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Corporate Sustainability Practices and Commitment in Times of Crisis: A Case Study on the Covid-19 Pandemic

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Abstract

Corporate Social Responsibility is considered to be an integral part of modern business life. However, the explanatory value of CSR ratings can be discussed. As a consequence of Covid-19, a truly exogenous shock, firms' CSR commitment can be explored. This study aims to exploit this and scrutinize whether changes in CSR ratings during the pandemic relates to financial performance. Moreover, market participants recognise that CSR issues are unlikely to be equally important for firms across sectors, implying material and immaterial CSR issues. Therefore, we use materiality as a moderator for CSR engagement. The study uses a quantitative method to test the relation between CSR activities and financial performance. The results show a positive, however, insignificant relation between these two variables. Apart from contributing with additional insight on CSR benefits we suggest that the uncertainty of the CSR ratings could contribute to window dressing activities and also explain the insignificant results. Besides, we propose that materiality may be important when exploring the relation between CSR scores and financial performance.

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1. Introduction

1.1 Background

The vitality and presence of Corporate Social Responsibility (CSR) is evident to be increasingly integrated in modern business life (OECD 2021, Boffo, Patalano 2020). This study defines a firms' CSR activities as a measure of firm consideration to other stakeholders, accounting for e.g., environmental, social and governance aspects (Freeman 2015). It is no longer a matter of doing it or not, but rather to what degree and shape. In other words, the general consensus is that sustainability consideration is not something optional, but rather essential. Larry Fink (2018), CEO of the multinational investment corporation Blackrock, expressed how "society is demanding that companies, both public and private, serve a social purpose. To prosper over time, every company needs not only to deliver financial performance, but also show how it makes a positive contribution to society". In sum, if a firm is to stay competitive and prepared for regulatory changes, they are increasingly expected to provide a long-term profitability that aligns with CSR expectations. Nevertheless, there still remains uncertainty in the direction of causality and the underlying mechanisms between CSR and financial performance (Albuquerque, Koskinen et al. 2020, Albuquerque, Koskinen et al. 2019).

Governments and international organizations such as the United Nations (UN) and European Union (EU) are expecting firms to take more responsibility and show increasing transparency concerning environmental, social and corporate governance matters. This is reflected by the global exponential increase of responsible investment policies and regulations (Canton, Colasanti et al. 2021). This is also reflected in the different sustainability rating systems developed to increase transparency and comparability between firms (Chatterji, Durand et al. 2016). These ratings are sometimes referred to as ESG scores, and thus will CSR and ESG be interchangeably used in this thesis.

Previous research has largely focused on measuring the effects on resilience and financial returns, in relation to ESG ratings or individual pillars ratings. A further subclassification of research is distinguished between those targeting crisis periods and those concerning non-crisis periods. This distinction is relevant as findings imply that CSR engagement can

generate resilience, reduced downside risk, and higher profit margins (e.g., Albuquerque, Koskinen et al. 2020, Albuquerque, Koskinen et al. 2019, Broadstock, Chan et al. 2021). These factors are of key concerns for stakeholders especially during crisis periods. However, due to the rareness of global economic crises the opportunities to verify these benefits have been greatly constrained. So far, only the Financial crisis of 2008-2009 can be said to bear similar magnitude as Covid-19, nevertheless they are unfair to equate. As Albuquerque, Koskinen et al. (2020) argue, the shocks differ significantly in speed and nature, as well as the Great Recession being economically driven whereas the Covid-19 pandemic has been an unpredicted exogenous public health shock. That being said, Covid-19 poses a unique opportunity to investigate the causal link between CSR and financial performance.

Finally, research focusing on non-crisis periods has in general shown a positive relation between CSR, environmental and governance scores to firm performance (Broadstock, Chan et al. 2021, Edmans 2011). However, during a crisis the reported linkage between financial and CSR performance varies, especially in concern to social capital. On one hand, Lins, Servaes et al. (2017) find that high pre-crisis stakeholder trust helps corporations during negative shocks, whereas Bae, El Ghoul et al. (2021) finds no such evidence. Broadstock, Chan et al. (2021) propose that the CSR benefits found in non-crisis periods are enhanced in times of crisis. Besides, sector materiality is found to be another contextual factor contributing to CSR outcomes (Heal 2005, Khan, Serafeim et al. 2016). More specifically, they find that social performance should be customized to the firm's individual risks and opportunities to generate value. Moreover, an organization's ability to facilitate an inhouse culture of creativity, innovation and employee satisfaction appear to yield improved agility to external fluxes (Li, Liu et al. 2021). In sum, the relationship between financial performance and CSR practices depend on how well CSR practices are customized to the particular firm's operational activities.

In addition, CSR engagement is not only a requirement from external stakeholders, but it is found to provide firms with additional opportunities for financial access. First, CSR is associated with growing market participant appeal and thus gives access to ESG investors (Delmas, Burbano 2011) whose investments have more than tripled over the last 9 years (Yoo, Keeley et al. 2021). Second, best-in-class CSR performance has been found to result in higher valuation than in industry peers (Awaysheh, Heron et al. 2020). In aggregate, this provides an explanation for why firms are incentivised to engage in window dressing CSR,

and not performing these practices genuinely. Delmas and Burbano (2011) exemplify window dressing CSR, as how the fear of falling behind best-in-class performers motivates low performers to frame their social engagement more positively. This in turn, raises the importance of distinguishing between genuine and non-genuine CSR engagement. Nevertheless, the financial pressure and subsequent cost-cutting created during Covid-19 offers an opportunity to identify firms that prioritize CSR practices and those who do not (Powell 2020).

Conclusively, there are several different factors that could impact the outcome of previous CSR research. Not only has there been a shift in the perception of CSR importance among investors and institutions which can make previous findings outdated, but also, the phenomena of window dressing among companies joining the megatrend solely under non-crisis times could have had a negative impact. Finally, there is evidence that the effects of sustainability engagement are related to institutional and industry materiality factors, implying that overlooking social conditions could reduce the significance of earlier studies. Together, these factors show that research is limited in several aspects and would benefit from further inquiry. One thing is clear though, CSR is here to stay.

With the identified gap in literature, this study aims to expand the research regarding the relation between financial and CSR performance, taking into account for materiality, among Nordic[1] firms during the Covid-19 pandemic. Taking advantage of the unique character of the crisis, this study investigates whether potential changes in CSR ratings relate to financial and operational performance. The research question therefore reads as the following:

Is there a positive relationship between the financial performance and the changes in CSR ratings for firms during Covid-19?

1.2 Scope

The scope of the thesis is geographically delimited to firms with headquarters in the Nordics. This is because the Nordic countries have similar institutional investor guidelines and all are rated among the top six in the 2021 Global Sustainability Competitive index (Solability 2022). This is important as it suggests a comparable CSR mindset and performance credibility

[1] Sweden, Finland, Denmark, Norway, Iceland

among the countries. This is significant as stakeholders' propensity to trust highly relates to the attitude of whether social engagement is perceived as window dressing rather than value enhancing (Lins, Servaes et al 2017). With reference to Fiordelisi, Galloppo et al. (2021) findings of how returns to social capital investment depend on prevailing labor markets regulations, this geographical delimitation is further motivated. Furthermore, even though Swedish Covid-19 strategy has been less restrictive than in Nordic counterparts, one should acknowledge that it has not always been accurately characterized (Bricco, Misch et al. 2020). They also demonstrate how the Nordic countries obtain several regulatory similarities and little difference between average forecasts, and thus we argue that the institutional circumstances remain sufficiently similar for Sweden not to be excluded.

The purpose is to investigate the relation between individual firms' CSR scores and financial performance during the crisis, and thus has accounting and ESG data throughout the period 2018-2020 been used. More specifically, the first analysis studies the relationship between the broad ESG score and financial performance, which is then followed by an analysis concerning the social pillar specifically. Lastly, an additional analysis will be conducted to account for sector and Covid-19 specific materiality factors.

Finally, as the study focuses on a truly exogenous shock it is possible to circumvent endogeneity issues. This is in contrast to prior studies that have faced endogeneity problems as a result of ESG demand likely being correlated with dependent variables. Furthermore, the bias is reduced by accounting for covariates. Ultimately, this allows for a test of the relation between ESG characteristics and corporate financial performance in times of crisis.

1.3 Disposition

The thesis consists of six sections. The second section will approach the relevant studies and theories at hand. The next will include details regarding the research methodology, data collection and aggregation. Section four, will depict the results and the subsequent data analysis. This is followed by a discussion concerning the methodology, results and suggestion of future studies as well as two further analyses based on our findings. Conclusion and a summary of the report will be presented in section six.

2. Institutional setting, Literature Review & Theory

In the following section a summary of previous research and relevant theories will be presented. It will clarify discrepancies between theory and research as well as contradicting findings of previous studies. Moreover, it will introduce the external factors that may have impacted previous research. Ultimately, delineating the complexity behind analyzing the relation between CSR ratings and financial performance in a business context, and thus also the areas in need of complementation.

2.1 Institutional setting: The Covid-19 pandemic

"This global pandemic is not only challenging national health systems, but it is also affecting economies, from the smallest to the largest, on an unprecedented scale"
(Liu Zhenmin, Under-Secretary-General for Economic and Social Affairs UN, 2020)

During the first months of 2020, the global economy experienced an escalating market-wide crisis induced by the Sars-CoV-2 virus. The disease was first reported in December 2019 in the Chinese town of Wuhan (WHO, 2022). However, it was not until the middle of January 2020, that the disease was internationally recognised and in March it had come to heavily affect other parts of the world (WHO, 2022). IMF (2020) identifies the pandemic as an exogenous shock of unique magnitude, enhanced by the consecutive global lockdowns aimed to constrain the spread and ease the strain on healthcare systems. However, they also highlight the unprecedented national policy responses, which have had a crucial role in cushioning increasing unemployment rates, bankruptcies and social hardships. Besides, the pandemic has also been an opportunity to enforce greater CSR focus among businesses. For example, many governments stimulus packages have been tied to "green outcomes" and also, the EU has had funding requirements relating to ESG goals (Canton, Colasanti et al. 2021, Unnikrishnan, Biggs et al. 2020).

Although the economic effects from Covid-19 are undisputable, one should acknowledge that the ramifications have had certain characteristics. For example, there has been a raised demand for digital technologies that can facilitate online shopping, and thus contact-intensive industries have experienced a sudden sharp negative economic impact (Canton, Colasanti et al. 2021). Moreover, individual firm's flexibility to shift from an office to a work-from-home

environment has also been a factor to what degree business could be continued (ibid.). In other words, Covid-19 has induced sudden changes in consumer behavior and operational challenges involving adjusting to e.g., blocked supply chains and lockdowns (Gruß, Carlsen et al. 2021). Therefore, also suggesting an elevated significance to obtain loyalty and satisfaction from employees as well as customers to secure revenue streams. Donaldson and Preston (1995) refer to these as instrumental stakeholders, as they are essential components of a firm's supply and demand. The findings of Flammer and Luo (2017) are in agreement to this, showing how more labor-intensive firms have had high exposure to the pandemic, and on the contrary, firms with work-from-home flexibility have had less. Besides, multiple studies (Lins, Servaes et al. 2019, Manabe, Nakagawa 2022, Lins, Servaes et al. 2017) document how high pre-crisis social capital levels generate increased resilience to systematic shocks. In aggregate, suggesting that performance within social dimensions is highly relevant during crises and in particular focus during the pandemic.

2.2 Literature Review

2.2.1 ESG and CSR as concepts

Environmental, Social and Governance (ESG) are three non-financial disciplines that can be used as both an outset to evaluate a company's financial performance and a basis for investment decisions. These disciplines are also commonly known as the three pillars or dimensions, constituting the broad term ESG (see *appendix A*). The term is specifically used in sustainability reporting, which according to the GRI (2018) refers to "an organization's practice of reporting economic, environmental, and/or social impacts, and hence their contributions towards sustainable development". In Sweden for example, all companies that for the last two financial years fulfill more than one of the criterions: (1) average number of employees has been more than 250 (2) reported balance sheet total exceeds SEK 175 million (3) reported net sales exceeds SEK 350 million (Finansinspektionen 2022) must provide an ESG disclosure.

The term ESG, is often interchangeably used with sustainability and the concept of Corporate Social Responsibility (CSR). In this report we use ESG scores as a proxy for CSR activities. It should be noted that its business implications remain disputed. On the one hand, Milton Friedman (1970) expressed how CSR is not firm value creating and thus violates the essence of a free enterprise system. Stakeholder theory, on the other hand, argues that CSR

engagement can generate resources and outcomes that elevate performance and outcome (Freeman 2015). From this perspective, the concept of reciprocity is applicable when discussing the value of social capital building. More specifically, it concerns the idea of "I will be good to you because you will in the future be good to me" suggesting that stakeholders are more likely to help high performing social capital firms during hardships (Lins, Servaes et al. 2017). In addition, risk-management theory proposes that CSR signals positive altruistic intentions and thereby generates a moral capital that creates a trust buffer with insurance-like properties in periods of failures or setbacks (Godfrey 2005, Godfrey, Merrill et al. 2009, Shiu, Yang 2017).

Over the last few years, CSR has gained an impressive momentum in its application and view of the general public. For instance, in a survey performed by Capgemini in 2020, 79% of consumers attest to changing their preference according to sustainability measures. Moreover, Rosengren and Colliander (2020) suggest that consumers are loyal to companies, provided they have had a positive experience. They also identify how Covid-19 has significantly increased the share of sustainability conscious purchases and of online shopping. The European Commission (2021) also reports a noticeable strengthened consumer interest for greener and locally produced products. There is not only an increased consumer interest, but also major consultancy firms such as Bain (Bain & Company 2022), McKinsey & Company (Henisz, Koller et al. 2019), Boston Consulting Group (Unnikrishnan, Biggs et al. 2020) & Arthur D. Little (Eikelenboom 2021) advocates ESG as vital to discover new customer needs, keep the product portfolio relevant as well as generate new business innovations. Thus, as private expenses have decreased on average by 7% in 2020 (Christelis, Georgarakos et al. 2021), the marginal value of each sale increases and hence highlighting the benefits of obtaining strong stakeholder relationships. Besides, it demonstrates how ESG discussions are not constrained to academia but also actively discussed among powerful business actors.

Furthermore, much research supports the claim of how building social capital provides value. Not only are there findings of customers being drawn to organizations treating their employees well (Edmans 2011, Luo, Bhattacharya 2006, Albuquerque, Koskinen et al. 2019), but also how happy employees are more motivated and productive (Oswald, Proto et al. 2015, Edmans 2011). As a matter of fact, O'Reilly and Chatman (1996) argue that establishing an inhouse culture which facilitates norms of creativity and innovation, could be one of the most effective mechanisms to ensure adaptability during major crises. A more recent study by Li,

Liu et al. (2021) attest that this type of strong culture yields agility in digital transformation, new-product development which indirectly provides a better ability to retain and attract customers relative to competitors.

Finally, CSR is relevant also in financial aspects. Cheng, Ioannou et al. (2014) finds that ESG disclosure signals a greater stakeholder engagement and transparency, which tend to increase access to capital. Other studies further investigate how this is particularly important in times where financial resources may be limited alternatively during a crisis, in which social trust and capital is essential (Lins, Servaes et al. 2019, Amiraslani, Lins et al. 2017, Lins, Servaes et al. 2017). Besides, Lins, Servaes et al. (2017) suggests that the value of being identified as trustworthy increases markedly in times of severe crisis and thus is the cost of building social capital less than the cost from an unexpected decline in trust. Besides, Awaysheh, Heron et al. (2020) finds that best-in-class ESG performing firms are credited with higher valuations than industry peers. In combination with ESG performance becoming a key driving force in banking (Eikelenboom 2021), one can predict that the ties between capital access and firm CSR will become even stronger in the future.

Nevertheless, the relationship between CSR and cost of capital per se is not straightforward. Despite the proposed benefits of sustainability engagement, previous research shows ambiguous results indicating that the relationship might be more complex. Breuer, Müller et al. (2018) find that it is much dependent on the prevailing investor protection efficiency. Firms operating in countries with high investor protection appear to have access to a broader investor base, and may thus experience a reduced cost of equity. Firms in low investor protection countries rather seem to have an increased cost of equity, primarily induced by social orientated CSR. Similarly, if bondholders perceive CSR activities as wasteful, the expected compensation from high CSR performers is likewise higher (Amiraslani, Lins et al. 2017). Also, previous studies (Albuquerque, Koskinen et al. 2020, Albuquerque, Koskinen et al. 2019, Servaes, Tamayo 2013) propose that to generate full value from CSR engagement it must also be properly communicated to the public.

2.2.2 Controversy and window dressing CSR

As previously described, CSR is increasingly prominent among market investors and is thus directly related to the creation of what may be referred to as green markets and window dressing CSR. In 2018, the UN (2018) valued the green economy value to roughly $4 trillion

USD, and predicted that, given that the preceding growth persists, it would by 2030 represent 10% of the total global market. Also, many influential banks have in 2021 agreed to raise their investment commitment relating to ESG from $1 to $2.5 trillion (Winston 2021). As mentioned in section 2.2.1, consumer expectations show a similar pattern. Delmas and Burbano (2011) found that this rise in investor and consumer expectations, as well as the competitive landscape are strong factors to why firms decide to window dress CSR. They specify that within industries, firms with strong ESG characteristics, tend to be perceived as more legitimate and/or successful and thus often become role models for peer organizations (Delmas, Toffel 2008, Delmas, Burbano 2011). In turn, low performing CSR firms are incentivised to manipulate their sustainability disclosures to be perceived more positively. Consequently, explaining why firms may depict themselves as having strong CSR commitment even though they do not i.e., a non-genuine commitment. In addition, if a firm is successful in promoting themselves as high-performing CSR they must also genuinely operate as such (ibid.). If market participants instead perceive the firm to act incongruent, the organization will be more penalized than those who are not (ibid.).

As hinted, the rising stakeholder interest has coincided with an increase of ESG disclosures among big organizations. However, the magnitude of total sustainability improvements is not as tangible (Winston 2021). In turn, suggesting that the term of ESG has become mainstream and thus motivates the current rise in investor scepticism and suggestion of ESG being a dangerous placebo (ibid.). Moreover, CSR regulations and financial reporting standards are still in development, and thus there are challenges to verify the validity of ESG disclosures and ratings (Chatterji, Durand et al. 2016). The probability of validity uncertainty is further enhanced by the great variations in ratings from different providers (Boffo, Patalano 2020, OECD 2021, Chatterji, Durand et al. 2016). Nevertheless, the pandemic has been an opportunity to test whether firms perceive CSR as value creating and thus commit long-term or simply as a crowd-pleasing expense possible during periods with absence of financial distress (He, Harris 2020, Winston 2021). Moreover, Bae, El Ghoul et al. (2021) suggest that market actors are able to distinguish between genuine and non-genuine investing firms. As a result, one would expect that the pandemic will screen out not only those prioritizing CSR related engagement but also that market actors will reward only those who are identified as genuinely CSR committed.

2.2.3 Materiality & SASB sector classification

A firms' materiality matrix describes a firm's operating profit vs Stakeholders' interest. The quadrants in the matrix describe whether an issue is material and will be value adding for the firm and whether this issue will benefit the stakeholders' interest. Thus, the concept of materiality relates to the process of distinguishing a firm's individual risks and opportunities. It constitutes a valuable tool for companies to identify, assess and incorporate relevant internal and external factors in relation to business strategy which in turn has a direct impact on performance (NYU Stern 2019). More specifically, depending on the operational nature of a firm, the organization will be differently exposed to external factors. For example, containment measures following Covid-19, have caused disproportionate distress for contact-intensive services (Canton, Colasanti et al. 2021) as these firms to a higher degree financially rely on physical encounters.

Corporate sustainability investment policies, its relation to future financial performance and business strategy have as mentioned, attracted the attention of market actors and motivated sustainability disclosures. However, the concept of CSR is very broad and materiality appears to systematically vary across industries according to Khan, Serafeim et al. (2016). Thus, one can, according to Khan, Serafeim et al. (2016) improve the signal-to-noise ratio when investigating CSR implications by taking into account firm-specific sustainability. In consequence, they find that firms with high ratings in material matters significantly outperform poor rated firms, whereas ratings on immaterial matters do not. Also, Heal (2005) found that the relation between CSR and financial performance depends on the sector.

The organization, Sustainability Accounting Standard Boards[2] (SASB) has created a template that defines sector- and industry-specific material and immaterial ESG concerns from a shareholder viewpoint. They identify the stakeholders and objectives for each industry and perform a content analysis and aggregate the findings in a materiality map. The materiality map represents an assessment of key ESG issues related to the long-term resilience of a firm. For instance, the social pillar tends to be more material for services or healthcare industries than the transport sector or non-renewable resources.

[2] The SASB Standards are created under the global non-profit organization Value Reporting Foundation. The SASB Standards guide covers 77 industries and provides organizations with a guide on how to disclose and convey firm performance on ESG issues. Moreover, it identifies what issues are most material to specific industry and sectors, according to the Sustainable Industry Classification System (SICS) (SASB 2022). Accessed at: https://www.sasb.org/

2.3 Hypothesis development

Previous studies (Albuquerque, Koskinen et al. 2020, Broadstock, Chan et al. 2021, Awaysheh, Heron et al. 2020, Lins, Servaes et al. 2019, Lins, Servaes et al. 2017) show that high ESG performing firms tend to outperform low performing firms during crisis periods. Besides, investing in CSR should generate a higher customer-company identification (Luo, Bhattacharya 2006) and thus according to stakeholder theory and principle of reciprocity, high CSR performers should experience greater financial support during the pandemic than low CSR performers because of social capital built pre-crisis. This expectation is further motivated by how investors can proposedly distinguish between genuine and non-genuine CSR commitment (Bae, El Ghoul et al. 2021). Also, the Covid-19 pandemic induced severe financial strains on Nordic firms, which has triggered many organizations to cut costs (Powell 2020). Firms believing that CSR practices are value creating and an essential of operations, i.e., genuinely committed, will avoid reducing such expenses (ibid.) and as Cheng, Ioannou et al. (2014) propose, have lower capital constraints. In contrast to firms who do not find CSR investments as value creating and thus will not reap these benefits. All in all, firms that are genuinely committed should display a non-negative change in CSR score and relate positively to financial performance as they are rewarded and supported by market participants.

H1*: Firms' financial performance* ***relates positively*** *to an increase in CSR performance during the Covid-19 crisis.*

The ramifications of the pandemic have put exceptional pressure on adopting digital technology, work-from-home flexibility and adjusting for example operational systems (Canton, Colasanti et al. 2021, Gruß, Carlsen et al. 2021). Moreover, it is reported to have generated sudden changes in consumer behavior (Rosengren, Colliander 2020) and stakeholder interests. Meanwhile, social performance CSR relates directly to both the operational and the stakeholder perspective. The former connects to how building a good in-house culture cultivates a more innovative and flexible workforce (Oswald, Proto et al. 2015, Edmans 2011, O'Reilly and Chatman 1996) whereas the latter relates to reciprocity (e.g., Edmans 2011, Luo, Bhattacharya 2006, Albuquerque, Koskinen et al. 2019). If a firm recognises these as valuable, they would avoid reducing these expenses to prevent reputational damage and the associated costs (Delmas, Burbano 2011, Habib, Hasan 2019). In aggregate, proposing that having truly engaged in CSR, the firm is expected to maintain a

high social performance also during the crisis, while simultaneously being financially rewarded from both operational performance and good stakeholder relations.

H2: *Firms with high financial performance have not reduced their **social** pillar rating during the Covid-19 crisis.*

Additional analysis:

Meanwhile, some studies indicate that the payoff for CSR practices are related to how well they are customized to the individual firm's materiality issues (Khan, Serafeim et al. 2016, Banker, Ma et al. 2022). Moreover, findings show that bondholders need to apprehend the CSR practices as strategically integrated to premium it (Amiraslani, Lins et al. 2017). In other words, aligning CSR to corporate strategy is elementary for it to generate future economic benefits. With reference to findings regarding how the pandemic has exposed social intense sectors particularly (Flammer and Luo 2017) and how benefits of CSR practices are enhanced during crisis (Broadstock, Chan et al. 2021), we expect that the financial reward of social CSR performance will relate to the degree of exposure, i.e., the magnitude of social materiality. Hence, with reference Khan, Serafeim et al. (2016) we expect that accounting for sector classification will improve the signal-to-noise ratio of the regression.

H3: *The relation between a firm's social CSR and financial performance is positively moderated by sector social materiality.*

Again, relating to the findings of the rewards from CSR engagement being enhanced during the crisis, we expect that the linkage between social CSR and financial performance will yield greater performance variation in sectors with high social materiality, and less so in sectors with low social materiality.

H4: *A positive change in the social pillar rating will be rewarded higher, in terms of financial performance, in high social materiality sectors compared to low social materiality sectors.*

3. Definitions, Data & Methodology

In the following section, the methodology and a detailed description of the regression models are presented.

3.1 Defining the crisis period

According to literature the crisis period is an ambiguous term, as it depends on the judgment of when the effects of the crisis show in the financial data (e.g., Lins, Servaes et al. 2017, Albuquerque, R., Koskinen et al. 2020, Bae, El Ghoul et al. 2021). More specifically, in Albuquerque et al (2020) they chose to define the crisis period in the US, starting on February 24, 2020 as it is the start of the "fever" period, and continuing to March 18, 2020 as this is noted to be when society showed signs of recovery.

The focus of this study is the Nordic firms and the social pillar ratings and thus will the crisis period be slightly different. The starting point of the crisis, 19 February 2020, is chosen to represent when the Covid-19 was first acknowledged by investors to have market effects and society in general began discussing institutional action (Saunes, Vrangbæk et al. 2021). However, since the focus lies on the social pillar, which is largely related to human adjustment and nature, it is relevant to consider a time lag. Hence, the crisis's end-date is set to year-end 2020, which is uniform to when vaccinations rolled out and society as a whole had come to discuss a new "normal".

3.2 Selected proxies, data collection and sample construction

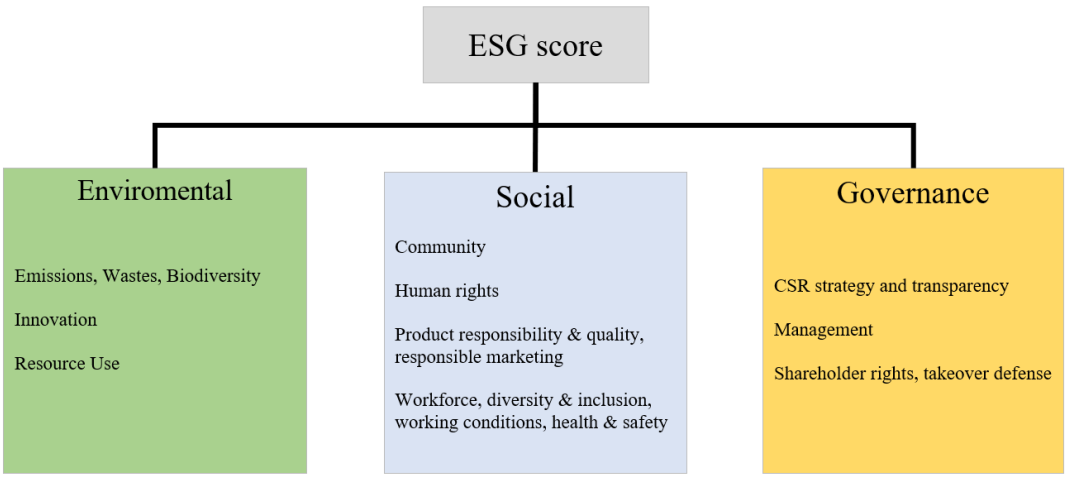
3.2.1 CSR data, SASB & proxies

There are several different ESG ratings systems, for instance Refinitiv Eikon, KLD and Nasdaq ESG, available for investors to evaluate firms' sustainability performance. However, not only may they differ in geographical coverage but they also employ different evaluation criteria. More specifically, there are differences in raters' theorization of CSR and differences in how data sources are weighted and measured (Chatterji, Durand et al. 2016). As a consequence, one can observe noticeable discrepancies in ratings (ibid.) which obstruct the ability to gather a definite sense of performance and comparison regarding sustainability.

In this study, the Eikon Refinitiv database has been used to collect ESG ratings for the Nordic firms. Eikon Refinitiv is a database created in 2002, which analyzes over 9,500 companies globally across more than 450 different ESG indicators (Refinitiv 2022). The valuations are reviewed on a weekly basis using publicly available information such as annual reports, company websites, NGO websites, stock exchange filings, CSR disclosures and news sources. A schematic view of how the rating system is organized is found in Figure 1. Refinitiv was considered appropriate as it is one of the most comprehensive rating systems covering ESG performance and does this through an extensive methodology with input from several both external and internal sources (Refinitiv 2022). Finally, recent studies on the topic, such as (e.g., Bae, El Ghoul et al. 2021, Li, Liu et al. 2021, Breuer, Müller et al. 2018) have also used the database, which supports its validity.

More specifically, the database is updated continuously and calculates scores using over 630 ESG measures, of which a subset of the 186 most material and comparable per industry, are used as fundament for scoring process and firm assessment (Refinitiv 2022). These metrics are then grouped in ten categories, that are in turn distributed among the three pillar scores, environmental, social and corporate governance. These ten categories are each given a score, ranging between 0-100 (highest), to then be aggregated for higher level scores. An overview of the Refinitiv database scoring is found in Figure 1, yet a more detailed description is found in *Appendix A*.

FIGURE 1. ESG parameters according to the Refinitiv database (Refinitiv 2022)



Finally, additional analyses are performed with the aim of capturing how sector specific materiality influences the relation between performance and CSR. To do so, SASB's materiality map on sector level is used. This setup resembles the approach used by Khan, Serafeim et al. (2016) and it involves three steps. 1) We manually map the materiality issues from SASB to the Refinitiv's pillar definition. This is done by matching keywords of the SASB issue definitions to keywords to the definitions of the Refinitiv pillars. 2) Then, SASB's materiality map is used to rank the highest social materiality between the different sectors. The mapping and methodology are schematically presented and described in more detail in *Appendix B*. The final step is to manually find the SICS classification of each sample observation in order to test the performance in regards to materiality. This is done using the SICS look-up tool[3] and then searching for each unique firm.

3.2.2 Financial performance data & proxies

Return on equity (ROE) and return on assets (ROA) are the two proxies used to evaluate the financial performance of the firms. Exact calculations of these measures can be found in *Appendix C.* The two performance indicators are chosen to complement each other when doing the analysis. First, ROA allows one to capture a firm's operational financial performance (Lins, Servaes et al. 2017). However, ROA as a proxy for financial performance lacks the ability to account for the firm's financial structure hence the need for another proxy. Thus, with reference to shareholder theory proposing that shareholders are the most important stakeholders, ROE is also used. This is because it is one of the most frequently used indicators for investors and analysts (Hagel III, Brown et al. 2010).

The usage of accounting-based proxies is motivated by how such proxies are more retrospective and obtains an ability to measure historical performance of firms in contrast to market proxies (Luo, Bhattacharya 2006). Accounting-based proxies also allow for better value incorporation of intangible assets such as employee performance and consumer loyalty that may otherwise be disregarded (Edmans 2011). On the other hand, ROE and ROA are both comprehensive performance indicators and may thus be affected by other factors than CSR matters.

[3] The look-up tool was used April 20th and can be accessed via: https://www.sasb.org/find-your-industry/

Finally, all accounting data was collected from the S&P Capital IQ database. There is a possibility of different reporting standards based on organizational size etc, since the study covers multiple countries. Hence, to circumvent possible exclusion of companies lacking quarterly data, the analysis will use profits of the fiscal year 2020.

3.2.3 Sampling process

To construct our sample, we use ESG data from the Refinitiv Eikon database. The data covers public companies listed in Sweden, Norway, Denmark, Finland and Iceland and is screened for having ESG data at least for 2020. The total number of observations summed to 550. Accounting data has been retrieved from Capital IQ, screening for the same countries which generated 1956 observations. The two datasets have then been merged and matched using the individual ticker symbol. Finally, the combined dataset contains 297 firms and has filtered out firms lacking either accounting data or enough ESG scoring. Further we define the sector composition based on the SICS definitions. The number of firms in each sector are quantified. This is done to observe potential bias into one sector. For instance, there are 96 firms in the "Technology & communication" sector and only 12 in "Consumer goods".
The sample selection and sector composition can be found in Table 1. The data is pre-processed in MATLAB. This includes: merging of data sets, sorting the ESG data into fiscal years and exporting the data to excel.

TABLE 1. Sample of Nordic firms & sector composition

Sample selection	
	Number of firms
Firm observations from Refinitiv	550
Firm observations from Capital IQ	1956
Full sample after listwise deletion	297

Sector composition	
SICS Sector	**Number of firms**
Consumer goods	12
Extractives & Minerals Processing	23
Financials	40
Food & beverages	23
Health Care	80
Infrastructure	56
Renewable resources & Alternative Energy	19
Resource transformation	87
Services	30
Technology & communication	96
Transportation	21

3.3 Methodology

We conduct cross-correlation tests using Ordinary Least Square regression (OLS) models. Further, propensity score matching is used to minimize selection bias when investigating relative differences between groups. This method allows us to test the Hypothesis minimizing the bias to covariates. These methods are commonly found in literature, for further reference see (Albuquerque, Koskinen et al. 2020). Panel data regression is not performed due to the focus on the study.

3.3.1 Descriptive statistics

The variables, definitions and descriptions can be found in *Appendix C*. For the dependent variable, i.e., financial performance, yearly ROA or ROE proxies are used. For the independent variable, changes in ESG between year 2019 and 2020 or changes in the social score (for the same time-period) are used as proxies to measure change in investments related to the ESG and the Social pillar. Using the residual change we attempt to isolate the effect of a firm's sustainability strategy.

We further include a set of control variables. The size of a firm might impact the firm's ability to continue their CSR engagement in times of crises. The financial health of the firm is quantified based on short- and long-term debt, cash holdings, and profitability**.** This is because we expect the financial health of a firm to affect their ability to engage in CSR activities. Also, sector indicators and country indicators are included as controls (fixed effects) in the regression model. This is because we expect that the Nordic countries may have been affected by the Covid-19 pandemic differently due to different strategies to reduce the spread of the virus. Firms operating in certain industries may also due to macroeconomic reasons be more affected by the Covid-19 pandemic.

The continuous variables are winsorized (trimmed tails) at level 1st and 99th percentile. This means that we identify the 1st and 99th percentile of the data and then replace the data that lies outside this interval with those values. This treatment of outliers reduces the spread of the data and improves the robustness of the regression without eliminating data points.

3.3.2 Cross-sectional regression

The advantages of cross-sectional regression are that: we can observe the effect of all variables, continuous variables can be used, and we can estimate interactions between covariates. In the cross-sectional analysis a single time period is used to test Hypotheses 1, 2 and 3. The regression model using cross-sectional data is found in Equation 1.

The regression analysis is performed using several proxies for firm performance, with and without the moderator factor "Materiality".

$$ROA_i = \beta_0 + \beta_1 \Delta ESG\ Score_i + \beta_2 \Delta ESG\ Score_i \times Materiality_i + \sum_k \beta_k\ Control\ variables_i + \sum_l \beta_l\ SICS\ fe + \sum_m \beta_m\ Country\ fe + \varepsilon_i \quad (1)$$

Using a linear regression model, we assume: that the dependent variable can be described as a linear combination of the explanatory variables (independent variable and control variables) and an error term, that the expected value of the error term is zero, that the variance of the error term is constant and independent, and that the explanatory variables are independent to this error term.

3.3.3 Propensity score matching

Propensity score matching (PSM), statistical matching technique used to estimate the effect of a treatment by accounting for the covariates that predict receiving a treatment. This method is used to reduce the selection bias to confounding variables mimicking randomization. Thus, allowing for causal estimates without simple selection bias. The advantages compared to OLS is that PSM has: a lower sensitivity to the function of the covariates, it is easier to understand and communicate, and if your treatment is rare then the control might not be comparable using OLS. This method is used to test Hypothesis 4, when we want to test the relative differences between groups.

4. Results

In this section the main results from the empirical study are presented.

4.1 Descriptive statistics

We summarize the descriptive statistics for the change in ESG score, firm characteristics and financial health check in Table 2. Starting off with the key variables, the data shows the changes of all different sustainability scores have on average increased during Covid-19 pandemic. The mean of the changes in the governance pillar have been the greatest (8.97) followed by the broad ESG (4.50), environmental pillar (2.79), and finally the social pillar (2.12). The standard deviations of the sustainability scores are: ESG score (5.80), environmental pillar (6.86), social pillar (7.36) and governance pillar (9.38). This indicates large variation between firms. The range of values for the change in ESG pillars, for instance the social pillar min (-17.30) and max (31.14), could give an indication that some firms have changed their strategy and as a result decreased their score significantly. All in all, the data indicates that the exogenous shock has resulted in significant changes in ESG score.

To further investigate the change in ESG scores and to check if the sample will have a strong bias, we quantify the number of firms that have increased versus decreased their score. This is indicated in Table 3. From these results we observe that there has been a positive change in the scores for most firms. However, for the change in S score more firms have decreased their score.

For the financial performance proxies, ROA and ROE, we observe that the mean ROA for the sample measures 5.1% versus 10.4% for ROE. ROA measured a 25 percentile of 2% and a 75 percentile of 9%. For the profitability variable (pre-covid 2019) we observe that the mean profitability measured 6.2%, a 25 percentile of 3% and a 75 percentile of 11%. This indicated that there has been a negative effect on financial performance as a consequence of the Covid-19 pandemic. Although, this change is small. The financial health check variables are of comparable magnitude as found in other literature (e.g., Albuquerque, Koskinen et al. 2020, Lins, Servaes et al. 2019).

TABLE 2. Summary statistics for the sample

	N	**Mean**	**Median**	**Std. Dev.**	**p25**	**p75**	**min**	**max**
(1) ROA	297	0.05	0.05	0.12	0.02	0.09	-0.67	0.36
(2) ROE	297	0.10	0.12	0.26	0.05	0.18	-1.58	1.03
(3) ΔESG	297	4.50	3.54	5.80	0.64	6.57	-6.31	27.92
(4) ΔE	297	2.79	1.15	6.86	-0.78	4.74	-15.43	28.53
(5) ΔS	297	2.12	0.72	7.36	-1.60	3.83	-17.30	31.14
(6) ΔG	297	8.97	7.93	9.38	2.95	14.02	-12.85	33.76
(7) Profitability	297	0.06	0.07	0.15	0.03	0.11	-0.89	0.36
(8) Cash Holdings	297	0.12	0.07	0.17	0.03	0.14	0.00	0.90
(9) Long-term debt	297	12380.52	1297	44688.57	169.16	5345	0	302639
(10) Short-term debt	297	0.02	0	0.00	0	0.02	0	0.17
(11) Size	297	9.14	9.10	1.99	7.74	10.57	3.81	14.69

TABLE 3. Descriptive statistics for change in sustainability pillars

Variables	**N**	
	Increased or kept ≥ 0	Decreased < 0
ΔESG	244	53
ΔE	185	112
ΔS	130	167
ΔG	255	42

Next, we report the bivariate correlation coefficients in Table 4. The correlation coefficients of interest for our hypothesis are the ones between ESG and financial performance. ROA correlated positively to the total ΔESG score and all individual pillars. For ROE we observe a similar trend with the exception of ΔS which have a negative correlation. However, no significant correlations are found. This infers the relationship between ESG and financial performance might be moderated by other factors.

Cash holdings show a negative correlation to both ROA and ROE. This is expected as a build-up of cash causes the balance sheet to grow without a current operational benefit. Reasons for the build-up of cash could be: potential future investments, uncertainty in the environment, or lack of investment opportunities.

Another observation from Table 3 is that profitability, cash holdings and size may be considered confounding variables. Therefore, we control for these firm characteristics in the regression analysis.

TABLE 4. Correlation matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) ROA	1.0										
(2) ROE	0.65***	1.0									
(3) ΔESG	0.06	0.02	1.0								
(4) ΔE	0.09	0.05	0.67***	1.0							
(5) ΔS	0.04	-0.01	0.75***	0.46***	1.0						
(6) ΔG	0.03	0.05	0.68***	0.21***	0.17***	1.0					
(7) Profitability	0.90***	0.70***	0.04	0.09	0.02	0.02	1.0				
(8) Cash Holdings	-0.49***	-0.36***	0.05	-0.10*	0.00	-0.07	-0.50***	1.0			
(9) Long-term debt	0.01	0.04	-0.08	-0.10*	-0.08	-0.02	0.02	-0.04	1.0		
(10) Short-term debt	0.01	-0.01	0.14*	0.09	0.11*	0.07	0.01	-0.14***	0.23***	1.0	
(11) Size	0.27***	0.33***	-0.11*	-0.08	-0.08	-0.04	0.33***	-0.35***	0.47***	0.15***	1.0

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

4.2 Regression results

In the following section the results from the regression analysis are presented. First, we present the results connecting to Hypothesis 1 investigating the relation between firm financial performance and CSR strategy. Second, we explore the social pillar connected to Hypothesis 2. To nuance the results, we test Hypothesis 3 by including sector materiality as a moderator. Lastly, we investigate differences between groups with high and low social materiality scores. This is connected to Hypothesis 4.

4.2.1 Financial performance and CSR strategy

Table 4 presents the main regression results for Hypothesis 1 using both ROA and ROE as proxies for financial performance. All regressions include SICS sector fixed effects and country fixed effects. We include the fixed effects using a set of extra variables related to the dimensions of the SICS sector and country. This inclusion of fixed effects becomes a part of the intercept term in the regression model. This is done to account for effects common to each of the Nordic countries or specific SICS sectors. All regression has been run using robust standard error to account for potential heteroskedasticity.

In the regression we find a positive relationship between changes in ESG performance and financial performance. The coefficients for changes in the ESG score are positive, but insignificant ($p = 0.817$). This means that we could not identify a significant relationship between financial performance and changes in ESG score and that the size or sign of the coefficients does not matter. Controlling for financial health check did not improve significance, however, the R^2 value improved significantly when including financial health check variables. For column (1) and (2) we observe a change in R^2 from 0.0849 to 0.8297. The outcome is driven by the profitability variable which is also correlated to the financial performance proxies. The regression model demonstrates an explanatory power. Although, changes in ESG are not significant.

TABLE 5. Firm-level regression for broad ESG score and financial performance

	ROA 2020 (1)	**ROA 2020 (2)**	**ROE 2020 (3)**	**ROE 2020 (4)**
ΔESG	.0013698	0.00013	.0017808	0.00075
Profitability		0.72913***		0.77557***
Cash Holdings		-0.02879		-0.08509
Long-term debt		0.00000		0.00000
Short-term debt		-0.04302		-0.11487
Firm size		-0.00102		0.01332
SICS sector fixed effect	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes
N	297	297	297	297
R^2	0.0849	0.8297	0.0565	0.2733

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

4.2.2 Financial performance and changes in social pillar

Next, we replace the entire ΔESG score with the social pillar (ΔS). Table 6 presents the results for Hypothesis 2 using different financial proxies. In the regression we find a positive relationship between changes in the social pillar and ROA. Although, a negative coefficient is found for ROE. All coefficients for the social pillar are insignificant ($p > 0.1$). Thus, no conclusions on the relation can be made. Investigating this dimension, we find ambiguity with the relation to the different financial proxies. Similarly, to the results in Table 5 we observe that controlling for financial health check, specifically profitability, dominates the outcome. The regression model demonstrates an explanatory power ($R^2 = 0.8299$ for ROA $\propto$ ΔS). Although, changes in S are not significant.

To further test the robustness of the results we omit the SICS sector "technology & communications", since this is the largest sector in the sample. Here we find that the coefficient for change in S pillar increases to 0.0003534. Although, the results are still insignificant.

TABLE 6. Firm-level regression between financial performance and the social pillar

	ROA 2020 (1)	**ROA 2020 (2)**	**ROE 2020 (3)**	**ROE 2020 (4)**
ΔS	0.0012098	0.0002521	0.0009294	-0.0000378
Profitability		0.728853***		0.7768935**
Cash Holdings		-0.028094		-0.0890514
Long-term debt		0.00000		0.0000
Short-term debt		-0.0475951		-0.0884288
Firm size		-0.00098		0.0128788
SICS sector fixed effect	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes
N	297	297	297	297
R^2	0.0859	0.8299	0.0557	0.2730

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

4.2.3 Sector materiality

To test Hypothesis 3, we investigate the impact of materiality as a moderator between ΔS and financial performance. This is shown in Table 7. The SICS sector fixed effect is removed from this part of the analysis. This is because we include materiality in the independent variables. Note, that the SICS sector classification of some previously included firms could not be identified. Consequently, the sample has been reduced for this regression. With the addition of materiality as a moderator we find a negative relationship between changes in social score and financial performance. However, the moderator will decrease the negative correlation slightly. Note that no significant relation could be identified.

To further investigate the effects of sector materiality and financial performance a propensity score matching method is applied. Here we explore Hypothesis 4. focusing on the linkage between social CSR and financial performance between sectors with high social materiality and low social materiality. Here we use materiality to differentiate the groups. Focusing on the health sector which has the highest SICS materiality score we define a dummy variable. The treatment variable will be 1 for the health sector otherwise 0. Then we match the groups based on similar characteristics in terms of changes in the social CSR, the control variables used throughout this thesis.

The results are presented in Table 8. The propensity score matching technique identifies that firms within the health sector will experience an increase in ROA with 0.033 ($p < 0.05$) units compared to firms within other sectors given similar characteristics. Thus, increasing the social score will give a greater reward for firms operating in the health sector compared to firms operating in sectors with lower social materiality.

TABLE 7. Firm-level regression using materiality as a moderator

	ROA 2020 (1)	**ROA 2020 (2)**	**ROE 2020 (3)**	**ROE 2020 (4)**
ΔS	-0.0027181	-0.0005492	-0.0011871	0.0009328
Materiality	0.0000753	0.0000195	0.00000	-0.0000496
Profitability		0.7234143***		0.7908131***
Cash Holdings		-0.0303985		-0.1131191
Long-term debt		0.0000		0.0000
Short-term debt		-0.0377375		-0.12238
Firm size		-0.0015834		0.0135569
SICS sector fixed effect	No	No	No	No
Country fixed effect	Yes	Yes	Yes	Yes
N	286	286	286	286
R^2	0.0294	0.8135	0.0108	0.2664

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

TABLE 8. Propensity score matching with a treatment variable based on high social materiality score

Treatment high social materiality sector (1 vs 0)	ROA	ROE
Coefficient	0.0331278**	0.0286293
N	286	286

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

4.3 Concluding thoughts of empirical findings

The empirical results explore the relation between changes in CSR investments and financial performance. The different sections investigate this relation: using different proxies for financial performance, testing the sensitivity to control variables and fixed effects and utilizing OLS regression and propensity score matching. The empirical results show that we could not identify a significant relationship between changes in CSR investments and financial performance. Thus, we cannot reject or accept the Hypotheses. However, using a propensity score matching technique we find a positive and significant relation for ROA. Thus, an increase in the social score results on average with a greater reward for firms operating in the health sector compared to firms operating in sectors with lower social materiality. This could indicate a more complex relation between CSR investments and financial performance or that we have omitted an explanatory variable.

5. Discussion

This study aims to complement previous studies regarding the relationship between CSR rating and financial performance of firms during periods of crisis. Not only does it attempt to incorporate the aspect and importance of distinguishing between genuine and non-genuine CSR commitment, but also accounting for the impact of materiality. In the following sections, possible explanations and implications of the underlying mechanisms behind the observed empirical findings will be discussed. The final section will further clarify the motivation and need of further research.

5.1 CSR and Financial performance among Nordic firms

The Covid-19 pandemic has been an event forcing many companies to reflect upon their costs and choose between expenses that are essential and non-essential for their strategy and what they believe to be value creating activities. Our study thus exploits this fact, to distinguish between firms considering CSR practices as operationally integrated and value creating, i.e., being genuinely committed, contrary to those seeing these practices as excessive expenditures and thus engage in window dressing CSR (Powell 2020). It also refers to how investors are able to identify (Bae, El Ghoul et al. 2021) and only reward CSR behavior that is thought to be value creating (Amiraslani, Lins et al. 2017). Using CSR ratings as a proxy for CSR engagement, we imply that CSR strategy can be represented by changes in ratings. A positive relation between changes in ESG ratings and financial performance can be explained by genuine CSR firms being rewarded for having built up more internal capabilities and stronger external relations pre-crisis. On the other hand, insignificant results could mean that this commitment also generated more internal rigidity, such as difficulty to lay-off staff or taking the actions needed to retain a high financial performance.

The empirical results present a positive but insignificant relation between firm performance and changes in ESG score. Exploring different proxies for firm performance and control variables did not improve the significance. This means that we cannot confirm nor deny that there is a linear relation between firm performance and changes in ESG score. Nor is it possible to validify that changes in these scores are able to indicate anything about the payoff of CSR commitment in times of crisis. The outcome of these findings may have several explanations.

First, firms' engagement in CSR activities during the crisis might lag and thus is not reflected in the current ratings. This is supported by the findings of Berg, Fabisik et al. (2021), showing that the ongoing unannounced score changes of Refinitiv's ratings, greatly affect the relation between ratings and financial performance. More specifically, they find that only the retrospective scores show a positive link to financial performance, whereas initial (at the time) ESG scores do not. Consequently, questioning whether the applied proxy of Refinitiv ESG scores today, are capable of capturing a firm's CSR. This proposed inability also finds support in previous findings concerning the large disparities in the CSR ratings of firms

between different raters (Boffo, Patalano 2020, OECD 2021, Chatterji, Durand et al. 2016). The variation in scores, not only indicates the difficulty to capture CSR commitment in general, but also the impediment for investors to form substantiated conclusions regarding sustainability engagement among firms.

Second, differences in actual and perceived corporate behavior are likely to have an effect on the reliability of Refinitiv's ratings and the ability to find a relation to financial performance. This is based on the fact that Refinitiv evaluates firm performance based on publicly available data (Refinitiv 2022). It also connects back to Delmas and Burbanos (2011) conclusions that organizations tend to manipulate how they convey social practices to externals in order to resemble best-in-class performers. Ultimately, it could be so that low performers imitate high performers without actually customizing the CSR practices to their own needs (Chiu, Sharfman 2011). Potentially resulting in high scores yet without the actual CSR operational benefits.

5.2 Delta social performance pillar

Meanwhile, previous studies indicate that the relation between CSR engagement and performance returns vary depending on the pillar of CSR practices being investigated (e.g., Broadstock, Chan et al. 2021, Cheng, Ioannou et al. 2014, Breuer, Müller et al. 2018). Hence, if different types of CSR practices yield different outcomes, one could expect that the investment changes would differ between pillars as well. This is confirmed in Table 3, which depicts that almost twice as many increased their governance score relative to the social score. Nevertheless, research also indicates that CSR engagement consequences are enhanced during crisis periods (Broadstock, Chan et al. 2021) suggesting that these differences may be even larger during the set time window. Hence, motivating why there is a need not to only investigate total CSR performance but also individual pillars.

The empirical results present a positive but insignificant relation between ROA and changes in the social pillar. Exploring different proxies for firm performance and control variables did not improve the significance. This means that we cannot confirm that there is a relation between firm performance and the social pillar in contrast to previous literature (Lins, Servaes et al. 2019, Manabe, Nakagawa 2022, Lins, Servaes et al. 2017).

There are at least two alternative considerations connected to this. Relating back to earlier argumentation, the measurability of social engagement may be challenging. Social pillar measures are not as easily communicated nor appreciated by external parties. This in turn opens up for disparity between internal and external valuation of social performance. Besides, with reference to Amiraslani, Lins et al. (2017), if bondholders fail to see the value of CSR practices, they would also expect higher compensation, which would not support a positive relation between CSR and financial performance.

Finally, previous studies suggest that reputational capital can have insurance-like properties in periods of failures or setbacks (Godfrey 2005, Godfrey, Merrill et al. 2009, Shiu, Yang 2017). However, this presumes that the firm maintains social legitimacy during the crisis and does not deviate from their CSR commitment (Habib, Hasan 2019). Hence, it could be that a genuine firm experiences internal rigidity and difficulty to e.g., layoff staff, in order not to risk reputational damage. This could also explain the insignificant findings.

5.3 Sector materiality

As the discussions of CSR engagement becomes more topical, more studies point to the importance of circumstantial factors when determining the relation between financial performance and CSR practices. With reference to the findings in Khan, Serafeim et al. (2016), it appears as if in order for CSR engagement to provide value, it must be customized to the firm's unique activities. This has also been recognised by SASB, who have developed the SASB materiality map that incorporates the characteristics of each industry and sector to determine which specific sustainability issues are closest tied to the organization at hand. Besides, as a consequence of the comprehensive social and mobility restrictions aimed to constrain the Covid-19 spread, major shifts in consumer and organizational behavior have been observed (Rosengren, Colliander 2020). More specifically, an increasing portion of purchases have been conducted online and customers are also reported to value sustainable production chains. Moreover, the effectiveness of operations has relied on the organization's flexibility to switch to a work-from-home environment (Canton, Colasanti et al. 2021). All in all, suggesting that the relation between financial and social performance could be enhanced by sector materiality.

To further test if the insignificant result presented for Hypothesis 1 and 2 can be attributed to sector materiality, we included a moderator in the regression. In the results we observed that sector materiality does not give a significant result. However, utilizing a propensity score matching technique we find a significance in that firms operating in high social materiality sectors, receive on average a greater reward for their social investments compared to firms in low social materiality sectors. However, the explanatory factor in this finding remains low due to the fact that no significant relation could be found using the OLS regression for Hypothesis 3 making it difficult to quantify the impact of materiality and social performance. In sum, there is potential that Covid-19 specific ramifications enhance benefits of high social performance in high social materiality sectors.

The inclusiveness in the testing of Hypothesis 3 can both be explained by the reasoning in section 5.1 and in the proxy applied for this specific hypothesis. First, it is possible to argue that grouping materiality on a sector level is a too general measure. The materiality map provided by SASB (2022), displays those industries within a sector may have noticeable differences in material issues. Hence, would the ambition to decompose CSR materiality be deteriorated by the too general grouping. However, as will be explained in section 6, this paper constantly faces a trade-off between sample size and precision of explanatory factors.

In addition, the study makes a fundamental assumption regarding the actual proxy. First, it assumes that the SASB materiality is consistent also during non-crisis periods. Hence, it dismisses the possibility that changes in the external environment may alter the importance of CSR issues. This reasoning is supported by the reports from The European Commission (2021) and Rosengren and Colliander (2020) showing that stakeholders expectations are rapidly changing as a result of Covid-19, and thus suggesting that the determined materiality issues too could be outdated.

6. Conclusion

The research field of CSR in business context is still fairly new and there remains gaps in literature that can be investigated. Besides, changing attitudes and approaches concerning its business integration further motivates why previous findings should be reverified and updated. The Covid-19 pandemic has constituted a unique opportunity to test whether CSR practices relate to better resilience and financial performance during times of crisis. Thus, our

goal was to take advantage of this event, and combine it with findings concerning: 1) the relation between CSR and financial performance being affected by institutional setting, thus only including Nordic countries, 2) the degree of benefits from CSR practices relates to its customisation to firm materiality, 3) that cost cuts decisions offer an ability to distinguish between firms having CSR operationally integrated or just as a window dressing expense. Unlike (Broadstock, Chan et al. 2021, Edmans 2011) we did not find significance in the positive relation between CSR and financial performance, thus indicating that the benefits are not guaranteed. This is however not unexpected as the linkage between CSR and financial performance is reported to be uncertain (Albuquerque, Koskinen et al. 2020, Albuquerque, Koskinen et al. 2019). Nevertheless, our study offers important insight to the explanatory value of ESG ratings. Moreover, by systematically narrowing down the hypothesis from the broad CSR score to social score and then incorporating materiality we added multiple layers of proposed influential factors. All in all, the paper has answered the research question: *Is there a positive relationship between the financial performance and the changes in CSR ratings for firms during Covid-19?*

Second, previous studies also suggest that social capital not only appeals to market participants (Edmans 2011, Luo, Bhattacharya 2006, Albuquerque, Koskinen et al. 2019) but also how an appropriate in-house culture may act as one of the most effective adaptability mechanisms during crisis (O'Reilly and Chatman 1996). Our findings do nevertheless provide an alternative view on this which is not as optimistic when it comes to the benefits of high social performance.

However, our findings indicate that high social materiality sectors, such as the health care sector, receive a greater reward in terms of ROA when increasing their score compared to low social materiality sectors. The generalisability of this is weak, however, this finding opens up for further discussion and potential need for materiality maps to support the explanatory value of ESG rating.

Lastly, the study does not only contribute to corporate decisions but it does also have importance for other market participants. There is an increasing demand and expectations for CSR engagement, which in turn relies to a high degree on ESG ratings (Chatterji, Durand et al. 2016). As our study indicates, the current ratings systems may perhaps not be adequate for the purpose.

Conclusively, our study contributes in three different aspects to current literature. First, we provide additional insight of CSR benefits and ratings during a crisis. Second, we find that the relationship between changes in high social capital and firm performance cannot be verified among the Nordic countries. Third, if a firm performs well in materiality issues both material to the crisis itself and the sector, increasing CSR performance could generate greater rewards.

6.1 Validity, reliability and limitations

When assessing the validity of the paper, there are several aspects that should be recognized. In the following section, the most relevant issues will be presented and also discussed in terms of influence on the results.

First, like most other CSR investigating studies, the limited access of CSR data and records increases the uncertainty of the findings. The issue is clearly illustrated in the sampling process, as only 297 companies remained after the listwise deletion. Thus, the generalizability could be improved if more firms reported ESG scores. Three possible effects consequent to the small sample size are identified: 1) A smaller sample size enables firm-specific effects to dominate the outcome and using a larger number of observations the firm-specific effects would not contribute to this in the same extent. 2) The sample size hindered the ability to perform regression on industry level but instead required sector level. This is in turn likely to reduce the accuracy of the results due to intra-sector materiality differences. 3) Erhemjamts, Li et al. (2013) also highlights the possibility of creating a firm size bias. This relates to the fact that it is more common for large firms, relative to medium and small firms, to disclose ESG scores. Hence preventing the analysis to be a sufficient cross-section of public Nordic firms. For example, in Sweden only firms fulfilling more than one of the criteria for each of the last two financial years: 1) average number of employees has been more than 250, 2) reported balance sheet total exceeds SEK 175 million, 3) reported net sales exceeds SEK 350 million (Finansinspektionen, 2022) must provide an ESG disclosure. However, we identify a trade-off between precision and generalisability. To increase our sample size, we would need to broaden our geographical scope, which would require including more countries, though this would be at the expense of the precision of explanatory factors.

Second, as reported by Boffo, Patalano (2020), OECD (2021) and Chatterji, Durand et al. (2016) ESG scores vary substantially among different raters. Hence, proposing that using only one rating system, in this case Refinitiv, not only creates uncertainty in the proxy and reliability of the conclusions, but also reduces the generalisability. This further relates to the limitations of CSR proxies in general. The concepts are still vaguely defined (Chatterji, Durand et al. 2016) and since the scores are based on public information it is uncertain whether they capture the real organizational efforts. Moreover, it could be the case that the social scores are not capturing what employees truly value.

6.2 Suggested future research

As argued previously, the pandemic may still be too recent for the ramifications to be completely visible. Performing a study later, could allow for a better and nuanced insight on for example staff productivity and long-term financial resilience. We propose that the ramifications of consumer behavior and employee health might not be completely represented immediately. Another benefit of conducting similar research in the future, links back to the findings of Berg, Fabisik et al. (2021), showing that the relation between Refinitiv´s ratings and firm's financial performance differed if using the revised, i.e., retrospective scores or the initial scores. Another approach would be to use stock performance as a financial proxy, to capture investor beliefs of future performance. This would then be more related to Bae, El Ghoul et al. (2021) claims that market actors can distinguish between genuine and non-genuine CSR practices and thus would only the genuine firms be premiered in stock value.

Second, it would be interesting to incorporate the aspect of firms' visibility and advertising regarding CSR towards market participants. Chiu, Sharfman (2011) used a similar approach and found that firms with higher visibility might be more sensitive to stakeholders' demands for ESG investments, since they are under greater scrutiny. Also, other studies (e.g., Lins, Servaes et al. 2019, Servaes, Tamayo 2013, Albuquerque, Koskinen et al. 2019) find that advertising expenditure relates to the effect of CSR on firm value.

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Appendix A: Refinitiv classification

Visual representation and short description of ESG components and pillars (Refinitiv 2022)

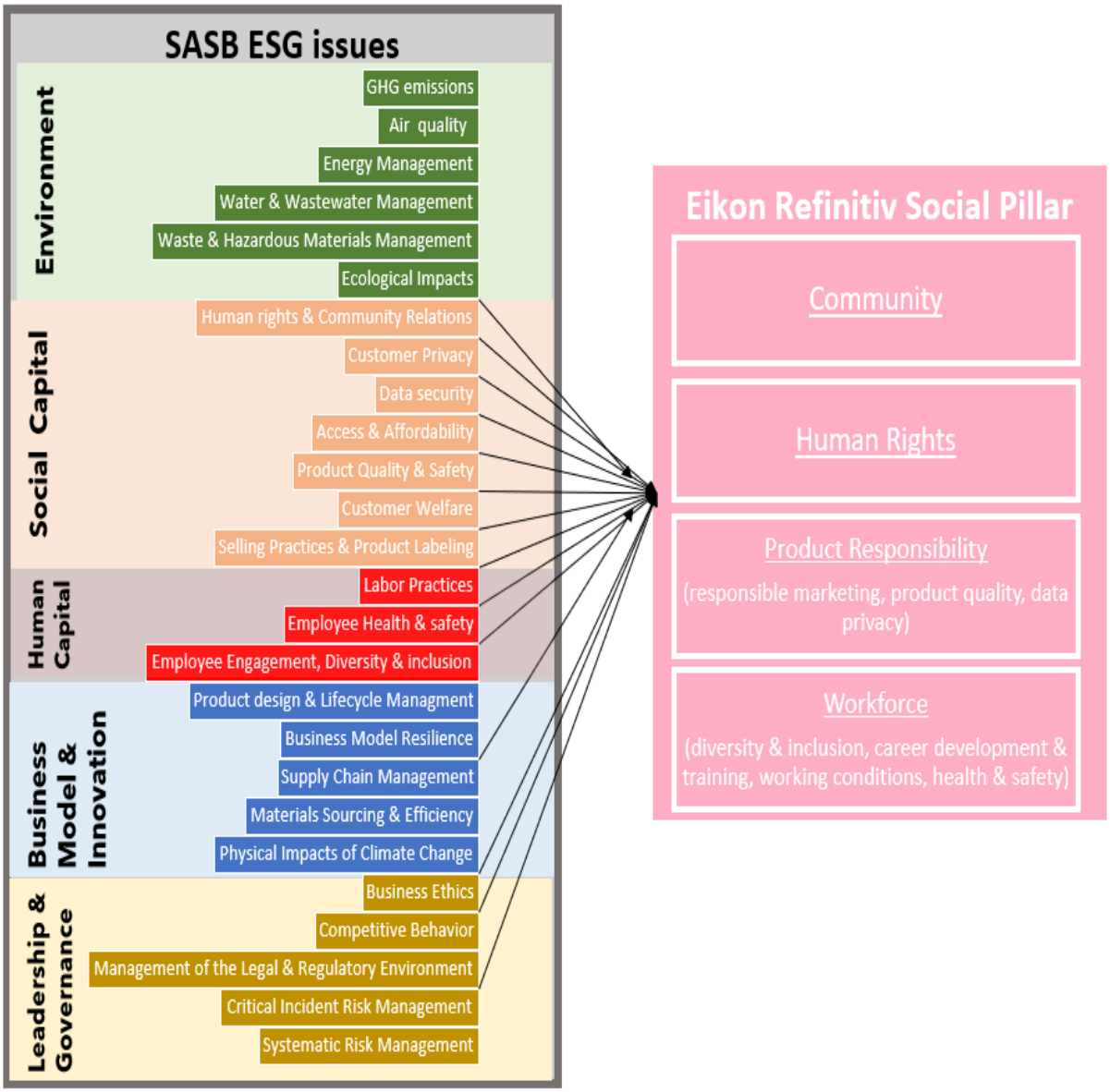
Broad ESG Score *A relative sum of the ESG pillar weights.* *All scores range between: 0-100*		
Environmental Pillar *Captures the firm's environmental impact and practices to capitalize on such opportunities and avoid risks*	**Social Pillar** *Captures the firm's reputation, loyalty and trust from stakeholders (i.e., customers, workforce, society)*	**Governance Pillar** *Measures the firm's systems & processes ensuring that the firm acts in the best interest of shareholders*
Resource Use Score *The capacity and performance to reduce usage of materials, energy or water and detecting more eco-efficient solution by improving supply chain management*	**Workforce Score** *The effectiveness of providing job satisfaction, health & safe workplace, maintaining diversity, equal opportunities and developing opportunities for the workforce.*	**Management Score** *The commitment and effectiveness towards best practice corporate governance principles*
Environmental Innovation Score *The capacity to reduce environmental costs and burdens for customers and thus creating market opportunities by eco-technologies, processes or product designs*	**Product Responsibility Score** *The capacity to produce quality goods & services, with respect to customer health, safety, integrity and data privacy*	**Shareholder Score** *The effectiveness towards equal treatment of shareholders and usage of anti-takeover devices*
Emissions Score *The commitment and effectiveness of reducing emissions in production or operational processes*	**Human Rights Score** *The effectiveness of respecting fundamental human rights conventions*	**CSR strategy score** *Company practices to communicate ESG dimension integration in day-to-day operations.*
	Community Score *The commitment to being a good citizen, caring for public health and business ethics*	

Appendix B: SASB materiality map and matching to Refinitiv

Methodology Figure 2: To match SASB's sustainability issues to the Refinitiv social pillar, keywords from each issue were identified. For example, SASB defines labor practices in short as *"the company's ability to ensure that its culture and hiring and promotion practices embrace the building of a* ***diverse and inclusive workforce*** *[...] It addresses the* ***issues of discriminatory practices****"* (SASB 2022) which resembles the Refinitiv definition for the workforce score: *"maintaining* ***diversity and equal opportunities****, and* ***development opportunities*** *for its workforce"* (Refinitiv 2022). This kind of matching was then executed for each issue.

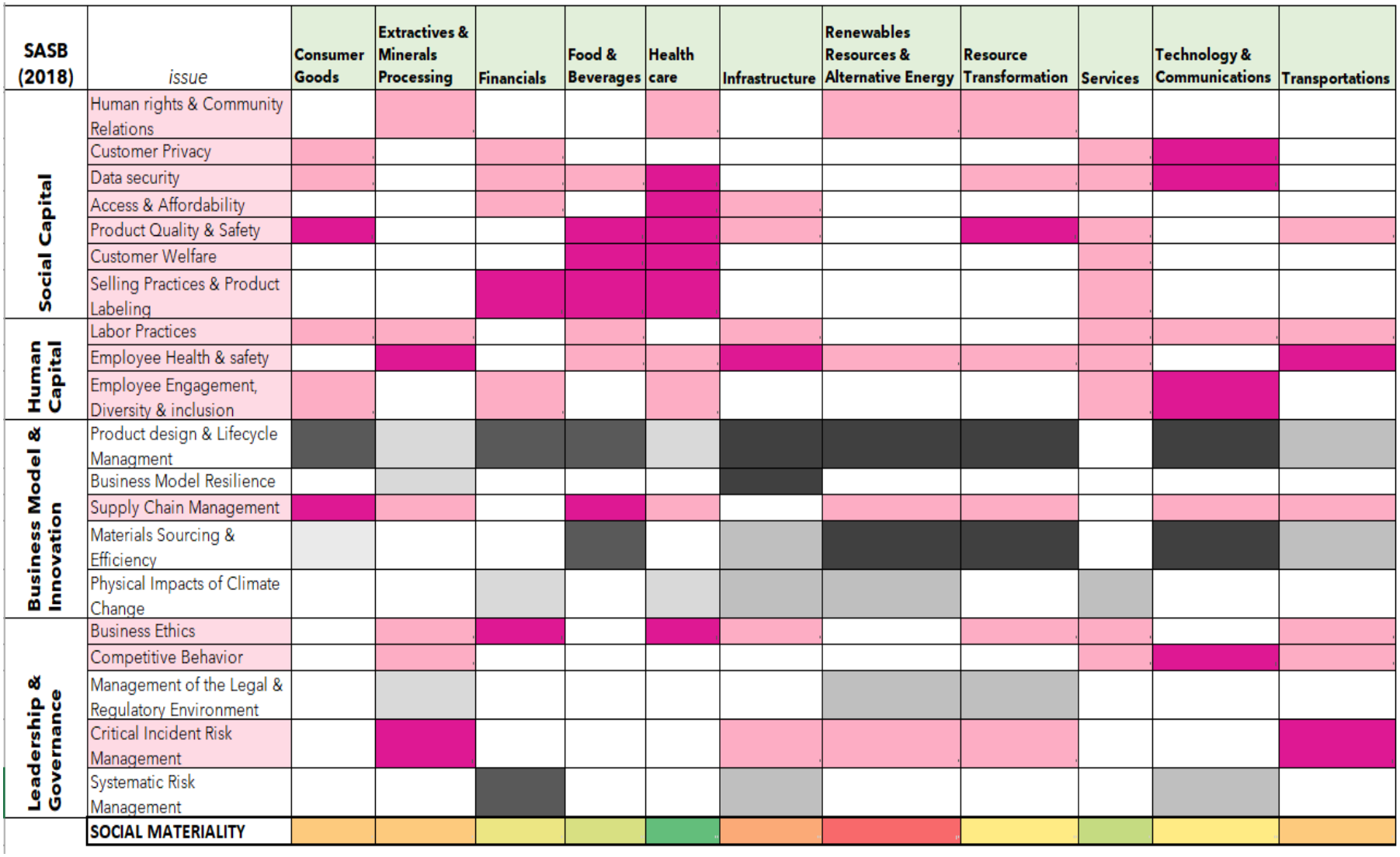
Certain issues that had no definite keyword match or could be interpreted as transcending over multiple Refinitiv pillars were not linked. An example would be, *Product design and Lifecycle management*. According to SASB this is supposed to capture: "a company's ability to address customer and **societal demands** for more **sustainable** products [...] as well as meeting **environmental** and **social regulations**" (SASB 2022). This in turn fits both Refinitiv innovation score (environmental pillar) and product responsibility score (social pillar). This reasonably fault the accuracy in mapping between SASB and Refinitiv, however, incorporating them would demand some sort of weighting that in itself would be difficult to assert. Hence, why they were completely excluded in the pairing process.

FIGURE 2. Graphical representation of SASB ESG issue matched to Refinitiv Social Pillar



Methodology Figure 3: The identified matches of social material issues from Figure 2, have then been color noted in pink in SASB's materiality map. White color indicates that the issue is not material, whereas a light gray/pink displays some materiality and a dark pink/gray represents a greater materiality. Using the SASB materiality map, each SICS sector collected an aggregate materiality score for the issues that were socially material, summarized in the bottom row. This row displays, by color formatting, that the *health care* sector followed by the *Service* sector are the highest social material sectors. Unlike the *Renewables Resources & Alternative Energy*, and *Infrastructure* that are the least social material.

FIGURE 3. Determining Social materiality for SICS industries



SASB (2018)	*issue*	Consumer Goods	Extractives & Minerals Processing	Financials	Food & Beverages	Health care	Infrastructure	Renewables Resources & Alternative Energy	Resource Transformation	Services	Technology & Communications	Transportations
Social Capital	Human rights & Community Relations											
	Customer Privacy											
	Data security											
	Access & Affordability											
	Product Quality & Safety											
	Customer Welfare											
	Selling Practices & Product Labeling											
Human Capital	Labor Practices											
	Employee Health & safety											
	Employee Engagement, Diversity & inclusion											
Business Model & Innovation	Product design & Lifecycle Managment											
	Business Model Resilience											
	Supply Chain Management											
	Materials Sourcing & Efficiency											
	Physical Impacts of Climate Change											
Leadership & Governance	Business Ethics											
	Competitive Behavior											
	Management of the Legal & Regulatory Environment											
	Critical Incident Risk Management											
	Systematic Risk Management											
	SOCIAL MATERIALITY											

Appendix C: Definition of regression variables

	Definition	Description
Independent variables		
Δ ESG pillar score	Δ ESG score $_t = ESG\ score_t - ESG\ score_{t-1}$	Changes in ESG score between 2019 and 2020 used as a proxy for investments in CSR.
Δ S pillar score	Δ S score $_t = S\ score_t - S\ score_{t-1}$	Changes in S score between 2019 and 2020 used as a proxy for investments in social CSR.
Dependent variables		
Return on Equity (ROE)	$ROE = \frac{Net\ income\ _t}{Average\ equity\ opening - \&\ closing\ balance\ _t}$	Proxy for measuring the financial performance of firms relative to respective total equity.
Return on Assets (ROA)	$ROA = \frac{Operating\ income\ _t}{Average\ asset\ opening - \&\ closing\ balance\ _t}$	Proxy for measuring the financial performance of firms relative to respective total assets.
Control variables (Financial health check)		
Firm size	$ln\ Total\ Assets\ _{2019}$	The natural logarithm of total assets is a proxy for measuring firm size. Set to the year-end 2019.
Long-term Debt	$\frac{Long - Term\ debt\ _{2019}}{Total\ Assets\ _{2019}}$	Proxy for controlling financial health
Short-term Debt	$\frac{Short - Term\ debt\ _{2019}}{Total\ Assets\ _{2019}}$	Proxy for controlling financial health
Cash Holdings	$\frac{Cash\ \&\ marketable\ securities\ _{2019}}{Total\ Assets\ _{2019}}$	Proxy for controlling financial health
Profitability	$\frac{Operating\ Income\ _{2019}}{Average\ asset\ opening - \&\ closing\ balance\ _t}$	Proxy for controlling financial health