Social Premiums*

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Abstract

Despite the growing interest in ESG investing, the relative lack of research exploring potential premiums associated with the social (S) dimension presents a puzzling gap in the literature. Using the MSCI social scores, we find that the two main components of a firm's social profiles, human capital and product safety, command opposite return premiums in the cross-section of US stocks. While stocks with a high human capital score typically earn a higher return, stocks with a high product safety score earn a significantly lower return. Consequently, while subcomponents of the social premium exist, investing based on the overall social score yield zero premium. Our findings challenge the common ESG investing practice of aggregating factors with potentially inconsistent risk and return implications.

Keywords: ESG, Return Predictability, Risk Premiums, Social Scores.
JEL codes: G12, G23, G24.

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1 Introduction

Investors have invested trillion of dollars according to environmental, social, and governance (ESG) criteria. They often mention improved returns as the number one motivation for ESG investing.[1] If ESG investing really improves returns, a firm's ESG ratings should predict its future stock return. Early academic literature shows that to be the case for the governance (G) dimension (e.g., Gompers, Ishii, and Metrick, 2003), while more recent research finds that to be the case for the environmental (E) dimension (e.g., Pástor, Stambaugh, and Taylor, 2022; Bolton and Kacperczyk, 2021). In contrast, little attention has been paid to the social (S) dimension, despite the availability of social ratings within commercially available ESG ratings. In this paper, we aim to fill this gap, examining whether a firm's social ratings predict its future stock return.

Before addressing this question, we need to understand what a firm's social ratings really capture. For that, we focus on the social scores within the MSCI ESG ratings, for three reasons. First, MSCI is the largest ESG rating provider by revenue (Berg, Koelbel, Pavlova, and Rigobon, 2022). Second, "only the MSCI ESG ratings can explain the holdings of US funds with an ESG mandate", according to Berg, Heeb, and Kölbel (2022), a study of five major ESG ratings. Third, previous studies have often focused on the MSCI ratings to examine the return to ESG investing (e.g., Pástor et al., 2022). Thus, focusing on the MSCI social rating will allow us to contrast our findings with the existing studies on the other dimensions of ESG investing.

The MSCI social rating consists of two main components: human capital score and product safety score. For the human capital score, MSCI assesses how well a company manages its relationships with employees, labor health and safety, human capital development, and supply chain labor standards. Consistent with this description, we find that the MSCI human capital score strongly predicts the likelihood of a firm appearing on Fortune Maganize's list of 100 Best Companies to Work For (Best Companies hereafter), which is based on an anonymous survey of firms' employees. For the product safety score, MSCI evaluates companies on their management of potential product-related liabilities, including chemical safety, product recall and quality, as well consumer financial protection, privacy and data security, and responsible investment, whichever applies. Consistent with this description, we find that a higher product safety score is associated with a lower chance of a firm having penalties from regulatory agencies on product-related issues, such as drug or medical equipment safety violation for a pharmaceutical company.

[1] See, for example, www.schroders.com/en-us/us/individual/media-center/schroders-global-investor-study-2020–sustainability or https://securities.cib.bnpparibas/app/uploads/sites/3/2019/08/esg-global-survey-en-2019.pdf

There are different theories on how a firm's social ratings should predict its future stock returns and they depend on whether the social ratings are about human capital or product safety. There is extensive literature documenting product safety incidents adversely affecting firm value (e.g., Dowdell, Govindaraj, and Jain, 1992; Karpoff and Lott Jr, 1993). In other words, product safety incidents are bad for business. Consequently, we would expect firms with better product safety to have safer cash flows and command lower expected returns commensurate with their lower risk. Economic reasoning implies that firms with high Human Capital scores, characterized by more productive and satisfied employees and fewer labor incidents, should also exhibit lower risk in their cash flows and, consequently, lower expected returns. However, existing literature suggests that human capital may be under-priced by the market (e.g., Edmans, 2011; Boustanifar and Kang, 2022), with firms with high employee satisfaction consistently outperforming the market. Hence, empirically, the effect of human capital score on expected returns may be mixed.

We assess the presence of social premiums in the cross-section of US stock returns using a standard cross-sectional regression approach, following Bolton and Kacperczyk (2021). In line with economic intuition, our findings indicate a negative premium associated with the product safety score, meaning firms with higher product safety typically yield lower average returns. Specifically, a one standard deviation increase in a firm's product safety score is associated with an approximate annual return reduction of 1.20%, controlling for battery of other predictors. Contrary to our findings on product safety, but in line with prior research, we observe a positive, though statistically insignificant, premium linked to the human capital score. Interestingly, the magnitude of this premium is comparable to that of the product safety score. As a result, the aggregate social score appears to have no predictive power for future stock returns, given that its two key components exhibit opposing and neutralizing effects. Our results call into question the approach in ESG investing of combining different factors that could exhibit divergent risk and return characteristics into a single score.

2 Data

We analyze U.S. companies over the sample period from January 2007 to December 2022. Our data sources include social scores and their components from the MSCI ESG database, monthly return data from Center for Research in Security Prices (CRSP), and firm characteristics from Compustat. In the MSCI ESG database, we select firms whose International Securities Identification Numbers (ISINs) begin with 'US'. We fill data gaps up to 24 months using the last available information. The merging of CRSP and Compustat data utilizes the CRSP/Compustat Linking Table. Additionally, we incorporate MSCI data through an inner

join, aligning both the first six digits of the CUSIPs and the month-year. To ensure accuracy in matching, we employ string cleaning and fuzzy matching techniques on company names, and manually verify any discrepancies where firms match on CUSIP but not on name. Out of 7,964 U.S. firms in the MSCI ESG dataset, we successfully matched 3,580 with CRSP-Compustat data. The unmatched firms are primarily not listed on major exchanges such as the NYSE, Amex, and Nasdaq.

2.1 Social scores

We use the MSCI scores for the social pillar (S score) and its four constituent theme scores: Human Capital, Product Safety, Social Opportunities, and Stakeholder Opposition. MSCI has been providing these time series since 2007. The rating of companies is based on their exposure to and management of industry-relevant social risks, relative to their peers. Different industries face distinct social risks. For instance, privacy and data security hold paramount importance in the communication services sector, contributing 49.2% to the social score, while this risk carries no weight in the materials sector. Conversely, health and safety issues are a significant risk in the health care sector, accounting for 39.9% of the social score, but are not a consideration for information technology firms.

MSCI ESG ratings are derived from public and macro-level data pertinent to both the company and its operating sector. This data encompasses corporate disclosure documents, datasets from governments, regulatory bodies, and NGOs, as well as media sources (MSCI, 2023a). To compute theme scores, MSCI considers two to five key issues for each industry. Industries are classified according to the Global Industry Classification Standard (GICS), the global industry classification standard developed jointly by MSCI and Standard and Poor's. All scores are rated on a scale 0 to 10. Hence, the scores for the social themes like Product Safety are computed as a weighted average of the underlying key issue scores. These theme scores are subsequently combined into a aggregate social pillar score, employing a weighted methodology for aggregation. Notably, these social pillar scores are not absolute values; instead, they should be interpreted in relation to the scores of industry peers. High scores signify industry leadership, while low scores indicate lagging behind industry standards.

We focus on the two main themes Human Capital and Product Safety (recently renamed product Liability).[2] The Human Capital theme is composed of four key issues: Health & Safety, Human Capital Development, Labor Management and Supply Chain Labor Stan-

[2]The remaining social pillar themes, Social Opportunities and Stakeholder Opposition, have data available only from 2014 and for a limited number of firms. Additionally, the influence of these themes on the aggregate social score is minimal. Consequently, we have excluded these themes from our main analysis. We provide summary statistics for these variables in the Internet Appendix.

dards. In the absence of data for some of the key issues, the unweighted score of Human Capital Development is used (MSCI, 2023a). The Health & Safety key issue score evaluates companies on how well they manage workplace safety and adhere to workplace safety standards (MSCI, 2023b), the Human Capital Development score covers talent requirements for their workforce and their capacity to recruit, retain, and develop a highly qualified workforce, the Labor Management score assesses the complexity of a company's workforce (size, labour intensity, and operational locations), the management-labor dynamic, the effectiveness of worker rights, and employee engagement (MSCI, 2023c). Finally, the Supply Chain Labor Standards core ranks management, transparency, and working conditions of the supply chain (MSCI, 2023a).

Product Safety comprises five key issues: Chemical Safety, Consumer Financial Protection, Privacy & Data Security, Product Safety & Quality, and Responsible Investment. The company's Chemical Safety score assesses the use of harmful chemicals in products, exposure to evolving or stringent regulations, and efforts to develop less harmful substitutes. The Consumer Financial Protection score evaluates financial institutions based on product stewardship, transparency, and management of potential reputational and regulatory risks, including unethical lending practices, greenwashing, and financial product misrepresentation. The Privacy & Data Security score considers the amount of personal data collected, exposure to changing privacy regulations, vulnerability to data breaches, and effectiveness of personal data protection procedures. The Product Safety & Quality key issue gauges companies' susceptibility to product safety issues or recalls, effectiveness of supply chain and sourcing systems, manufacturing quality control, and responsible marketing practices. Lastly, the Responsible Investment score reflects the extent to which companies incorporate ESG considerations in managing their own or delegated assets.

Panel A of Table 1 reports descriptive statistics of the social pillar and the theme scores Human Capital and Product Safety. The mean and median scores of the social pillar is 4.37 and of 4.3, respectively. Extreme values are less likely as 90% of the observations lie between 2 and 6.9. The means and medians of the Human Capital (4.16 and 4.1, respectively) and Product Safety (4.64 and 4.5, respectively) themes are comparable. The distributions of all three values are fairly symmetrical, with mean and median values close to each other. Product Safety scores exhibit the highest dispersion with a standard deviation of 2.24. The Internet Appendix reports social scores descriptive statistics by year and by industry.

2.2 Firm characteristics and stock returns

We source monthly stock prices, returns, and shares outstanding from the CRSP database, along with annual accounting data from the Compustat North America database. For cleaning and merging the CRSP and Compustat datasets, we adhere to the standard procedures outlined in Bali, Engle, and Murray (2016). For the construction of accounting ratios, we follow Jensen, Kelly, and Pedersen (2021).

Given the limited guidance in existing literature regarding the determinants of social scores, our selection of control variables in our tests largely follows Bolton and Kacperczyk (2021), which includes key predictors of returns in the cross-section of stock returns. Monthly stock return data is obtained from CRSP, adjusted for delistings. Beta is the CAPM beta, calculated using the WRDS Beta Suite with daily returns, employing a one-year rolling window and requiring a minimum of 200 observations. The Momentum of firm i at time t is the cumulative monthly stock return over the year from $t-12$ to $t-1$. Volatility of firm i at time t is the standard deviation of monthly returns over the same period. Log Size is the natural logarithm of a firm's market capitalization (share price multiplied by the shares outstanding). BM is the book-to-market ratio, Leverage is the book value of debt to the book value of assets ratio, and Investment is capital expenditure to the book value of assets ratio. Log Size and BM are calculated as of year-end. ROE is the net income to book value of equity ratio. HHI is the Herfindahl–Hirschman Index, calculated using sales data from the Compustat Segments database. Log PPE is the natural logarithm of the firm's net plant, property, and equipment (PP&E). Sales Growth is the annual sales change to one-month lagged market capitalization ratio. EPS Growth is the change in basic earnings per share, excluding extraordinary items, to share price ratio. We winsorize BM, Leverage, and Investment at 2.5%, and Momentum, Volatility, Sales Growth, and EPS Growth at 0.5%. Returns are winsorized at the 0.1% level following Edmans (2023).

Panel B of Table 1 presents the descriptive statistics for firm characteristics and stock returns. The average monthly return is 1.02%, accompanied by a standard deviation of 12.14%. The firms in our sample exhibit a slightly higher market risk than the overall market, with an average beta coefficient of 1.15. The sample period's average momentum loading is positive, with a mean of 0.16 and a standard deviation of 0.51. The average return volatility measure is 0.10. The mean log market capitalization stands at 8, and the mean log PP&E at 5.74. The average book-to-market ratio is 0.52, and the mean leverage is 23%. Nearly half (45%) of the sample firms are concentrated in a single business segment, with an HHI across all firms at 0.76. Sales growth averages 3%, with a notably high standard deviation of 57%. Over our sample period, the average EPS growth for our sample of firms is negative, at -1%. The Internet Appendix reports the pair-wise correlations among the

different variables used in our tests, with just few noteworthy correlations (we observe that Human Capital and the Product Safety scores are slightly negative correlated, -0.21, and we observe that both scores are slightly positive correlated with firm size, 0.10).

2.3 Best company

In additional tests, we utilize the 'Best Company' identifier variable from Edmans (2011) and Boustanifar and Kang (2022). This variable is assigned a value of one for any year in which a company appears on the Top 100 Companies to Work for in America list, and zero otherwise. Every January, Fortune magazine releases this list, compiled by The Great Place To Work Institute. The data is available publicly.[3]

3 Social scores coverage

In this section, we outline key stylized facts about social score data coverage.

3.1 Social scores across time and firm sizes

Figure 1 displays the evolution of firm coverage from January 2007 to December 2022. Panel A illustrates the number of firms with non-missing variable data in the CRSP-Compustat merged dataset, as well as those reporting Social, Human Capital, and Product Safety scores. At the sample's start, the CRSP-Compustat merged dataset includes $3,549$ firms, which decreases to $3,016$ by December 2022. This downward trend parallels findings in Figure 1 of Lindsey, Pruitt, and Schiller (2022), though discrepancies in firm counts are likely due to differing criteria for firm characteristics between our studies. Initially, nearly 387 firms report the Social Pillar score. The count increases to approximately $1,547$ firms by the end of 2012, coinciding with MSCI ESG's expanded coverage to include smaller firms. A similar trend is observed in Pástor et al. (2022).[4] Post-2012, the firm count in our sample stabilizes around the 1600s, peaking at $1,760$ in 2021 before slightly declining to $1,741$ in 2022. Starting in 2013, MSCI begins reporting scores for the Human Capital and Product Safety themes. By December 2013, $1,633$ firms report the Human Capital score, and this figure generally remains in the 1500s and 1600s, reaching $1,758$ in 2021 and then dropping to $1,739$ in 2022. Although most firms reporting the Social Pillar score also report Human

[3]We thank Hamid Boustanifar for providing us the data from Boustanifar and Kang (2022), we then extend the dataset to include the years 2021 and 2022.

[4]The surge in coverage reflects MSCI's inclusion of the U.S. Investible Market Index, predominantly comprising smaller U.S. firms. Prior to this, MSCI primarily focused on the largest $1,500$ firms in the MSCI World Index and large firms in the UK and Australia MSCI indexes.

Capital, fewer report Product Safety. In December 2013, 1,142 firms report the Product Safety score, which sees a decline in 2014 and 2015, followed by a period of stability until 2018. Subsequently, the count gradually increases to 1,300 in 2021 and then decreases slightly to 1,293 in 2022.

Panel B of Figure 1 depicts the total market capitalization of firms in the CRSP-Compustat merged dataset, alongside those reporting MSCI Social, Human Capital, and Product Safety scores. From the onset of coverage in 2007, the market capitalization of the largest firms in the CRSP-Compustat dataset and those reporting aggregate social scores closely align. By 2022, the market capitalization of both datasets converged to approximately $30 trillion. The market cap trajectory of firms reporting Human Capital scores closely aligns with those reporting Social scores, suggesting a significant overlap in reporting entities. Conversely, the market cap of firms reporting Product Safety scores was initially lower, but by December 2022, it reached $23.4 trillion.

An examination of the total market capitalization of firms categorized into different market capitalization tertiles offers additional insights.[5] Figure 2 displays the distribution of firms across these market cap categories, while Figure 3 shows the respective total market capitalizations. Notably, the coverage of the largest firms is comprehensive, capturing the majority of the market capitalization of the largest listed stocks and, consequently, a significant portion of the overall market capitalization. This extensive coverage persists even without smaller firms included. Essentially, the dataset provides almost complete coverage based on market capitalization criteria. Notably, the inclusion of small-cap stocks towards the end of 2013 further reduced any disparities in market cap coverage.

3.2 Social scores across industries

In Figure 4, we present the distribution of firms reporting the Social, Human Capital and Product Safety scores, categorized by economic sector using the GICS two-digit codes. In analyzing the CRSP-Compustat dataset, we find that the health care, finance, and information technology sectors contain the highest number of firms. In contrast, sectors such as real estate, utilities, communication services, and materials have a comparatively lower number of firms. The distribution of firms reporting Social and Human Capital scores closely aligns with this industry distribution in the market. The representation of firms with Product Safety scores generally reflects the market's industry distribution. However, notable

[5]Firms reporting Social, Human Capital, and Product Safety scores are classified into three market cap categories: small-cap, mid-cap, and large-cap, using market equity breakpoint data from Kenneth French's website. This dataset employs all NYSE stocks with share codes 10 or 11 to compute market equity percentiles from 5% to 100%, spanning from December 1925 to June 2023. The cutoff percentiles for constructing market cap buckets are the 30th and 70th percentiles.

deviations exist in sectors like Industrials, Energy, Materials, and Utilities. Considering that Product Safety primarily focuses on consumer-facing products, these criteria are less pertinent in primary sectors such as energy and materials.

4 Empirical methodology and results

4.1 Social scores premiums

In this subsection, we analyze the return premiums of social scores in the cross-section of stock returns.

4.1.1 Cross-sectional regression

We examine the relationship between a firm's social rating and stock returns, controlling for other known predictors. Specifically, we estimate the following panel linear regression:

$$\begin{aligned} \mathrm{R}_{i,t+1} = \beta_1 \mathrm{S}_{i,t} + \beta_2 \text{Log Size}_{i,t} + \beta_3 \mathrm{BM}_{i,t} + \beta_4 \text{Investment}_{i,t} + \\ \beta_5 \text{Leverage}_{i,t} + \beta_6 \text{Log PPE}_{i,t} + \beta_7 \mathrm{ROE}_{i,t} + \beta_8 \text{Beta}_{i,t} + \beta_9 \text{Momentum}_{i,t} + \\ \beta_{10} \text{Volatility}_{i,t} + \beta_{11} \text{Sales Growth}_{i,t} + \beta_{12} \text{EPS Growth}_{i,t} + \beta_{13} \mathrm{HHI}_{i,t} + \\ \mu_{\text{date}} + \gamma_{\text{industry}} + \epsilon_{i,t}, \end{aligned} \tag{1}$$

where the dependent variable, $R_{i,t+1}$, is the stock returns of firm i in month $t+1$. $S_{i,t}$ is a generic term that refers to the Social scores (alternatively referring to Social Pillar score, Human Capital Theme score and Product Safety Theme score) of firm i at month t. Other explanatory variables used in this model include firm characteristics like Log Size, Book-to-Market ratio, Investment, Leverage, Log PP&E, Return on Equity ratio, Sales Growth, EPS Growth and Business Segments HHI. As well as stock characteristics, such as: CAPM Beta, Momentum and Volatility. We include in the model industry and date fixed effects, and we cluster standard errors at the firm level and at the year level.

4.1.2 Cross-sectional regression results

Table 2 presents the cross-sectional regression results. The first three columns show the results without controlling for firm and stock characteristics, while the last three columns show the results with all controls. Columns 1 and 4 are estimated including Social score, Columns 2 and 5 are estimated including Human Capital score, and Columns 3 and 6 are estimated including Product Safety score. For Product Safety score, we find a negative and statistically significant relationship with stock returns (t-stat = 2.47). The relationship is

also economically significant. In the version of the model with the full set of controls, an increase of one standard deviation in Product Safety score leads to a 1.24% decrease in average annual returns. In contrast, but in line with prior research, we observe a positive, though statistically insignificant, premium linked to the human capital score. Notably, the magnitude of this Human Capital premium estimate is comparable to that of the product safety score. Consequently, we find that the aggregate social score to have zero predictive power for future stock returns, which is not surprising given that its two main components exhibit opposing and neutralizing effects. The signs of the estimates of most control variables are consistent prior literature, however the estimates are not typically not statistically significant due to low power.[6]

4.2 Human capital score and Best Company categorization

4.2.1 Best Company as a cross-sectional predictor

We turn our attention to the Human Capital score. Despite previous literature documenting a positive link between workforce well-being and stock returns, our analysis does not strongly support this relationship. To further investigate, we introduce a Best Company dummy variable, assigned a value of 1 for firms in the Best Company list in a given year, and 0 otherwise. We then reestimate the regression from the previous sub-section. Table 3 reports the results.

In Column 1, without Social scores, we find a significant positive correlation between the Best Company status and stock returns. This persists in Column 2, even after accounting for the Social score. However, Column 3 reveals that adding the Human Capital score diminishes the 'Best Company' effect, reducing its coefficient from 0.2484 and 0.2485 in Columns 1 and 2, to 0.1758. This suggests the Human Capital score partially captures the 'Best Company' effect, though the two are not identical. The 'Best Company' focuses on overall employee sentiment, while Human Capital score targets specific human capital management aspects like health and safety, labor relations, and talent development.

The final two columns show that the Best Company status does not influence the relationship between Product Safety scores and stock returns, irrespective of the Human Capital score's inclusion. When analyzing firms reporting all three social scores, the 'Best Company' indicator remains significant in Column 3, even with the Human Capital score, and its coeffi-

[6]For example, Log Size is negative in all three models, suggesting that small firms outperform big firms. Investment is negative in all three models in line with prior evidence that high investment firms underperform. Log PP&E is positive in all models which indicates that firms with more tangible assets may earn higher stock returns. ROE is positive and statistically significant in all models which is consistent with Profitability effect.

cient's reduction is less pronounced than in Table 3. These findings indicate that our results are robust, even when limiting the sample to firms with complete social scores.

4.2.2 Predicting Best Company

We examine if Human Capital scores can predict inclusion in the 100 Best Company to work for in America list one-year, two-year, and three-year ahead. To do so, we estimate logistic regression model to predict the probability of a firm being recognized as a Best Company based on its Human Capital score and the set of control variables described below. Specifically,

$$P(\text{Best Company}_{t+k} = 1) = \frac{1}{1 + e^{-Z}} \tag{2}$$

Such that;

$$\begin{aligned} Z = \beta_0 + \beta_1 \text{Human Capital Dummy}_{i,t} + \beta_2 \text{Log Size}_{i,t} + \beta_3 \text{BM}_{i,t} + \beta_4 \text{Investment}_{i,t} + \\ \beta_5 \text{Leverage}_{i,t} + \beta_6 \text{Log PP\&E}_{i,t} + \beta_7 \text{ROE}_{i,t} + \beta_8 \text{Sales Growth}_{i,t} + \beta_9 \text{EPS Growth}_{i,t} + \\ \beta_{10} \text{HHI}_{i,t} + \alpha_t + \gamma_i \end{aligned} \tag{3}$$

The probability of being a Best Company is $P(\text{Best Company}_{t+k} = 1)$, with $k = 1, 2, 3$ to represent one, two, or three years ahead forecasting. Human Capital $\text{Dummy}_{i,t}$ is a dummy variable that takes the value of 1 if firm i's Human Capital core at month t was among the top decile Human Capital score of its respective sub-industry (GICS 6 digits) and 0 otherwise. We control for the same set of control variables from Equation **??**: Log Size, BM, Investment, Leverage, Log PP&E, ROE, Sales Growth, EPS Growth, and HHI. We estimate the model using industry and date fixed effects and we cluster standard errors at the year level and at the company levels. To asses the model's goodness of fit we report the pseudo R^2. We also report the number of observations used to estimate the model. We expect the coefficient of Human Capital Dummy to be positive and statistically significant.

4.2.3 Predicting Best Company results

Table 4 presents the results of testing if Human Capital scores predict Best Company in a logistic regression framework. CThe first column uses a Human Capital dummy variable to forecast one-year ahead Best Company status without other controls. Columns 2 through 4 incorporate a full set of controls alongside the Human Capital dummy, predicting Best Company status one, two, and three years ahead, respectively. The Human Capital coefficient

is consistently positive, achieving 1% significance in columns 1 and 2, and 5% in columns 3 and 4. The log odds of being among the Top 100 Best Companies increase by 1.1399, 0.6042, 0.5385, and 0.5134 in columns 1 to 4, respectively. This translates to increased odds of being in the Top 100 Best Companies by factors of 3.13, 1.83, 1.71, and 1.67, when the Human Capital Dummy is 1. Additionally, the positive and significant Log Size coefficient across all columns suggests larger firms are more likely to be ranked among the Top 100. Conversely, the negative and significant EPS Growth coefficient indicates that firms with higher EPS growth are less likely to prioritize workforce satisfaction, potentially focusing more on reinvesting earnings. The model's goodness of fit improves from 19.6% to 35.1% with the addition of firm and stock control variables and further to 36.3% when extending the forecast horizon to three years. Overall, the analysis demonstrates that a firm's likelihood of being recognized as a Top 100 Best Company is significantly influenced by its Human Capital score, size, and other controls.

5 Conclusion

Our analysis sheds new light on the impact of ESG criteria, particularly the social (S) dimension, on future stock returns. Despite the growing trend of ESG investing and the significant capital flow towards firms with high ESG ratings, our study reveals nuanced findings. We find that while the product safety component of a firm's social rating is associated with lower expected returns, indicative of safer cash flows and lower risk, the human capital score does not demonstrate a consistent impact on returns. This divergence challenges the conventional aggregation of disparate ESG factors into a unified score, as it obscures the varying risk and return implications of each component. Our results highlight the complexity and heterogeneity within ESG factors, particularly within the social dimension, and suggest that investors and practitioners should carefully consider the distinct aspects of ESG criteria when making investment decisions. The lack of predictive power of the aggregate social score for future stock returns, due to the counterbalancing effects of its key components, underscores the need for a more nuanced approach in evaluating and integrating ESG factors into investment strategies.

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Table 1: **Summary Statistics of the Regression Variables.** This table presents summary statistics (Mean, 5th Percentile, Median, 95th Percentile, Standard Deviation and the Number of Firms) of the variables in our sample for the period January 2007 to December 2022. To be included in this table, all firm and stock variables must be non-missing. **Panel A** summarizes MSCI Social Pillar and Theme scores. **Panel B** reports stock and firm characteristics of the firms in our sample: *Returns (%)* is the monthly stock returns, *Beta* is the CAPM beta from WRDS Beta Suite, calculated using daily regular returns (with a minimum of 200 observations) over a one-year period , *Momentum* is computed as the cumulative stock returns over a one year period from $t-1$ to $t-12$ all inclusive, *Volatility* is the standard deviation of equity returns over a one year period from $t-1$ to $t-12$ all inclusive, *Log Size* is the natural log of end-of-year firm market capitalization, *BM* is the ratio of the book value of equity to the market value of equity, *Leverage* is the ratio of the book value of debt to the book value of assets, *Investment* is the ratio of capital expenditure (capex) to the book value of assets, *ROE (%)* is a profitability measure computed as the ratio of net income to the book value of equity, *HHI* is the Herfindahl–Hirschman Index computed using the sales of different business segments of a company, *Log PPE* is the natural log of the firm's net Plant, Property and Equipment PP&E, *Sales Growth* is the ratio of change in annual sales to the one-month lagged market capitalization, *EPS Growth* is the ratio of the change in basic earnings per share excluding extraordinary items to share price.

Panel A : MSCI Social Scores						
Variable	Mean	P5	Median	P95	SD	N Firm
Social Score	4.37	2	4.3	6.9	1.51	3,154
Human Capital Score	4.16	1.2	4.1	7.3	1.84	3,029
Product Safety Score	4.64	1	4.5	8.5	2.24	2,336
Panel B : Firm and Stock Characteristics						
Returns (%)	1.02	-17.28	0.92	19.46	12.14	3,154
Beta	1.15	0.54	1.10	1.92	0.43	3,154
Momentum	0.16	-0.49	0.10	0.95	0.51	3,154
Volatility	0.10	0.04	0.09	0.21	0.06	3,154
Log Size	8.00	5.83	7.85	10.82	1.55	3,154
BM	0.52	0.07	0.42	1.27	0.39	3,154
Leverage	0.23	0.00	0.21	0.58	0.19	3,154
Investment	0.04	0.00	0.02	0.13	0.05	3,154
ROE (%)	5.22	-50.41	9.16	39.79	32.91	3,154
HHI	0.76	0.29	0.89	1.00	0.27	3,154
Log PPE	5.74	2.23	5.72	9.49	2.18	3,154
Sales Growth	0.03	-0.21	0.02	0.32	0.57	3,154
EPS Growth	-0.01	-0.13	0.00	0.11	0.73	3,154

Table 2: **Social Scores and Stock Returns.**
This table shows the relationship between MSCI Social scores and stock returns. The dependent variable is the monthly stock return $Return_{i,t}$ of firm i at time t. The independent variables are Social Pillar score (columns 1 & 4), Human Capital Theme score (column 2 & 5) and Product Safety Theme score (column 3 & 6). Other independent variables are Log Size, Book to Market ratio, Investment, Leverage, Log PPE, ROE, Beta, Momentum, Volatility, Sales Growth, EPS Growth and HHI. All control variables are lagged by 1 month. We report the results of pooled OLS regression with year-month and industry fixed effects. All standard errors (in parenthesis) are clustered at the firm level and the year level. We also report the adjusted R squared and the number of observations. The monthly sample extends from January 2007 to December 2022. *** is 1 % significance, ** is 5 % significance, and * is 10 % significance.

	Returns					
	(1)	(2)	(3)	(4)	(5)	(6)
Social Score	0.0047			-0.0030		
	(0.0267)			(0.0250)		
Human Capital Score		0.0576			0.0427	
		(0.0373)			(0.0322)	
Product Safety Score			-0.0561*			-0.0457**
			(0.0285)			(0.0185)
Log Size				-0.2184	-0.2035	-0.1366
				(0.1248)	(0.1358)	(0.1297)
BM				0.0829	0.0704	0.2890
				(0.1554)	(0.1944)	(0.1747)
Investment				-6.229**	-6.466**	-2.586
				(2.279)	(2.562)	(2.582)
Leverage				-0.2094	-0.0935	-0.0829
				(0.3546)	(0.3847)	(0.3844)
Log PPE				0.2162**	0.2078*	0.1275
				(0.0881)	(0.0932)	(0.0937)
ROE				0.0035*	0.0026	0.0038
				(0.0020)	(0.0020)	(0.0026)
Beta				-0.4094	-0.5368	-0.2638
				(0.5507)	(0.6237)	(0.6406)
Momentum				0.1407	0.1506	0.0693
				(0.2800)	(0.3057)	(0.2436)
Volatility				3.407	3.091	2.070
				(3.238)	(3.475)	(3.533)
Sales Growth				0.0017	0.0145	-0.0456
				(0.1015)	(0.1434)	(0.1387)
EPS Growth				-0.0611	-0.0832	-0.7339**
				(0.0627)	(0.1122)	(0.2783)
HHI				0.0290	-0.0160	0.0179
				(0.0770)	(0.0861)	(0.1078)
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Year/month F.E.	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.215	0.207	0.192	0.216	0.208	0.192
Observations	223,678	190,439	134,043	223,678	190,439	134,043

Table 3: **Social Scores, Best Company and Stock Returns.**
This table shows the relationship between MSCI Social scores, Best Company indicator and stock returns. The dependent variable is the monthly stock return $Return_{i,t}$ of firm i at time t. The independent variables are: Best Company, an indicator variable that takes the value of 1 if the company was listed among the 100 best companies to work for in America on a given year, Social Pillar score (column 2), Human Capital Theme score (column 3), Product Safety Theme score (column 4), and Human Capital and Product Safety Theme scores (column 5) . Other independent variables are Log Size, Book to Market ratio, Investment, Leverage, Log PPE, ROE, Beta, Momentum, Volatility, Sales Growth, EPS Growth and HHI. All controls are lagged by 1 month. We report the results of pooled OLS regression with year-month and industry fixed effects. We do not show the coefficients of the firm and stock characteristics control variables. All standard errors (in parenthesis) are clustered at the firm level and the year level. We also report the adjusted R squared and the number of observations. The monthly sample extends from January 2007 to December 2022. *** is 1 % significance, ** is 5 % significance, and * is 10 % significance.

	Returns				
	(1)	(2)	(3)	(4)	(5)
Best Company	0.2495*	0.2526*	0.1820	0.3003**	0.2724*
	(0.1306)	(0.1259)	(0.1218)	(0.1322)	(0.1321)
Social Score		-0.0047			
		(0.0249)			
Human Capital Score			0.0421		0.0216
			(0.0322)		(0.0315)
Product Safety Score				-0.0469**	-0.0459**
				(0.0187)	(0.0184)
Controls	Yes	Yes	Yes	Yes	Yes
Industry F.E.	Yes	Yes	Yes	Yes	Yes
Year/month F.E.	Yes	Yes	Yes	Yes	Yes
R^2	0.216	0.216	0.208	0.192	0.193
Observations	223,678	223,678	190,439	134,043	129,325

Table 4: **Predicting Future Best Company.** This table shows the results of using top Human Capital scores to predict inclusion in the Top 100 Best Company to Work For in the U.S. List. The dependent variable is the one-year-ahead Best Company dummy variable (columns 1 and 2), two-years-ahead Best Company dummy variable (column 3), and three-years-ahead Best Company dummy variable (column 4). In column 1, the independent variable is a dummy variable that takes the value of one if a firm's Human Capital Theme score is among the top decile of Human Capital scores of the sub-industry it belongs to (GICS 6 digits) on any given date, and the value of zero otherwise. Columns 2 to 4, add the following control variables: Log Size, BM, Investment, Leverage, Log PP&E, ROE, Sales Growth, EPS Growth, and HHI. We present the results of a Logit regression with year-month and industry fixed effects. Standard errors are clustered at the firm and at the year levels. We report the pseudo R squared and the number of observations. The monthly sample extends from January 2013 to December 2022. *** is 1 % significance, ** is 5 % significance, and * is 10 % significance.

	One Year Ahead		Two Years Ahead	Three Years Ahead
	(1)	(2)	(3)	(4)
Human Capital Dummy	1.1404***	0.6044***	0.5388**	0.5136**
	(0.2365)	(0.2224)	(0.2335)	(0.2456)
Log Size		0.7246***	0.6762***	0.6696***
		(0.1975)	(0.2074)	(0.2237)
BM		−0.5053	−0.6534	−0.5575
		(0.5085)	(0.5533)	(0.6245)
Investment		0.4629	−3.2286	−3.1785
		(4.2440)	(3.9707)	(4.1404)
Leverage		0.3801	0.4447	0.3802
		(1.0331)	(1.0770)	(1.1589)
Log PPE		0.1852	0.2081	0.2138
		(0.1821)	(0.1932)	(0.2020)
ROE		−0.0038	−0.0043	−0.0040
		(0.0028)	(0.0042)	(0.0047)
Sales Growth		0.1219**	0.1072	0.1503*
		(0.0532)	(0.0767)	(0.0876)
EPS Growth		−0.0421***	−0.0451***	−0.1321**
		(0.0107)	(0.0113)	(0.0662)
HHI		0.8904	1.1867*	1.4176*
		(0.6800)	(0.7164)	(0.7448)
Industry F.E.	Yes	Yes	Yes	Yes
Year/month F.E.	Yes	Yes	Yes	Yes
Pseudo R2	0.196	0.351	0.356	0.363
N	162,679	162,679	132,923	108,300

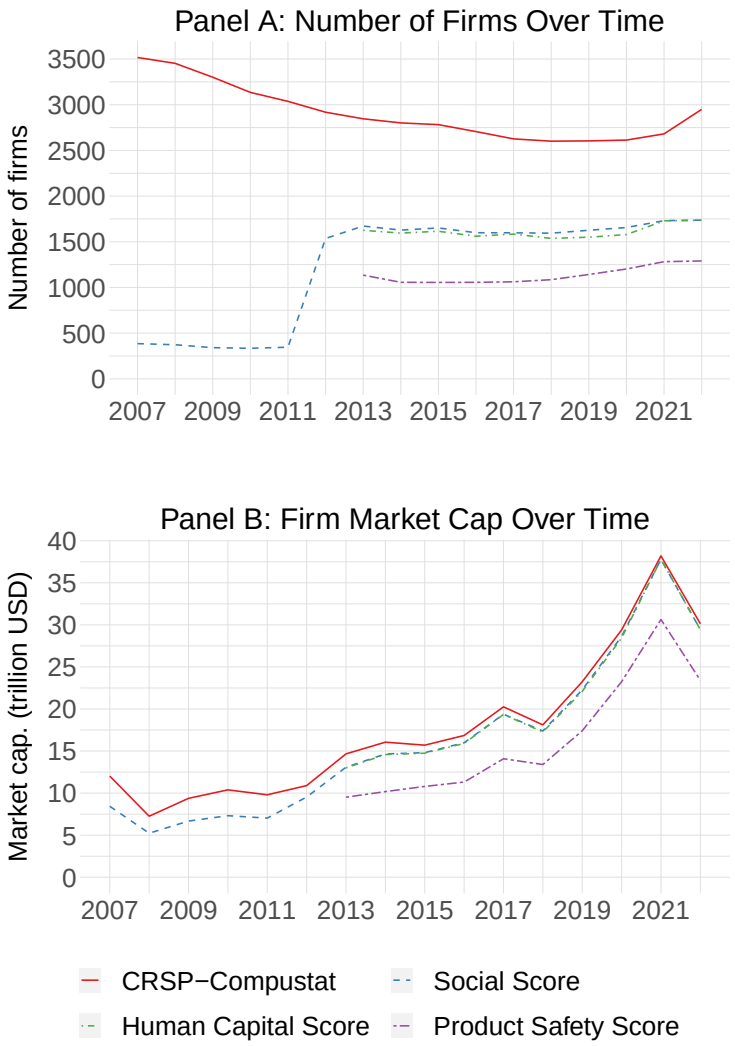

Figure 1: **Firm Coverage over Time.**
This figure shows the firm coverage of the MSCI database relative to CRSP and Compustat merged dataset overtime. **Panel A** plots the number of firms on December of each year and **Panel B** plots firm market cap on December of each year. To be included in this plot, all firm and stock variables must be non-missing. The sample period is from January 2007 to December 2022.

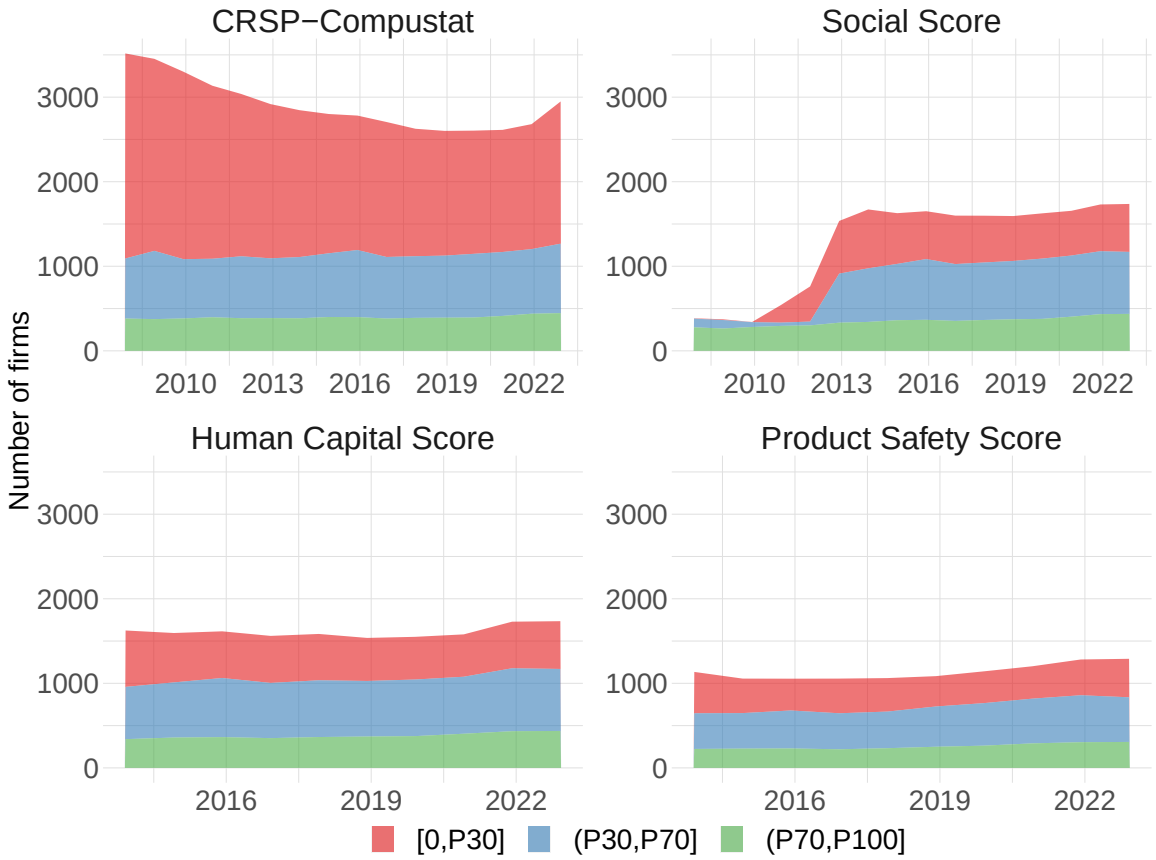

Figure 2: **Number of Firms in Market Cap buckets.**
This plot shows the total number of firms that report the Social Pillar and Theme scores in every Market Cap Bucket on December of each year. The breakpoints used to construct the buckets are the Kenneth French Market Equity 30th and 70th percentiles. To be included in this plot, all firm and stock variables must be non-missing. The data is from January 2007 to December 2022.

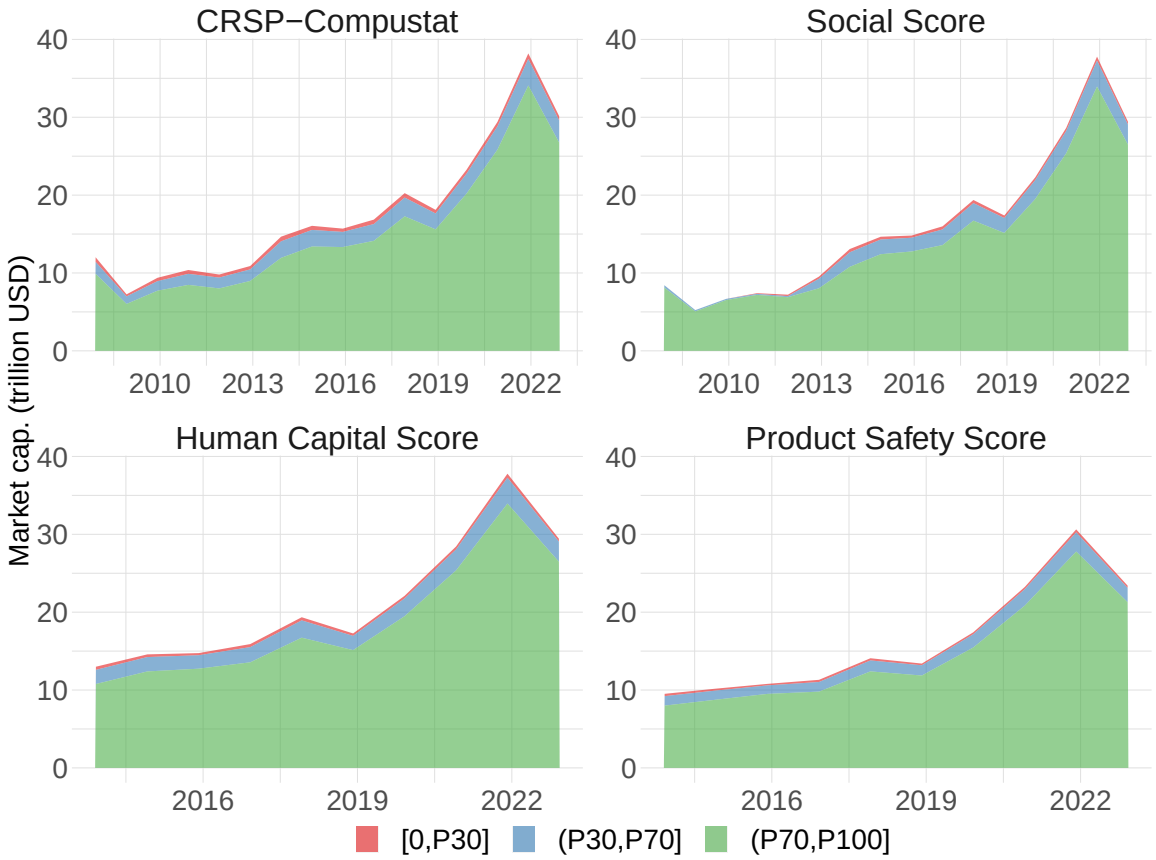

Figure 3: **Total Market Cap in Each Market Cap Bucket.**
This plot shows the total market cap of the firms that report the Social Pillar and Theme scores in every Market Cap Bucket on December of each year. The breakpoints used to construct the buckets are the Kenneth French Market Equity 30th and 70th percentiles. To be included in this plot, all firm and stock variables must be non-missing. The data is from January 2007 to December 2022.

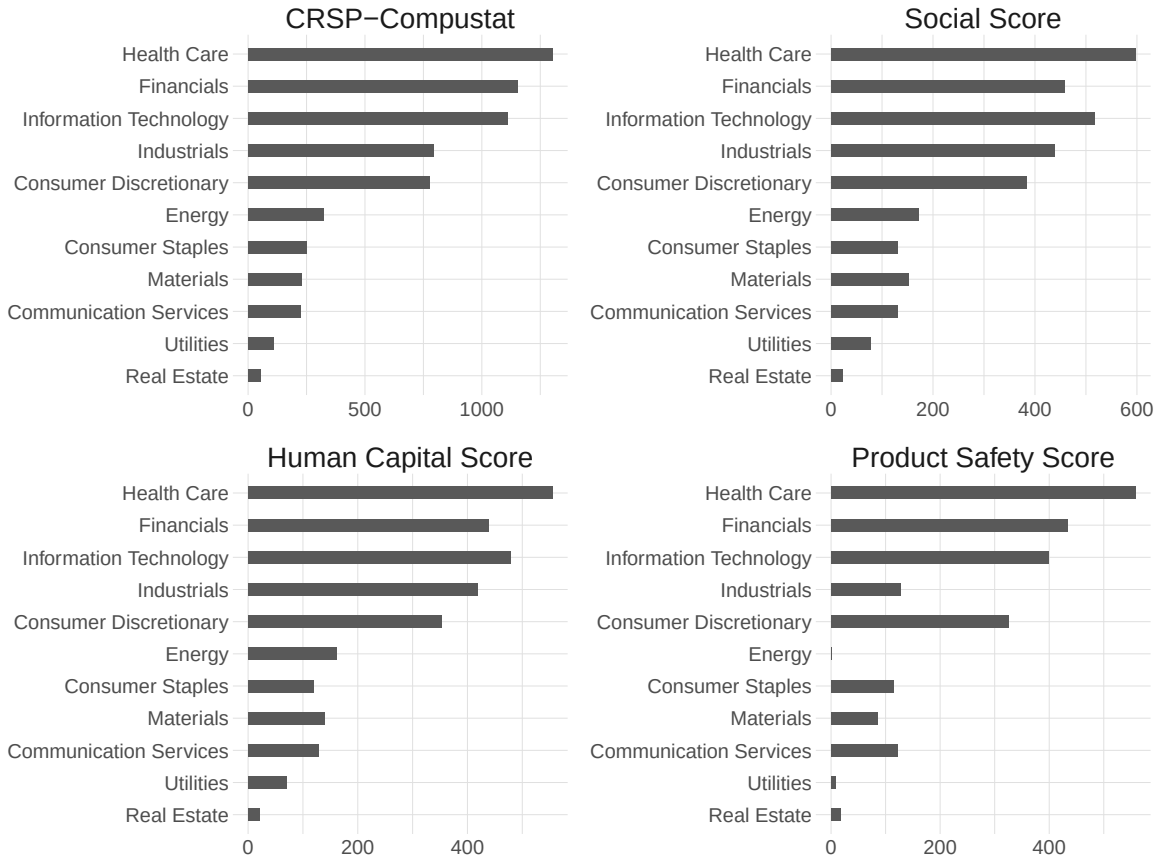

Figure 4: **Firm Coverage by Industry.**
This figure shows the number of firms that report MSCI Social Pillar and Theme scores, on December of each year, classified by GIC 2 digits that identify sectors. To be included in this plot, all firm and stock variables must be non-missing. The sample period is from January 2007 to December 2022.