5641	Children's and Infants' Wear Stores	7534	Tire Retreading and Repair Shops
5651	Family Clothing Stores	7536	Automotive Glass Replacement Shops
5661	Shoe Stores	7537	Automotive Transmission Repair Shops
	Miscellaneous Apparel and Accessory	7538	General Automotive Repair Shops
5699	Stores	7539	Automotive Repair Shops
5712	Furniture Stores	7542	Car Washes
5713	Floor Covering Stores	7549	Automotive Services
5714	Drapery, Curtain, and Upholstery Stores	7622	Radio and Television Repair Shops
5719	Miscellaneous Home Furnishings Stores		Refrigeration and Air-Conditioning
5722	Household Appliance Stores	7623	Service and Repair Shops
	Radio, Television, and Consumer	7629	Electrical and Electronic Repair Shops
5731	Electronics Stores	7631	Watch, Clock, and Jewelry Repair
5734	Computer and Computer Software Stores	7641	Reupholstery and Furniture Repair
5735	Record and Prerecorded Tape Stores	7692	Welding Repair
5736	Musical Instrument Stores	7694	Armature Rewinding Shops
5812	Eating Places	7699	Repair Shops and Related Services
5813	Drinking Places	7831	Motion Picture Theaters
5912	Drug Stores and Proprietary Stores	7833	Drive-In Motion Picture Theaters
5921	Liquor Stores	7841	Video Tape Rental
5932	Used Merchandise Stores	7911	Dance Studios, Schools, and Halls
5941	Sporting Goods Stores and Bicycle Shops		Bands, Orchestras, Actors, and other
5942	Book Stores	7929	Entertainers and Entertainment Groups
5943	Stationary Stores	7933	Bowling Centers
5944	Jewelry Stores	7941	Professional Sports Clubs and Promoters
5945	Hobby, Toy, and Game Shops	7991	Physical Fitness Facilities
		7992	Public Golf Courses

5946	Camera and Photographic Supply Stores	7996	Amusement Parks
5947	Gift, Novelty, and Souvenir Shops	7997	Membership Sports and Recreation Clubs
5948	Luggage and Leather Goods Stores	7999	Amusement and Recreation Services
5949	Sewing, Needlework, and Piece Goods Stores	8011	Offices and Clinics of Doctors of Medicine
5961	Catalog and Mail-Order Houses	8021	Offices and Clinics of Dentists
5963	Direct Selling Establishments		Offices and Clinics of Doctors of Osteopathy
5983	Fuel Oil Dealers	8031	Osteopathy
5984	Liquefied Petroleum Gas Dealers	8041	Offices and Clinics of Chiropractors
5989	Fuel Dealers	8042	Offices and Clinics of Optometrists
5992	Florists	8043	Offices and Clinics of Podiatrists
5993	Tobacco Stores and Stands		Offices and Clinics of Health Practitioners
5994	News Dealers and Newsstands	8049	Practitioners
5995	Optical Goods Stores	8051	Skilled Nursing Care Facilities
5999	Miscellaneous Retail Stores	8052	Intermediate Care Facilities
6021	National Commercial Banks	8059	Nursing and Personal Care Facilities
6022	State Commercial Banks	8062	General Medical and Surgical Hospitals
	Commercial Banks, Not Elsewhere	8063	Psychiatric Hospitals
6029	Classified	8069	Specialty Hospitals
6035	Savings Institutions, Federally Chartered	8071	Medical Laboratories
	Savings Institutions, Not Federally	8082	Home Health Care Services
6036	Chartered	8092	Kidney Dialysis Centers
6061	Credit Unions, Federally Chartered	8093	Specialty Outpatient Facilities
6062	Credit Unions, Not Federally Chartered	8351	Child Day Care Services
6081	Branches and Agencies of Foreign Banks	8361	Residential Care
		8412	Museums and Art Galleries
			Arboreta and Botanical or Zoological
		8422	Gardens
		8811	Private Households

Notes: If a firm business provides both B2C and B2B activities, the firm is defined as B2C (Haddock-Fraser and Tourelle, 2010).