"Doing Well by Doing Good"
- A Mantra that Holds During Times of Crisis?

A quantitative study about the effect of employee- and consumer-related CSR investments on company financial performance during the Covid-19 Crisis

HANNAH DIETSCHE

ULRIKA HEIKKINEN

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Abstract:
The Covid-19 Crisis led to employees shifting to a work-from-home environment and consumers reducing their overall consumption, changes which had overall negative implications on firms and their financial performance. Previous research suggests firms investing in employee- and consumer-related CSR should gain advantages, such as having more skilled and hard-working employees and higher consumer loyalty, both of which would be expected to be financially beneficial during these crisis times. Opposing studies propose that these CSR investments could instead generate disadvantages, such as an increase in employee disengagement and a decline in consumer demand. Against this backdrop, this paper studies the relation between companies' employee- and consumer-related CSR investments and financial performance during the Covid-19 Crisis. Using a sample of 317 public Nordic companies and conducting both cross-sectional and difference-in-differences regressions, no strong evidence for either a positive or negative relation is found. Despite the results indicating a positive association they are overall insignificant such that no clear conclusion can be drawn. An additional analysis is provided in the paper to further explore the research question. The findings affirm the positive pattern of the main analysis and suggest that firms have benefited from consumer- and employee-related CSR investments. However, to establish a definite, clear link between stakeholder-related CSR investments and their effect on financial performance in a crisis context further research has to be conducted.

Keywords:
CSR, Macroeconomic Crises, Financial Performance, Covid-19
Authors:
Hannah Dietsche (41787)
Ulrika Heikkinen (24012)
Tutor:
Irina Gazizova, Assistant Professor, Department of Accounting
Examiner:
Department of Accounting

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Master Program in Accounting, Valuation & Financial Management
Stockholm School of Economics

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1. Introduction

There are many studies finding that CSR investments of firms create superior employee performance and consumer loyalty (e.g. Flammer, Luo 2017, Greening, Turban 2000, Luo, Bhattacharya 2006, Luo, Bhattacharya 2009). They argue that these investments generate a competitive advantage that is hard for other firms to imitate, which in turn leads to advantages such as superior financial performance (e.g. Flammer, Luo 2017). Gaining this edge originates from the idea that when firms care about their stakeholders, they also get it back - *"doing well by doing good"* (Albuquerque, R., Koskinen et al. 2020). Prior research suggests that employee- and consumer-related CSR activities generate financial advantages during non-crisis periods but it is in crises that present the most challenging times for companies and their survival. The current Covid-19 Crisis is one example during which Nordic firms' revenues decreased an average of 1.1 % in 2020 after years of consecutive growth (growth in 2019 was 6.9 percent) (Boston Consulting Group 2021). This arose from rapid changes in consumer behavior and other operational challenges as companies had to adjust to the new reality of blocked supply chains, lockdowns and restrictions (ibid.). Hence, having loyal customers and well-performing employees supporting and fighting for company survival can be argued to be of even more importance during these times. These two groups are so-called instrumental stakeholders (Donaldson, Preston 1995), being particularly important to the company and its performance because they represent the main source of supply and demand, respectively. Given that prior to the crisis some firms have invested more into these stakeholder groups through targeted CSR investments, it is both interesting and economically important to see whether firms get reciprocation during times when they need it the most. This is a question which is to the authors' best knowledge so far unexplored. The paper aims to fill this literature gap by answering the following question:

How do employee- and consumer-related CSR investments impact financial performance during crisis times?

Specifically, this paper studies whether differences in company financial performance during the Covid-19 Crisis could be explained by differences in levels of pre-Covid CSR investments targeting employees and consumers. Studying this issue during the Covid Crisis is particularly interesting given that workers and consumers were themselves severely affected. For example, employees had to shift to work-from-home schedules (McKinsey 2020) and consumers lowered their expenses on average by 7% in 2020 (European Central Bank 2021). These changes in employee and consumer behavior had in turn an impact on company performance.

Prior research argues that companies investing in CSR are able to attract and retain more skilled and hard-working employees (Greening, Turban 2000) and better align their goals with those of their workforce (Flammer, Luo 2017). These companies would then not only be expected to have a more *motivated* labor force, but one that is also more *capable* of dealing with the new Covid-19-imposed organizational challenges and the new work-from-home schedules. Taking the argument further, this could lead to superior financial performance during the crisis. Nevertheless, there is also

contradicting theory that argues for a deterioration of those employees' performance reasoned among other points by an increase in moral licensing within a work-from-home environment (List, Momeni 2021). Hence, the effect of the Covid Crisis on financial performance of firms investing in employee-related CSR, compared to firms not investing into these, is unclear and has to be further explored. Furthermore, Luo and Bhattacharya (2006, 2009) suggest that consumers of CSR companies are more loyal and these firms gain a better customer-company identification. Thus, it could be expected that despite lowered overall consumption these customers would choose to support respective CSR companies during rough times. Nevertheless, there are also contradicting theories arguing that the demand for CSR products and services decreases during crisis times, as they are defined as normal goods (McWilliams, Siegel 2001, Albuquerque, Koskinen et al. 2019). Thus, the effect of companies' consumer-related CSR investments on financial performance is also unclear when put into a crisis context and has to be further explored. This study aims to shed more light on these two ambiguous effects by answering the research question stated above. The focus of the study is on the performance of public companies within the Nordics, as previous research shows investments in CSR being of more importance for companies in these countries (Liang, Renneboog 2017), and consequently, the effect of CSR on firm performance could be expected to be even more significant there.

This study uses both cross-sectional and difference-in-differences regressions models to answer the research question. Cross-sectional regressions are employed to see whether companies investing in employee and consumer CSR initiatives perform financially differently from companies that did not invest in those initiatives during the Covid-19 Crisis. These findings are then complemented with difference-in-differences regressions to identify whether any potential difference of financial performance can be attributed specifically to the crisis rather than to general difference in performance independently of a crisis context. As a proxy to capture employee- and consumer-related CSR investments, selected parts of the ESG score that are argued to mainly impact these two stakeholder groups will be used. For financial performance, both return on assets (ROA) and return on equity (ROE) are employed as proxies, as the first is appropriate for capturing the operational performance and the second the payoff for shareholders.

Overall, our results are pointing towards a pattern of companies investing pre-Covid into employee- and consumer-related CSR performing financially better during the Covid-19 Crisis. The cross-sectional results are positive and mostly significant, indicating this superior financial performance during the Covid-19 Crisis. However, when adding control variables for financial health and firm size, the effects are partly diminished and become insignificant. For the difference-in-differences specification, the findings show a positive tendency as all results, with an exception of the ROA in an employee context, are positive but insignificant, which indicates that the superior financial performance could partially be attributed to the Covid Crisis. Thus, the overall tendency towards a positive association could be an indication of a potential link between superior financial performance during the Covid-19 Crisis being attributed to superior consumer loyalty and employee performance. Nevertheless, as all results are insignificant, no clear conclusion about a positive association can be drawn.

This paper contributes to existing research in three ways. First, we add to the literature on CSR effects on firm performance during macroeconomic shocks (e.g. Lins, Servaes et al. 2017, Garel, Petit-Romec 2021, Bae, El Ghoul et al. 2021, Hannah, Sayari et al. 2021, Ding, Levine et al. 2021, Demers, Hendrikse et al. 2021, Albuquerque, Koskinen et al. 2020). These papers provide mixed evidence. One potential explanation for these diverse outcomes is that as crises differ[1] thus should the link between superior financial performance and CSR. Nevertheless, the focus of previous research has been on the broad CSR score and its effects on financial performance, with one exception being Garel and Petit-Romec (2021), who focus on the environmental components. Hence, this paper contributes with an alternative approach where the emphasis of the study is laid on CSR components mainly impacting certain stakeholders who play an important role in the crisis in question, in this case, consumers and employees. This places the focus on accounting numbers as financial performance proxies, as opposed to the other studies that mainly use stock data. The accounting data is more suitable for capturing the historical crisis performance influenced by intangible assets such as employee productivity and consumer loyalty, both of which are difficult for investors to evaluate (Edmans 2011, Edmans 2012).

Second, this paper contributes to the literature on employee related CSR investments' impact on firm performance (e.g. Flammer, Luo 2017, Edmans 2011, Edmans 2012, Bloom, Kretschmer et al. 2011). Previous studies largely focus on the impact on firm performance during ordinary times. Flammer and Luo (2017), for example, find that employee related CSR investments lead to superior financial performance, induced by improved employee engagement and mitigation of adverse behavior. Edmans (2011, 2012) shows how these employee-friendly CSR practices are positively related to long-run stock performance. Bloom, Kretschmer et al. (2011) also like Edmans (2011, 2012), show a positive association between CSR related employee practices and firm performance during non-crisis times. Thus, we contribute empirical insights into employee related CSR investments' impact on firm performance during crisis times.

Finally, this paper contributes to the literature analyzing CSR's impact on consumer behavior and in turn its impact on financial performance (e.g. McWilliams, Siegel 2001, Luo, Bhattacharya 2009, Albuquerque, Rui, Koskinen et al. 2019). Also within this stream of literature the focus has been on firm performance impact during ordinary times. For example, McWilliams and Siegel (2001) provides a theoretical view arguing for a neutral relationship between the CSR investments of firms, consumer behavior and firm performance. Luo and Bhattacharya (2009), in turn provide empirical insights showing a positive relation where customer satisfaction is mediating this positive relationship. Finally, Albuquerque, Rui, Koskinen et al. (2019) provide insights into CSR as a product differentiation strategy is positively associated with firm value. Hence, we contribute with insights into CSR investments' impact on consumer behavior, and in turn firm performance, during crisis times.

[1] The current Covid-19 Crisis differs immensely from the Global Financial Crisis (GFC) in its characteristics. The GFC was caused by the market actors themselves whereas the Covid-19 Crisis started with a global pandemic, which, as a result of governmental actions to restrict the spread of the virus, led to an economic crisis.

The remaining of the paper is structured as followed: Section 2 gives some background to the Covid-19 Crisis, literature about CSR's financial impact during crisis times and provides the hypothesis development for CSR's impact on consumer behavior and employee performance during the Covid Crisis; Section 3 covers important definitions, selected data, proxies and econometric methodology needed to enable the study; Section 4 gives insights into the results of employee and consumer CSR investments' impact on financial performance, where in Section 5 these results are then discussed in substance. Section 6 provides an additional analysis exploring alternative approaches for studying the research question; Section 7 covers the study limitations, and finally, Section 8 gives the conclusion and the overall contributions and implications of this study.

2. The Covid-19 Crisis & Literature Review

2.1. Institutional Setting: The Covid-19 Crisis

"COVID-19 has caused the most serious health crisis in a century and the most serious economic crisis since the Second World War." (OECD 2021)

The Covid-19 Crisis has been stated to represent an unparalleled shock (Albuquerque, Koskinen et al. 2020). It was both an unexpected shock to the global stock markets and an exogenous shock originating from a health crisis rather than from economic concerns (ibid.). It has become one of the most severe economic crises throughout our human history, as highlighted in the quote above. It originated in Wuhan, China, where a dangerous and contagious virus, SARS-CoV-2, had spread and has since then been transmitted throughout the world and become a global pandemic with more than 140 million people infected and 3 million deaths globally as of April 2021 (OECD 2021). The first confirmed case of Covid-19 within the Nordic countries was in Finland at the end of January 2020 (Statista 2021f), and the disease has since infected close to 2 million people (Statista 2021a) and caused 20,000 deaths within these countries as of the 4th of November 2021 (Statista 2021b). In order to limit the spread of the virus, governments have to different extents imposed restrictions, lockdowns and border closures, which have to date (6th of December) more or less remained in place depending on countries' infection levels. The governmental responses have in turn led to large negative economic consequences (OECD 2021). For example, between the 19th of February and the 23rd of March 2020 the Nordic stock market index OMX Nordic 40[2] decreased by 31 percent (Nasdaq 2021) and in 2020 the GDP within the Nordics decreased by 2.2 percent, compared to ten years of consecutive growth (Nordic Statistics Database 2021).

As a result of the spread of the virus and its following consequences many companies have been impacted, as they have had to adjust to the new reality of disrupted global supply chains, rapid changes in consumer demand and adaption to distance work for employees (OECD 2021). In all, the Covid-19 Crisis has led to Nordic companies experiencing a revenue decline of 1.1% in 2020 compared to a growth of 6.9% in 2019 and 8.6% in 2018 (Boston Consulting Group 2021). Nevertheless, industries were impacted to different degrees. For example, online shopping experienced a boost in demand, while industries dependent on personal contact, such as restaurants, hotels and event spaces, experienced a rapid decline. Other industries dependent on global supply chains, such as car manufacturers, experienced limitations within their productions caused by lack of raw materials. Finally, as different industries had varying flexibility to shift into a work-from-home environment, e.g. software developers versus factory workers, this in turn had an impact on the possibilities of continuing with business as usual (European Commission 2021b).

[2] Index consisting of the 40 most-traded stock classes of shares from the four stock markets operated by the OMX Group in four of the Nordic countries: Copenhagen, Helsinki, Reykjavík and Stockholm.

Looking at it from a firm's stakeholder perspective, both consumers and employees were severely impacted by the Covid-19 Crisis, and they in turn impacted the companies' financial performance. Consumers decreased their overall spending by 7% in 2020 compared to 2019, driven by pandemic-induced financial concerns caused by both real and emotional effects. Real effects included the loss of their jobs due to the pandemic and the diminished income at hand while emotional effects took hold as individuals became uncertain about their future income expectations and the prospects of the future (European Central Bank 2021). Furthermore, they shifted their shopping priorities towards buying items from industries addressing fundamental human needs, such as grocery and other essential consumable retail (European Commission 2021a). Other major changes in consumption patterns were the shift to online shopping, the great support of local businesses and an increased mindfulness about environmental impact and greener choices (ibid.). In all, these changes in consumer behavior then drove the changes in businesses' revenues. Many employees were laid off as companies had to lower their expenses in response to the decline in demand. Therefore, the unemployment levels rose an average of 1.3% in 2020 within the Nordic countries (Statista 2021h, 2021g, 2021e, 2021c, 2021d). Job losses were most prevalent within low-skilled jobs as these industries were in general more negatively impacted (e.g. Campa, Roine et al. 2021). Many of the remaining employees had then to adjust to the new reality of work-from-home, which in turn required development of new distance working capabilities (McKinsey 2020). Key employees also experienced an increase in workload because of the new Covid-19-imposed challenges (CIPD 2020). These employees then played a role in keeping the businesses going and adapting the operations to the new Covid-19 environment.

2.2. Literature Review

In order to answer the question of whether corporate social responsibility (CSR)[3] investments impact firm financial performance research within this field has burgeoned (Aguinis, Glavas 2012). This has happened despite Milton Friedman's influential statement back in 1970 about CSR challenging the core of a free enterprise system, by arguing it causes managers to spend shareholders' money for general social interests (Friedman 1970). Opposing Friedman's view, stakeholder theory argues that when firms serve stakeholders beyond just shareholders by investing in CSR activities, they gain desired resources and responses from those stakeholders who support the firm's performance (Freeman 1984). In line with this stakeholder-enhancing view of CSR, risk management theory proposes CSR to have insurance-like properties where the CSR initiatives of firms signal positive altruistic intentions, which enable them to build up moral capital that serves as trust buffers when the firms have failures or setbacks (Godfrey 2005, Godfrey, Merrill et al. 2009). Overall, prior research offers conflicting evidence on the link between CSR and financial performance (for reviews see Aguinis, Glavas 2012, Peloza, J. 2009, Peloza, John, Shang 2011). This paper addresses that gap

[3] Within this paper CSR is defined as firms' initiatives considering the interests of the other stakeholders rather than shareholders. For example, the environment, employees and consumers (Freeman 1984).

in literature by examining whether stakeholder engagement through CSR investments impacts firm financial performance during crisis times.

There are several papers studying the link between CSR and firms' financial performance during macroeconomic crises (e.g. Lins, Servaes et al. 2017, Hannah, Sayari et al. 2021, Bae, El Ghoul et al. 2021, Garel, Petit-Romec 2021, Albuquerque, Koskinen et al. 2020, Ding, Levine et al. 2021) but the range of results for the link between CSR and financial performance during crisis periods varies widely. On the one hand, Lins et al. (2017) show with their study of the Global Financial Crisis (GFC) how firms that had prior to the crisis invested in CSR were partly spared from the negative financial impacts (in terms of stock and operational performance) compared to the firms that had not invested in CSR. On the other hand, Bae et al. (2021) also study whether firms investing in CSR performed financially better during crises, but focus on the Covid-19 Crisis, and find no support for such a connection. Garel and Petit-Romec (2021) study, like Bae et al. (2021), CSR effects during the Covid-19 Crisis but focus on the environmental component of CSR since they argue the occurrence of the pandemic, being defined as a rare disaster, led investors to revise upwards the probability and the expected impact of climate risks, another rare disaster. As a result, they argue companies performing well within environmental aspects should perform financially better during the Covid-19 Crisis due to investors expecting climate-cautious firms to be less hit by future climate change impacts. They also find support for this hypothesis within the empirical data (Garel, Petit-Romec 2021).

There are two potential explanations for these disparate outcomes. First, as crises differ, so should the link between CSR, financial performance and crises. For example, the GFC was caused by the market actors themselves, which in turn caused the low public trust levels in companies (Lins, Servaes et al. 2017). Firms which invested in CSR pre-crisis had, however, in line with the risk management theory view, signaled that they care about impacts on other stakeholders and society, and thus built up social capital (Godfrey 2005, Godfrey, Merrill et al. 2009). Therefore, companies that have had invested in CSR pre-crisis were not as severely punished financially due to their social capital which served as a trust buffer. This trust buffer could then explain the positive links between CSR and financial performance during crises characterized by low trust (e.g. Lins, Servaes et al. 2017, Hannah, Sayari et al. 2021). However, as previously stated, the current Covid-19 Crisis differs immensely from previous crises. Its main distinctive feature is how the truly exogenous shock, the viral pandemic, abruptly and severely limited global economic activity, and triggered enormous and heterogenous stock price movements. Unlike the GFC, the Covid-19 Crisis was not caused by the market actors themselves. Thus, the same link, i.e. the risk management theory view, between CSR and superior financial performance during Covid-19 Crisis could be argued not to be as relevant - something which is also supported by the insignificant findings of previous Covid Crisis studies (e.g. Bae, El Ghoul et al. 2021, Demers, Hendrikse et al. 2021). Therefore, when studying the connection of CSR and financial performance during the Covid-19 Crisis one must consider other links.

Another potential link between CSR and superior financial performance during the Covid-19 Crisis could then be explained with the stakeholder theory, which suggests that firms serving stakeholders beyond just shareholders by investing in CSR activities,

gain desired resources and responses from those stakeholders (Freeman 1984). Translating this theory into a crisis setting, it could be hypothesized that stakeholders choose to help and support firms which have invested more in them before the crisis. For example, during the Covid-19 Crisis consumers might choose to buy more from CSR companies, compared to other firms not investing in CSR, just in order to support their business survival. Nevertheless, as CSR comprises several dimensions (e.g. initiatives targeting consumers, employees, environment, or society at large), it could be that different dimensions are of different importance during the Covid-19 Crisis. Hence treating CSR as a homogenous entity by regressing companies which are socially responsible in general with financial performance, could lead to insignificant results (Edmans 2012, Servaes, Tamayo 2013). This treatment of CSR as a homogenous entity could then serve as the second potential explanation for the diverse results of studies focusing on the broad CSR score and financial performance during the Covid-19 Crisis (e.g. Bae, El Ghoul et al. 2021, Albuquerque, Koskinen et al. 2020).

Following the argumentation above, another approach to explore the connection between CSR and firm performance during the Covid-19 Crisis is to study dimensions of CSR that target stakeholder groups which directly impact company performance during the Covid Crisis: employees and customers (as discussed in section *"Institutional Setting"*). Thus, this paper raises the question of whether pre-crisis CSR investments targeted at employees and consumers pay off during the Covid Crisis - a time when companies could be argued to need their resources the most. The following two sections hence investigate these two stakeholder channels: how they were impacted by the Covid-19 Crisis and whether a difference in financial performance during the Covid-19 Crisis could be expected from firms investing more into these stakeholder groups.

2.3. Hypothesis Development

2.3.1. Employee Performance During the Covid-19 Crisis

The Covid-19 Crisis led to an immense change in the job situation for many employees. Major changes were increases in workload as key personnel had to tackle the new challenges imposed by the crisis, but also the newly implemented work-from-home policies (CIPD 2020). These policies in turn led to other changes such as decreased supervision and support that employees obtained from managers, but also created different skillset requirements for employees as they had to develop remote working skills (McKinsey 2020).

First, the implication of less supervision due to work-from-home could have an impact on firm performance due to its risk of increasing adverse behavior of employees, e.g. disengagement, use of work time for personal matters and unproductive action (e.g. Rusbult, Farrell et al. 1988). According to the principal-agent theory the employees (agents) act on behalf of the employers (principal), and as employees' work effort and motivation are difficult to observe it causes information asymmetry creating space for adverse behavior, where employees act for their own benefit rather than the firm's (Holmström 1979). Given that Covid-19 led to less supervision, it increased information asymmetry even more, creating further space for employees' adverse behavior. This

could in turn increase companies' adverse behavior costs which had already pre-Covid been measured up to five percent of their yearly revenues (ACFE 2016). Previous studies find that CSR investments function as a governance tool, through both *nurturing* and *constraining* mechanisms which align interests, decrease information asymmetry, and increase the attractiveness of jobs, all of which lead to a decrease in adverse behavior (Flammer, Luo 2017). Given that these findings hold during the Covid-19 Crisis, the difference in employee performance between firms that invest in CSR versus firms that do not could increase further due to the Covid Crisis, causing differences in financial performance.

The second mentioned implication of work-from-home, less support due to the distance between employee and supervisors, could also lead to differences in employee performance of firms investing in CSR and firms that do not. This is explained by previous research which argues that CSR companies are able to *attract* and *retain* more skilled employees due to their better reputation compared to low CSR firms (Greening, Turban 2000, Turban, Greening 1997). This is because employees care about the reputation of firms as from a social identity theory perspective their self-concepts are influenced by their membership within the organization (Ashforth, Mael 1989). The better reputation of firms investing in CSR then translates into a superior self-concept of their employees. Therefore such firms can attract more skilled employees due to also offering improved self-concepts. These more skilled employees of CSR firms are then expected to be more able to thrive in the Covid-19 work-from-home environment with less support as they should be more capable of working independently. Furthermore, they would also be expected to more easily develop the new remote-working skillsets needed.

Finally, the Covid-19 Crisis also led to a higher workload and new challenges to tackle. As previous research finds that employees of firms investing in CSR work harder, are more productive (Gubler, Larkin et al. 2018) and have more aligned goals with their company's (Flammer, Luo 2017), they should be not only *willing* to tackle the increase in workload and new challenges, but also more *able* to deal with it.

There are, however, also findings speaking against a superior financial performance of firms investing in CSR. Those are based on previous studies that show how CSR investments could also lead to an increase in adverse behavior of employees (List, Momeni 2021). This is caused by moral licensing where the CSR investments of firms are translated into a feeling of prosocial deeds by employees. Because the prosocial deeds boost the employees' self-image, and since individuals' moral standards are constantly challenged in multiple dimensions, the boosted self-image liberates the employees to behave unethically in other domains as they feel less morally constrained (Bénabou, Tirole 2010). Being in a work-from-home environment then offers more space for adverse behavior generated from moral licensing, which could negatively impact the performance of employees in CSR firms.

Another argument against superior employee performance of CSR firms is that many of the employee related CSR initiatives, covering projects such as employee safety and health policies as well as various training programs (e.g. Refinitiv 2021, Flammer, Luo 2017), could mainly be gained at the office. Thus when the Covid-19 Crisis occured, the

abrupt change to a work-from-home environment might have led to discontinuation of those CSR offers. As employees could not receive the same perks from home, and assuming that gaining those perks positively impacted their motivation, being without those perks could decrease the motivation of those employees more rapidly compared to employees who never received those perks in the first place.

Another argument that could lead to worse employee performance of CSR companies is that these firms have invested into their employees prior to the Covid Crisis, and according to prior research, potentially generated a valuable intangible asset in the workforce, which in turn gives them a competitive advantage (Flammer, Luo 2017, Edmans 2011). These companies could then be more reluctant in laying off their employees even though it could be needed due to rapid declines in revenue caused by the Covid-19 Crisis. This could then imply that CSR firms would keep an inefficient number of employees which results in cost inefficiencies.

Concluding, based on the arguments stated above, firms that have made investments into CSR before the Covid-19 Crisis, could on the one hand, gain a competitive advantage within their workforce, explained by factors such as less adverse behavior or more skilled and motivated employees fighting for company survival. This would enable them to more efficiently tackle the Covid-19 imposed challenges. On the other hand, they could be more severely impacted by the Covid-19 Crisis, caused by an increase in moral licensing, keeping an inefficient number of employees or by a stronger decrease of employee engagement. Hence, it is uncertain whether firms investing into CSR before Covid Crisis would perform financially better during the crisis. For that reason, no directional prediction is made and the null hypothesis is expressed as follows:

Null Hypothesis 1: The magnitude of employee-related CSR investments previous to the Covid-19 Crisis has no effect on a company's financial performance during the crisis.

2.3.2. Consumer Behavior During the Covid-19 Crisis

Consumers were also severely impacted by the Covid Crisis as the aggregate household spending dropped by almost 7% in 2020 compared to the previous year, mainly driven by pandemic-induced financial concerns (European Central Bank 2021). It also caused changes in consumption patterns such as shifted shopping priorities to items addressing fundamental human needs, shopping more online, choosing to shop and support local businesses and becoming more mindful about their environmental impact (European Commission 2021). This raises the question of whether this change of demand patterns affected firms investing in CSR in a different way or magnitude compared to firms with less focus on CSR.

One path of research argues that CSR attributes of products and services are normal (McWilliams, Siegel 2001) or superior goods (Albuquerque, Koskinen et al. 2019). This means that the key determinant of the consumers' demand for CSR is their level of income: the higher the income, the higher the demand. Following this view, as the Covid-19 Crisis led to a decrease in overall consumption due to increased financial concerns it is arguable that the demand for firms offering products or services with CSR

attributes, usually priced with higher margins (e.g. Albuquerque, Koskinen et al. 2019), would be negatively impacted.

However, there are also arguments and literature indicating that this might not be the realized effect during the Covid Crisis. First and foremost the job losses were most prevalent within low-skilled, and therefore low-paid jobs. Hence, the lowered consumption would be driven by low-income groups. The magnitude of the Covid Crisis' negative impact on the high-skilled workforce could therefore be argued to be lower (Campa, Roine et al. 2021). Based on previous research arguing income level to be the main determinant of demand for CSR attributes (McWilliams, Siegel 2001), the main target group for CSR products and services, in this case high-income groups, was not as negatively impacted by the crisis.

Furthermore, as firms investing into CSR have in previous research shown to build a more loyal customer basis since their customers experience a higher satisfaction (Luo, Bhattacharya 2006, 2009), one could expect CSR firm's customers to stay more loyal even during crisis times.

The firms investing in CSR are, however, not only expected to perform better due to less impacted and more loyal customer groups, but also due to the mentioned increase in demand for "greener products" as a result of the Covid Crisis. Therefore, the Covid Crisis increased the group of so-called "generalized consumers" - those who value products and services that not only satisfy their own consumption experience but also have a minimized harmful impact on their environment (Daub, Ergenzinger 2005). Hence, the crisis also increased the target groups for firms investing in CSR product/service attributes.

Another argument supporting superior performance of firms investing in CSR is built on previous research arguing that CSR investments are a key element in the development of consumers' sense of connection with the firm. Companies investing in CSR should then develop a higher customer-company identification among their consumers (Luo, Bhattacharya 2006, Luo, Bhattacharya 2009). As consumers then identify to a higher degree with the company, they would also be expected to care more about that company's survival. As a result, these companies would be expected to experience a higher level of financial support during the Covid-19 Crisis, compared to peers not investing in CSR.

In conclusion, there are several reasons to believe firms investing in CSR impacting consumers would perform financially better throughout the Covid-19 Crisis as they gain competitive advantages such as higher customer-company connection and increased loyalty. However, as there is theory contradicting this view and rather indicating a decrease in demand, and thus financial performance of CSR companies, the following null hypothesis is being tested:

Null Hypothesis 2: The magnitude of consumer-related CSR investments previous to the Covid-19 Crisis has no effect on a company's financial performance during the crisis.

3. Definitions, Data & Methodology

In this section the Covid-19 Crisis period is defined, whereafter the selected proxies for employee- and consumer-related CSR and financial performance are introduced. Finally, the sampling process is covered and the selected cross-sectional and difference-in-differences models for conducting the regressions are introduced.

3.1. Crisis Period Definition

As the paper focuses on CSR effects on consumers and employees, the definition of the crisis period is determined by the period when those stakeholder groups were impacted. Therefore, it deviates from the time periods applied by many other papers (e.g. Lins, Servaes et al. 2017, Albuquerque, R., Koskinen et al. 2020, Bae, El Ghoul et al. 2021) which use stock-market performance to define the crisis period; beginning at a point in time when effects of the crisis start to impact the stock markets and ending when they hit their lowest point. During the Covid-19 Crisis the equivalent time period would be the 19th of February 2020, which marks the point in time when the investors started to understand that the spread of Covid-19 pandemic will have a profound impact on the world economy, to the 23rd of March 2020, the date when the OMX Nordic 40 hit its lowest point (Nasdaq 2021). This is, however, a short time period characterized by plenty of uncertainty and stock market psychology in which the impact on employees and consumers only set in once the restrictions had started to roll out (OECD 2021). Hence, the paper adopts another definition of the crisis period better suited to the purpose of the analysis: the period when the consequences of the pandemic heavily impact consumers and employees. A suitable starting point would then be the 19th of February 2020, as this is also close to a point in time when society in general started to realize and adjust to the huge effects of the spread of the pandemic and governments started to discuss mitigation efforts (Saunes, Vrangbæk et al. 2021). The ending point is however more difficult to determine as since then, lockdowns and restrictions have been widespread for over one and a half years, partly fluctuating depending on infection levels (ibid.), and hence impacting both employees and consumers over that time. Based on humans' adjustment of their behaviors to external changes in the long run, the main impact of the restrictions and lock-downs on the two stakeholder groups is argued to be during the year 2020. In addition, the differences generated through pre-crisis CSR engagement are expected to be mostly prevalent during those times (e.g. working harder due to organizational challenges and consumers supporting certain organizations). The end date of analysis has thus been selected to be the end of year 2020, as this is a point in time when vaccines had started to roll out and discussions were centered around future post-Covid times (OECD 2021), indicating that people at this point were used to the new Covid-19 normal.

3.2. Selected Proxies, Data Collection & Sample Construction

3.2.1. CSR Data & Proxies

There are several methods used in previous research to quantify CSR engagement partly dependent on which database is used for collecting the CSR data. The most common methods include manual construction of scores based on provided CSR data by weighing strengths and weaknesses (e.g. Lins et al. 2017, Servaes and Tamayo 2013) or using already aggregated scores considering different strengths and weaknesses (e.g. Garel, Petit-Romec 2021, Bae, El Ghoul et al. 2021). In this study, data for creating the proxies that capture employee- and consumer-related CSR initiatives was obtained from Thomson Reuters's ESG database, Refinitiv, and thus the method corresponds to the latter one. This selection of database is based mainly on two reasons. First, it is one of the most comprehensive databases covering over 500 company-level ESG measures collected from multiple different sources both from publicly available company sources (e.g. annual reports and corporate social responsibility reports) and from external sources (e.g. news) (Refinitiv 2021). It should therefore provide an objective measure of the company's CSR work. Second, it is also the database used by many other similar and recent studies (e.g. Bae, El Ghoul et al. 2021, Garel, Petit-Romec 2021) and should thus suit the purpose of this study as well.

The obtained data covers aggregated scores on multiple levels. An overview of the provided ESG data from Refinitiv is found in *Appendix A.* Firstly, a high-level ESG score is given grading initiatives within three different areas: environmental, social and governance, where the scores range from 0-100. A separate score is then obtained for each of the three areas also being graded from 0-100, which are then in turn divided further into subcategories being graded in the same way (for example, social score is divided into workforce, product responsibility, human rights and community score). The aggregated scores consider materiality and transparency within industries, making them more comparable across industries (ibid.). As the focus of this study is on the CSR investments aimed at employees and consumers, the components of the ESG score that measures these investments will be used as proxies in the analysis (a similar approach is used by e.g. Garel, Petit-Romec 2021, Flammer, Luo 2017).

For capturing employee-related CSR initiatives, using the workforce score (a subcomponent of the social score) as a proxy is suitable as it covers initiatives *"towards job satisfaction, healthy and safe workplace, maintaining diversity and equal opportunities and development opportunities for its workforce"* (Refinitiv 2021 p.22). In this way, the selected proxy is very similar to the one adopted by Flammer and Lou (2017) when examining whether CSR initiatives improve employee engagement. For the consumer channel, an average of the product responsibility score (a sub-component of the social score) and environmental innovation score (a sub-component of the environmental score) is used as a proxy, where the average score is referred to as the product innovation score within the rest of the report. These scores have been selected because the product responsibility score *"reflects a company's capacity to produce quality goods and services integrating the customers' health and safety, integrity and data privacy"* (ibid.) while the environmental innovation score *"reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby*

creating new market opportunities through new environmental technologies and processes or eco-designed products" (ibid.). Hence, both scores combined cover the CSR initiatives of firms directly targeting the consumers. Following the approach of Lins et al. (2017), the last scores provided before the crisis outbreak will be used. These are the scores measured at the end of 2019 and could thus be argued to best reflect the CSR initiatives impacting the employees and consumers during the Covid-19 Crisis. Both the workforce score and product innovation score can take values between 1-100, where 100 captures the high-performers.

3.2.2. Financial Performance Data & Proxies

For financial performance two different proxies will be used: the accounting data-based return on assets (ROA) and return on equity (ROE). In *Appendix B* the exact calculations of these measures can be found.

The choice of accounting proxies over market proxies, like buy-and-hold stock returns, is motivated by the fact that accounting numbers are more retrospective and measure the historical performance of a company (Luo, Bhattacharya 2006). As the study is focused on understanding the impact of CSR on financial performance *during* the Covid-19 Crisis, the accounting proxies are supposed to capture historical crisis performance, as the previously defined crisis period has ended after 2020. Furthermore, as stock markets previously have not fully been able to value intangible assets such as employee performance or consumer loyalty due to lack of information (Edmans 2011), using ROA and ROE could account for that issue; both are based on actual historical reported profit and balance sheet numbers, that are to a considerable extent determined by that year's employee productivity and consumer demand.

ROA is selected as a proxy as it captures a firm's operational financial performance (Lins, Servaes et al. 2017). Nevertheless, solely using ROA would not be sufficient to capture a firm's financial performance as the measure does not take the financial structure of the company into account, which is however essential for shareholders. To also consider Friedman's statement about shareholders being a company's most important stakeholder (Friedman 1970), the ROE as a second proxy for financial performance is employed as it is the most frequently used performance indicator for analysts and investors (Hagel, Brown et al. 2010).

The use of such comprehensive ratios as ROA and ROE can however have a downside since these measures reflect a firm's overall performance in terms of operating efficiency and profitability for shareholders. They therefore grasp any effect that in some way influences these performances and hence capture matters that might not be related to the CSR effects of interest. Nevertheless, as employee- and consumer-related CSR initiatives might not only be related to increase or decrease in revenues, but also cover implementation costs (Edmans 2011, Servaes, Tamayo 2013) or results in operational improvements generated from e.g. better employees, using these ratios provide a more comprehensive view of the effect on a company's financial performance.

The ROA and ROE are measured over a time that captures the defined crisis period in the best possible way. As reporting requirements in the Nordics differ by country and company size, we decided on a yearly measure to avoid the exclusion of companies that lack quarterly accounting information. Therefore, they are based on the total profits of the fiscal year 2020[4]. The necessary accounting data is collected from S&P Capital IQ.

3.2.3. Sampling Process

The data sample includes public Nordic companies that are headquartered in one of the Nordic countries, including Denmark[5], Finland[6], Iceland, Norway or Sweden. The required CSR and accounting data are then downloaded for these firms from the various sources previously mentioned, and merged into one dataset. Our initial sample consists of 1,628 public nordic companies from the database Refitiniv and 1,811 public Nordic companies from Capital IQ. After merging the information of the two datasets we obtain a sample of 1,578. We then remove companies from the sample that have no sufficient ESG or financial data for the necessary time periods, i.e. companies that have no workforce score, product innovation score or for which no ROA or ROE can be computed due to a lack of financial information. We obtain a final sample of 317 unique firms. In *Table 1* the sampling process is summarized.

Table 1. Sampling Process.

Firm observations from Refinitiv & Capital IQ	1,628
Companies after the merge of data	- 50
Removal of firms without information on Workforce or Product Innovation Score	- 1,259
Removal of firms with missing accounting information in 2020	- 2
Final sample	**317**

3.3. Methodology

There are two prevalent ordinary least squares (OLS) regression models commonly used by previous research studying the effect of CSR on firm performance. One is the cross-sectional multiple linear regression and the other is the difference-in-differences regression (e.g. Lins, Servaes et al. 2017, Bae, El Ghoul et al. 2021). Thus, these two methods are considered suitable for the purpose of this paper.

[4] Due to restricted data there will be non-crisis financial performance over the time period 1st of January to February 18th 2020 considered in the regressions because no monthly accounting data is available. Even though it could lead to a diminishing or amplifying effect it is not expected to have major implications on the results as the largest part of the profits in 2020 is expected to be generated over the remaining 10+ months.

[5] Including the autonomous territories of the Faroe Islands and Greenland.

[6] Including the autonomous region Åland.

3.3.1. Cross-Sectional Regressions

In the cross-sectional OLS regression, all included variables (dependent, independent and control variables) are associated with one single time period. Thus, the multiple linear regression method explores the relationship between multiple explanatory variables and their influence on one dependent variable for a single time period that is observed independently. Since the regression only considers single independent periods, the variation used to examine the relationship between dependent and independent variables is gathered by a cross-sectional comparison, i.e. by comparing the magnitude of the independent variable and the associated magnitude of the dependent variable over a cross section.

To compare the financial performance of companies that prior to the crisis invested in CSR targeting employees and consumers to the financial performance of companies that did not over the year 2020, we employ the described multiple linear regression method. We use the ROA and ROE of 2020, during the defined crisis period as a dependent variable and the workforce score and product innovation score as of 2019 as the main independent variable. Control variables are included as alternative explanatory factors (being introduced later on). Within all cross-sectional regressions, industry fixed effects defined at the *TRBC Industry Name* level are included to account for the fact that industries have been differently impacted by the Covid-19 Crisis, as also shown by prior studies documenting significant differences in stock returns across industries during the crisis (Ramelli, Wagner 2020). In addition, country fixed effects are used to account for different strategies employed by countries to tackle the Covid-19 Crisis (e.g. the unique strategy of Sweden which has often been both praised and criticized) (Saunes, Vrangbæk et al. 2021), which in turn could impact firm performances between the countries. The model used is therefore as follows:

$$Financial\ Performance_i = \alpha + \beta_1 CSR\ score_{i-1} + \Sigma\beta_k Control\ Variables + \Sigma\beta_n Fixed\ Effects + \varepsilon_i$$

3.3.2. Difference-in-Differences Regressions

The cross-sectional regression establishes the difference of financial performance of companies with a high workforce and product innovation score and the companies with a low one during the Covid Crisis. However, as the objective of this paper is to investigate the influence of employee and consumer targeted CSR on firm performance considering the external shock of the Covid-19 Crisis, it is not only of interest *if* companies with high CSR investments performed differently, but also if this difference in performance is attributed to the Covid-19 Crisis. In order to capture this effect a difference-in-differences method will be used. For the model, panel datasets are constructed: one with yearly ROAs and another with yearly ROEs over the time-period 2013 to 2020.

The difference-in-differences model employed is inspired by Lins et al. (2017), who use a similar model to examine whether the positive effect of CSR is unique to the GFC period or not, but with two differences. First, the model is focused on two periods (pre-crisis and crisis) rather than three (in Lins et al. 2017: pre-crisis, crisis and post-crisis), due to restricted availability of post Covid-19 data. Nevertheless, as the objective of this paper is to explore financial performance during the crisis year 2020, data for the

recovery period (i.e. post-crisis data) is of lesser importance. Second, rather than using a continuous treatment variable for the CSR proxies, the study follows the traditional difference-in-differences approach by using a dummy variable. Thus the observations are binned into high-performer (treatment) and low-performer (control) groups determined by the median for each of the selected CSR proxies, with the dummy set to 1 if the company is in the treatment group, i.e. achieves a workforce score or product innovation score above the median of the sample in 2019. The difference-in-differences model used is therefore as follows:

$$Financial\ Performance_{i,t} = \alpha + \beta_1 High\ Performer_{i,2019} \times Crisis_t + \beta_2{}' X_{i,t-1} + Fixed\ Effects + \varepsilon_{i,t}$$

As a dependent variable, *Financial Performance$_{i,t}$*, the yearly ROA or ROE is used. The independent variable, *High Performer$_{i,2019}$*, is the treatment dummy variable that equals 1 if the CSR proxy (workforce or product innovation score) recorded at the end of 2019 is higher than the sample-median of the respective CSR proxies. This treatment dummy is interacted with a time dummy variable *Crisis$_t$* set to 1 if the observed period lies in the defined crisis period. *$X_{i,t-1}$* is a vector of control variables. The control variables used, (elaborated in the next section) are consistent with the ones used in the cross-sectional regressions, with the difference that the controls are being updated annually. Following Lins et al. (2017), firm fixed effects are included to control for omitted firm specific factors that do not vary over time, while time fixed effects are used to control for factors that change over time but are constant across firms. The standard errors are clustered at the firm level. The coefficient β_1 represents then the difference-in-differences estimator and is the coefficient of interest. It shows the different impact of the independent variable for the high-performer group compared to the low-performer group on yearly ROA or ROE during the defined crisis period compared to pre-crisis times.

To prevent the results being driven by outliers, all continuous variables are winsorized at the 1st and 99th percentile. All regressions are adjusted for potential heteroskedasticity by using the robust standard error approach. The variance inflation factor test is used to detect potential problems with multicollinearity.

3.3.3. Control Variables

Control variables are included in both regressions to ensure that the financial performance during the Covid-19 Crisis can be associated with the studied workforce and product innovation scores and are not proxied by other firm-specific conditions.

As a firm's financial health can impact the magnitude of investments a firm can put into CSR initiatives, but also how well they can combat the macroeconomic crisis by continuing making needed investments, it is an important explanatory factor to consider. This is especially relevant as previous research shows that firms going into the crisis with a higher financial flexibility (with less debt and more cash) survived better through the Covid-19 Crisis (Fahlenbrach, Rageth et al. 2021). For controlling a firm's financial health prior to the crisis period, four different proxies will be used: profitability, cash holdings, short-term debt and long-term debt. Specific firm characteristics can also have an impact on firm performance during crisis times. One such characteristic is firm size,

which is also a variable usually controlled for in similar regressions (Albuquerque, Koskinen et al. 2020, Lins, Servaes et al. 2017). The data for the control variables is again gathered from S&P Capital IQ to ensure high comparability with the previously described proxies for firm performance. The exact definitions for the controls can be found in *Appendix B.*

4. Results from Empirical Analysis

4.1. Descriptive Statistics

The summary statistics for the main variables are presented in *Table 2*. It covers the previously introduced CSR proxies, financial performance proxies and control variables. Starting off with the key variables of interest, the CSR proxies workforce and product innovation scores (both which can take values between 0-100). The workforce score has a mean value of 61.92 and a standard deviation of 22.36, indicating a substantial cross-sectional variation. The minimum score is 4.95, implying that all companies within the sample have to some extent invested in CSR initiatives more specifically targeting employees. Looking at the product innovation score, the mean is lower compared to the workforce score with a value of 42.08 and a slightly higher cross-sectional variation with a standard variation of 25.24. All these numbers are comparable with other papers using a similar CSR scoring system (Garel, Petit-Romec 2021, Bae, El Ghoul et al. 2021). Moving to the financial performance proxies, ROA and ROE, the mean ROA is 4.6%, with a 25th percentile value of 1.8% and a 75th percentile value of 9.5%. Comparing these to the ROA values in the pre-Covid year 2019 (the control labeled as *"profitability"*), which held a mean of 5.2%, a 25th percentile of 2.7% and a 75th percentile of 10.6%, it can be seen that the Covid-19 Crisis indeed had a negative impact on the operational performance of companies as expected. The ROE is slightly higher with a mean of 7.9% and a standard deviation of 14.3%. These financial performance numbers and the other control variables are overall comparable with other studies considering financial performance around crises times which also between each other show some slight variations among one another (e.g. Lins, Servaes et al. 2017, Garel, Petit-Romec 2021, Bae, El Ghoul et al. 2021).

In *Table 3* the correlations between the CSR proxies, financial performance proxies and control variables are found. As expected, the financial performance measures are all positively and significantly correlated with each other. The workforce and product innovation scores are also positively and significantly correlated, indicating that firms that choose to invest in CSR initiatives targeting their employees, also choose to invest in CSR initiatives targeting consumers. The correlations between the CSR and financial performance proxies are also all positive. Cash holdings is negatively correlated to various financial variables (similar to Lins et al. 2017) which could be explained by the fact that a high level of cash indicates lower level of investments (i.e. slack resources) which again leads to lower returns. The lower level of investments are then in turn reflected in lower workforce and product innovation scores.

Table 2. Summary Statistics.

	N	Mean	Median	Std. Dev.	p25	p75	min	max
(1) ROA2020	317	0.046	0.053	0.13	0.018	0.095	-0.638	0.403
(2) ROE2020	317	0.079	0.097	0.143	0.021	0.177	-0.219	0.283
(3) Workforce Score	317	61.926	65.164	22.362	47.789	79.455	4.948	98.129
(4) ProductInnov.	317	42.084	42.814	25.237	19.236	63.78	0	95.412
(5) ShortTermDebt	317	0.111	0.072	0.109	0.041	0.14	0	0.538
(6) LongTermDebt	317	0.158	0.138	0.134	0.049	0.239	0	0.605
(7) CashHoldings	317	0.106	0.059	0.148	0.027	0.118	0.001	0.884
(8) Profitability	317	0.052	0.065	0.158	0.027	0.106	-0.892	0.371
(9) TotalAssets (in MSEK)	317	11563.351	1673.500	51510.91	451.8	5484.3	1.78	554848

Table 3. Correlation Matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ROA2020	1.000								
(2) ROE2020	0.608***	1.000							
(3) WorkforceScore	0.043	0.097*	1.000						
(4) ProductInnov.	0.136**	0.153***	0.444***	1.000					
(5) ShortTermDebt	-0.116**	-0.043	-0.055	-0.098*	1.000				
(6) LongTermDebt	0.085	-0.062	-0.027	0.021	-0.069	1.000			
(7) Cash Holdings	-0.381***	-0.275***	-0.079	-0.137**	-0.147***	-0.336***	1.000		
(8) Profitability	0.908***	0.490***	0.043	0.133**	-0.142**	0.105*	-0.377***	1.000	
(9) TotalAssets	-0.039	-0.014	0.127**	0.127**	0.076	0.125**	-0.068	-0.030	1.000

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

4.2. Results

The following section presents the results of the various regressions, where firstly the results for the employee channel are introduced, whereafter the focus is moved to the consumer channel.

4.2.1. Employee Channel

The results of the cross-sectional baseline regressions for the workforce score are found in *Table 4*. They show whether the CSR investments of firms targeting employees prior to the Covid-19 Crisis led to a difference in employee performance, and in turn a difference in financial performance for companies during the Covid-19 Crisis. All regressions include industry and country fixed effects to account for the different impact of the Covid-19 Crisis across industries and countries. All the standard errors are robust, adjusted for heteroskedasticity.

Columns (1) and (3) show that firms with a higher workforce score in 2019 performed better during the Covid-19 Crisis, on a statistical significance level of 5%. The effect of the workforce score is economically large, as one standard deviation increase in the workforce score (22.36) is associated with a 1.79% increase in ROA and a 2.01% increase in ROE. These results alone thus could suggest that firms investing in their employees gained a slightly superior employee performance during the Covid-19 Crisis, which enabled them to perform better financially throughout the first crisis year. These results could imply a rejection of this paper's first null hypothesis, however, to ensure that these results are not driven by omitted variables, the controls for financial health and firm size are added in columns (2) and (4). Looking at these, the association remains positive but the significance disappears and a decrease of the economic magnitude of the workforce score can be observed. This outcome is mainly driven by the control variable *"profitability"*, which absorbs some of the positive and significant association presented in columns (1) and (3), as it is correlated with both the workforce score and the financial performance proxies. Studying the other significant control variables, the *"long-term debt"* is as expected negatively associated with financial performance during the crisis, as financially constrained firms would be more limited in continuing to undertake the necessary investments. The control variable *"cash holdings"* is also negatively associated with financial performance, which could be explained by the previous reasoning of less profitable firms having more economic slack due to less profitable investments to make.

To conclude, the coefficient of the workforce score is positive, economically large, and significant without controls, but when these are added the results become insignificant. Hence the null hypothesis that the coefficients for the workforce score are statistically different from 0 cannot be rejected.

Table 4. Workforce Score and ROA & ROE during the COVID-19 crisis.

	ROA 2020 (1)	ROA 2020 (2)	ROE 2020 (3)	ROE 2020 (4)
WorkforceScore	0.0008**	0.0001	0.0009**	0.0003
	(0.0003)	(0.0002)	(0.0004)	(0.0004)
ShortTermDebt		-0.0163		-0.0812
		(0.0491)		(0.1087)
LongTermDebt		0.0136		-0.1711**
		(0.0315)		(0.0747)
Cash Holdings		-0.0134		-0.1680*
		(0.0490)		(0.0875)
Profitability		0.7056***		0.3649***
		(0.0496)		(0.1108)
FirmSize		-0.0001		0.0004
		(0.0022)		(0.0048)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
N	317	317	317	317
R^2	0.353	0.870	0.318	0.471

**** p<0.01, ** p<0.05, * p<0.1*

To review the robustness of the associations found in the previous table and to understand if the effect could be found to be more pronounced in high versus low levels of workforce scores, a regression of quartiles is conducted. This could give a better understanding of the link between workforce scores and financial performance. Therefore, companies are binned into workforce score quartiles which are captured as dummy variables set to 1 if a company is assigned to the respective quartile. The results of the quartile analysis are found in *Table 5*. All regressions, as before, include industry and country fixed effects; standard errors are adjusted for heteroskedasticity.

Looking at columns (1) and (3), when considering the workforce score as the only explanatory variable, the overall results indeed seem to follow a pattern of an increase in financial performance the higher the workforce score quartile is. While for ROA an increase in the quartile with a continuous increase in the coefficient can be observed, the difference in terms of ROE is more pronounced when comparing companies with a workforce score below the median with companies with a workforce score above the median. The results therefore seem to affirm that CSR investments targeting employees pre-covid led to superior financial performance through the crisis. However, as none of the results are significant, with the exception of the 4th quartile in relation to ROA, any conclusions must be drawn cautiously. When adding the controls in columns (2) and (4) the pattern previously seen disappears and all results become statistically insignificant. A potential determinant factor for this outcome is again the *"profitability"* control which has more explanatory power for the better financial performance outcome, but is also correlated to the workforce score. The other controls follow overall the pattern that was previously observed in *Table 4*. In conclusion, even though the results follow some increasing pattern, they are not strong enough to create confidence in the argument of superior financial performance for firms with a high workforce score compared to firms with a low workforce score during the crisis. Thus, the findings do not lead to a rejection of the null hypothesis.

Table 5. Quartile Analysis of Workforce Score.

	ROA 2020 (1)	ROA 2020 (2)	ROE 2020 (3)	ROE 2020 (4)
Quartile 2	0.0161	-0.0041	-0.0114	-0.0262
	(0.0197)	(0.0097)	(0.0234)	(0.0195)
Quartile 3	0.0273	-0.0015	0.0366	0.0130
	(0.0193)	(0.0101)	(0.0238)	(0.0225)
Quartile 4	0.0371*	-0.0026	0.0341	-0.0025
	(0.0198)	(0.0096)	(0.0236)	(0.0225)
ShortTermDebt		-0.0177		-0.0926
		(0.0489)		(0.1084)
LongTermDebt		0.0128		-0.1751**
		(0.0315)		(0.0747)
Cash Holdings		-0.0137		-0.1637*
		(0.0492)		(0.0897)
Profitability		0.7056***		0.3649***
		(0.0499)		(0.1109)
FirmSize		0.0003		0.0022
		(0.0021)		(0.0045)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
N	317	317	317	317
R^2	0.347	0.870	0.318	0.478

**** p<0.01, ** p<0.05, * p<0.1*

The analysis has so far been focused on the differences in financial performance between companies with a high and a low workforce score *during* the crisis. It could, however, be argued that the indications of a better financial performance are due to general financial advantages of employee-related CSR, that have been established by previous research (e.g. Flammer, Luo 2017), and therefore are not influenced by the shock of the Covid Crisis. As the objective of this paper is to investigate the difference in impact of the Covid-19 crisis on companies' financial performance caused by differences in workforce scores, further analysis has to be done. The following analysis thus aims to capture that difference in impact. This is done by dividing the companies in two groups, treatment and control group, and comparing their performance difference before the crisis to the performance difference during the crisis. For this purpose, the difference-in-differences regression with a treatment dummy is used. The results are presented in *Table 6*. All regressions include firm and time fixed effects, and the standard errors are clustered at the firm level.

In columns (1) and (3) a deviating association pattern of the workforce score to ROA and ROE is found: the coefficient of ROA is negative and the coefficient of ROE is positive. Both are, however, insignificant. When adding controls in columns (2) and (4), these overall insignificant and deviating results remain but the magnitudes of both coefficients change. The indication of a positive association of a high workforce score (i.e. companies in the treatment group) found in the cross-sectional regressions in *Table 4*, seems thus, when looking at the negative ROA in *Table 6*, to rather be attributed to pre-covid superior performance, as the treatment group's ROA was more negatively affected by the crisis compared to the control group, with a difference in effect of -0.53% (see column (2)). The positive association of the treatment group, compared to

the control group, with a difference in ROE of 2.10% (see column (4)) indicates, however, the opposite: That the effect of a high workforce score on better operational profitability is indeed partly attributed to the crisis period. Based on this, the diminished effect on the ROA does not translate into a reduced advantage for shareholders. Nevertheless, this is not certain as the results are insignificant.

Continuing on the discussion in the previous paragraph, the slight decrease in ROA could indicate that high-workforce-score companies experienced a stronger decrease in operating efficiency due to the Covid-19 Crisis than low-workforce-score companies. When approaching this result from an employee perspective, this could be explained by factors such as moral licensing or the retention of an inefficient number of employees. Nevertheless, all else being equal, this would also translate into a negative effect on ROE, as the reduced efficiency is captured in both measures (the operating income and also the net income). Yet this is not the case.

An alternative explanation for the deviating patterns of ROA and ROE could be that high-workforce-score companies have taken on more loans than the low-workforce-score companies to tackle the implications of the Covid-19 Crisis. This argument is supported by previous research that suggests that firms investing in CSR have easier access to financing (Cheng, Ioannou et al. 2014), and thus, borrowing could be more feasible for companies with a high workforce score during the crisis. The increase in loans would increase the denominator of ROA, and thus explain the decrease of this ratio. However, an increase in leverage would not explain the increase in ROE, as increase in leverage leads to an increase in financial expenses, and thus would be translated into a negative effect on ROE. Therefore, to ultimately explain both, the decrease of the effect on ROA and the increase of the effect on the ROE, the difference in operating income of high-workforce-score companies and low-workforce-score companies must have increased, in favor of the high-workforce-score companies. This would thus indicate that firms investing in employee related CSR initiatives performed better through the Covid-19 Crisis, by influencing their staff's performance positively through those CSR investments. Nevertheless, the preceding discussion refers only to observed trends and cannot be based on clear associations as the coefficients are insignificant; thus the null hypothesis can still not be rejected as the coefficients are not significantly different from 0.

Shortly commenting on the other significant control variables, all are as initially expected: the debt variables are negatively associated with financial performance and profitability is positively associated.

Table 6. Difference-in-Differences Regression and Workforce Score.

	ROA 2020 (1)	ROA 2020 (2)	ROE 2020 (3)	ROE 2020 (4)
Treatment	-0.0100	-0.0053	0.0061	0.0210
Workforce x Time	(0.0078)	(0.0066)	(0.0290)	(0.0280)
ShortTermDebt		-0.1019***		-0.6454***
		(0.0303)		(0.1840)
LongTermDebt		-0.0715		-0.5635***
		(0.0449)		(0.1616)
Cash Holdings		0.0515		0.0662
		(0.0614)		(0.1622)
Profitability		0.4473***		0.6161***
		(0.0579)		(0.1353)
FirmSize		0.0037		0.0402
		(0.0102)		(0.0368)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Standard errors clustered	firm	firm	firm	firm
N	2,354	2,354	2,354	2,354
R^2	0.822	0.870	0.597	0.642

**** p<0.01, ** p<0.05, * p<0.1*

Summing up the results for the employee channel, the cross-sectional baseline regressions with continuous variables show a consistent positive trend indicating a superior performance of companies with a higher workforce score during the Covid Crisis. The results of the difference-in-difference analysis furthermore show a mixed effect of the Covid Crisis on this observed financial advantage of companies with a high workforce score. The positive effect associated with the operational profitability, i.e. ROA, diminished during the crisis period whereas the positive effect associated with the profitability for shareholders, i.e. ROE was enhanced. However, the findings are insignificant and cannot be scaled up on a larger or different sample but rather indicate slight trends. Therefore, the results do not sufficiently undermine the null hypothesis of this paper.

4.2.2. Consumer Channel

Next the focus is moved to the consumer channel to see whether consumer-related CSR investments paid off during the Covid-19 Crisis, explained by previously discussed findings of research such as higher customer loyalty and support. *Table 7* relays the cross-sectional regression results using the product innovation score as a continuous independent variable. The results tell whether firms investing in consumer-related CSR pre-crisis performed financially better during the crisis. The regressions include industry and country fixed effects, and standard errors are made robust by adjusting for heteroskedasticity.

Firstly, looking at columns (1) and (3) both coefficients for the product innovation scores are positive and significant at the 10% level. According to these, one standard deviation increase in product innovation score (25.23) is associated with an increase of the ROA by 1.26% and an increase of ROE by 1.51% in the year 2020. This indicates that firms investing in consumer-related CSR initiatives financially outperformed others during the Covid-19 Crisis. When adding the controls for financial health and firm size in columns (2) and (4), the association remains positive but the economic effect becomes smaller and the results become statistically insignificant. As in the employee channel, the *"profitability"* control variable from the pre-covid year is the most strongly determinant variable associated positively with a better financial performance during the crisis and absorbs the significance of the product innovation score. This exploratory power of superior financial performance during Covid generated from profitability is a finding which is supported by other papers (e.g. Demers, Hendrikse et al. 2021). The other significant control variables follow an expected pattern.

Concluding, the cross-sectional results point towards a positive association between the product responsibility score and financial performance during the Covid Crisis but the results are insignificant when isolating the relation of the product innovation score by including further explanatory variables. Thus this paper's second null hypothesis cannot be rejected.

Table 7. Product Innovation Score and ROA & ROE during the COVID-19 crisis.

	ROA 2020 (1)	ROA 2020 (2)	ROE 2020 (3)	ROE 2020 (4)
Product Repsonsibility Score	0.0005* (0.0003)	0.0001 (0.0001)	0.0006* (0.0003)	0.0003 (0.0003)
ShortTermDebt		-0.0133 (0.0492)		-0.0821 (0.1087)
LongTermDebt		0.0149 (0.0310)		-0.1731** (0.0735)
Cash Holdings		-0.0158 (0.0484)		-0.1787** (0.0866)
Profitability		0.7068*** (0.0492)		0.3671*** (0.1101)
FirmSize		-0.0009 (0.0024)		0.0003 (0.0051)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
N	317	317	317	317
R^2	0.345	0.871	0.308	0.471

**** p<0.01, ** p<0.05, * p<0.1*

To review the robustness of the associations found in the previous table and to study whether the effect is more pronounced in very high compared to very low levels of consumer-related CSR investments, companies are binned into quartiles and dummies

are added for the quartiles two to four. The intercept thus captures the effect compared to the lowest product innovation score quartile. *Table 8* presents the results[7].
In columns (1) and (3) a pattern of higher financial performance in higher product innovation score quartiles can be seen. The coefficients are, however, not significant. When adding controls in columns (2) and (4), this trend becomes less consistent. Companies in the third quartile are associated with the highest ROA and ROE, whereas companies in the fourth and highest quartile even have a negative relationship with ROE compared to the lowest quartile.

Table 8. Quartile Analysis of Product Innovation Score.

	ROA 2020 (1)	ROA 2020 (2)	ROE 2020 (3)	ROE 2020 (4)
Quartile 2	0.0131	0.0083	0.0198	0.0107
	(0.0195)	(0.0095)	(0.0231)	(0.0207)
Quartile 3	0.0141	0.0143	0.0239	0.0208
	(0.0193)	(0.0102)	(0.0219)	(0.0213)
Quartile 4	0.0287	0.0091	0.0316	0.0090
	(0.0180)	(0.0102)	(0.0226)	(0.0219)
ShortTermDebt		-0.0181		-0.0937
		(0.0500)		(0.1102)
LongTermDebt		0.0146		-0.1759**
		(0.0307)		(0.0745)
Cash Holdings		-0.0158		-0.1781**
		(0.0476)		(0.0868)
Profitability		0.7079***		0.0868***
		(0.0486)		(0.1114)
FirmSize		-0.0010		0.0011
		(0.0023)		(0.0051)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
N	317	317	317	317
R^2	0.343	0.871	0.305	0.471,

**** p<0.01, ** p<0.05, * p<0.1*

These results are not consistent with the outcomes of the baseline regressions using continuous variables. A possible explanation could relate to the underlying econometrics of the quartile regressions. To divide the already small number of companies into quartiles may lead to an insufficient cross-sectional representation of these quartiles. The smaller the sample size within the quartiles is, the more the results of the regressions are driven by outliers. As the variance within quartiles is taken away by employing dummy variables, the effect of outliers is even more enhanced. In other words, if there can be found a company with an extraordinary low financial performance in 2020 at the lower limit of the highest quartile, this observation has a magnified effect on the quartile regression results compared to a regression of continuous variables. This is because the comparatively low product innovation score is set equal to the scores of the remaining companies in that quartile by using the dummy variable. Due to the very small sample size within each quartile, this enhanced effect is

[7] As previously, all regressions include industry and country fixed effects, and standard errors are adjusted for heteroskedasticity.

less outweighed by the average trend. Even though this econometric justification could apply, the inconsistent findings indicate that there is no clear observable trend of companies with a high product innovation score performing financially better during the Covid-19 Crisis and therefore rather indicate that the second null hypothesis of this paper holds.

To better isolate the effect that the Covid-19 Crisis had on the difference of financial performance of companies with a high product innovation score and companies with a low one, the difference-in-difference regressions are employed. For this purpose the companies are divided into treatment (product innovation score above the median) and control (product innovation score below the median) group. The results are presented in *Table 9*. All regressions include firm and time fixed effects, and the standard errors are clustered at the firm level.

In columns (1) and (3) the results without controls can be found. All of them are positive but insignificant. When adding controls in columns (2) and (4) the results remain positive and insignificant, but the size of the coefficients for both ROA and ROE slightly changes. What can be learned through considering these positive coefficients is that the association of a high product innovation score (i.e. of companies in the treatment group) with a superior financial performance could be partly attributed to the crisis period. The numbers indicate that companies in the treatment group gained a positive effect in ROA of 0.17% and ROE of 3.66%, due to the crisis compared to firms in the control group. But as all findings are insignificant, the null hypothesis cannot be rejected. The development of significant control variables (short-term debt ratio, size, and profitability) are overall in line with previous literature.

Table 9. Difference-in-Differences Regression and Product Innovation Score.

	ROA 2020 (1)	ROA 2020 (2)	ROE 2020 (3)	ROE 2020 (4)
Treatment	0.0035	0.0018	0.0357	0.0366
Product	(0.0077)	(0.0066)	(0.0261)	(0.0248)
Innovation x Time				
ShortTermDebt		-0.1030***		-0.6437***
		(0.0302)		(0.1834)
LongTermDebt		-0.0716		-0.5623***
		(0.0450)		(0.1616)
Cash Holdings		0.0510		0.0685
		(0.0614)		(0.1614)
Profitability		0.4474***		0.6132***
		(0.0579)		(0.1355)
FirmSize		0.0039		0.0409
		(0.0102)		(0.0370)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Standard errors clustered	firm	Firm	Firm	Firm
N	2,354	2,354	2,354	2,354
R^2	0.822	0.870	0.597	0.633

**** p<0.01, ** p<0.05, * p<0.1*

Summarizing the findings for the consumer channel, it can be concluded that a trend of a positive association between product innovation score and financial profitability during the crisis year is discernible and that this positive effect can be partially attributed to the crisis period. However, all associations are insignificant, indicating that the results cannot be reliably applied to other samples and rather show indications of a trend than provide sufficient evidence to reject the null hypothesis.

5. Discussion

The main purpose of this paper is to study whether firms that invest in employee and/or consumer related CSR perform differently in financial terms throughout the Covid-19 Crisis. Within the following three sections, potential explanations for the observed empirical outcomes will be discussed. First, the ones related to the employee channel whereafter the explanations for the consumer channel will be covered. Finally, some general explanations applying for both channels will be examined.

5.1. Employee Channel

For the employee channel we argue that employee-related CSR initiatives could, on the one hand, have a positive effect on the firms' performance during the Covid-19 Crisis. This would be caused by underlying reasons such as employees having more aligned goals with those of their employer and being more capable of developing new needed skills for the work-from-home environment and crisis imposed organizational challenges. On the other hand, companies making high CSR efforts for their employees previous to the Covid Crisis could be more severely impacted, as their employees could engage in more moral licensing and the companies could be more reluctant in firing employees among other factors. Thus we aim to investigate whether a higher workforce score of companies, which proxies the employee-related CSR initiatives, could lead to a different financial performance being proxied by both ROA and ROE, when compared to companies with non or low investments in employee targeted CSR.

The empirical results for the employee channel are, as previously concluded, overall positive but insignificant and therefore do not indicate a difference of financial performance between companies with high and companies with low employee-targeted CSR investments. However, the cross-sectional results, having a positive coefficient, point in the direction that firms with a higher workforce score performed better during the Covid-19 Crisis. Adding to that, the positive coefficient results for ROE of the difference-in-differences analysis indicates that the superior performance in 2020 was not only due to a general superior performance of companies with a high workforce score (which has been found to be the case in previous literature, e.g. Flammer, Luo 2017) but this superiority is also attributed to the Covid Crisis. Nevertheless, the results of all regressions were insignificant, and therefore the null hypothesis 1 of this paper that employee-related CSR investments prior to the crisis had no effect on firm performance during the crisis, cannot be rejected.

There are several underlying causes for the insignificant results to be considered. One possible explanation would be that the true economic effects of employee-related CSR investments are actually zero during the Covid crisis, i.e. firms with a higher workforce score did not record a different financial performance compared to firms with a low workforce score. This considerable explanation is that a higher workforce score indeed leads to higher financial performance, generated through superior employee performance. However, these positive effects are outweighed by their own costs, i.e. by the investments necessary to generate a high workforce score and in turn superior employee performance (an argument that would be supported by prior research, e.g.

Edmans 2011, Cassar, Meier 2021). In both cases the real economical net effect of a high workforce score could be close to zero, but the net effect could either be explained on a company or an overall sample level.

Another potential explanation for the insignificant results could be that the selected ratio proxying employee-related CSR investments does not capture what it is supposed to. This is based on the fact that Refinitiv relies mainly on publicly available information when creating the scores (Refinitiv 2021). Hence, there is a risk that the scores are not able to differentiate cheaptalk from genuine efforts made. Furthermore, for these scores it is hard to capture investments made that are not reported. As cheap talkers could be expected to have a higher incentive to report on their initiatives than firms making genuine CSR investments for their employees, this could lead to the workforce score not reflecting the actual employee CSR efforts of the companies. Another explanation could be that the workforce score does not capture what the employees really value when it comes to CSR investments. Hence, the higher workforce score measured at real firm investments does not lead to improved employee performance as some initiatives do not appeal to the employees. Nevertheless, this explanation is assumed to be more unlikely as previous research suggests a positive association between a similar score and superior employee performance (Flammer, Luo 2017).

Finally, the insignificant results could also be due to previous research arguing that a higher workforce score is more relevant in labor intensive industries (Flammer, Luo 2017). As the current sample represents a wide range of different industries the potentially stronger association of the workforce score with financial performance in labor intensive industries could be attenuated by industries in which the workforce score is of less importance. To obtain a clearer result a potential approach would be to focus on labor intensive industries where the effect could be expected to be more pronounced.

5.2. Consumer Channel

For the consumer channel we argued that, on the one hand, firms with more CSR investments targeted at consumers could perform financially better during the Covid-19 Crisis as a result of higher customer loyalty and customer-company identification, but also as a result of a growth in the target group (the growth in so-called generalized consumers). On the other hand, companies with high consumer-targeted CSR investments could be more severely hit by the crisis as previous research argues that a general downturn of the economy can in particular lead to a decrease in demand of normal goods, and as CSR products and services are being classified as normal goods, the demand for CSR products and services should according to this line of research decline due to the Covid crisis. Hence, we aim to explore whether a higher product innovation score, which proxies the consumer-related CSR investments, leads to a difference in financial performance, being proxied by ROA and ROE, during the Covid-19 Crisis.

The empirics presented in the previous section, as in the employee channel, point towards an association of a higher product innovation score and a superior financial performance during the Covid-19 Crisis. When compared to pre-crisis years in the

difference-in-differences regression results, the positive financial effect of high-product-innovation-score companies seems to be partly attributed to the crisis effect. Yet, as soon as alternative explanatory variables are included, all results turn insignificant and, therefore, the null hypothesis that consumer-targeted CSR investments do not affect financial performance during 2020 cannot be rejected. Nevertheless, as all coefficients remain consistently positive there still might be some indication of a positive association.

The insignificance could result from the costs for investments in consumer-related CSR outweighing the benefits induced by them, meaning that the true effects of consumer-related CSR end up to be zero. That would imply that customers tend to be more loyal to companies investing in consumer targeted CSR, however, the incurred costs for those investments compensate for the additional financial profits generated. And thus, even though the link between customer CSR, high customer loyalty and financial benefits exists, it would have no real effect as it does not generate a net advantage. This is an argument supported by previous literature (e.g. (Luo, Bhattacharya 2006).

Another reason for the insignificant outcomes could be that a high product innovation score does not reflect what customers value in products and thus is not an adequate proxy for measuring customer satisfaction and the resulting loyalty. Even when assuming that customers loyalty is influenced by CSR aspects, nevertheless, as expectations of customers differ and change over time, it is the creation of an objective measure that quantifies customer expectations is complex. The score could capture an incomplete set of criteria and therefore omit criteria important to customers or include criteria that are irrelevant or even counterproductive for customer groups. Future research could be done by constructing an alternative product innovation score.

Alternatively, the neutral results could be related back to the findings of Lou and Bhattacharya (2009) and as theoreticized by McWilliams and Siegel (2001). They find and argue that a potential problem of consumer-targeted CSR is that even though the product meets the needs and expectations of the customer groups, the customers are not aware of the product's CSR advantages when they are not properly communicated to them. Hence, companies investing in the product innovation score only gain a different financial performance if they communicate their investments through advertisements. In this case the product innovation score alone is not sufficient in explaining potential differences in performance and level of advertisement should also be considered.

5.3. Comprehensive Explanations

An explanation that applies for both channels is that there indeed is an effect, that the CSR investments targeting employees and/or consumers lead to a difference in financial performance during the Covid-19 Crisis. Nevertheless, the effect might be not observable as it could be so small that the studied sample size is not large enough to capture this effect reliably. This is due to the constrained availability of CSR data, which limits this study’s sample to only 317 unique firms. This suggests that any effects, while present, may have been too small to detect with any significance.

Another potential explanation for the insignificant results in both channels is that the dependent variables, ROA and ROE, could capture too many different aspects of the companies' operations, so that the effect of the workforce score or product innovation score is not clearly visible or gets outweighed by contrary effects that are not necessarily connected to those CSR investments. Thus, the ROA and ROE could indeed be affected by customer-targeted CSR, yet the range of topics covered by these two metrics hinders an identification of a clear, reliable link in the regression results.

Furthermore, the different results could be explained by a too weak effect of particular CSR subscores during crisis times. As previous literature mainly found evidence of an overall high CSR score or a specific dimension of ESG (Garel and Petit-Romec 2021) having a positive impact on financial performance, it could be that sub components of a single CSR dimension simply do not have enough impact and only an accumulated effect of several sub components has enough explanatory power to draw statistically significant conclusions from it.

To summarize, the results of the regressions show an overall neutral association between employee- and consumer-related CSR investments and firm financial performance. This, however, does not necessarily imply a non-existence of a link between the stakeholder-targeted CSR engagement and firm performance during crisis times, but can also be explained by one or several conditions that have been discussed in this section.

6. Additional Analysis

In this section a selection of the previous discussion points for the insignificant results will be further explored. First, we consider alternative measures of the dependent variable for each channel. Second, the main independent variables workforce score and product innovation score are altered to consider, for example, the importance of CSR investments targeted at employees for different industries (Servaes, Tamayo 2013). The aim is to gain additional insights into the results previously presented.

6.1. Exploring the Dependent Variable Further

The previously presented results were mainly insignificant. In the following we therefore employ alternative financial performance measures that are assumed to be more directly related to employee performance and consumer loyalty. These alternative performance measures capture only the benefits of employee performance and consumer loyalty, but do not grasp the costs incurred to generate these benefits and have thus not been used in the main analysis. The analysis of a more direct link aims, however, to add more significant insights on the question of whether companies with employee- and consumer-related CSR investments perform differently during the Covid crisis by exploring the channels through which this difference in performance is argued to be influenced: the employee productivity and the customer loyalty. For this analysis a difference-in-differences model, similar to the one used in the main analysis, will be employed. The model applied is as follows:

$$Performance\ Measure_{i,t} = \alpha + \beta_1 High\ Performer_{i,2019} \times Crisis_t + \beta_2{}' X_{i,t-1} + Fixed\ Effects + \varepsilon_{i,t}$$

Overall the model is similar to the one employed in the main analysis with minor adjustments (therefore for a more in-depth explanation of the model see *Section 3*). The adjustments made are first that the dependent variable is changed to the alternative performance measures. Second, in this model we only control for size. The ß$_1$ is the variable of interest, the difference-in-differences estimator, which shows the difference of the crisis' impact on the treatment group compared to the control group. All variables used in the following analysis are winsorized at the 1st and 99th percentile. The regressions include firm and time fixed effects and standard errors are clustered at the firm level.

6.1.1. Employee Channel

To shortly recapture the findings of the main analysis, a positive but insignificant association of a high workforce score and a superior firm financial performance during the year 2020 was found when comparing a cross-section of companies. The results of the difference-in-differences analysis then suggest that the performance in terms of ROA has diminished for high workforce score companies during the crisis time, whereas the superior performance in terms of ROE can partially be attributed to the crisis effect. It was argued that this diverging pattern could be explained by a difference in increase of leverage between high- and low-workforce-score companies.

To explore this discussion point further, the dependent variable *"revenue per employee"* is introduced as this measure only captures the additional income but not the additional cost. The variable is computed as follows:

$$\text{Revenue per Employee} = \text{Total Revenue} / ((\text{Number Employees}_{t} - \text{Number Employees}_{t-1}) / 2)$$

To account for a potential bias in the measure that could be caused by the possibility that companies with a low workforce score laid off a larger part of their staff during the crisis, we introduce the *"growth in employees"* as a second variable in a subsequent difference-in-differences regression. *"Growth in employees"* is defined as follows:

$$\text{Employee Growth} = (\text{Number Employees}_{t} - \text{Number Employees}_{t-1}) / \text{Number Employees}_{t-1}$$

The results of the regressions of the main analysis as well as of the two newly introduced variables are presented in *Table 10*. Column (3) shows an insignificant but positive coefficient, suggesting that a positive effect on the association of a high workforce score and employee productivity could be attributed to the crisis effect. This would imply that the effect of the crisis increased the difference between employee productivity of companies with a high- compared to companies with a low workforce score. This outcome could however be biased by a severe difference in change of the denominator between the groups, i.e. the number of employees. Column (4) shows the crisis effect on employee growth, which is also insignificant but positive, indicating that the superior performance of a high workforce score company is not attributable to a lay-off of more employees, but could be attributed to superior employee performance.

Table 10. Difference-in-Differences Additional Results for Employee Channel.

	ROA 2020	ROE 2020	Revenue/Employee	Employee Growth
	(1)	(2)	(3)	(4)
Treatment Workforce Score x Time	-0.0053 (0.0066)	0.0210 (0.0280)	0.0286 (0.2159)	0.0005 (0.0008)
Control Financial Health	Yes	Yes	No	No
Control Size	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Standard Errors clustered	Firm	Firm	Firm	firm
N	2,354	2,354	2,146	2,118
R^2	0.870	0.642	0.124	0.321

**** p<0.01, ** p<0.05, * p<0.1*

The results could therefore indicate that companies investing in employee-related CSR tended to outperform companies that did not make such investments, explained by superior employee productivity. This would affirm the previous discussion that the negative crisis effect on ROA in connection to the workforce score might be explained by a higher leverage taken on to tackle the implications of the Covid-19 Crisis. As all

findings of this analysis point towards a positive but yet insignificant association, they do add insightful, however not sufficient evidence on the question of whether companies with employee-related CSR investments perform differently during the Covid Crisis. Thus, they do not lead to a rejection of this paper's first null hypothesis.

6.1.2. Consumer Channel

For the consumer channel only positive but mainly insignificant coefficients in the results were found. Therefore, pointing towards both a superior financial performance of companies with a high product innovation score and a positive effect on this superior performance being attributable to the crisis. Yet, as most results are insignificant no reliable conclusion could have been drawn. To further investigate these potential positive association patterns the same approach as in the previous section is applied.

Again two new dependent variables are introduced that are argued to capture a more pure effect of the consumer-related CSR investments (Lins, Servaes et al. 2017). First, the variable *"gross margins"* as it represents the mark-up on a product that a company can ask for and thus the intangible value of, in the case of CSR products, a better consciousness (Daub, Ergenzinger 2005). The variable gross margin is computed as follows:

$$\text{Gross Margin} = (\text{Total Revenue} - \text{Total Cost of Revenue}) / \text{Total Revenue}$$

To account for the possibility that companies with higher gross margins might be compromised in their sales growth, a second dependent variable is introduced: *"sales growth"*. In addition, we argue that this variable captures the amount of sales most appropriately, when assuming steady gross margins. The variable is defined as follows:

$$\text{Sales Growth} = (\text{Sales}_{\text{Period t}} - \text{Sales}_{\text{Period t-1}}) / \text{Sales}_{\text{Period t-1}}$$

Table 11 presents the results in comparison to the results of the main analysis. In column (3) it can be seen that the difference of gross margins of companies with a low- and companies with a high product innovation score converged due to the crisis, based on previous research that has found CSR firms gaining higher margins during non-crisis times (Albuquerque, Koskinen et al. 2019). Thus, a potential overall positive effect on the ROA and ROE attributable to the crisis can most likely not be explained through the effect on the difference of gross margins. Column (4) shows the coefficient that reflects the crisis effect on the difference in sales growth, which is positive and statistically significant on a 10% level.

This implies that a positive effect on the difference of sales growth between companies with a high- and a low product innovation score can be attributed to the effect of the crisis. That could either be traced back to a comparably higher increase of sales for companies with a high product innovation score during the crisis or to a comparably stronger decrease in sales for companies with a low product innovation score during 2020. The latter could suggest that companies investing in consumer-targeted CSR prior to the Covid-19 Crisis experienced to a certain extent a resilience to the overall declining demand caused by the crisis. The increased beneficial effect on sales could

furthermore be connected to the positive pattern that we find in the results of our main analysis, as they might be related to a positive effect on the numerator of the ROA (operating income) and ROE (net income).

The results indicate a positive association of the product innovation score and a growth in sales during the crisis. This outcome could represent a sub-link that explains parts of the connection between product innovation score and financial performance. However, the significant positive correlation we find in this analysis is not translated into a significant positive correlation in the main analysis. The findings therefore add very relevant insights to the research question of whether companies with high consumer-related CSR investments perform differently in a crisis context, however they do not lead to a rejection of the paper's second null hypothesis.

Table 11. Difference-in-Differences Additional Results for Consumer Channel.

	ROA 2020 (1)	ROE 2020 (2)	Gross Margins (3)	Sales Growth (4)
Treatment	0.0018	0.0366	-0.0001	0.0013*
Product	(0.0066)	(0.0248)	(0.0002)	(0.0008)
Innovation x Time				
Control Financial Health	Yes	Yes	No	No
Control Size	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Standard Errors clustered	Firm	Firm	Firm	firm
N	2,354	2,354	2,342	2,344
R^2	0.870	0.633	0.953	0.307

**** p<0.01, ** p<0.05, * p<0.1*

6.2. Altering the Independent Variables

To explore the findings from another angle we alter the main explanatory variable, the selected CSR proxies. This approach is motivated by previous research finding that a neutral relationship between CSR and firm performance can be explained by the lack of differentiation within the independent variable of interest (Servaes, Tamayo 2013, Flammer, Luo 2017).

6.2.1. Employee Channel – Labor Intensity

Following the approach of Flammer and Lou (2017) we will consider the labor-intensity of each industry in which the firms of interest operate in the following additional analysis. It is argued that employee-related CSR investments are of higher importance in labor-intensive industries (Flammer and Lou 2017). Therefore, this approach aims to show the relationship between the workforce score and financial performance during 2020 more clearly. Labor-intensity is calculated as follows:

Labor Intensity = Total Salary Expenses / Total Revenue

Afterwards, an industry average is determined, measured by the mean labor intensity on an industry level (industries are defined on the *TRBC Industry Name* level). A dummy variable is created and set to 1 if the respective company operates in a labor-intensive industry. This dummy is then interacted with the company-individual workforce score and the hereby generated variable is used as the independent variable in a cross-sectional and a difference-in-differences regression (otherways similar to the ones used in the main analysis).

Table 12 presents the results of the cross-sectional regressions. Those point, as the cross-sectional regressions in the main analysis, towards the association of a high workforce score and superior financial performance in 2020. When controlling for financial health and firm characteristics, all results become, however, insignificant. Against the expectation to find a more clear relationship through the consideration of labor-intensity, no such magnified effect is found.

Table 12. Cross-Sectional Regressions considering Labor-Intensity in Workforce Score.

	ROA 2020	ROA 2020	ROE 2020	ROE 2020
	(1)	(2)	(3)	(4)
Workforce Score	0.0006	0.0001	0.0009*	0.0005
x Labor Intensity	(0.0004)	(0.0002)	(0.0005)	(0.0005)
ShortTermDebt		-0.0183		-0.0941
		(0.0493)		(0.1096)
LongTermDebt		0.0144		-0.1724**
		(0.0309)		(0.0741)
Cash Holdings		-0.0114		-0.1664*
		(0.0485)		(0.0861)
Profitability		0.7055***		0.3645***
		(0.0494)		(0.1102)
FirmSize		-0.0003		0.0011
		(0.0021)		(0.0045)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
N	317	317	317	317
R^2	0.343	0.871	0.310	0.472

**** p<0.01, ** p<0.05, * p<0.1*

To investigate whether any of this potential small superiority can be attributed to the effect of the crisis we conducted a difference-in-differences regression. The results are presented in *Table 13*. The coefficient for the ROA, presented in column (2), is negative and statistically significant on a 1% level, and the coefficient for ROE presented in column (4) is negative but not significant. This indicates a negative effect of the crisis on companies with a high workforce score that operate in labor-intensive industries.

Table 13. Difference-in-Differences Regressions considering Labor-Intensity in Workforce Score.

	ROA 2020 (1)	ROA 2020 (2)	ROE 2020 (3)	ROE 2020 (4)
Product Repsonsibility Score	-0.0003** (0.0001)	-0.0002*** (0.0001)	-0.0007 (0.0004)	-0.0005 (0.0004)
ShortTermDebt		-0.1003*** (0.0301)		-0.6359*** (0.1843)
LongTermDebt		-0.0718 (0.0446)		-0.5633*** (0.1625)
Cash Holdings		0.0512 (0.0612)		0.0688 (0.1623)
Profitability		0.4472*** (0.0578)		0.6147*** (0.1353)
FirmSize		0.0036 (0.0101)		0.0394 (0.0369)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Standard Errors clustered	Firm	Firm	Firm	Firm
N	2,354	2,354	2,354	2,354
R^2	0.823	0.870	0.598	0.643

**** p<0.01, ** p<0.05, * p<0.1*

Considering the external changes induced by the Covid crisis, those outcomes could potentially be justified. It can be argued that a lot of employee-related CSR efforts made by a company, are designed to take place in an office space as these included, for example, workshops and training. With new working from home policies those offers contributing to the high workforce score could be eliminated, in turn potentially leading to the productivity and/or motivation of the employees to decline.

In conclusion, the cross-sectional results point towards a positive association of the workforce score with superior financial performance in labor-intensive industries during the Covid-19 Crisis. Yet, considering the labor intensity does not lead to more clarity or significance for the main results. However, a significant difference in the extent to which companies with a high workforce score were hit by the crisis compared to companies with a low workforce score were found, when we consider labor-intensity. Thus the findings give further relevant insights to the research question of whether companies with high employee-related CSR investments perform differently in a crisis context. However, the significant effect of this analysis does not translate into a significant effect in the main analysis. The findings of the additional analysis therefore add relevant insights to the research question; however, they do not lead to a rejection of the paper's second null hypothesis.

6.2.2. Consumer Channel - Advertising

The corresponding approach to the employee channel of altering the independent variable would be the consideration of customer awareness on the company's CSR

efforts. Servaes and Tamayo (2013) find that a positive effect of CSR on firm value is dependent on the communication of it to the customers and that without this communication CSR has a negligible or even negative effect as for those companies the costs might outweigh the benefits. To measure the intensity of communication they interact the CSR score with the company's average advertising expenses over the past three years and employ this as a new independent variable. That way, the score gets amplified by the intensity of which the CSR investments were promoted and therefore better reflects the score of CSR awareness of customers. This approach would also be suitable for the purpose of our analysis. However, as the financial data on Nordic companies is restricted and a disclosure on advertisement expenses is not mandatory, only five companies disclose their advertising expenses. As this sample is too small to establish any relationship this could be a link that future research can pick up on.

7. Limitations

There are several limitations to this analysis worth mentioning. One of those being the common issue of limited access to CSR data. Out of 1,628 publicly listed companies in the Nordics, this study covers only 317 unique companies when merging the financial data from Capital IQ and ESG data from Refinitiv. This reduction in approximately 80% of sample size could in turn cause two potential issues. First, the small sample size can lead to a potential bias of firm characteristics as for example size, as big firms report on CSR investments to a larger extent than medium sized firms (Erhemjamts, Li et al. 2013). Hence, the sample might not provide a good cross-section of the public Nordic companies. This in turn causes a loss in generalizability, meaning that this paper can provide robust analyses for the companies within the sample but is limited in external validity to make broader claims about all public Nordic firms. Another issue with the small sample size is that it is harder to detect small effects, i.e. employee and consumer CSR engagement does have an impact on financial performance but this effect is very small. Given that the findings of this paper are mainly positive but insignificant, with a bigger sample any potential link might have been easier to confirm.

Another limitation is the omitted variable bias, as it is in most analyses difficult to determine and find data for all potential variables that possibly affect the dependent variable. Indeed the use of fixed effects helps to reduce potential omitted variable bias, but it does not solve the whole issue. For example, in the cross-sectional regressions industry and country fixed effects are used. However, there are certain firm-level variables that could cause omitted variable bias as they have not been included. One example is management interests and capabilities which could impact both the level of investments made into employee- and consumer-related CSR and the financial performance of the firm during the Covid-19 Crisis. As this is difficult to capture in a quantified way, it has not been included in the analysis. Nevertheless, it is not believed that the incorporation of such measures will have large effects, but still excluding it has the potential of causing omitted variable bias and this should be considered when reading the results of this study. Another limitation is the underlying assumptions of the difference-in-difference analysis, particularly the parallel trends assumption. However, as this method is among the most used in similar studies (e.g. Lins, Servaes et al. 2017, Garel, Petit-Romec 2021), it is assumed that these do not restrict the results of this study in their validity or comparability.

A final limitation worth mentioning is the selection of proxies being used within this study. The use of the workforce and product innovation score as proxies for CSR investments targeted at employees and consumers could indeed be discussed as these are both created based on publicly available data and it is therefore not certain whether they really capture real efforts made. Nevertheless, as the largest part of other studies in this field rely on similar proxies published by large ESG data providers (e.g. Bae, El Ghoul et al. 2021), including Refinitiv, the utilization of those is regarded as appropriate. Furthermore, due to limited financial data, the selected financial performance proxies capture the performance for the whole year 2020, where the period 1:st of January to 19:th of February is not defined as the crisis period. Nevertheless, as

this is a very short time-period and the real difference in performance is expected to happen during crisis times, this limitation is not expected to affect the results to a large extent.

8. Conclusion and Implications

There are many studies finding that CSR investments of firms create superior employee performance and consumer loyalty (e.g. Flammer, Luo 2017, Greening, Turban 2000, Luo, Bhattacharya 2006, Luo, Bhattacharya 2009). These advantages in turn have been argued to lead to superior financial performance (e.g. Flammer, Luo 2017). Crises are times when companies could be argued to need that additional financial support the most. One such example is the current Covid-19 Crisis, the truly exogenous shock which has had large implications on businesses (Boston Consulting Group 2021), but also on employees and consumer behaviors (e.g. European Central Bank 2021, CIPD 2020). Hence, it is not only interesting, but also economically important, to study whether companies investing more in these two specific stakeholder groups get reciprocation when they need it the most. Previous research studying the value of CSR during crisis times has, however, mainly focused on the broad CSR score (Lins, Servaes et al. 2017, Bae, El Ghoul et al. 2021, Demers, Hendrikse et al. 2021, Albuquerque, Koskinen et al. 2020, Ding, Levine et al. 2021) or the environmental component (Garel, Petit-Romec 2021), and thus research looking more directly into specific stakeholder groups playing an important role in the crisis in question is yet an area unexplored. Therefore, the paper has attempted to fill this gap by answering the following research question: *How do employee- and consumer-related CSR investments impact financial performance during crisis times?*

For investigating this relationship both cross-sectional and difference-in-differences regressions were used, where the former helped to identify superior financial performance during the crisis caused by pre-crisis CSR investments targeted at employees and/or consumers. The latter explored whether any potential superior performance is unique to the Covid-19 Crisis or whether it can rather be explained by a general superior financial performance also during non-crisis times. Findings of previous research diverge, where some support that CSR investments related to the stakeholder groups of interest should lead to superior financial performance (e.g. Greening, Turban 2000, Flammer, Luo 2017, Luo, Bhattacharya 2009), whereas others suggest a worse performance of those companies during the Covid Crisis (e.g. McWilliams, Siegel 2001, List, Momeni 2021). Thus there was no directional prediction made and the two null hypotheses were stated that firms investing in employee- or consumer-related CSR do not perform differently in financial terms. As proxies for employee and consumer CSR investments the workforce score and product innovation score were used. For capturing Covid-19 Crisis financial performance, the accounting-based measures ROA and ROE were employed.

Within the results, a pattern pointing towards an association of higher employee- and consumer-related CSR investments and superior financial performance was observed. These results were studied further in an additional analysis, within which we have found significant evidence suggesting that a company's sales growth was positively affected by a high product innovation score throughout the crisis. Furthermore, evidence was found suggesting that companies investing in employee-related CSR and operating in labor-intensive industries were most severely, negatively impacted by the effects of the crisis. Nevertheless, those same companies overall still financially outperformed their

industry peers with low or no employee-related CSR investments during the crisis. However, despite an overall pattern of positive findings and significant evidence on suggested sub-links, there was no sufficient evidence obtained to reject the null hypotheses of this paper.

The paper contributes to three different streams of literature. First, it contributes to the research of CSR effects on firm performance during macroeconomic shocks (e.g. Lins, Servaes et al. 2017, Garel, Petit-Romec 2021, Bae, El Ghoul et al. 2021, Hannah, Sayari et al. 2021, Ding, Levine et al. 2021, Demers, Hendrikse et al. 2021, Albuquerque, Koskinen et al. 2020). Within this stream, rather than considering the broad CSR score it presents an alternative approach of analyzing specific components of CSR targeted at specific stakeholder groups that were directly impacted by the crisis in question, and in turn, impacted firm performance. As a result of this specific stakeholder focus, this paper utilized accounting measures as a past driven proxy for firm performance as opposed to most other papers using stock measures that among past firm performance are also impacted by future expectations. Therefore, this paper contributes to the research of CSR effects during crisis times by taking a more atomistic view in order to find more direct links between CSR investments and their implications for financial performance during a certain crisis.

Secondly, this paper contributes to the literature on employee related CSR investments' impact on firm performance (e.g. Flammer, Luo 2017, Edmans 2011, Edmans 2012, Bloom, Kretschmer et al. 2011). As previous studies have mainly considered the effects during normal times, this paper adds the perspective of effects through external shocks with new empirical findings from the Covid-19 crisis. Lastly, this paper contributes to the literature analyzing CSR's impact on consumer behavior and in turn its impact on financial performance (e.g. McWilliams, Siegel 2001, Luo, Bhattacharya 2009, Albuquerque, Rui, Koskinen et al. 2019). Also within this stream of literature the focus has been on firm performance impact during ordinary times. Hence, we contribute with insights into CSR investments' impact on consumer behavior, and in turn firm performance, during crisis times.

For future research, it would be insightful to conduct a similar study with a bigger sample as this is considered to be one of the limitations of this paper and also a potential explanation for the insignificant results. Furthermore, as this paper only covers the effects of the crisis year 2020, future research could investigate whether any greater differences in performance can be found over a longer time period, e.g. research that considers the whole period during which the corona virus is impacting the lives of consumers and employees as soon as the corresponding data is available. Another suggestion, to approach the CSR link from another angle, is to investigate whether the insignificant results of this study could be attributed to the degree of genuineness of those reported CSR investments prior to the crisis. This could be done by exploring whether firms reporting high CSR investments pre-covid did continue their investments during the Covid-19 Crisis even under financial constraints. Lastly, this paper is restricted to proxy financial performance using accounting numbers that by their nature only reflect past performance. Although lessons from the past can improve actions in the future, complementing further research could be done by using metrics that also take into account future expectations, such as stock performance.

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10. Appendix

Appendix A: ESG Score Components, Pillars & Subcomponents from Refinitiv (Refinitiv 2021)

Broad ESG Score		
Environmental Pillar Captures impact on natural systems and how well they use best management practices to capitalize on environmental opportunities and avoid environmental risks **Subscores:** **1. Environmental Innovation Score** Reflects ability to lower ***customers*** environmental costs and burdens by creation of new market opportunities and technologies **2. Resource Use Score** The capacity to reduce resource usage and find eco-efficient solutions **3. Emissions Score** Captures effectiveness in abbreviating environmental emissions	**Social Pillar** Reflects the company's reputation and ability to generate loyalty and trust among the ***customers***, ***workforce*** and society **Subscores:** **1. Workforce Score** The capability to create a safe and healthy workplace, job satisfaction, diversity and development opportunities (among other things) for its ***workforce*** **2. Product Responsibility Score** The capacity to produce quality goods and services for ***customers*** through integration of customers' health, safety, integrity and data privacy **3. Human Rights Score** Ability to respect human rights conventions **4. Community Score** The commitment for being a good citizen by protection of public health	**Governance Pillar** Measures systems and processes that ensure that executives and board members act in the best interest of shareholders **Subscores:** **1. Management Score** Measures effectiveness towards following best practice corporate governance principles **2. Shareholders Score** Captures effectiveness towards equal treatment of shareholders and the use of anti-takeover devices **3. CSR Strategy Score** Communication of practices that the company integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes

Appendix B: Variables, Definitions & Sources

Variable	Definition	Sources
Workforce Score	The proxy used in the study to capture companies' employee-related CSR initiatives measured at the end of 2019. It can take values between 0-100, where 100 is the maximum. It is the workforce score retained from Refinitiv.	Refinitiv
Product Innovation Score	The proxy used in the study to capture companies' consumer-related CSR investments measured at the end of 2019. It can take values between 0-100, where 100 is the maximum. It is the average of the companies' product responsibility score and environmental innovation score retained from Refintiv.	Refinitiv
Return on Assets (ROA)	One of the proxies used for capturing financial performance of companies. Calculation: Operating income 2020 / (Average assets of opening & closing balances 2020)	S&P Capital IQ
Return on Equity (ROE)	The other proxy used for capturing financial performance of companies. Calculation: Net Income 2020 / (Average equity of opening & closing balances 2020)	S&P Capital IQ
Long-Term Debt	One of four proxies for a firm's financial health. Calculation: Long-term debt end of 2019 / Total assets end of 2019	S&P Capital IQ
Short-Term Debt	One of four proxies for a firm's financial health. Calculation: Short-term debt end of 2019 / Total assets end of 2019	S&P Capital IQ
Cash Holdings	One of four proxies for a firm's financial health. Calculation: Cash and marketable securities end of 2019 / Total assets end of 2019	S&P Capital IQ
Profitability	One of four proxies for a firm's financial health. Calculation: Operating Income 2019 / (Average assets of opening & closing balances 2019)	S&P Capital IQ
Firm Size	The proxy for a firm's size. Calculation: The logarithm of total assets measures at the end of 2019	S&P Capital IQ