The Effects of Material Social Factors During the COVID-19 Pandemic

Abstract

This research investigates the effects of material social factors during a crisis situation such the COVID-19 pandemic. The topic, denoted in the field of financial economics, has gained an increased attention during the past year within the investment industry with many claiming that the outbreak has brought the social pillar ("S") to the forefront of ESG. Nonetheless, the pillar remains an unresearched topic within the field. This thesis aims to unpack this claim by analyzing whether material social factors have indeed influenced company and stock performance. Additionally, the paper critically assesses whether some of the main providers of social scores (Sustainalytics, MSCI, RobecoSAM) are able to objectively assess social performance of companies. Based on the existing literature on the subject and in particular Khan et al. (2016)'s methodology, the thesis develops and tests three hypotheses. Hypothesis #1 suggests that social providers are able to objectively measure social performance, hypothesis #2 states that in 2020 high social performance led to better operative performance, and hypothesis #3 argues that in 2020 social performance had a significant effect on the stock performance of a company. Using three different social data bases, the paper concludes that there is a low positive correlation between score providers which indicates that social performance is hard to define and score objectively. Furthermore, the research shows that in 2020 social performance had no significant effect on the operative performance of a company. Finally, when accounting for the FF3 factors, the momentum factor and the liquidity factor, the link between social performance and stock performance in 2020 disappears as well.

Student ID number	: 569399
Name student	: Albert Mikushnica
Supervisor	: Onno Steenbeek
Second assessor	: Mary Pieterse-Bloem
Date final version	: 14/08/2021

Acknowledgments

Table of Contents

1. Introduction

Many agency theorist economists agree that the role of a corporation is to generate profits and that it has no social responsibility to society. Milton Friedman (1970) famously said that a corporate executive's primary responsibility is to the owners of the company and that any company resource allocated to social issues is, in effect, equal to spending shareholders', customers', and employees' money for their own purposes. Barnea and Rubin (2010) argue that such spending can only add firm value up until a point, above which it destroys shareholder value, therefore the main beneficiaries of CSR (corporate social responsibility) spending are managers who enjoy the satisfaction from helping others and the public spotlight related to this. However, on the other side of the discussion, advocates of the stakeholder theory argue that these views do not hold in reality and that a company's operational success can be enhanced with CSR engagement (Freeman, 1984; Whitehouse, 2006). Therefore, firms should take a broader range of stakeholders' (communities, suppliers, customers, and employees) interests into consideration, instead of solely focusing on shareholder value maximization (Becchetti et al., 2015; Clark et al., 2014).

In recent years, the latter theory has become increasingly popular. On one hand, it has led to a shift in investors' focus to socially responsible investing (SRI), evidenced by a recent study by Berenberg (2021) which found that close to 80% of investors are incorporating ESG (environmental, social, and governance) in their investment decisions. The move to sustainable investing has even accelerated during the COVID-19 pandemic with the global sustainable fund universe experiencing $46 billion of inflows in Q1 2020 compared to the overall fund universe, which saw an outflow of $385 billion (Berenberg, 2020). On the other hand, corporate management teams have also increased their focus on corporate social responsibility (CSR), as more than 80% of CEOs believe that sustainability leads to a competitive advantage (Clark et al., 2014). During the COVID-19 pandemic, many reports have suggested that this competitive advantage effect has become even stronger. For example, studies have shown that three-quarters of consumers would be more willing to purchase a product from a brand that behaved ethically during the pandemic (Berenberg, 2020). Whether we look at SRI from the investors' perspective or CSR from the management teams' perspective, both have been in the center of focus and both are encapsulated by the term ESG (Clark et al., 2014).

Both in academia and in the industry ESG has mostly been researched as either one single factor or with a specific focus on the "E" and "G" pillars, while the social pillar was relatively neglected in comparison (Credit Suisse, 2021). However, with the COVID-19 pandemic, many recent research reports have put forward claims such as "With the disruptions caused by the COVID-19 crisis, social considerations are back at the forefront of ESG" (Morgan Stanley, 2020; 4) and "…the COVID-19 pandemic has brought social considerations to the fore" (Berenberg, 2020; 17), which have prompted a closer look separately into the social pillar during 2020. The proponents argue that the challenges have highlighted the importance of keeping employees, customers, suppliers, and communities in mind as well when making corporate decisions (Berenberg, 2020). Additionally, the introduction of the EU's Sustainable Finance Disclosure Regulation has increased the need for further research on "S" factors, as investment funds will be categorized based on sustainability scores for better comparability (Robeco, 2021). However, there has been little evidence put forward to back up the claim of "S" gaining an increasing importance in economic terms, such as stock or company performance. Past research such as Khan et al. (2016) has attempted to uncover the effects of ESG issues that are *material*[1] on a sector-level, but to my current knowledge, there is no existing research focusing specifically on the effects of material "S" factors on company and stock performance. Furthermore, effectively measuring many social issues such as culture or employee satisfaction is difficult, and the fact that each industry has different material "S" issues adds to this difficulty (Berenberg, 2021). This has also prompted a question whether score providers are able to objectively measure social performance. The novelty of this topic and the possibilities that further research into this area could provide in terms of alpha generation and enforcing ethical company behavior fascinates me, therefore I was delighted to be able to not only work on this paper as my thesis but also as an assignment for Robeco. Furthermore, based on the information above, the relevance of researching specifically the "S" pillar is clear both for investment professionals and academia. Consequently, this paper investigates the following research questions:

Did material social performance have an effect on company and stock performance during the COVID-19 pandemic? Furthermore, are ESG score providers able to objectively measure social performance?

---

[1] "Materiality" in this paper's context refers to social issues that significantly impact a company's business model, its value creating capabilities and/or its license to operate. Chapter 2 and 3 covers materiality in more detail.

The remainder of this paper is laid out as follows. In chapter 2, the relevant literature is summarized, elaborating on how and why social performance affects stock and company performance including the three channels: fund inflows, operational performance, and risk. The chapter also elaborates on how materiality is defined and used in this paper. Chapter 3 introduces the sample creation methodology and both the company fundamental data and the social data from all three data sources. The description includes summary statistics and the methodology behind the three providers' scorings. Chapter 4 shows the empirical results, starting with detailing the methodology behind the normalization of the social scores, based on which the portfolios are constructed. Following this, hypothesis #1 is tested, by comparing the correlation between the score providers. Next, hypothesis #2, which states that higher social performing companies had better operating performance including revenue growth, ROIC and profit margins in 2020, is tested across all sectors. This is done by sorting the companies in the sample based the data providers' normalized social scores, after which top and bottom quartile and median portfolios are created. The top and bottom portfolios are then compared while controlling for various firm-specific attributes that could lead to biased results. To ensure robustness, the analysis is performed using all three of the data providers' scores, on quartile and median portfolios, as well as with and without controls. The results remain similar. Similarly, hypothesis #3, claiming that in 2020 social performance had a significant effect on the stock performance of a company, is also tested by comparing the top and bottom portfolios, both on a regional and on a sectoral level. Various models are used to control for biases including the CAPM, FF3 and FF5 models. All of them yield comparable results. Following this, I conclude the paper by summarizing my findings, offering possible explanations for the results, and explicitly stating the limitations of the research. I also share my thoughts on the implications of the findings both for academia and practitioners, including investment managers and score providers. Finally, I propose topics in this area that can be researched further based on the findings of this paper.

2. Literature review

2.1 Channels linking social performance to stock performance

Although these are hard to dissect from each other, a company's social performance theoretically can affect prices through three channels. Past research indicates that social performance influences the *riskiness* of the firms' cash flows, and their long-term *operational performance*, both of which are the main drivers of a company's intrinsic value. On the other hand, research and current trends also suggest that social factors might also have a behavioral financial effect as even given equal business models, firms with superior social performance are more attractive to investors, and therefore experience higher *fund inflows*, which in turn leads to higher asset prices. These links are visualized in Figure 1.

Figure 1: Social performance links to stock returns

This figure graphically presents the three channels through which the literature suggests a link between social performance and financial performance of a company: the first channel suggests that all other things being equal, higher social performance leads to higher fund inflows, the second channel suggests that high social performance leads to better operating performance, while the third suggests that high social performance reduces the riskiness of cashflows and therefore the discount rate as well. Overall, a higher social performance theoretically leads to higher stock returns through these three channels.
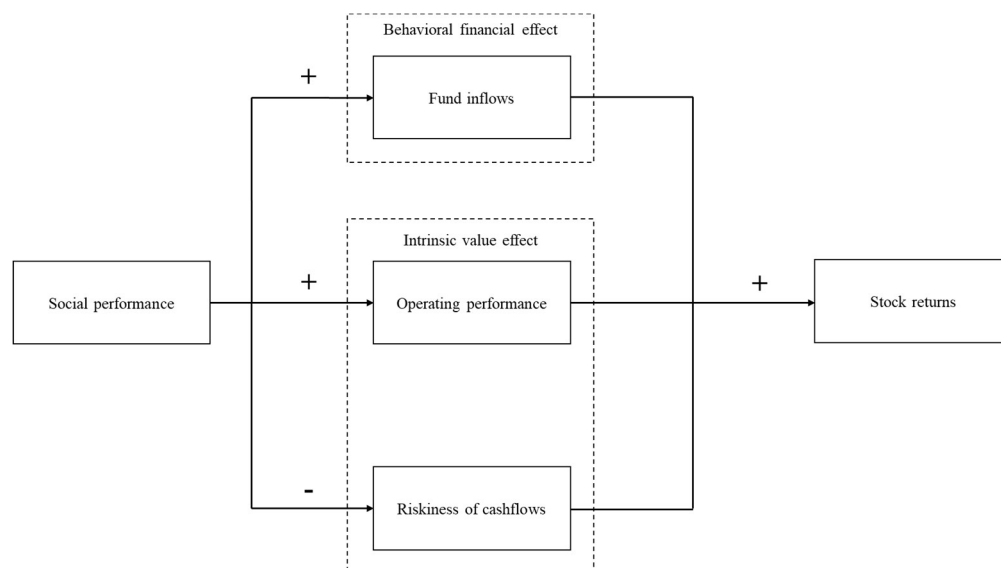
Risk channel

When valuing a firm, discount rates essentially measure what level of return the investor requires given the riskiness of each cash flow. Therefore, if the company's level of risk increases (be it financial, reputational, or litigation related), the discount rate will increase too, which in turn will lower the value of the company. Past research suggests that "S" factors can affect firm risk

levels, and therefore they can influence the discount rate too through the cost of debt and the cost of equity. For instance, Bauer et al. (2009) find that higher "S" scores such as employee relations explain the cross-sectional variation in credit risk, and therefore influence discount rates as well. Furthermore, better employee wellbeing has also been found to decrease the cost of debt by lowering the probability of bankruptcy and improving credit ratings, even after controlling for firm characteristics (Verwijmeren & Derwall, 2010). Research has also indicated that firms with good employee relations and better product safety have a significantly lower cost of equity, which also supports the argument that firms with socially responsible practices are less risky (El Ghoul et al., 2011). Attig et al. (2013) find after controlling for firm characteristics, that credit rating agencies tend to award companies with strong social performance higher ratings. They also find that the individual components of CSR related to stakeholder management such as community relations, diversity, employee relations, environmental sustainability, and product characteristics, are the most important in explaining a firm's creditworthiness. Bouslah et al. (2013) find that Employee, Diversity, and Corporate Governance concerns increase riskiness and that better relations with the community decrease the risk of S&P500 companies. Furthermore, they also find that the risk reduction effect of social performance (SP) strengths is significantly stronger during adverse economic environments.

Operational performance channel

Past research indicates that a firm can improve its long-term operational performance by taking the four main "S" stakeholders into consideration when making business decisions: communities, suppliers, customers, and employees. For instance, Googins (1997) claims that firms with a core business strategy that includes commitment to the community gain a competitive advantage by attracting and retaining top employees, positioning themselves positively among customers, and improving their market position. Hall (2016) finds evidence of this after analyzing community relations programs' effect on customer awareness. As for suppliers, research has shown that strategic long-term relationships and logistics integration leads to faster delivery, higher flexibility, and lower costs (Prajogo et al., 2010). Studies have also shown that a high social performance of a firm also leads to a more reputable brand, influencing customers to pay up to 60% more for the firm's products (Morgan Stanley, 2020). Employees are perhaps the most

extensively researched "S" stakeholder relationships to affect company performance with several studies indicating a strong positive link to company performance. For instance, Faleye and Trahan (2010) find that labor-friendly firms outperform their peers operationally, especially in industries with higher demand for highly skilled employees. Research has indicated that workforce diversity also pays off financially in terms of better operational performance (Richard et al., 2007), while according to Optimy (2017), higher workforce engagement leads to an 87% reduction of resigning employees. On the other hand, firms that do not act in a socially responsible way could see a long-term drop in their operational performance. For example, studies have shown that layoffs lead to a 41% decline in job satisfaction, a 36% decline in organizational commitment, and a 20% decline in job performance (Morgan Stanley, 2020). Moreover, replacing an employee can cost around 2.0x the employee's annual salary, with new employees being less efficient for up to 2 years (Morgan Stanley, 2020). Due to these supposed negative effects, firms go to great lengths to mitigate these risks. As an anecdotal example, in 2014 an article was published by The Guardian (2014) on slavery in Thailand's shrimp industry, which led to global supermarket chains to engage with their suppliers on working conditions to avoid negative publicity.

Fund inflows channel

As described above, the literature seems to support the view that social performance of a company has a significant effect on the intrinsic value of a company. However, other than on the fundamental side, the social pillar might also have behavioral effects on investors, leading to higher fund inflows which could at least partly explain the relatively higher prices of ESG assets (Frazzini & Lamont, 2008). With the increase in the popularity of sustainability in finance, asset owners such as pension funds are increasingly demanding sustainable investing strategies from their asset managers (Harvard Business Review, 2019). To accommodate this need, according to a survey by Berenberg (2021), close to 80% of fund managers have incorporated ESG in their investment process in some way. For example, Robeco, a leading sustainable asset manager, uses negative ESG screeners among other tools to exclude companies with weak ESG performance or those that are in "sin industries" from their investable universe (Robeco, 2018). In some cases, other laws even prohibit investing in some of these "sin industries", for example, the Dutch

regulation does not allow asset managers to invest in companies producing cluster bombs (Robeco, 2018). Additionally, the introduction of the EU's Sustainable Finance Disclosure Regulation[2] (SFDR) has further increased the need for a more detailed look at each of the ESG pillars separately, as investment funds will be scrutinized and categorized based on sustainability scores for better comparability (Robeco, 2021). The SFDR is a list of EU rules that among other elements will include the categorization of investment funds and mandates based on sustainability into article 6, article 8, and article 9 funds (Robeco, 2021), with article 6 funds having no integration of sustainability into their investment process, article 8 funds promoting ESG characteristics, and article 9 funds having an explicit sustainable investment objective. The trend towards sustainable investments (SI) did not seem to slow down during the pandemic either, as according to a survey analysis by ISS ESG (2020), since the start of the COVID-19 outbreak, 62.5 percent of asset management professionals have reported having increased their attention on ESG factors. The accelerated shift to SI during the pandemic was also evidenced by the fact that in Q1 2020 the global sustainable fund universe experienced \$46bn of inflows during this period, compared to the overall fund universe, which saw an outflow of \$385bn (Berenberg, 2020). These fund inflows are continuing unabated into 2021 with \$95bn of inflows in total as of end-May 2021 (Bank of America, 2021). Further, the ISS ESG survey also found that although according to the majority of the respondents, governance issues remain the most important pillar, a significant percentage of them (44.1%) expect that social problems like workplace safety, employee treatment, diversity and inclusion, and supply chain labor dynamics will be given more weight in future ESG ratings. (ISS ESG, 2020).

2.2 "S" factors in the financial markets

As hinted at before, although environmental, governance and combined ESG factors have been researched extensively in the financial markets, the specific effect of social factors on stock performance has been somewhat under-researched in comparison. There have been some attempts to test whether financial markets also reflect the social performance of companies in practice too, however, most of these focused solely on the employee stakeholder. For instance,

---

[2] More information on the SFDR can be found at https://www.robeco.com/nl/expertise/duurzaam-beleggen/begrippenlijst/eu-sustainable-finance-disclosure-regulation.html

Edmans (2011) analyzed the relationship between employee satisfaction on long-term stock performance by comparing a portfolio of Fortune's yearly '100 Best Companies to Work for in America' ranking from 1984 – 2009 and found that after controlling for the market, value, momentum, and size factors, the portfolio generated a 3.5% alpha. Later Edmans et al. (2014) analyzed employee satisfaction across 30 countries too and found that employee satisfaction affects long-term stock performance, current valuation ratios, future profitability, and future earnings surprises positively in flexible labor markets such as the US and UK, but not in rigid labor markets such as Germany. The COVID-19 pandemic has also seemed to indicate that this outperformance does not only hold during growth periods, as ESG funds not only outperformed in 2020 but also during the initial market sell-off (Berenberg, 2020). According to Berenberg (2020), 42% of these ESG funds ranked in their categories' top quartile, while only 12% ranked in their categories' bottom quartile. There has also been some evidence that changes in social performance could also have a positive effect on returns as suggested by a study that finds that announcements of labor-friendly policies lead to positive abnormal stock returns (Faleye & Trahan, 2011). However, Borgers et al. (2013) find after analyzing U.S. companies from 1992-2009 that as attention for stakeholder issues became more widespread, the positive risk-adjusted returns of these factors started to diminish significantly, consistent with the theory that increased investor attention for stakeholder issues eventually eliminates mispricing.

2.3 Materiality of "S"

According to the Financial Accounting Standards Board (FASB), "information is material if omitting or misstating it could influence decisions that users make based on financial information of a specific reporting entity" (Eccles et al., 2012). In this paper's context materiality covers industry-specific "S" items that affect company and stock performance. There have been some attempts to uncover the materiality of ESG factors in the past, but not as much with a more granular-level focus on the social pillar. This leads to a discrepancy between what is needed in the industry and what is researched in academia, as portfolio managers are looking to gain deeper-level insights, to be able to incorporate their superior information into their analyses, and through that outperform their benchmark. For instance, Robeco uses a Value Driver Adjustment approach (VDA) to incorporate the effects of material ESG items on companies' operational

performance (Schramade, 2016). According to MSCI, an example of a material social item in the Energy sector is "community relations", while in the Financial sector this social item is not material (this is further discussed in chapter 3). Materiality is hard to define, however. In fact, not only are score providers inconsistent with the scores they assign to each sector, but they also have different issue categories as well (discussed in chapter 3 in more detail), which leads to materiality weights not being consistent across score providers. Khan et al. (2016) is one of the first papers to analyze the materiality of ESG factors. The authors link sustainability data points from the KLD[3] database to the SASB map to determine which ESG items are material or immaterial in each industry (Khan et al., 2016). After this, the authors construct a material and an immaterial index and convert these indexes into changes. Finally, they normalize the results by looking at the part of the scores that are unexplained by company-specific characteristics such as size, leverage, market-to-book ratio, ROA, industry. To identify the materiality of "S" items, I build upon this approach but use RobecoSAM's own materiality weights and the MSCI materiality map. The methodology is discussed in more detail in chapter three.

2.4 Hypotheses development

Based on the literature summarized above, in this paper, I aim to build on the methodology of Khan et al. (2016) with a focus on social pillars to tackle the research question I pose in chapter I. I use the RobecoSAM, Sustainalytics, and MSCI databases to retrieve "S" data, which are then matched to materiality weights. Following this, the scores are normalized for various firm-specific characteristics to account for biased scoring. The materiality weights used in my analysis, contrary to the methodology used by Khan et al. (2016) with the SASB Materiality Map, not only shows which social factors are material in each sector but also how material they are, and therefore provides a more accurate picture of the materiality of social performance. Using the scores, I sort the companies and create top/bottom quartile portfolios. After this, I compare the top portfolios with the bottom ones in 2020 up until May 2021, as research suggests that social factors increased in importance during this time period. Additionally, research has

---

[3] KLD was acquired by RiskMetrics Group LLC in 2009, after which MSCI acquired Riskmetrics in 2010 (Röhrbein, 2009; MSCI, 2021).

already analyzed the "S" pillar in previous years, which is another reason I chose to zoom specifically into 2020, to see if these findings still hold. I form 3 hypotheses:

Hypothesis #1: *Score providers can objectively score social performance*

I expect social score providers to be able to objectively measure social performance. If the original social data from all three databases positively and strongly correlate with one another and even more so after adjusting for materiality and various controls, then that would indicate that the social performance of companies can be objectively measured.

Hypothesis #2: *High social performers outperformed operatively in 2020*

I expect to find that strong social performers to also outperform operatively. To test this, I compare the top and bottom social performers' ROIC, profit margin, and revenue growth metrics. If these metrics are significantly higher for the best social performers compared to low social performers after controlling for various firm-specific attributes, then that implies a link between social performance and company performance.

Hypothesis #3: *High social performer stocks outperformed in 2020*

I expect to see the stocks of companies with strong social performance to outperform their counterparts in crisis situations such as the one the world experienced in 2020, meaning that they have both higher yearly total holding returns and lower drawdowns at the beginning of the pandemic.

3. Data and Methodology

In the following chapter, I describe the data and methodology I use in my analysis. First, I describe the sample construction methodology, then I describe the sample using summary statistics on a region- and sector-level. Following this, I introduce all three social datasets I use in my analysis and describe the methodology behind the scores. I also describe what specific issues are considered when calculating the final scores for each score provider. Finally, I describe the methodology I use to normalize the scores with various controls (i.e., region, market cap) and the portfolio construction process.

3.1 Company dataset

The company data analyzed in this paper are the constituents of the MSCI World Index, which at the time of writing this paper captured 1,584 mid and large-cap companies across 23 developed markets. An additional 308 companies are added to this sample from the MSCI ACWI that are covered by one or more of the score providers. To make the sample correspond to the Robeco Sustainable Global Stars Equities Fund's investment universe, I restrict my analysis to large-cap companies within this index, which I define to be companies above $4 billion market cap that are in the APAC, Europe, or North America regions. This leaves me with 1,892 companies as seen in Table 1. The remaining companies in the sample are similarly represented across the APAC (21%) and the Europe (29%) regions but have a higher concentration in North America (50%). Companies are represented across all 11 sectors defined by the widely used GICS categorization (S&P Global, 2018), although some sectors such as Industrials, Financials, and Information Technology have a significantly higher representation, while other sectors such as Energy and Communication Services have a significantly lower representation in the sample than the average sector. The median company in the sample has a market capitalization of $12.84 billion, ranging from a minimum market cap of $4 billion and a maximum market cap of $1.91 trillion. As seen in figure 2 in the appendix, most of the companies' market capitalizations in the sample fall between $10 billion and $50 billion, with several higher-end outliers mainly in North America.

Table 1: Data sample

This table presents the data used in this study. Panel A presents the number of companies included in the final sample, which are in essence a combination of the MSCI ACWI and MSCI Global Index constituents above $4B market capitalization with headquarters in either North America, Europe, or the APAC region. Panel B presents the final sample broken down by 11 sectors and the 3 analyzed regions.

Panel A: Sample construction

	# of Companies
MSCI Global Index	1,584
Add: MSCI ACWI constituents with ESG coverage	308
Less: Smaller than $4B Market Cap	490
Less: Not in North Am. / Europe / APAC regions	4
Total	1,892

Panel B: Frequency by sector

Sectors	APAC	Europe	North America	Total
Communication Services	22	41	49	112
Consumer Discretionary	46	64	109	219
Consumer Staples	39	44	49	132
Energy	9	15	35	59
Financials	40	98	140	278
Healthcare	28	49	112	189
Industrials	80	107	131	318
Information Technology	36	38	152	226
Materials	29	44	58	131
Real Estate	43	24	59	126
Utilities	22	31	49	102
Total	394	555	943	1,892

Table 2 presents summary statistics for the analysis sample. In panel A, median P/B, P/E, FCF Yields, ROIC, and EV/Sales 2020 metrics are presented in each sector. Panel B presents the same metrics as in Panel A, but on a regional level. The median companies with the largest market capitalizations are concentrated in the Healthcare, Consumer Staples, Information Technology, and Energy sectors, while those with the lowest median capitalizations operate in the Real Estate sector. The table also shows that the median P/E levels have increased considerably in 2020 compared to the 3-year average levels (as company earnings obviously got crushed) and that median revenue growth levels have decreased to 0% in 2020, with the biggest loser being the Energy Sector and the biggest winners being the Information Technology and Healthcare sectors. On a region-level, it is worth noting that only the median companies in North

America experienced revenue growth in 2020 and that the median stock returns decreased only in the APAC region.

Table 2: Fundamental metrics

The table presents summary statistics for the analysis sample. In panel A, median P/B, P/E, FCF Yields, ROIC, and EV/Sales 2020 metrics are presented in each sector. Panel B presents the same metrics as in Panel A, but on a regional level. The Market Cap, P/B, P/E, FCF Yield, ROIC, EV/Sales, and Revenue data used for this table are downloaded from the Bloomberg database. Leverage is calculated by dividing total debt with market cap. THR represents the yearly total holding return an investor gains when holding a stock, including growth in share price and dividends.

Panel A: Sector-level median metrics of sample

Sectors	Market Cap	P/B	P/E	FCF Yield	ROIC	Revenue Growth	Leverage	EV/Sales	THR
Communication Services	14.65	2.57	21.56	0.07	0.07	0.01	0.47	3.5	0.02
Consumer Discretionary	12.48	3.57	22.75	0.04	0.08	-0.01	0.3	2.24	0.07
Consumer Staples	17.03	3.41	23.28	0.05	0.1	0.01	0.26	2.14	0.05
Energy	15.28	1.38	16.85	0.03	-0.03	-0.26	0.67	2.48	-0.33
Financials	13.49	1.07	13.8	0.1	0.03	-0.02	n/a	2.45	-0.05
Healthcare	16.33	5.92	29.19	0.03	0.1	0.08	0.09	5.44	0.22
Industrials	11.39	3.39	26.91	0.04	0.09	-0.02	0.26	2.39	0.06
Information Technology	14.11	6.54	31.01	0.03	0.10	0.06	0.08	6.15	0.23
Materials	11.22	2.24	19.32	0.05	0.09	-0.01	0.26	2.17	0.12
Real Estate	8.86	1.41	32.6	0	0.03	0.04	0.6	n/a	-0.1
Utilities	12.31	1.88	18.9	0.02	0.05	-0.02	0.83	4.44	-0.01
Total	12.84	2.72	22.9	0.04	0.07	0	0.29	3.36	0.04

Panel B: Region-level median metrics of 2020

Region	Market Cap	P/B	P/E	FCF Yield	ROIC	Revenue Growth	Leverage	EV/Sales	THR
APAC	8.82	1.65	21.01	0.04	0.06	0	0.53	2.27	-0.09
Europe	13.06	2.53	23.09	0.05	0.07	-0.02	0.28	2.89	0.07
North America	14.67	3.49	23.36	0.04	0.07	0.01	0.25	4.36	0.07
Total	12.84	2.72	22.9	0.04	0.07	0	0.29	3.36	0.04

3.2 Social datasets

I use three databases to construct the social scores for each company, out of which Sustainalytics and MSCI are commercial databases, widely used by practitioners and academia as well. RobecoSAM on the other hand is a proprietary database of Robeco, one of the world's leading sustainable investment management firms.

Database 1: Sustainalytics

Sustainalytics is a leading ESG score provider established in 2009 from the merger of DSR, Scoris, and DSS. Before being acquired by Morningstar in 2020, the company also acquired Responsible Research in 2012. The company currently provides scores for over 11,000 companies based on various ESG issues, including areas such as occupational health and safety, human rights, data privacy & security, community relations, and more (Moy Huber & Comstock, 2017). The issues are grouped into environmental, social, and governance pillars and represent ESG risks to the business, scored on a 1-10 scale with 10 being the riskiest. As seen in Table 3, out of these issues, I restrict my focus exclusively on those within the social pillar and match each of the scores to their respective sector-specific materiality weights in a standardized MSCI Materiality Map[4] to reflect how material each issue is. This step is needed as Sustainalytics does not provide pillar-level[5] scores separately, only overall ESG scores and issue-level scores. To arrive at the total material social scores, I take the weighted average of the raw scores of the social issues using the MSCI materiality weights. Sustainalytics scores are typically updated annually, however, due to limited data access, I am only able to work with the latest scores as of 08/06/2021 in my analysis, which requires an assumption that social scores did not change since 2020 and have remained stable during the year.

---

[4] The MSCI Materiality is first standardized for each sector so that each sector's weight adds up to 100%. For more details the reader can refer to figure 8 in the appendix.
[5] The three ESG dimensions are environmental, social, governance.

Table 3: Sustainalytics Social Categories

The table presents the issues that Sustainalytics analyzes under the social pillar. Since the score provider does not provide pillar-level scores, I calculate it by taking the raw scores' weighted average of the social issues using the MSCI materiality weights. Therefore, to get the MSCI materiality weight the Sustainalytics, social issues are mapped to MSCI social issues, as seen in the table.

Pillar	Issues	MSCI Categorization Mapping
Social	Access to Basic Services-Risk Score	Access to Health Care
	Community Relations-Risk Score	Community Relations
	Data Privacy and Security-Risk Score	Privacy & Data Security
	E&S Impact of Products and Services-Risk Score	Product Safety & Quality
	Human Capital-Risk Score	Human Capital Development
	Human Rights - Supply Chain-Risk Score	Supply Chain Labor Standards
	Human Rights-Risk Score	Labor Management
	Occupational Health and Safety-Risk Score	Health & Safety

Database 2: MSCI

Founded in 1998, MSCI Inc. (formerly Morgan Stanley Capital International and MSCI Barra) is a global provider of equity, fixed income, hedge fund stock market indexes, and investment decision support tools, headquartered in New York City (Yahoo Finance, 2021). The company launched MSCI ESG Research in 2010 which currently provides ESG scores of over 7,000 companies (Moy Huber & Comstock, 2017). With the acquisition of RiskMetrics[6] in 2010, GMI ratings in 2014, and Carbon Delta in 2019, MSCI combines its own industry knowledge with ESG expertise from various companies (Röhrbein, 2009; MSCI, 2021). MSCI's ESG data is widely used for research by both industry and academia (e.g. Turban and Greening, 1997; Fisman, Heal, and Nair, 2005; Godfrey, Merrill, and Hansen, 2009; Ioannou and Serafeim 2014; Khan et al., 2016). The ratings provided by MSCI ranges from AAA to CCC by assessing 37 key ESG issues, which are based on various data sources such as alternative data sets[7], company disclosure documents, and 3,400 media sources (MSCI, 2021). The key issues are divided into the three ESG pillars (environmental, social, governance) and ten themes (Moy Huber & Comstock, 2017). After assigning scores to the companies based on these areas, the scores are then combined with exposure weights that reflect how exposed the company is to each issue on an industry-level, and to management weights to incorporate how well the company is managing

---

[6] RiskMetrics Group LLC was a New York-based risk and ESG data group that owned among other products KLD and Innovest.

[7] Including datasets from governments, regulatory institutions and NGOs.

each key issue (MSCI, 2020). Using the MSCI online platform, ESG Manager, I download the latest social data for the companies in my sample, and just as with the Sustainalytics dataset, I assume that these scores did not change and remained stable throughout 2020. For more information about the specific issues that the overall social score includes, the reader can refer to table 4.

Table 4: MSCI Social Categories

The table presents the social themes and issues analyzed by MSCI when calculating companies' total social scores.

Pillars	Themes	Key Issues	
Environment	E.g. Climate Change	E.g. Climate Change Vulnerability	
Social	Human Capital	Labor Management	Human Capital Development
		Health & Safety	Supply Chain Labor Standards
	Product Liability	Product Safety & Quality	Privacy & Data Security
		Chemical Safety	Responsible Investment
		Financial Product Safety	Health & Demographic Risk
	Stakeholder Opposition	Controversial Sourcing	
		Community Relations	
	Social Opportunities	Access to Communications	Access to Healthcare
		Access to Finance	Opportunities in Nutrition & Health
Governance	E.g. Corporate Governance	E.g. Board	

Database 3: RobecoSAM

The RobecoSAM ESG scores are a unique, internally created database by Robeco and RobecoSAM which is primarily based on the Corporate Sustainability Assessment (CSA), which is a survey of over 10,000 firms on industry-specific, material ESG topics that has been carried out annually since 1999 ("Getting an Assessment", 2021). The RobecoSAM database defines ESG factors on three levels. On a pillar level, it defines environmental, social, and governance. One level deeper are the themes and the final level are the questions. In my analysis, I use the smart scores of theme-level items, the details of which can be found in table 5. The smart scores are the above-mentioned CSA scores adjusted for biases towards factors such as size, region, country, and sector ("Smart ESG score", 2021). I then match these scores with their respective smart weights that reflect the materiality of the themes for each company. The scores I use in my analysis were calculated at the end of 2019, therefore the assumptions used for the other two

databases about unchanged social scores are not needed, however, I do assume that the scores remained stable throughout 2020.

Table 5: Robeco Social Categories

The table presents the social themes and questions analyzed by Robeco when calculating companies' total social scores.

Pillars	Themes	Questions
Environment	E.g. Biodiversity	E.g. Biodiversity Commitment
Social	Addressing Cost Burden	E.g. Fair pricing
	Asset Closure Management	E.g. Mine Closure
	Controversial Issues in Lending & Financing	E.g. Dilemmas Guidelines
	Corporate Citizenship and Philanthropy	E.g. Group-wide Strategy
	Financial Inclusion	E.g. Financial Inclusion
	Health Outcome Contribution	E.g. Measure Contribution to Health Outcome
	Human Capital Development	E.g. Employee Development Programs
	Human Rights	E.g. Human Rights Assessment
	Labor Practice Indicators	E.g. Diversity
	Local Impact of Business Operations	E.g. Local Suppliers
	Occupational Health and Safety	E.g. Fatalities
	Partnerships Towards Sustainable Healthcare	E.g. Partnership Aspects
	Passenger Safety	E.g. Accident rate
	Responsibility of Content	E.g. Code of Ethics for Advertising
	Social Impacts on Communities	E.g. Security Forces
	Social Integration & Regeneration	E.g. Social Integration Initiatives
	Social Reporting	E.g. Social Reporting - Quantitative Data
	Stakeholder Engagement	E.g. Stakeholder Engagement - Governance
	Strategy to Improve Access to Drugs or Products	E.g. Local Capacity Building
	Talent Attraction & Retention	E.g. Employee Turnover Rate
Governance	E.g. Corporate Governance	E.g. Gender Diversity

Table 6 presents the social score samples for each data provider. MSCI has the most extensive coverage among the three data sets, covering 1,808 firms of the 1,892 companies in the company sample. Sustainalytics has a coverage of 1,696 companies and RobecoSAM covers 1,678 companies. Out of these companies however there were some, for which an important fundamental metric was not available, therefore were taken out of the sample as it was not possible to normalize these scores (normalization process is discussed in more detail in the next paragraph). After the normalization RobecoSAM covers 1,672 companies, MSCI covers 1,798 companies, and Sustainalytics covers 1,687 companies.

Table 6: Social scores sample construction

The table presents the number of companies that are covered by the score providers out of the total sample.

	RobecoSAM	MSCI	Sustainalytics
Social Score Available	1,678	1,808	1,696
Less: Fundamental data missing	6	10	9
Total	1,672	1,798	1,687

To give the reader an idea of what social issues each of the scores take into account exactly when scoring a company's social performance, in table 7, I present an example of Johnson & Johnson's scores for each of the score providers. As seen in the table, the scores vary substantially across the providers as well as what specific issues were taken into account. This ties in with the first hypothesis about the score providers' ability to objectively measure social performance, which is discussed in more detail in chapter 4. The inputs that are used in the calculation of the final social scores apart from some categories such as Human Capital Development largely differ from each other with RobecoSAM seeming to analyze the most areas in this company's case. The final normalized scores of Johnson & Johnson, standardized on a 0 – 10 scale, are the following: 8.3 (Robeco), 4.9 (MSCI), 7.3 (Sustainalytics).

Table 7: Example: Social scores of Johnson & Johnson

The table shows the specific social items and their respective original (before normalization), unweighted scores that were taken into account when calculating the total social scores. Robeco's scores range from 0.0 – 1.0, MSCI's scores range from 0.0 – 10.0, and Sustainalytics' scores range from 0.0 – 10.0 with 10.0 being the riskiest.

RobecoSAM		MSCI		Sustainalytics	
Themes	Score	Key Issue	Score	Issue	Score
Addressing Cost Burden	0.81	Access to Healthcare	6.9	Access to Basic Services	2.63
Corporate Citizenship and Philanthropy	0.86	Human Capital Development	6.6	Bribery and Corruption	1.89
Health Outcome Contribution	0.67	Labor Management	6.0	Business Ethics	2.75
Human Capital Development	0.84	Privacy & Data Security	10.0	Human Capital	2.91
Human Rights	0.48	Product Safety & Quality	2.9	Occupational Health	0.79
Labor Practice Indicators	0.59				
Occupational Health and Safety	0.81				
Social Reporting	0.88				
Strategy to Improve Access to Drugs or Products	0.78				
Talent Attraction & Retention	0.75				
Total	**0.83**	**Total**	**4.9**	**Total**	**2.1**

3.3 Methodology

Although the social scores have reportedly already been normalized to some extent by the score providers as described above, table 9 shows that for example, sectoral or regional exposures still significantly explain social scores. Therefore, after standardizing [8] the scores in all three databases, I normalize them based on the methodology of Khan et al. (2016) using sectors, regions, 3-year average free cash flow yield (FCFyield), 3-year average return on invested capital (ROIC), and market cap data.[9] The final scores used in constructing the portfolios are the residuals from the regressions below. I sort the companies based on these normalized social scores from each provider and construct equal-weighted top quintile, bottom quintile, and total

---

[8] The scores were standardized on a 0-10 scale with a score of 0 reflecting a weak social performance and a score of 10 reflecting a strong social performance.

[9] The ROIC, FCF yield, market cap, sector- and region fixed effects are used because they describe the characteristics of the firms in the sample. The 3-year (2018, 2019, 2020) average values of the ROIC and FCF yield were used to smooth out the shock caused by the COVID-19 pandemic.

portfolios in each sector and each region. In total, I analyze 15 segments, including 11 global-level sectors, 3 regions[10], and the total sample, which results in 135 portfolios[11].

$$Robecoscore_i = b_1 + b_2 ROIC_i + b_3 FCFyield_i + b_4 MarketCap_i + f_S + f_R + e_i$$

$$MSCIscore_i = b_1 + b_2 ROIC_i + b_3 FCFyield_i + b_4 MarketCap_i + f_S + f_R + e_i$$

$$Sustainalyticsscore_i = b_1 + b_2 ROIC_i + b_3 FCFyield_i + b_4 MarketCap_i + f_S + f_R + e_i$$

Table 8 shows the summary data of the social scores and the control variables described above. The scores were standardized to a 1-10 scale with 10 representing the best social performance. It is interesting to note that both Robeco and MSCI have an average score of around 5.0, indicating a balanced scoring. Sustainalytics on the other hand seem to score more generously with the average score of the whole sample being 7.2. The sample's 3-year average free cash flow yield is around 5%, while its 3-year average ROIC is around 9%.

Table 8: Social scores summary statistics

The table shows the summary statistics of the standardized social scores and of the firm characteristics that were used for the normalization.

	Mean	St Dev.	Min	Max	N
Robeco S Score	4.52	2.92	0.00	10.00	1,678
MSCI S Score	4.92	1.51	0.00	10.00	1,808
Sustainalytics S Score	7.20	1.36	0.00	10.00	1,696
FCF Yield (3-year avg.)	0.05	0.25	-3.44	5.20	1,882
ROIC (3-year avg.)	0.09	0.19	-2.72	2.98	1,887
Market Cap	32.09	91.84	4.00	1906.15	1,880

Table 9 reports the results of the regressions, which shows that parameters such as regions, sectors, FCF Yield and ROIC were significantly able to explain social scores in many cases. Market capitalization on the other hand seems to have been normalized by the data providers, as in all cases the estimate for this parameter is 0.00. The r-squared value is the highest for Sustainalytics (21.78%), indicating that a relatively high percentage of the variation can be explained by the controls. MSCI (13.21%) has the second highest r-squared value, followed by

---

[10] APAC, Europe, North America
[11] For all 15 segments analyzed, I create top quintile, bottom quintile, and total segment portfolios using all three social databases.

Robeco (5.05%). Table 10 presents the summary statistics of the normalized scores. Since the normalized scores are residuals of the above-described regressions, the average of the scores is of course 0.

Table 9: Normalization of social scores

The table presents the results of the regressions ran to normalize the social scores. The 3-year average FCF yield, 3-year average ROIC, market cap, sector fixed effects, and region fixed effects were used in these regressions, after which the residuals are used as the normalized scores going forward.

	Robeco		MSCI		Sustainalytics	
Parameter	Estimate	t	Estimate	t	Estimate	t
Intercept	4.24	12.90	5.23	32.39	6.56	37.31
FCF Yield (3-year avg.)	0.46	2.65	0.02	0.24	0.34	3.85
ROIC (3-year avg.)	-0.39	-0.92	0.34	1.64	0.77	3.45
Market Cap	0.00	1.42	0.00	-1.98	0.00	0.53
Sector FE.	Yes		Yes		Yes	
Region FE.	Yes		Yes		Yes	
R-squared	5.05%		13.21%		21.78%	

Table 10: Summary statistics of the normalized social scores

The table presents the mean, standard deviation, minimum, and maximum of the normalized scores. The mean is of course 0 as the normalized scores are the residuals of the regression presented in Table 9.

	Mean	St Dev.	Min	Max	N
Robeco Smart ESG	0	2.84	-5.79	6.78	1,672
MSCI	0	1.41	-5.51	5.79	1,798
Sustainalytics	0	1.21	-6.85	3.30	1,687

4. Empirical Results

In this chapter, I test the four hypotheses proposed at the beginning of the paper. First, I test my first hypothesis, whether score providers are able to objectively measure and score social performance by looking at the correlations between the score providers. Next, I test my second hypothesis, whether in 2020 high social scoring companies indeed outperformed operatively as many reports have suggested. I do this by comparing the top social performers with the bottom ones in terms of ROIC, profit margins, and revenue growth. Finally, I test my third hypothesis, whether the total holding returns of top social performers outperform the bottom social performers.

4.1 Hypothesis #1: Score providers can objectively score social performance

To test my first hypothesis about score providers being able to objectively measure social performance, I calculate the correlations between the scores, with the expectation of seeing a high and positive correlation. Before the normalization procedure, table 11 shows that the correlations between the different databases are positive, albeit weak. After normalization, however, the correlation becomes slightly stronger, although still weak, with correlations between the score providers ranging from 0.19 to 0.30. The correlations remain similar when analyzing the top 50th percentile and the top quartile companies based on market capitalization. The low correlation is also confirmed by other research reports and papers which have pointed out that objectively measuring social performance is incredibly hard due to data and comparability issues (Berenberg, 2021). In fact, Bernstein (2018) reports that there is a lack of strong correlation between data providers even on an overall ESG-scoring level. This result contradicts my hypothesis about score providers being able to objectively measure and score social performance.
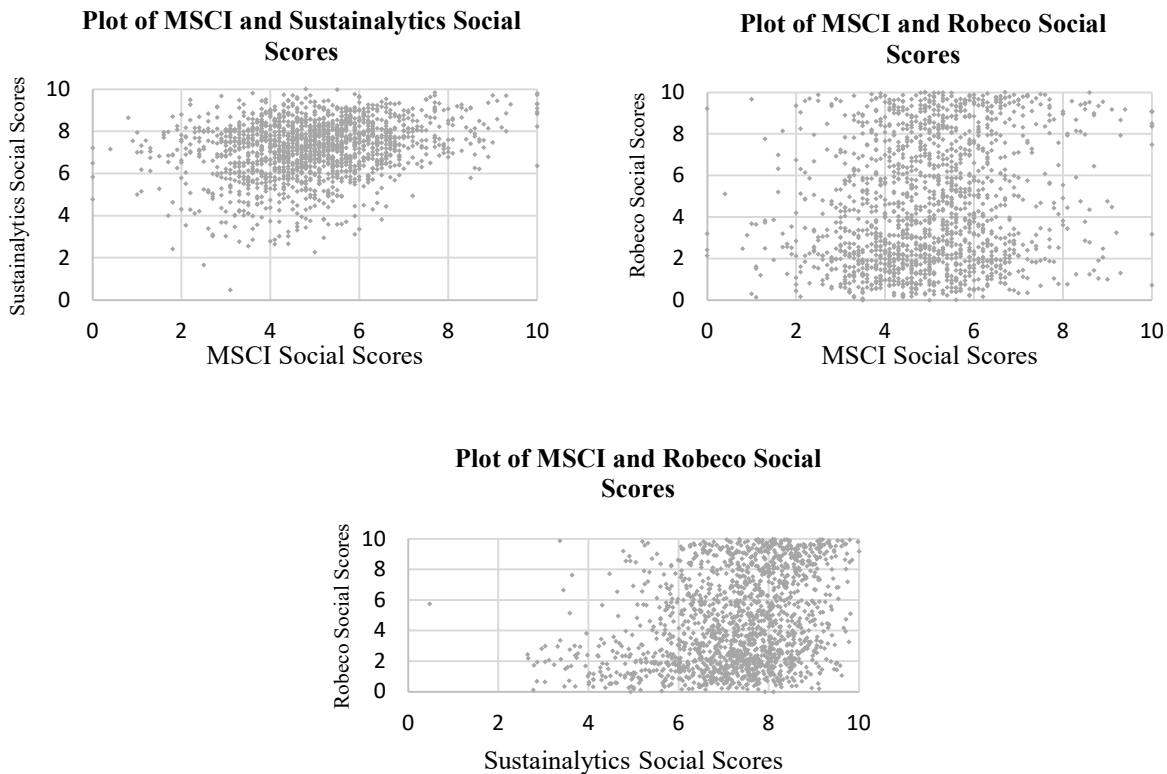
Table 11: Correlation Matrix of social scores

The table presents a correlation matrix of the original scores of the score providers and the scores after the normalization and standardization to a scale of 0 (worst score) – 10 (best score). As seen in the table, the scores show a stronger correlation after normalizing for sector, region, market cap, FCF yield, and ROIC.

	Norm. Robeco	Norm. MSCI	Norm. Sustainalytics	Original Robeco	Original MSCI	Original Sustainalytics
Norm. Robeco	1.00	0.19	0.30	0.98	0.17	0.25
Norm. MSCI	0.19	1.00	0.25	0.17	0.93	0.22
Norm. Sustainalytics	0.30	0.25	1.00	0.26	0.23	0.88
Original Robeco	0.98	0.17	0.26	1.00	0.18	0.27
Original MSCI	0.17	0.93	0.23	0.18	1.00	0.26
Original Sustainalytics	0.25	0.22	0.88	0.27	0.26	1.00

Figure 3: Plots of social scores from all data providers after adjustments

The charts below show each of the score providers' normalized scores, standardized to a 1 – 10 scale, plotted against the other score providers' social scores. With the hypothesis of score providers being able to score objectively, we would expect the scatterplot points to be positioned around a 45° line. However, as seen on the scatterplots below, the correlation between the scores is weak.

Plot of MSCI and Sustainalytics Social Scores

Plot of MSCI and Robeco Social Scores

Plot of MSCI and Robeco Social Scores

Hypothesis #1 conclusion

Hypothesis #1 stated that score providers are able to objectively score social performance. However, based on the empirical analysis presented in this paragraph, I conclude that this hypothesis does not hold in practice, score providers have difficulties objectively measuring social performance of companies.

4.2 Hypothesis #2: High social performers outperformed operatively in 2020

As mentioned in chapter 1, many reports have stated that the importance of the social pillar of ESG has increased during the COVID-19 pandemic (Berenberg, 2021). Based on this statement, I formed a hypothesis that better social performers outperform operationally too. To test this, I compare the top and bottom portfolios' key fundamental metrics that describe company performance: ROIC, revenue growth, profit margin. The results in Table 12 show that, surprisingly, the three score providers agree on the top social performing portfolios having a lower revenue growth in the Information Technology (IT) sector than their counterparts. Table 13 presents these comparisons between quintile and 50th percentile portfolios as well as with (Model 2) and without (Model 1) control variables, all of them yield similar results. However, looking at the composition of the top/bottom portfolios, it appears that the top-ranked stocks have a tilt to industries that tend to have more mature growth profiles, such as the Technology Hardware, Storage & Peripherals, and the Industrial Conglomerates spaces. Conversely, the bottom portfolio in the IT sector has an overweight in companies operating in the high-growth industries such as the Application Software space. Based on this, I add industry fixed effects to the control variables used in Model 2, which removes the difference between the growth rates of the top and bottom in the IT sector, as seen in Model 3 in table 13. As for the rest of the sectors, the three databases yield conflicting results even after controlling for various company-specific variables such as region, free cash flow yield, market cap, and ROIC. Removing the control variables yields similar outcomes. The results indicate a rejection of the hypothesis, i.e., better social performers in the IT sector actually do not show significantly better operational performance. There are two possible explanations for these results or a combination of them. One explanation is that the score providers have difficulties objectively measuring social performance, as indicated by the low correlation between score providers' data. The difficulties

of objectively measuring social performance have been confirmed by past research as mentioned under chapter 4.1. The second possible explanation is that social scores do not affect operational performance, or that it simply takes longer before such effects are materialized.

Table 12: Fundamental comparison of top and bottom social performers

The table presents the difference between the top and bottom portfolios in terms of revenue growth, ROIC, and profit margins. The *,**,*** mark the level of significance for the coefficients, while "-" marks that there is no significant difference. Control variables include region, free cash flow yield, market cap, and ROIC (except for the ROIC column).

Sectors	RobecoSAM			MSCI			Sustainalytics		
	Rev. Growth	ROIC	Profit Margin	Rev. Growth	ROIC	Profit Margin	Rev. Growth	ROIC	Profit Margin
Communication Services	-	-	-	-	-	-	-	-	-
Consumer Discretionary	-0.12*	-	-	-	-	0.11*	-	-	-
Consumer Staples	-	-	-	-	-	-	-	-0.11***	-
Energy	-	-	-	-	-	-	0.13***	-	-
Financials	-	-	-	-	-0.06***	-	-	-	-
Healthcare	-	-	-	-	0.15***	-	-	-	-
Industrials	-0.09**	-	-	-	-	-	-	-	-
Information Technology	-0.08**	-	-	-0.12**	-	-	-0.17***	-	-
Materials	-	-	-	0.10*	-	0.07***	-	-	-
Real Estate	-	-0.03**	-	-	-	-	-	-0.03**	-
Utilities	-	-	-	-	-	-	-	-	-

Table 13: Revenue Growth in the Information Technology Sector

Model 1 includes is the raw comparison of the top and bottom quintile and 50th percentile portfolios, without any controls. Model 2 includes controls such as region fixed effects, free cash flow yield, market cap, and ROIC. Model 3 uses the same controls as Model 2 but also includes industry fixed effects.

	RobecoSAM				MSCI				Sustainalytics			
	Quintile		Median		Quintile		Median		Quintile		Median	
Param.	Top-Bottom	t	Top-Bottom	t	Top-Bottom	t	Top-Bottom	t	Top-Bottom	t	Top-Bottom	t
Model 1	-0.09**	-2.3	-0.09***	-2.9	-0.10*	-2.0	-0.01	-0.39	-0.17***	-4.7	-0.12***	-3.8
Model 2	-0.08*	-2.2	-0.08**	-2.6	-0.12**	-2.3	-0.02	-0.57	-0.17***	-4.7	-0.10***	-2.8
Model 3	-0.07	-1.14	-0.05	-1.39	-0.08	-1.0	-0.01	-0.29	-0.13*	-2.2	-0.03	-0.2

Hypothesis #2 conclusion

Hypothesis #2 stated that high social performers operatively outperformed low social performers in 2020. This hypothesis is rejected based on the analysis presented in this paragraph, there were no significant differences between top and bottom social performers in operative performance, in any of the sectors.

4.3 Hypothesis #3: High social performer stocks outperformed in 2020

Region-level analysis

To test my hypothesis about better social performance leading to higher returns and lower drawdowns during crisis situations such as the COVID-19 pandemic, I also compare the top and bottom equal-weighted portfolios in terms of stock performance during 2020 within each sector and region. To give the reader an idea of what kind of companies each portfolio contains, I present in table 14 the ten best and worst social scoring firms across all regions.

**Table 14: The 10 best and worst social scoring firms by regions by RobecoSAM scores**

The table provides a few examples of the companies included in the top and bottom portfolio, for the different regions in the sample.

APAC		Europe		North America	
Top	Bottom	Top	Bottom	Top	Bottom
Ricoh	Huabao	Telenet Group	Fuchs Petrolub	HP	Selective Insurance
NTT Data	BHP Group	Informa	Sunrise Communications	Hewlett Packard Enterprise	Parkland
NEC	Ampol	STMicroelectronics	Skandinaviska Enskilda	Agilent Technologies	Mirati Therapeutics
Nomura Research Inst.	AMP	Signify	Lifco	NortonLifeLock	Snowflake
OMRON	TPG Telecom	CNH Industrial	EQT	Flex	Liberty SiriusXM
FUJIFILM	ESR Cayman	Pearson	NEL ASA	Owens Corning	CMC Materials
TOTO	New World Development	ATOS	Liberty Global	Abbott Laboratories	Firstservice
Nabtesco	Rio Tinto	GSK	ARGENX	Oshkosh	Brown & Brown
ANA Holdings	Workman	SGS	Stellantis	Stanley Black & Decker	Carlyle
Fortescue Metals	Insurance Australia	Thales	Volkswagen	Biogen	Carrier

Figure 4 presents the top and bottom portfolios based on the RobecoSAM social scores for the whole sample, the North America region, the Europe region, and the APAC region. Using the scores of the other two score providers yields similar results. Looking at the first chart, we can see that, surprisingly, in 2020 both the top and bottom social performers underperformed the total portfolio. Zooming into the regions yields a clearer but similar picture, showing that both the top and the bottom portfolios underperform the total portfolio in every region, except for the APAC region where the bottom portfolio outperformed the total and the top portfolio. The charts also suggest that up until the first two months of 2020, the portfolios moved somewhat in line, the divergence between the portfolios started right after the recovery from the downward movement. As for drawdown mitigation, social performance seemed to neither benefit nor detriment the riskiness of stocks, as seen in Figure 4.

Figure 4: Region-level top and bottom social performing portfolios

The North America portfolios contain 204 stocks, the Europe portfolios contain 119 stocks, the APAC portfolio contains 96 stocks. The performances presented are based on absolute returns, table 15 shows the alphas generated by the portfolios.
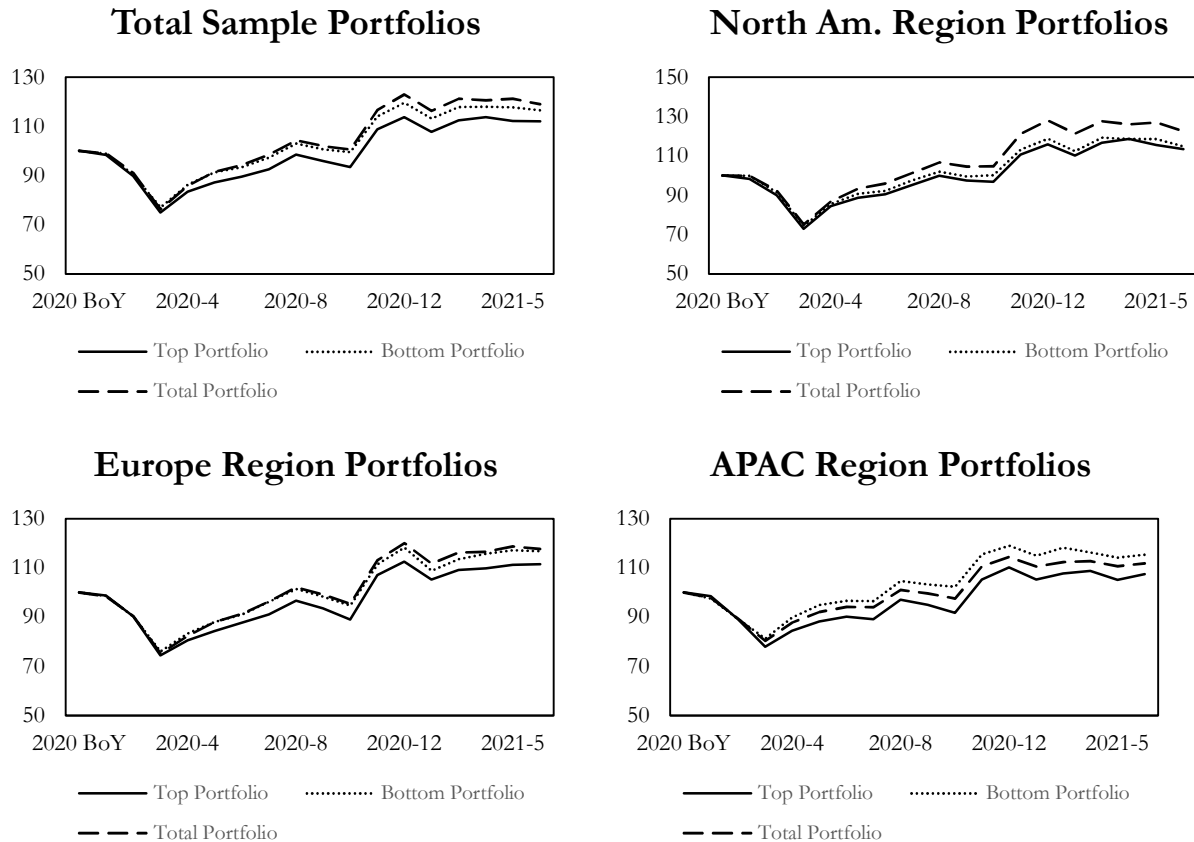
To account for factor biases in the results, I also estimate the abnormal returns (alphas)[12] of the portfolios. I include the market factor (MKT), size factor (SMB) and momentum factor (MOM) (Fama and French, 1993; Carhart, 1997)[13]. Table 15 presents the results of the regressions. The results suggest that after accounting for these factors the significance in the alphas disappears in all regions except for the APAC region, where both the top and bottom portfolio produces negative returns. However, if the liquidity factor (Pastor & Stambaugh, 2003) is also added to the model, the alphas become insignificant in the APAC region as well[14].

Table 15: Alphas for region-level social score ranked portfolios

This table presents the results of the regressions. The results suggest that after accounting for these factors the significance in the alphas disappears in all regions except for the APAC region, where both the top and bottom portfolio produces negative returns. However, if the liquidity factor (Pastor & Stambaugh, 2003) is also added to the model, the alphas become insignificant in the APAC region as well. Apart from the main model presented, the returns were tested against the CAPM, the FF5, and the main model with the liquidity factor added. The results are similar to that of the main model. The *,**,*** mark the level of significance for the coefficients, while N.s.d. marks that there is no significant difference.

	Total Sample Portfolios				North Am. Region Portfolios			
	Top Portfolio		Bottom Portfolio		Top Portfolio		Bottom Portfolio	
Parameter	Estimate	t	Estimate	t	Estimate	t	Estimate	t
Intercept	-0.005	0.13	-0.002		-0.008	-0.93	-0.007	-0.77
Market	0.970***	7.98	1.070***	8.29	1.047***	6.82	1.046***	6.71
SMB	-0.012	-0.04	-0.300	-0.83	0.354	0.82	0.360	0.82
HML	-0.533*	-2.05	-0.788**	-2.85	-0.040	-0.12	-0.024	-0.08
MOM	-0.564*	-2.06	-0.437	-1.51	-0.230	-0.67	-0.087	-0.25
N		17		17		17		17
Diff. Alphas				N.s.d.				N.s.d.

	Europe Region Portfolios				APAC Region Portfolios			
	Top Portfolio		Bottom Portfolio		Top Portfolio		Bottom Portfolio	
Parameter	Estimate	t	Estimate	t	Estimate	t	Estimate	t
Intercept	-0.011	-1.64	-0.008	-1.19	-0.015*	-2.60	-0.010*	-2.14
Market	1.095***	9.06	1.082***	9.27	0.771***	7.73	0.650***	7.65
SMB	-0.182	-0.54	-0.272	-0.83	0.378	1.35	0.545*	2.28
HML	-0.299	-1.16	-0.291	-1.17	-0.583**	-2.73	-0.718***	-3.94
MOM	-0.548*	-2.02	-0.440	-1.68	-0.758***	-3.38	-0.751***	-3.93
N		17		17		17		17
Diff. Alphas				N.s.d.				N.s.d.

---

[12] Abnormal returns (also referred to as alphas) are the significant excess returns (raw returns minus the risk free rate) that are not attributed to the various known factors.

[13] The market, size, book-to-market and momentum factors were retrieved from Kenneth French's database.

[14] Liquidity factor data was downloaded from Robert F. Stambaugh's database. Due to the liquidity factor being updated yearly, data is not available for the first five months of 2021, therefore the liquidity factor was not included in the main model.

Sector-level analysis

To test my third hypothesis on a sector-level as well, I form global top, bottom, and sector portfolios for all 11 GICS sectors using all the three score providers' data. In total 99 portfolios are created. For most of the sectors, the absolute returns of the portfolios based on the three score providers sortings do not show results that are consistent with each other. For the purpose of my analysis, I restrict my focus to the sectors where the stock performance of all of the portfolios within a sector seems to be in agreement across all three score providers. These sectors are the Information Technology, Healthcare, and Communication Services sectors, for which I again create top and bottom quartile portfolios. The 10 best and worst social performing firms are presented in table 16 as an example.

Table 16: The 10 best and worst social performing firms by sectors based on RobecoSAM scores

The table provides a few examples of the companies included in the top and bottom portfolio in the Healthcare, IT and Communication Services sectors.

Healthcare		Information Technology		Communication Services	
Top	Bottom	Top	Bottom	Top	Bottom
Agilent Technologies	ORPEA	HP	Check Point Software Tech	Comcast	Softbank Group
Abbott Laboratories	Eurofins Scientific	Hewlett Packard Enterprise	Adyen	TELUS	BT Group
Biogen	Sartorius AG	NortonLifeLock	Bechtle	AT&T	Stillfront Group
Baxter International	Novocure	Flex	Nexi SpA	Zillow Group	TPG Telecom
AbbVie	Galapagos	Adobe	Sinch	Quebecor	Schibsted
Edwards Lifesciences	CRISPR Therapeutics	Xerox Holdings	Seagate Technology	Omnicom Group	Kahoot!
Cigna	TEVA Pharmaceutical	Visa	Hexagon AB	Walt Disney	Adevinta
Illumina	Roche Holding	NVIDIA	Teamviewer	Nexstar Media Group	Telecom Italia
Johnson & Johnson	Bachem Holding	Keysight Technologies	ASM International	Shaw Communications	Sunrise Communications
CVS Health	ARGENX	Akamai Technologies	Netcompany Group	Rogers Communications	Liberty Global

Figure 5 presents the performances of the top, bottom portfolios based on the RobecoSAM social score sorting, as well as the sector portfolios. As seen on the charts, social performance did not seem to have a significant impact on drawdowns on a sector-level either, however, it is interesting to note that the divergence between the portfolios seems to begin starting from the

recovery in the market. Further, both the top and bottom portfolios seem to underperform the sector portfolio on an absolute level across all three industries, with the exception of the communication services sector, where the bottom portfolio even outperforms the sector and the top portfolio. However, as with the region-level portfolios, it is important to account for the various factor exposures, as it may as well be that the underperformance of these portfolios is due to them having a lower beta than the sector portfolio by random chance, which would lead to lower returns in a bullish market. I account for the same factors as before, namely the market factor (MKT), the size factor (SMB), the value factor (HML), and the momentum factor (MOM).

Figure 5: Sector-level top and bottom social performing portfolios

The Healthcare portfolios contain 39 stocks, the IT portfolios contain 49 stocks, the Communication Services portfolio contains 23 stocks. The performances presented are based on absolute returns, table 17 shows the alphas generated by the portfolios.

Healthcare Sector Portfolios

IT Sector Portfolios
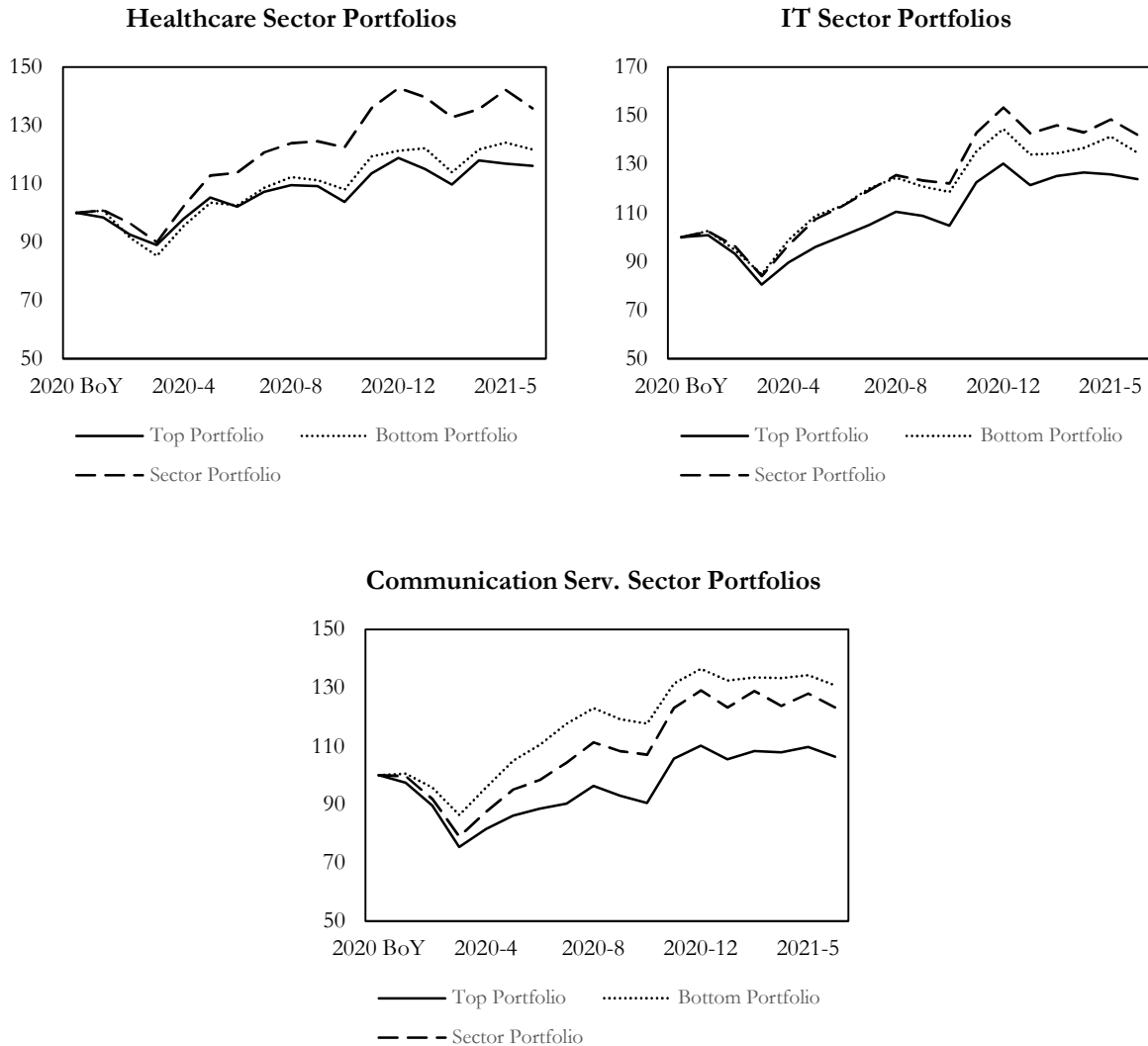

Communication Serv. Sector Portfolios

Table 17 presents the results of the regressions for each sector, showing no significant abnormal returns in any of the portfolios except for the top portfolio in the Communication Services sector. However, adding the liquidity factor to the model removes the alpha from this portfolio as well.

Table 17: Alphas for sector-level social score ranked portfolios

Apart from the main model presented, the returns were tested against the CAPM, the FF5, and the main model with the liquidity factor added. The results are similar to that of the main model. The *,**,*** mark the level of significance for the coefficients, while N.s.d. marks that there is no significant difference.

	Information Technology				Communication Services				Healthcare			
	Top Portfolio		Bottom Portfolio		Top Portfolio		Bottom Portfolio		Top Portfolio		Bottom Portfolio	
	Est.	t	Est.	t	Est.	t	Est.	t	Est.	t	Est.	t
Interc.	-0.01	-0.8	-0.01	-0.3	-0.01**	-2.8	0.01	0.0	-0.01	-0.6	-0.01	-0.5
Market	0.97***	8.0	1.07***	8.3	0.94***	12.5	0.84***	7.5	0.65***	3.6	0.88***	5.1
SMB	-0.01	-0.1	-0.30	-0.8	0.17	0.8	0.02	0.1	-0.26	-0.5	-0.27	-0.6
HML	-0.53*	-2.1	-0.79	-2.9	-0.33*	-2.0	-0.43	-1.8	-0.67	-1.8	-0.46	-1.3
MOM	-0.56*	-2.1	-0.44	-1.5	-0.51**	-3.0	-0.17	-0.7	-0.43	-1.1	-0.03	-0.1
N												
Diff. Alphas			N.s.d.				N.s.d.				N.s.d	

To get a closer look into what drives the stock return and firm performance differences between the top and bottom quartile portfolios, I also analyze whether there is an industry tilt in the portfolios and if so, whether that could also partially explain these differences. Figure 6 shows a breakdown of the constituents of the top and bottom quartile portfolios within the Healthcare sector. The graph shows that for example, compared to the sector portfolio, both the top and bottom portfolios have a considerable underweight in the Biotechnology sector (12% weight) which experienced a total holding return of 31% in 2020, and an overweight in the pharmaceutical sector which yielded a relatively low, 9.4% total holding return in that year. The different industry weights compared to the sector portfolio contributed to the underperformance of both the top and bottom portfolios. In fact, constructing a portfolio with the same industry weights as the top (bottom) portfolio on average yields a 22% (18%) total holding return in 2020, while a portfolio with the same industry weights as the sector portfolio yields 43% in that year. This result suggests that in the Healthcare sector, apart from the factor-tilts mentioned previously, industry weights also significantly explain some of the differences found between the top, bottom, and sector portfolios presented in Figure 6.

Figure 6: Industry breakdown of Healthcare sector portfolios

The figure presents the industry weights of the top, bottom, and overall sector portfolios. The differences in industry weights could explain at least some of the differences between the portfolios' returns.
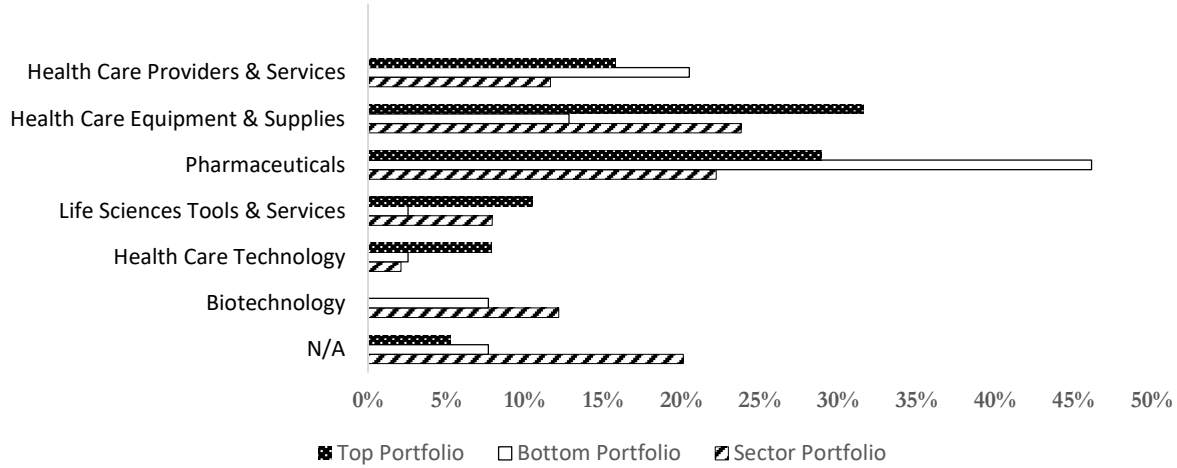
Healthcare Sector Portfolios Breakdown

Figure 7 shows the constituents of the top and bottom quartile portfolios within the IT sector broken down into industry level. The graph shows that the top portfolios had a significant overweight in the relatively low-return (14.2% in 2020) Technology Hardware Storage & Components industry, while an underweight in the high-return (72.5% in 2020) Software industry. This explains at least to some extent besides the above-discussed factors, why the top portfolio underperformed return-wise compared to both of its counterparts. Furthermore, the Software industry also experienced a revenue growth of 21% in 2020 which is substantially higher than that of the IT sector as a whole (11%), while revenues in the Technology Hardware Storage & Peripherals industry shrank by 3%. This could also be part of the reason the bottom portfolio has a significantly higher revenue growth rate compared to the top portfolio, as seen in table 12 and table 13.

Figure 7: Industry breakdown of IT sector portfolios

The figure presents the industry weights of the top, bottom, and overall sector portfolios. The differences in industry weights could explain at least some of the differences between the portfolios' returns and revenue growth rates.
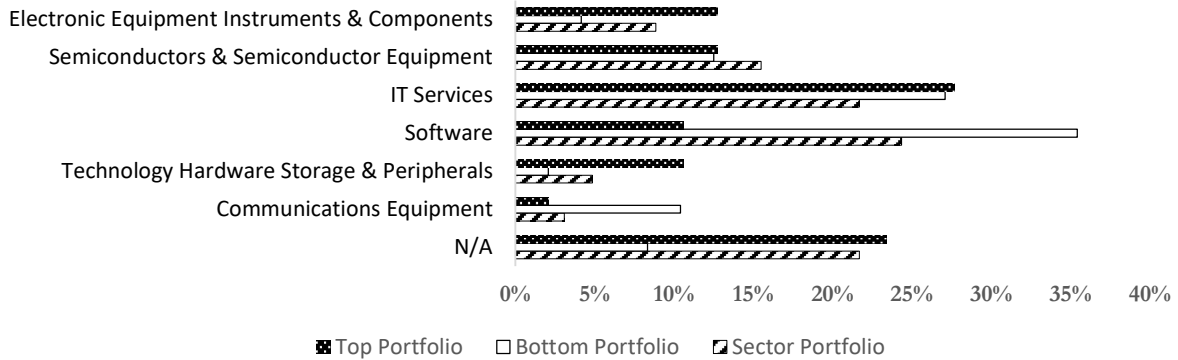
IT Sector Portfolios Breakdown

Figure 8 shows the total Communication Services sector, the top quintile, and the bottom quintile social performers by industries. The sector portfolio had a strong overweight in the entertainment sector compared to the other portfolios, which had a total holding return of 45.1% in 2020, which could mean that industry tilt was one of the drivers of the differences in returns, however, creating portfolios with similar weights in each of the industries shows that on average the sector portfolio (29.4%) would have outperformed both the top (25%) and the bottom portfolios (20%). Based on these observations, it seems like most of the return differences are due to factor tilts rather than sectoral ones in the communication services sector.

Figure 8: Industry breakdown of Communication Services sector portfolios

The figure presents the industry weights of the top, bottom, and overall sector portfolios.

Communication Services Sector Portfolios Breakdown
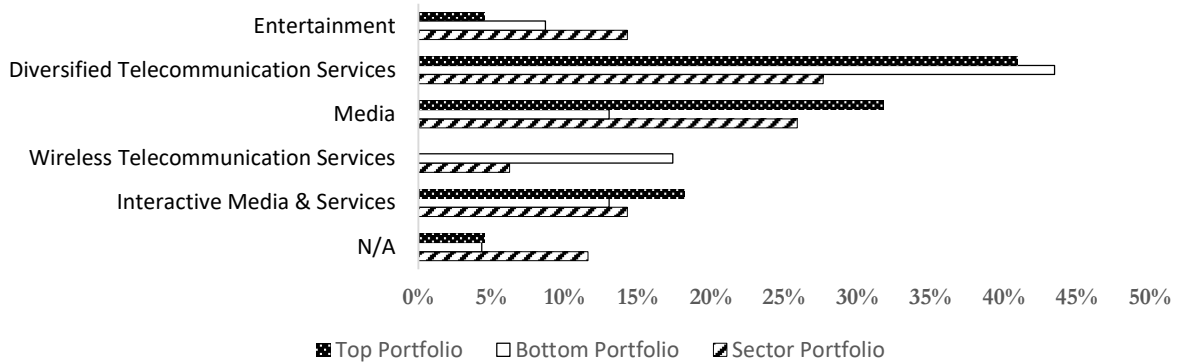
Hypothesis #3 conclusion

Hypothesis #3 stated that high social performers outperformed low social performers in stock returns in 2020. After controlling for the Fama-French and the liquidity factors, the significance of the intercept disappears both on a region- and sector-level, therefore the hypothesis is rejected.

5. Conclusion

The year 2020 was an unusual year, to say the least. With the world being shaken up, companies acted in varying ways, ethically (i.e., converting production facilities to produce masks), others unethically (i.e., mass layoffs). However, many recent research reports claimed that in this crisis environment, the value of acting in a socially responsible way has increased, or in other words, social considerations of ESG have become more important.

5.1 Findings

To test this claim, I formed three hypotheses: (i) Score providers are able to objectively score social performance, (ii) High social performers outperformed operatively in 2020, (iii) High social performer stocks outperformed in 2020. I use three different providers' material social scores, which I then normalize. Based on these normalized scores I create top and bottom quartile and 50th percentile portfolios on a sector- and region-level and compare them based on total holding return and drawdown in 2020, and a variety of operative metrics including revenue growth, ROIC, and profit margins in 2020.

In conclusion, I find no connection in 2020 between companies' social scores and their operative or stock performance. Furthermore, I find that social score providers are not able to objectively score social performance.

5.2 Possible explanations and limitations

There are four possible explanations for the resulting lack of link between companies' social performance and their operative or stock performance in 2020. The first is that score providers' scores are not representative of reality, evidenced by the low correlation found between all three scorers (see hypothesis #1). The second possible explanation is that the score providers' materiality weights might be incorrect, which could dilute the importance of single important social items (e.g., workforce score, human rights) by combining them with less important ones. Third, the impact of social performance levels on company and stock performance may take longer to manifest than the time period considered in this study. Finally, contrary to recent

reports, it is possible that the social pillar of ESG did *not* become more important during the COVID-19 pandemic, and that its impact on company and stock performance may have decreased substantially during this crisis.

However, this paper has some potential shortcomings as well. One is that due to data limitations, the most recent scores (as of 08/06/2021) were used for the MSCI and the Sustainalytics calculations instead of scores from the beginning of 2020, therefore an assumption that the social scores have not changed substantially between these two periods was required. Furthermore, due to the relatively short time horizon analyzed, there could be longer-term effects of being a high social performer that this paper could not capture (i.e., customers/employees develop a stronger, long-term loyalty to these companies which could contribute positively to their operating metrics years later).

5.3 Implications

The results have several implications both for investors and score providers. One is that practitioners should take combined social scores from ESG data providers with a grain of salt when integrating ESG data into investment processes, as one data provider may report very different scores than another. This emphasizes the importance of fundamental analysis in sustainability integration to validate or invalidate scores and to give context to them as well. However, practitioners might be better off looking at single social issues instead of combined social scores as possibly, combined social scores are diluted with non-material social issues. This ties into an implication for score providers to be stricter with materiality weights and only add issues that have evidence of significantly impacting company and stock performance. Furthermore, score providers should make efforts to improve comparability with other score providers, such as by developing standardized social themes and issues. This would provide a reality check for scorers while also allowing investors to see which issues each score provider disagrees on and why.

5.4 Further research

Further research can be done to explore the effect of specific social issues on company and stock performance, using for example the Corporate Human Benchmark Index which specializes on assessing companies' human rights performance, or Robeco's proprietary CSA data which scores companies based on gender equality performance. The longer-term effects of high social performance during crisis situations could also be investigated in the next years by analyzing multiple years of data following the COVID-19 crisis. Furthermore, rather than focusing on social score levels, examining changes in social performance may also yield interesting results.

Literature

Attig, N., El Ghoul, S., Guedhami, O., & Suh, J. (2013). Corporate Social Responsibility and Credit Ratings. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2222960

Bank of America. (2021). Explosive asset growth; E and S drive alpha. Bank of America research paper. pp. 13. Not publicly available.

Barclays. (2020). ESG scores and COVID-19: Digging deep. Barclays Research Report, pp.10. Not publicly available.

Barnea, A., & Rubin, A. (2010). Corporate Social Responsibility as a Conflict Between Shareholders. Journal Of Business Ethics, 97(1), 71-86. https://doi.org/10.1007/s10551-010-0496-z

Bauer, R., Derwall, J., & Hann, D. (2009). Employee Relations and Credit Risk. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.1483112

Becchetti, L., Ciciretti, R., Dalo, A., & Herzel, S. (2014). Socially Responsible and Conventional Investment Funds: Performance Comparison and the Global Financial Crisis. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2397939

Berenberg. (2020). Pan-European ESG reactions to COVID-19. Berenberg Research Report. pp. 36. Not publicly available.

Berenberg. (2021). Climate crisis to corporate diversity; navigating 2021. Berenberg Research Report. pp. 43. Not publicly available.

Bernstein. (2018). Sustainable Investing: Don't let ESG scores hijack your portfolio. Berstein Research Report. pp. 29. Not publicly available.

Borgers, A., Derwall, J., Koedijk, K., & ter Horst, J. (2013). Stakeholder relations and stock
returns: On errors in investors' expectations and learning. Journal Of Empirical Finance,
22, 159-175. https://doi.org/10.1016/j.jempfin.2013.04.003

Bouslah, K., Kryzanowski, L., & M'Zali, B. (2013). The impact of the dimensions of social
performance on firm risk. Journal Of Banking & Finance, 37(4), 1258-1273.
https://doi.org/10.1016/j.jbankfin.2012.12.004

Carhart, M. (1997). On Persistence in Mutual Fund Performance. The Journal Of Finance, 52(1),
57-82. https://doi.org/10.1111/j.1540-6261.1997.tb03808.x

Clark, G., Feiner, A., & Viehs, M. (2014). From the Stockholder to the Stakeholder: How
Sustainability Can Drive Financial Outperformance. SSRN Electronic Journal.
https://doi.org/10.2139/ssrn.2508281

Credit Suisse. (2021). Ada's Insights - Quant Strategy E + S + G ≠ ESG. CS research paper,
pp.25. Not publicly available.

Eccles, R., Ioannou, I., & Serafeim, G. (2014). The Impact of Corporate Sustainability on
Organizational Processes and Performance. Management Science, 60(11), 2835-2857.
https://doi.org/10.1287/mnsc.2014.1984

Eccles, R., & Klimenko, S. (2019). Shareholders Are Getting Serious About Sustainability.
Harvard Business Review. Retrieved 14 May 2021, from https://hbr.org/2019/05/the-
investor-revolution.

Edmans, A. (2011). Does the stock market fully value intangibles? Employee satisfaction and
equity prices. Journal Of Financial Economics, 101(3), 621-640.
https://doi.org/10.1016/j.jfineco.2011.03.021

Edmans, A., Li, L., & Zhang, C. (2014). Employee Satisfaction, Labor Market Flexibility, and Stock Returns Around the World. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2461003

El Ghoul, S., Guedhami, O., Kwok, C., & Mishra, D. (2011). Does corporate social responsibility affect the cost of capital?. Journal Of Banking & Finance, 35(9), 2388-2406. https://doi.org/10.1016/j.jbankfin.2011.02.007

Faleye, O., & Trahan, E. (2010). Labor-Friendly Corporate Practices: Is What is Good for Employees Good for Shareholders?. Journal Of Business Ethics, 101(1), 1-27. https://doi.org/10.1007/s10551-010-0705-9

Fama, E., & French, K. (1993). Common risk factors in the returns on stocks and bonds. Journal Of Financial Economics, 33(1), 3-56. https://doi.org/10.1016/0304-405x(93)90023-5

Fisman, R.J., Heal, G., & Nair, V.B. (2005). CORPORATE SOCIAL RESPONSIBILITY - Doing Well By Doing Good.

Frazzini, A., & Lamont, O. (2008). Dumb money: Mutual fund flows and the cross-section of stock returns. Journal Of Financial Economics, 88(2), 299-322. https://doi.org/10.1016/j.jfineco.2007.07.001

Freeman, E. (1984). A Stakeholder Approach to Strategic Management. Pitman.

Friedman, M. (1970). A Friedman doctrine-- The Social Responsibility Of Business Is to Increase Its Profits. Nytimes.com. Retrieved 17 May 2021, from https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html.

Getting an Assessment. Spglobal.com. (2021). Retrieved 10 June 2021, from https://www.spglobal.com/esg/csa/getting-an-assessment.

Godfrey, P., Merrill, C., & Hansen, J. (2009). The relationship between corporate social

   responsibility and shareholder value: an empirical test of the risk management

   hypothesis. Strategic Management Journal, 30(4), 425-445.

   https://doi.org/10.1002/smj.750

Googins, B. (2021). Why Community Relations is a Strategic Imperative. strategy+business.

   Retrieved 17 May 2021, from https://www.strategy-

   business.com/article/17964?gko=27dcc.

Hall, M. (2006). Corporate Philanthropy and Corporate Community Relations: Measuring

   Relationship-Building Results. Journal Of Public Relations Research, 18(1), 1-21.

   https://doi.org/10.1207/s1532754xjprr1801_1

Hodal, K., Kelly, C., & Lawrence, F. (2021). Revealed: Asian slave labour producing prawns for

   supermarkets in US, UK. The Guardian. Retrieved 17 May 2021, from

   https://www.theguardian.com/global-development/2014/jun/10/supermarket-prawns-

   thailand-produced-slave-labour.

ISS ESG. (2020). Survey Analysis: ESG Investing Pre- and Post-Pandemic. Retrieved 17 May

   2021, from https://www.issgovernance.com/file/publications/ISS-ESG-Investing-Survey-

   Analysis.pdf.

Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate Sustainability: First Evidence on

   Materiality. The Accounting Review, 91(6), 1697-1724. https://doi.org/10.2308/accr-

   51383

Moret, G., & Zandbergen, M. (2018). Fact or fiction: SI is only about negative screening.

   Robeco. Retrieved 29 June 2021, from https://www.robeco.com/en/insights/2018/02/fact-

   or-fiction-si-is-only-about-negative-screening.html.

Morgan Stanley. (2020). COVID-19: Effects on Employees, Productivity, and Corporate Reputations. Morgan Stanley research paper, pp.13. Not publicly available.

Moy Huber, B., & Comstock, M. (2017). ESG Reports and Ratings: What They Are, Why They Matter. The Harvard Law School Forum on Corporate Governance. Retrieved 28 June 2021, from https://corpgov.law.harvard.edu/2017/07/27/esg-reports-and-ratings-what-they-are-why-they-matter/.

MSCI. (2020). MSCI ESG Ratings Methodology. Retrieved 17 May 2021 from https://www.msci.com/documents/1296102/21901542/MSCI+ESG+Ratings+Methodology+-+Exec+Summary+Nov+2020.pdf

MSCI. (2021). MSCI ESG Ratings. Retrieved 17 May 2021 from https://www.msci.com/documents/1296102/21901542/MSCI+ESG+Ratings+Brochure-cbr-en.pdf

MSCI. (2021). MSCI ESG Research. Retrieved 17 May 2021 from https://www.msci.com/documents/10199/40f512f3-f89d-40b5-8c41-248fae4305bf

Optimy. (2017). 5 key benefits of corporate volunteering programs - Optimy. Optimy. Retrieved 17 May 2021, from https://www.optimy.com/blog/5-key-benefits-corporate-volunteering-programs/.

Pástor, L., & Stambaugh, R. (2003). Liquidity Risk and Expected Stock Returns. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.279804

Prajogo, D., Chowdhury, M., Yeung, A., & Cheng, T. (2012). The relationship between supplier management and firm's operational performance: A multi-dimensional perspective. International Journal Of Production Economics, 136(1), 123-130. https://doi.org/10.1016/j.ijpe.2011.09.022

Richard, O., Murthi, B., & Ismail, K. (2007). The impact of racial diversity on intermediate and long-term performance: The moderating role of environmental context. Strategic Management Journal, 28(12), 1213-1233. https://doi.org/10.1002/smj.633

Robeco. (2021). EU Sustainable Finance Disclosure Regulation. Robeco.com. Retrieved 18 May 2021, from https://www.robeco.com/en/key-strengths/sustainable-investing/glossary/eu-sustainable-finance-disclosure-regulation.html.

Röhrbein, N. (2009). RiskMetrics acquires KLD. IPE. Retrieved 1 July 2021, from https://www.ipe.com/riskmetrics-acquires-kld/33190.article.

Schramade, W. (2016). Integrating ESG into Valuation Models and Investment Decisions: The Value Driver Adjustment Approach. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2749626

Smart ESG score. Robeco.com. (2021). Retrieved 10 June 2021, from https://www.robeco.com/nl/expertise/duurzaam-beleggen/begrippenlijst/smart-esg-score.html.

S&P Global. (2018). Global Industry Classification Standard. Retrieved from https://www.spglobal.com/marketintelligence/en/documents/112727-gics-mapbook_2018_v3_letter_digitalspreads.pdf

Turban, D., & Greening, D. (1997). Corporate Social Performance And Organizational Attractiveness To Prospective Employees. Academy Of Management Journal, 40(3), 658-672. https://doi.org/10.5465/257057

Verwijmeren, P., & Derwall, J. (2010). Employee well-being, firm leverage, and bankruptcy risk. Journal Of Banking & Finance, 34(5), 956-964. https://doi.org/10.1016/j.jbankfin.2009.10.006

Whitehouse, L. (2006). Corporate Social Responsibility: Views from the Frontline. Journal Of

      Business Ethics, 63(3), 279-296. https://doi.org/10.1007/s10551-005-3243-0

Yahoo Finance. (2021). Company Profile. Retrieved 1 July 2021 from

      https://finance.yahoo.com/quote/MSCI/profile?p=MSCI

Appendix

Figure 2

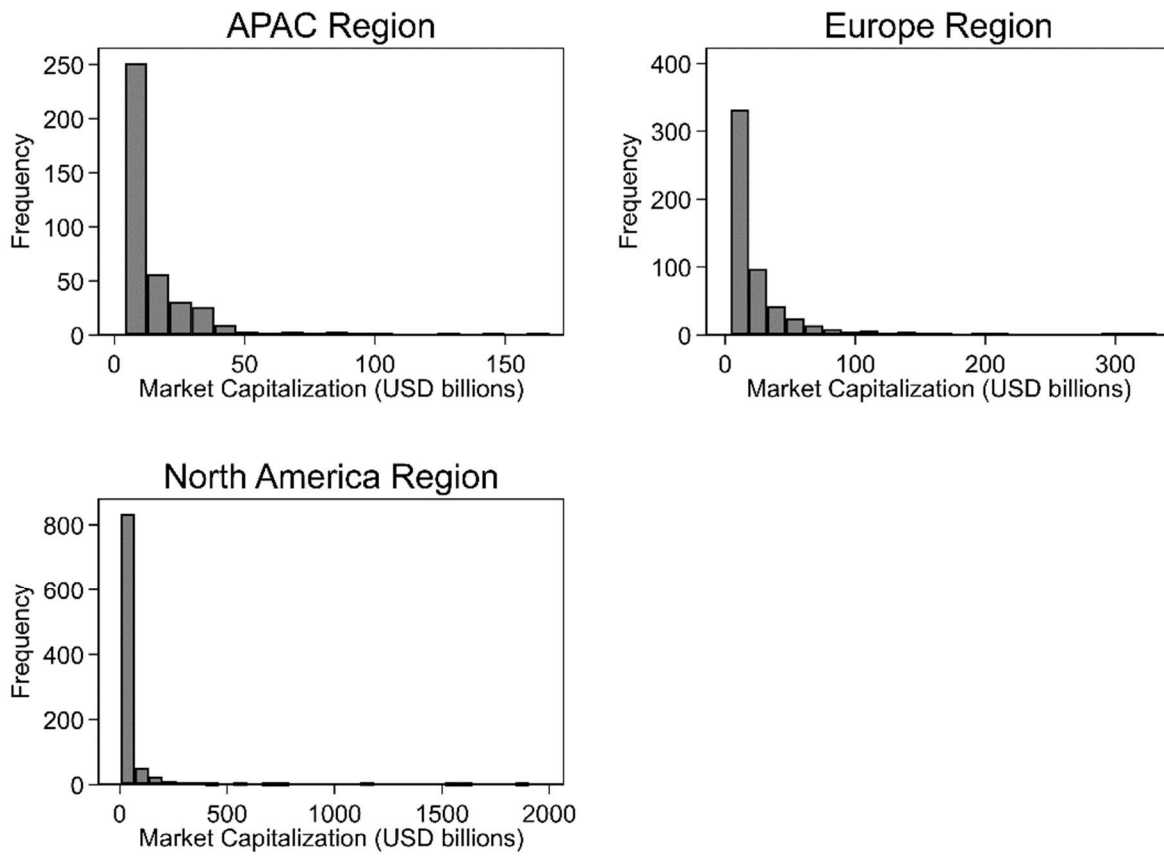Distribution of market capitalizations

Figure 9

Standardized MSCI Materiality Map

	Health & Safety	Community Relations	Labor Management	Human Capital Development	Privacy & Data Security	Access to Communications	Access to Finance	Access to Health Care	Chemical Safety
Energy	57.14%	38.53%	3.03%	0.87%	0.43%	N/A	N/A	N/A	N/A
Materials	30.09%	13.89%	32.41%	N/A	N/A	N/A	N/A	N/A	23.15%
Industrials	31.43%	3.81%	46.98%	3.81%	6.67%	N/A	N/A	N/A	0.63%
Consumer Discretionary	3.00%	N/A	34.56%	2.30%	17.51%	N/A	N/A	N/A	8.76%
Consumer Staples	7.18%	2.87%	8.33%	0.29%	7.76%	N/A	N/A	N/A	7.18%
Health Care	N/A	N/A	4.27%	34.14%	6.31%	N/A	N/A	14.29%	N/A
Financials	N/A	N/A	N/A	34.73%	19.66%	N/A	14.50%	N/A	N/A
Information Technology	N/A	N/A	10.86%	43.67%	22.40%	N/A	0.68%	N/A	5.88%
Communication Services	N/A	N/A	26.73%	21.58%	47.52%	3.76%	N/A	N/A	N/A
Utilities	18.71%	2.92%	N/A	68.42%	1.17%	N/A	N/A	N/A	N/A
Real Estate	21.51%	N/A	N/A	67.92%	0.38%	N/A	N/A	N/A	N/A

	Consumer Financial Protection	Controversial Sourcing	Insuring Health & Demographic Risk	Opportunities in Nutrition & Health	Product Safety & Quality	Responsible Investment	Supply Chain Labor Standards	Total
Energy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.00%
Materials	N/A	N/A	N/A	N/A	0.46%	N/A	N/A	100.00%
Industrials	0.32%	N/A	N/A	N/A	6.03%	0.32%	N/A	100.00%
Consumer Discretionary	0.23%	1.61%	N/A	2.53%	21.66%	N/A	7.83%	100.00%
Consumer Staples	N/A	N/A	N/A	25.57%	34.20%	N/A	6.61%	100.00%
Health Care	N/A	N/A	0.56%	N/A	40.45%	N/A	N/A	100.00%
Financials	17.75%	N/A	2.29%	N/A	N/A	11.07%	N/A	100.00%
Information Technology	N/A	12.22%	N/A	N/A	0.45%	N/A	3.85%	100.00%
Communication Services	N/A	N/A	N/A	N/A	0.20%	N/A	0.20%	100.00%
Utilities	N/A	N/A	N/A	N/A	8.77%	N/A	N/A	100.00%
Real Estate	N/A	N/A	N/A	N/A	10.19%	N/A	N/A	100.00%