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CSR and Nordic Stock Returns During COVID-19

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ABSTRACT:

In the first quarter of 2020, the global stock markets were hit by the COVID-19 pandemic and consequently experienced a sharp crash. This thesis examines the effect of corporate social responsibility (CSR) on Nordic stocks' returns during the crisis induced market crash and the following recovery. In line with the literature, the level of CSR is proxied by firm-specific Environmental, Social, and Governance (ESG) scores provided by LSEG Thomson Reuters.

The role of CSR has been growing in investment allocations, as shown by the rising amount of sustainable funds under management. Furthermore, this thesis focuses on Nordic markets, which are homogenous and characterized as high-trust societies. In high-trust societies the role of social responsibility is pivotal. Given the exogenous nature of the COVID-19 crisis shock on the markets, it offered an opportunity to investigate if Nordic markets trust the corporations with higher levels of CSR and those companies would then perform better during the crisis.

The empirical part of the study examines 279 Nordic stocks' returns in the crisis period from 20th of February to 23rd of March and post-crisis period from 24th of March to 5th of June. The stock returns are controlled for with firm-specific characteristics. Industries and Fama-French three-factor model are also controlled for. Multiple different model specifications are run, but there is no evidence that ESG scores affected stock returns during the COVID-19 period. However, there is weak evidence of higher Environmental pillar score being associated with lower post-crisis period returns.

The results suggest that CSR did not protect stock prices from the COVID-19 shock in Nordics. The study hints at ESG metrics being possibly poor predictors of crisis resilience in Nordic region during crises, but it is not possible to draw too far-reaching conclusions about the link in future crises. Finally, this thesis provides practical insights for investors, managers and policymakers dealing with CSR-related investments.

KEYWORDS: Nordic stock markets, Corporate Social Responsibility (CSR), Environmental, Social and Governance (ESG), Socially responsible investing (SRI), COVID-19, stock returns

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TIIVISTELMÄ:

Vuoden 2020 ensimmäisellä neljänneksellä COVID-19-pandemia iski maailmanlaajuisiin osakemarkkinoihin, minkä seurauksena ne romahtivat. Tässä tutkielmassa tarkastellaan yritysten yhteiskuntavastuun vaikutusta pohjoismaisten osakkeiden tuottoihin kriisin aiheuttaman markkinaromahduksen ja sitä seuranneen elpymisen aikana. Yritysten yhteiskuntavastuun taso ilmaistaan yrityskohtaisilla ympäristö-, sosiaali- ja hallintotapapisteillä (ESG-pisteet).

Yritysten yhteiskuntavastuun merkitys sijoitusten kohdentamisessa on kasvanut, mikä näkyy hallinnoitavien varojen määrän kasvussa. Tässä tutkielmassa keskitytään pohjoismaisiin markkinoihin, jotka ovat homogeeniset ja joita luonnehditaan korkean luottamuksen yhteiskunniksi. Korkean luottamuksen yhteiskunnissa yhteiskuntavastuun rooli on keskeinen. Koska COVID-19-kriisin aiheuttama markkinashokki oli eksogeeninen, se tarjosi tilaisuuden tutkia, luottavatko pohjoismaiset markkinat yrityksiin, joilla on korkeampi yhteiskuntavastuun taso ja suoriutuivatko nämä yritykset paremmin kriisin aikana.

Tutkimuksen empiirisessä osassa tarkastellaan 279 pohjoismaisen osakkeen tuottoja kriisiaikana 20. helmikuuta-23. maaliskuuta ja kriisin jälkeisenä aikana 24. maaliskuuta-5. kesäkuuta. Osakkeiden tuottoja kontrolloidaan yrityskohtaisilla ominaisuuksilla. Myös toimialat ja Fama-Frenchin kolmen faktorin malli otetaan huomioon kontrollimuuttujina. Tässä tutkielmassa suoritetaan useita eri regressiospesifikaatioita, mutta ne eivät anna näyttöä siitä, että ESG-pisteet olisivat vaikuttaneet osakkeiden tuottoihin COVID-19-jakson aikana. Tutkielma tarjoaa kuitenkin heikkoa näyttöä siitä, että korkeammat ympäristöpilarin pisteet ovat yhteydessä alhaisempiin kriisin jälkeisiin tuottoihin.

Tulokset viittaavat siihen, että yritysten yhteiskuntavastuu ei suojanut osakekursseja COVID-19-shokilta Pohjoismaissa. Tutkielma antaa viitteitä siitä, että ESG-mittarit ennustavat mahdollisesti heikosti kriisinsietokykyä Pohjoismaissa kriisien aikana, mutta liian pitkälle vietyjä johtopäätöksistä yhteydestä tulevaisuuden kriiseissä ei voida vetää. Tutkielma se tarjoaa käytännön näkemyksiä sijoittajille, johtajille ja päätöksentekijöille, jotka käsittelevät yritysten yhteiskuntavastuuseen liittyviä sijoituksia.

AVAINSANAT: Nordic stock markets, Corporate Social Responsibility (CSR), Environmental, Social and Governance (ESG), Socially responsible investing (SRI), COVID-19, stock returns

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1 Introduction

The traditional concept in corporate finance posits that a company's sole obligation is to generate profit for its shareholders (Friedman, 1970). Friedman even went as far to title his article as “the social responsibility of a business is to increase its profits”. However, an alternative perspective on corporate responsibility emerged later, introduced by Freeman (1984), which advocates value creation for all stakeholders. According to this view, shareholders are just one of the many stakeholders in a company. This notion of stakeholder value creation is closely intertwined with the concept of corporate social responsibility (CSR), steadily gaining prominence as a fundamental element of corporate strategy.

The focus on a more comprehensive approach to corporate value creation and not just shareholder wealth maximization, although not a novel idea in 21st century, has been sped up by scandals such as Enron, WorldCom, the financial crisis in 2007-2008, and most recently, COVID-19. Companies are increasingly adopting the thought that shareholders' wealth maximization and long-term survival are bolstered by putting an effort into CSR. Climate change also requires corporations to take actions as investors and stakeholders place more value on climate friendly acts such as cutting down emissions and reducing waste.

According to McWilliams (2020) CSR is “a legitimate responsibility to society, based on the principle that corporations should share some of the benefit that accrues from the control of vast resources. CSR goes beyond the legal, ethical, and financial obligations that create profits.” In the research literature CSR is broadly described as an inclusion of firm's stakeholder interests when making decisions and taking actions. Stakeholders include all entities that somehow affect or are affected by the firm.

In times of systemic crises, trust and confidence in financial markets usually collapse, leading to declining stock prices. During the financial crisis and the COVID-19 pandemic, stock prices plummeted. Prior literature has found that CSR activities may have a positive effect on performance and valuation of firms during crises and thus act as an insurance against negative market shocks (e.g. Choi et al., 2023; Lins et al., 2017; Qiu et al., 2021; Zolotoy et al., 2019). One explanation for CSR's positive effects on performance and valuation during crises is the social capital that is built through CSR before the crisis happens. Social capital helps to create trust and protects the firm from the decline of value throughout the crisis. The theory of reciprocity is a simple and comprehensible idea of how CSR is connected to trust. It demonstrates that people reward kind actions that have positive consequences to society and in turn punish for unkind actions (Falk & Fischbacher, 2006).

Choi et al. (2023) show that buyer firms' that had built trust towards suppliers before the COVID-19 crisis, not only survived but also maintained and grew operations during the pandemic period. Sapienza et al. (2008) link higher trust to higher likelihood of an individual buying a stock of a company. Their result might imply that during a low trust period, the role of trust is highlighted, and high-trust companies are also relatively higher valued.

As mentioned in the beginning, CSR is a growing area of interest for individual and institutional investors alike. Sustainable investing is year by year increasing its portion of total assets under management in the U.S. US Sustainable Investment Forum (2022) reveals that at the end of 2021, 8,4 trillion USD, totaling 13% of all assets under professional management in the U.S. were assigned to sustainable investment strategies. In Europe, the ESG funds' assets under management were 6,2 trillion Euros as of 2023. The value is expected to increase to 9,4 trillion Euros by 2027 (PwC, 2024). According to Global Sustainable Investment Alliance (2022) report, using a broader universe of sustainable investments, the amount of total European sustainable investment assets was 14,054

trillion USD in 2022. As evidenced by Global Sustainable Investment Alliance (2022) about 25 % of all investments in the largest global markets are categorized as sustainable. Thus, the growing public interest in sustainable development and investing renders this topic relevant to various financial market participants across the field.

1.1 Purpose of the study

The purpose of this study is to examine whether the contributions to CSR paid off amid the COVID-19 pandemic by examining stock returns of public Nordic companies (excluding Iceland) during the COVID-19 crisis period. Previous literature has investigated the possible links between CSR and stock returns during crises mainly in the U.S. markets, However, there is no peer reviewed literature published, where CSR and the COVID-19 period stock returns are examined in a Nordic context. Thus, this thesis aims to fill a gap in literature. ESG scores are used as a proxy for companies CSR engagement. The thesis expands on and follows the methodology of the previous study by Lins et al. (2017) who discovered how CSR affected the stock returns and performance of U.S. nonfinancial firms during the financial crisis. Bae et al. (2021) studied the effect of CSR on stock returns in the U.S. during the COVID-19 and followed the methodology of Lins et al. (2017). This study adapts the time period of the COVID-19 crisis period defined by Bae et al. (2021). Stock returns are investigated using least squares regression. In this study, the terms ESG and CSR are used interchangeably. That follows from the research literature that commonly uses ESG scores as a proxy for firms' CSR activities.

The challenge in examining the link between corporate social responsibility (CSR) and stock returns lies in determining the direction of causality. Does a high score in Environmental, Social, and Governance (ESG) metrics improve a company's performance and returns, or do companies that are already performing well tend to invest more in ESG? The COVID-19 crisis acts as an external shock that helps to clarify the empirical challenge,

providing a clearer view on the cause-and-effect relationship between CSR and financial performance while controlling for other factors that may affect the relationship.

Based on the institutional theory and strong social trust prevalent in Nordic countries, it can be expected that CSR has a stronger relationship with stock returns in the Nordics compared to the U.S. markets. Previous studies have found no positive relationship between high ESG scores and stock returns during the COVID-19 in the U.S. Therefore, this study aims to answer the following research question: How did the level of CSR affect stock returns of the publicly listed Nordic firms during the COVID-19 pandemic?

Based on the theoretical framework presented in the next chapter, we can induce a research hypothesis:

H1: Higher levels of Corporate Social Responsibility (CSR), as measured by ESG scores, improved stock returns of Nordic companies during the COVID-19 pandemic.

1.2 Structure of the study

This thesis comprises seven chapters. Chapter one introduces the subject and highlights its relevance in contemporary finance research and investment decision-making. Chapter two explores the relevant theoretical frameworks, with a focus on their potential implications in the Nordic context. Chapter three provides a detailed explanation of key concepts, including Corporate Social Responsibility (CSR) and Environmental, Social, and Governance (ESG) criteria. Chapter four reviews the literature, examining past crises, including the COVID-19 crisis across various markets, while investigating the relationship between CSR and stock returns. The fifth chapter outlines the data and methodology employed in the study. Chapter six presents the empirical findings. Finally, the seventh

chapter concludes the thesis by summarizing the findings and practical implications, discussing the study's limitations, and offering suggestions for future research.

2 Theoretical background

This chapter introduces the three most relevant general theories for the topic of this thesis. According to Frynas & Yamahaki (2016), different theories related to CSR tend to overlap each other. They conducted a survey and content analysis of 462 peer-reviewed academic articles between 1990 and 2014 and found that stakeholder theory, institutional theory and legitimacy theory were the most applied theories in CSR literature. These three most prominent theories are reviewed in this section, to lay the theoretical foundation for the thesis. As will be noted, all these theories are in some way connected to trust, legitimacy and compliance. In other words, the three mentioned theories are systems-oriented theories. In these systems-oriented theories, an entity, and in an economic context most usually a company is affected by, and in turn affects the society around it (Deegan, 2002, p. 292).

2.1 Institutional theory

A company might adopt CSR practices because they are a societal norm. Nordic countries are classified as high-trust societies, a defining feature often referred to as Nordic exceptionalism (Delhey & Newton, 2005). This unique characteristic emphasizes the role of trust in shaping societal and institutional dynamics. Consequently, institutional theory, which examines how societal norms, values, and formal structures influence corporate behavior, is a particularly relevant theory, laying the foundation of this thesis.

Institutional theory introduced by Meyer & Rowan (1977) states that firms need to follow along the societal rules and norms in order to achieve an adequate level of legitimacy in the eyes of society. According to the theory, longevity of the firm is not only an outcome of operational efficiency. Firms must keep up with evolving social, political, and

governmental expectations. Firms that fail to achieve legitimacy face challenges in their survival (Meyer & Rowan, 1977). By adhering to the norms and rules assumed by society, firms will be able to build social capital and trust. Trust is the belief that another individual or institution will act in ways that benefit us, or at the very least, do us no harm, even when we cannot oversee their actions (Sapienza & Zingales, 2012). The preceding statement accurately reflects Nordic societies.

Social capital, albeit strongly associated with trust, is a broader term, which also includes trust. OECD working paper by Scrivens & Smith (2013) has proposed social capital to consist of four components: personal relationships, social network support, civic engagement, and lastly, trust and cooperative norms. In the context of economics, as proposed by Lins et al. (2017, p. 1789) and for the scope of this study, the last two components of social capital have become popular in economics and finance literature. Nordic exceptionalism emphasizes the importance of trust within society. Since trust is a key element of social capital, it can be inferred that the Nordic society is deeply interconnected with both trust and social capital.

Civic engagement are seen as actions that are perceived as a net positive for a community as a whole (Scrivens & Smith, 2013, p. 28). The different aspects of civic engagement include for e.g. political participation, volunteering, and associational membership. In Nordics these acts are enrooted in societal values. Connecting the values and norms of Nordic society to institutional theory, it hints that CSR activities may be more strongly appreciated than in the context of the U.S. for example. Therefore, it could pay off for firms to be trustworthy during crisis such as the COVID-19.

2.2 Stakeholder theory

A company might adopt CSR practices because they are expected by sustainability conscious stakeholders. Stakeholder theory, initially presented by Freeman (1984), states that instead of purely focusing on value creation for shareholders, firms should aim their attention to creating value to all stakeholders and by doing that, the company can maximize its value. Different stakeholders include shareholders, employees, customers, suppliers, local communities, and governments and regulators.

Freeman (1984) advocated the idea that businesses are not isolated entities but exist in a web of relationships and thus finding a balance between shareholders and other stakeholders is essential. Connecting the stakeholder theory to the topic of this thesis, it can quickly be noticed that stakeholder view matches with CSR, trust and social capital. By building relationships with each stakeholder group, companies can improve the aforementioned features in the eyes of society.

During the COVID-19 pandemic, the significance of certain stakeholder groups became particularly evident. Crane and Matten (2021) emphasize the critical role of employees as stakeholders. In sectors like healthcare and other essential services that maintain economic functionality, employees faced heightened risks of infection. Consequently, it was imperative for companies to cultivate trust and cooperation with this stakeholder group to mitigate further damage to business operations during the crisis.

Bae et al., (2021, p. 2) claim that some companies started supporting various stakeholder groups by offering free services or increasing wages during the pandemic, whereas some firms that were seen as high CSR actors, began to lay off employees. Those remarks underline the issue whether the CSR activities can be genuinely seen as investments that add value to meet stakeholder expectations for CSR (Bae et al., 2021, p. 2).

All in all, the pandemic period was about finding a balance between stakeholder interests and adhering to restrictions while trying to maintain economic activity. As noted by Bizjak et al. (2022) firms that adopted stricter policies in an attempt to mitigate the spread of virus, might have benefitted in the longer term in a form of increased trust among stakeholders, namely employees and customers. Conversely, they found that store visits were statistically and economically significant driver of stock prices during the pandemic, hinting that restrictions during the pandemic hurt the shareholders more.

2.3 Legitimacy theory

Sometimes a company might adopt new CSR strategies, because it is necessary to maintain legitimacy in the eyes of the public. Legitimacy theory, is closely related to other CSR theories discussed. Dowling & Pfeffer (1975) stated that legitimacy is achieved when an organization's actions align with the shared values of society. Legitimacy can also be seen as a social agreement that exists between businesses and society, which, if violated, can result in consumers lowering their demand or governments enforcing regulatory measures. Without legitimacy, even the existence of a company may become threatened. Deegan (2002, p. 252) points out how legitimacy theory implies that organizations do not have any fundamental rights for resources or even to exist at all. The underline is that society, politics and economics are tied together to the degree that they are inextricable (Deegan, 2002, p. 252).

During the COVID-19 this would have meant, for example, companies adhering to restrictions set by the government and undertaking all the necessary actions seen essential by society to prevent the spread of the pandemic. Corporations were obliged to comply with these governmental regulations designed to mitigate the spread of the virus. This compliance involved adhering to health protocols, instituting safety measures within the workplace, and ensuring transparent communication with all stakeholders. Through

such adherence, businesses not only met their obligatory requirements but also expressed their dedication to social responsibility, thereby preserving public trust and organizational legitimacy.

Acting against the rules and restrictions set by the government would have caused a hit to company legitimacy and reputation. As suggested by (Dowling & Pfeffer, 1975), organizations must continually adapt to changing societal norms to maintain legitimacy. Again, in Nordic environment where trust is high, most companies were expected to adhere to new restrictions set during pandemic and thus maintain legitimacy.

2.4 Trust in the Nordics during the COVID-19

During the pandemic, it was widely reported that in Sweden, the approach to pandemic was different compared to other countries. The pandemic was not addressed as widely through strict lockdowns but mostly with recommendations. The decision undertaken by Swedish government to trust people to voluntarily reduce social interactions underscores the inherent trust in the society.

Nevertheless, as can be seen from Figure 1, all the Nordic countries were relatively loose with their restrictions, hinting high levels of trust present within the societies. Sweden was the first to start lifting restrictions. Figure 1 shows an index conducted by (Hale et al., 2021) illustrating the stringency of the lockdown measures. The value of 0 is no restrictions and the value of 100 is a complete lockdown. The grey area depicts the highest and lowest lockdown level value among the 25 OECD countries. The index is the most widely used estimation in the literature to visualize the degree of lockdowns that prevailed during the pandemic (Andersson & Jonung, 2024, p. 5).

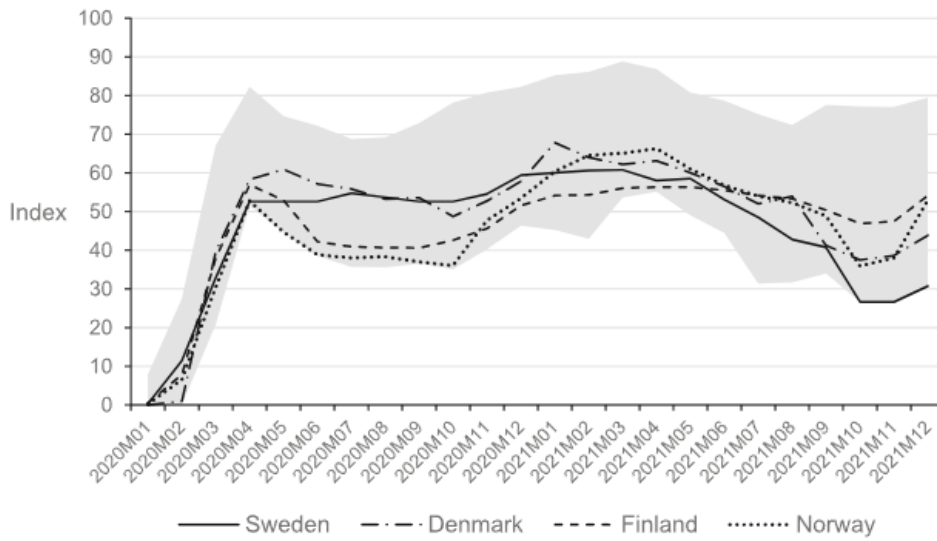


Figure 1. The degree of lockdown, 2020–21 (Anderson & Jonung, 2024, p. 5).

Throughout the pandemic, the Nordic countries consistently implemented restrictions that ranked among the least severe lockdown measures within the OECD. This pattern suggests that Nordic exceptionalism, characterized by high trust as previously discussed, may have contributed to these lower lockdown rates. The observation highlights the strong relevance of the CSR theories presented earlier in this chapter.

Knitting the theories together and reaffirming the preceding assertions, Lins et al., (2017) showed that the U.S. firms located in higher trust regions benefitted more from CSR's positive effects on stock returns during the financial crisis than firms in lower trust states. Bae et al., (2021, p. 3) also found similar results, although weak evidence that in the U.S. higher social trust in the region where the firm is headquartered, elevated the valuation effect of CSR during the COVID-19. The findings of Ding et al., (2021) further confirm the connection. Their interaction term of social norms, CSR Score and COVID19, is statistically significant and positive at 1 % level, pointing out what we already know based on the theories and empirical observations of the literature laid out in this thesis.

3 Corporate social responsibility

Corporate social responsibility (CSR) projects are designed to contribute to societal well-being, though they do not necessarily result in financial gains for the company (You, 2024, p. 309). Thus, investments in CSR are more likely directed by regional beliefs, norms and ethics than purely financial drivers, although opportunism is often present in CSR efforts (Barnett, 2019; Lyon & Maxwell, 2011). To delve deeper into the core of corporate social responsibility, the different dimensions of CSR can be examined. The terms compliance, ethics, and corporate social responsibility are sometimes used interchangeably, albeit erroneously. The pyramid of corporate social responsibility by Carroll (1991) lays a frame for defining the four main responsibilities of CSR (Figure 2).

The foundation of the pyramid is the economic responsibility of being profitable, as without it the company ceases to exist, and the pyramid would become obsolete. Business organizations are created primarily to provide goods and services to society (Carroll, 1991, p. 40). Nevertheless, economic responsibilities alone cannot enable a company operating in the 21st century to gain the legitimacy and trust of stakeholders and the broader society. Friedman's idea of company's sole responsibility being profit generation won't stand the light of day in the modern world. Thus, additional levels must be added to the pyramid of corporate social responsibility to make it comprehensive.

Compliance means obeying the law and regulations, fulfilling the legal responsibilities. It is the second level of the pyramid. It is feasible for companies to attempt to create profits within the boundaries of the legal system, as it is more likely to be sustainable. Firms are also expected to not operate against the law, as a part of the social contract between the society and firm (Carroll, 1991, p. 41). Thus, the legal responsibilities can almost be seen as a bare minimum effort towards the social responsibility by the company. In pharmaceutical industry however, the self-regulation of the companies in the field has gained

critique (Mulinari et al., 2025). Although compliance with regulations is expected, companies in highly regulated industries such as banking and pharmaceuticals may find it more profitable to probe the boundaries with borderline illegal business tactics in order to increase profits.

Ethical responsibilities are above the legal responsibilities on the pyramid. This level of social responsibility is highly desired and expected by society but not required in the same sense as fulfilling the legal responsibilities. Ethical responsibilities involve following standards, norms, or expectations that show care for what consumers, employees, shareholders, and the community view as fair, just, or respectful of stakeholders' moral rights (Carroll, 1991, p. 41). It is important to note that ethics and values shape the regional law and regulations. As ethical issues and topics are constantly under debate and evolving, they are the most difficult area within CSR realm for companies to follow. As ethical standards shift over time, they increasingly transform established norms into legal responsibilities, driving the creation of new laws and regulations that reflect these dynamic expectations (Carroll, 1991, p. 41).

At the top of the pyramid lies philanthropic responsibilities. This level includes acts that lead to enhanced human welfare or goodwill (Carroll, 1991, p. 42). The distinction between ethics and philanthropy is that the latter is not expected or required in a moral sense but is a voluntary act that is highly valued, at least by certain stakeholders. The philanthropic slice of the pyramid and the acts that it encompasses may not always be in line with the mentality of investors who side with Friedman (1970), who was an advocate of the idea that the only purpose of a company is to create profits for the owners of the company. Contributions in philanthropy and even ethical aspects could thus shun away those investors whose sole goal is the profit maximization (Fernando et al., 2017; Harjoto & Jo, 2015). It may prove difficult for companies to increase their stake in the normative (ethical and philanthropic) levels of the pyramid whilst also not hurting the profitability of the company in the eyes of demanding shareholders.



Figure 2. The pyramid of Corporate Social Responsibility (Carroll, 1991).

CSR can be viewed as a distraction from a firm's true purpose, which should primarily be shareholder value maximization (Friedman, 1970; Jensen, 2001). On the other hand, reaching out to different stakeholders and building trust and social capital to those groups can be seen as good management and long-term value enhancing activity (Freeman, 1984). According to another angle to the issue, CSR performance of a firm could also act as a handy criterion for asset allocation (Consolandi et al., 2009, p. 194). If CSR is increasing its value in the eyes of investors and the demand for stocks characterized by high ESG scores grows, so does the value of those stocks. Consolandi et al. (2009) confirms, that the cycle potentially pushes companies to improve their scores. Furthermore, asset managers are forced to evaluate the balance between holding socially

responsible stocks against the burden of having stakes in stocks that may be associated with controversial business practices.

In practice, most companies are somewhere in between the mentioned approaches. Barnett (2019) argues that companies are opportunistic in terms of doing good and they aim their efforts to please the main stakeholders instead of doing good for the general society. The further away a stakeholder group is from the firm's direct effect, the less the firm profits from serving the group. He states that this goes along with the stakeholder theory. There is also earlier empirical support for this approach being beneficial for shareholders. Hillman & Keim (2001) find that when companies aim their social responsibility efforts towards the primary stakeholders, it can build the shareholder value. However, if a company puts an effort towards pleasing non-primary stakeholder groups the shareholder value creation may be hindered.

A well-suited example of the opportunistic nature of companies following CSR is a U.S. based clothing company Patagonia, which has a self-inflicted climate tax of 1 %, whereby they use 1 % of their sales to preservation and restoration of the natural environment. While Patagonia genuinely contributes to environmental sustainability, it strategically positions itself to benefit from one of its main stakeholder groups: environmentally conscious consumers who purchase its products. Later in this chapter, we will examine another aspect of CSR: greenwashing, where companies intentionally mislead stakeholders to seem socially responsible.

3.1 Environmental, Social and Governance (ESG)

ESG and CSR are often used side by side in corporate finance literature (Gillan et al., 2021). As these two terms are the key components of this thesis, terminology must be considered. ESG is an acronym for environmental, social and governance. The initiation

was made by United Nations Secretary-General Kofi Annan in 2004, when he invited financial institutions to develop guidelines and recommendations on how to address environmental, social and corporate governance issues within asset management, securities brokerage and associated research functions. The main goals of the joint initiative were stronger and more resilient financial markets, contributions to sustainable development, awareness and mutual understanding of involved stakeholders and improved trust in financial institutions (Global Impact, 2004).

It is evident that ESG lacks a precise and standardized definition across different rating agencies. Berg et al. (2022) point out that between the six most prominent rating agencies (KLD, Sustainalytics, Moody's, S&P Global, Refinitiv, and MSCI) the correlations of ESG ratings are in the range of 0,38 to 0,71, which confirms the apparent discrepancy. This observation implies that the choice of rating agency markedly affects the results obtained in the studies that link ESG scores to company performance. Consequently, it is not only the academia that suffers from equivocality. The companies that are being rated suffer from the divergence of ratings. While companies undertake measures to align themselves more closely with ESG matters, agencies may have a divergent rating associated with the measure taken by the company. Companies do not know what markets expect them to do and incentives to invest in ESG are thus undermined (Berg et al. 2022).

Trahan & Jantz (2023) claim that also ESG investing itself suffers from a lack of accurate definition of what is exactly included in each pillar. Christensen et al. (2021) suggest that better availability and amount of accurate sustainability reporting data would lead to enhanced market dynamics through lower cost of capital, improved liquidity and better allocation of capital.

Companies have not been obliged to report about sustainability matters in a standardized form so far. The problem of vague ESG reporting is soon to be alleviated, at least in

the European Union, as Corporate Sustainability Reporting Directive (CSRD) rules are to be applied in the reporting of listed SMEs as well as all larger companies. Also non-EU companies will be obliged to report if they generate more than 150 million Euros of income in the EU market. The directive harmonizes the information to be provided in the reports and thereby addresses the issue of informal sustainability reporting in the past. The first sustainability reports with the new rules applied will be released in the 2025 reporting (European Commission, n.d.). The new regulations may help to decrease the divergence of ratings by rating agencies.

3.1.1 Environmental pillar

Environmental pillar is mostly considering the issues related to climate change and how to respond to it. The “E” component of ESG is mostly associated with direct measures undertaken to moderate the effects of climate change (Trahan & Jantz, 2023, p. 4384). In this thesis the environmental score consists of three subsections which are resource use, emissions, and environmental innovation found in Thomson Reuters ESG data.

Resource use score reflects the company’s effectiveness in managing and minimizing its consumption of materials, energy, and water. It also evaluates the company's ability to enhance eco-efficiency by optimizing supply chain management and implementing sustainable practices. Emissions scores tell us about a company's dedication and success in minimizing environmental emissions generated during its production and operational activities. The environmental innovation score evaluates a company's ability to lower environmental impacts for its customers while creating new market opportunities through the development of innovative environmental technologies, processes, or eco-friendly product designs.

Previously, using the same environmental data as in this thesis Bae et al., (2021, p. 3) found that there was no relation between environmental score and stock returns in the COVID-19 period in their U.S. sample. In contrast, Albuquerque et al., (2020) using a composite score of environmental and social pillar, find that the score had a statistically significant correlation with abnormal returns. Aligning with Albuquerque et al. (2020), also Garel & Petit-Romec, (2021) show statistically significant, better returns associated with higher environmental scores. The results of the two last mentioned studies were addressed by Bae et al., (2021), who point out that both studies used ESG data from year 2018, whereas in their study, using 2019 data, there was no connection found.

The reasoning for the possible positive effect of high environmental score on stock returns during the pandemic, as stated in the study of Garel & Petit-Romec (2021, p. 2) is that albeit the COVID-19 crisis is not directly an environmental induced crisis or climate change related event, it still may have led investors to consider the materiality of environmental responsibility. Investors possibly connect climate change and the increasing prevalence of pandemics and thus deem environmental responsibility become even more important after the COVID-19 as observed in the survey conducted (J.P. Morgan 2020). Conforming to J.P. Morgan, also PwC (2020) suggested in their report that the COVID-19 caused "intensifying calls for more sustainable practices". If the COVID-19 made investors shift their values more strongly towards tackling climate change and environmental worries, then it could have led to high environmental score stocks outperform amidst the pandemic.

3.1.2 Social pillar

Generally the social component of ESG evaluates how a company manages its employees and whether its corporate culture encourages innovation and environmentally sustainable purchasing practices (Baker et al., 2021, p. 3). In the context of this thesis, social pillar,

the "S" component of ESG comprises workforce, human rights, community and product responsibility scores found in the Thomson Reuters ESG data.

Workforce score is measuring how well a company promotes employee satisfaction, ensures a safe and healthy work environment, supports diversity and equal opportunities, and provides career development opportunities for its employees. The human rights category score assesses how effectively a company adheres to and upholds key international human rights standards. The community category score evaluates a company's dedication to being a responsible community member by protecting public health and upholding ethical business practices. The product responsibility category score indicates how well a company can deliver high-quality products and services while prioritizing customer health and safety, maintaining product integrity, and safeguarding data privacy.

The social component was found to be unrelated to stock returns during the COVID-19 crisis in the U.S. markets, but weakly positively related during the recovery phase (Bae et al., 2021, p. 3). Contrasting the observation, Ding et al., (2021 p. 818) found a connection between weekly stock returns and social score during the pandemic using worldwide data.

Literature has not dug into the mechanisms behind social score and its connection with stock returns during the pandemic. Nevertheless, it is possible to draw an educated conjecture. During the pandemic the employees of many companies faced challenging working conditions and trust between companies and the workers became unquestionably more pivotal. The stock market may conclude that companies that gave significant support to their employees throughout the COVID-19 crisis will do better not only during the pandemic but also might recover faster. Employee satisfaction and health are strongly linked to increased productivity and a more stable corporate operation. Supporting the claim, employee satisfaction is found to predict subsequent ROA and Tobin's

Q (Huang et al., 2015). Investors most likely consider proactive actions of firms taking care of their employees as indicators of a company's long-term viability and success.

3.1.3 Governance pillar

According to Nordberg's definition from (2010), corporate governance involves the establishment of internal systems within a company, actively managing and directing these systems, and keeping a close eye on how well they function (p.4). In this thesis, "G" pillar includes three categories (Thomson Reuters): management, shareholders, and CSR strategy.

The management score assesses a company's commitment to following best practices in corporate governance, as well as the effectiveness with which these principles are implemented. The shareholders category score evaluates how well a company guarantees that all shareholders are treated equally, as well as its approach to implementing systems to prevent hostile takeovers. The CSR Strategy category score reveals how effectively a company communicates the incorporation of financial, social, and environmental factors into its everyday decision-making processes.

There is little evidence of governance scores and their relation to stock returns during the pandemic. For some reason, the academia has been more interested in the environmental and social dimensions of ESG, possibly because they are perceived to be more at the core of sustainability and CSR. Interestingly however, according to PwC's Global Investor Survey (2024), investors in 2023 and 2024 identified corporate governance as the most critical component within the social responsibility dimension of a company's ESG framework, prioritizing it above other factors such as human capital management, climate and societal impacts. Ding et al. (2021) are one of the few who did investigate the possible connection between corporate governance and stock returns. They show that

the component of Thomson Reuters' governance score, CSR strategy, had a statistically significant effect on stock returns during the pandemic. Furthermore, they found that antitakeover measures had a statistically significant effect on stock returns. More anti-takeover measures in place resulted in lower stock returns. According to Ding et al., (2021, p. 818) the antitakeover measures are viewed as managerial entrenchment making it more difficult to replace the existing management. The stock market sees this as a possible challenge in taking sufficient action during the crisis. Their findings did not reveal any significant statistical connection between the composition of boards or executive compensation practices and how stock prices reacted during the COVID-19 period.

A matter not investigated in this thesis due to data availability and not fitting in the Nordic context is the political leaning of the CEO. In the U.S. during the pandemic, republican CEOs of companies that had physical stores were attaining higher stock returns during the pandemic than democrat CEOs (Bizjak et al., 2022). They report that republican CEOs were more likely to make decisions in favor of shareholders dismissing the adverse health effects for the community.

3.2 Present role of CSR in investments

As briefly touched upon in the introduction, the relevance of CSR has been increasing in the last decade. CSR investing is also called "sustainable investing". Sustainable investing in turn includes investments that consider ESG factors in portfolio forming and management (Global Sustainable Investment Alliance, 2022). Global Sustainable Investment Alliance (2022), which is an international coalition of regional sustainable investment organizations working to advance sustainable finance worldwide, reports that there has been a 20% increase in non-US markets' sustainable AUM from 2020 to 2022, although the U.S. AUM dropped from \$17 trillion to \$8.4 trillion due to stricter definitions for

sustainable investing assets addressing greenwashing concerns. Figure 3 represents the change of sustainable AUM in Europe, Canada, Australia & New Zealand, and Japan.

The Global Sustainable Investment Alliance (2022, p.10) report highlights, that despite the growth of sustainable investments, the amount of sustainable investing assets relative to all investing assets has been declining the past years. The trend can be seen both in Europe and North America. According to the report the reason behind the relative decline might be caused by stricter reporting standards. In contrast, Japan together with Australia & New Zealand has seen the relative amount of sustainable AUM growing simultaneously. As previously mentioned, the U.S. has seen a decline in total sustainable AUM from 17,1 trillion USD to 8,4 trillion USD from 2020 to 2022. Thus, the relative amount of sustainable investing assets of all investing assets has decreased to 13 % from 33 %.

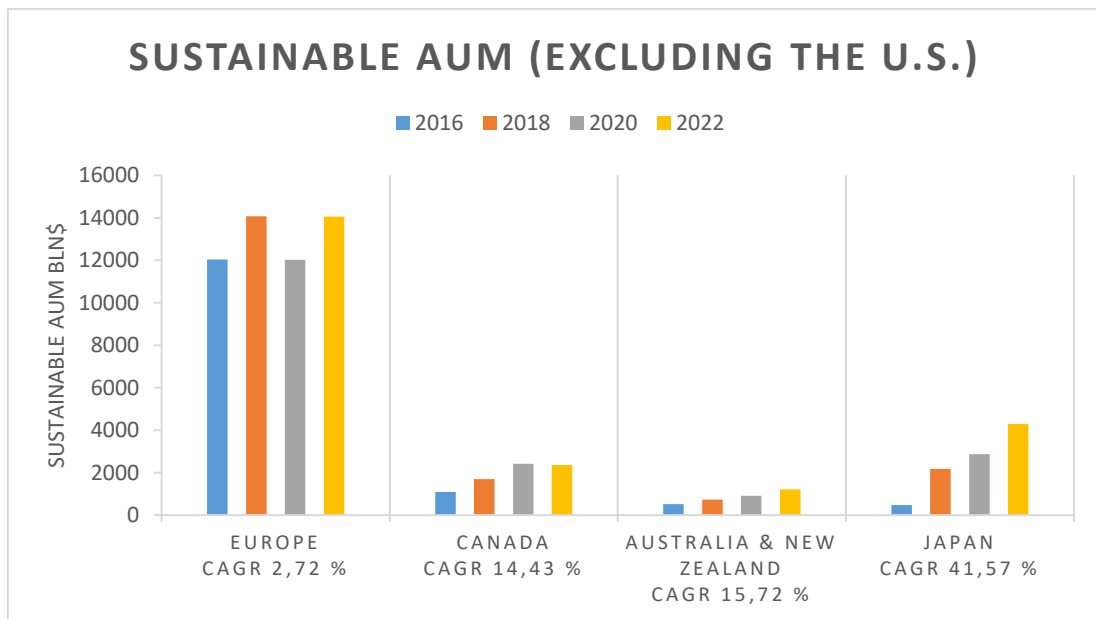


Figure 3. Sustainable assets under management. The U.S. is excluded due to regulatory changes affecting the definition of sustainable assets (Global Sustainable Investment Alliance, 2022, p. 10).

The report points out that the sustainable investment industry is maturing (Global Sustainable Investment Alliance, 2022, p. 5). This trend has already been observed in North America and Europe, as evidenced by the declines in the relative amounts of sustainable AUM, although most of the change can be explained by more conservative reporting. The rest of the world can be expected to reach the maturity phase following North America and Europe. Tightening the regulation concerning sustainable assets is also part of the maturation. Regulatory changes have been implemented to mitigate greenwashing and standardize the industry, with the EU Sustainable Financial Disclosures Regime (SFDR) (Regulation (EU) 2019/2088, 2019) serving as a direct effort. After the recent change in the U.S. methodology regarding sustainable investing assets, Europe has taken the throne as having most sustainable investing assets, and it has 46 % of all global sustainable investing assets as of 2022 (Global Sustainable Investment Alliance, 2022).

3.3 Greenwashing

To gain CSR legitimacy, firms may engage in greenwashing, misleading stakeholders about their environmental efforts. Nowadays greenwashing as a term is widely used and it means that organizations may participate in actions or disclose information that makes them look more environmentally friendly than they actually are. (Lyon & Maxwell, 2011, pp. 3–4) define greenwashing as “the selective disclosure of positive information about a company’s environmental or social performance, without full disclosure of negative information on these dimensions.”

Initially, Biologist Jay Westerveld coined the term "greenwashing" in 1986 to describe the hotel industry’s misleading promotion of towel reuse to save water as an environmental conservation measure (Seele & Schultz, 2022, p.1065). The incentive for hotels to encourage people to reuse towels was not environmental as one may guess. Instead, hotels aimed primarily to reduce laundry costs. While the urging to reuse towels is

seemingly responsible for an average consumer, as Barnett (2019) noted, such CSR efforts often reflect opportunism rather than genuine responsibility. Firms are also opportunistic in the ways they disclose and advertise their environmentalism. Lyon & Maxwell (2011, p. 3) use the cruise line company Royal Caribbean as an example. Royal Caribbean used to promote its advanced wastewater treatment systems as eco-friendly progress. However, these systems were installed on only three of its 26 ships, exclusively in Alaska only to comply with stringent local regulations. Nevertheless, the company deemed the system unnecessary elsewhere, revealing once again the opportunism hidden in environmentalism efforts.

Greenwashing may not pay off for companies, at least when their greenwashing efforts are exposed. For example, Cooper et al. (2018) propose two contrasting effects: the "halo effect" and the "fallen angel" effect. When a firm has a higher ESG score, it could be expected that it mitigates the adverse effects of greenhouse gas emissions on the firm's market value. They call it the "halo effect", meaning that if a firm is seen as more socially responsible it gets away with higher emissions. They explain that an alternative effect that can be expected is so called "fallen angel" effect, where high ESG scores could be a result of successful greenwashing and ultimately when high greenhouse gas emissions are revealed, the backlash on market value is intensified. Their findings support the latter, implicating that greenwashing does not pay off long-term.

One of the most infamous cases of corporate greenwashing occurred in 2015, when Volkswagen (VW) was implicated in a global emissions scandal. In September 2015, the U.S. Environmental Protection Agency (EPA) issued a Notice of Violation to Volkswagen, citing violations of the Clean Air Act. Investigations revealed that VW had installed defeat device software in its diesel-engine vehicles (BBC, 2015). This software could detect when the vehicles were undergoing emissions testing and temporarily reduce nitrogen oxide (NOx) emissions to comply with regulatory standards. During normal driving

conditions, however, these vehicles emitted up to 40 times the legal limit of nitric oxide in the U.S. (BBC, 2015).

The scandal caused Volkswagen to post its first quarterly loss in 15 years and it was forced to allocate €6.7 billion (later revised upward to over €30 billion) to cover fines, recalls, and legal settlements (BBC, 2015; Reuters, 2020). The company's CEO resigned, and the incident led to global scrutiny of emissions-testing practices in the automotive industry.

The Nordics, regardless of the high-trust society status, have faced greenwashing cases. Perhaps the most infamous case happened in 2024, when Europe's largest pork producer Danish Crown got a verdict in court after advertising its pork as "climate-controlled" (Bloomberg, 2024). The company was ordered to pay 44 000 dollars in fines for breaching marketing laws. The initiation to challenge the claims made by Danish Crown was put forward by a group of nonprofit organizations (Bloomberg, 2024). Such pressure from climate organizations is increasingly forcing corporations to have credible evidence for their sustainability claims. As Berrone et al. (2017) present, greenwashing is less likely to pay off in the presence of the vigilant environmental nongovernmental organizations. These nongovernmental organizations, such as Greenpeace act as a balancer of the information asymmetry between environmental claims made by companies and the stakeholders (Lyon & Maxwell, 2011).

4 Literature review

This section provides an overview of prior literature examining the influence of CSR on stock returns. The literature is segmented into three main categories. The first category encompasses the studies investigating the relationship between ESG and stock returns during normal market conditions meaning there is no ongoing exogenous shock to financial markets. The second category focuses on the returns amidst the financial crisis of 2007-2008. The third category comprises studies analyzing stock returns during the COVID-19 pandemic. The most relevant studies linked to the topic of this thesis are listed in Table 1.

4.1 ESG and stock returns under normal market conditions

There are conflicting findings on whether ESG scores drive higher returns. Based on the basic finance theories such as EMH and risk-return theories (in the case we interpret higher ESG as lower risk) high ESG stocks should not outperform in the long term. In contrast, Hong & Kacperczyk (2009) argue that stocks which are characterized as sin stocks (like tobacco, alcohol, gambling), actually produce higher returns resulting from neglect of institutional investors or limited risk sharing. Increased litigation risk of the products of these companies further pushes the expected returns of these stocks (Hong & Kacperczyk, 2009). They proved their hypotheses empirically by showing that between 1965-2006 sin stocks portfolio outperformed the portfolio of comparable stocks.

Some papers have argued in favor of ESG. Edmans (2011) makes a strong case that the best companies to work for in America achieved an economically significant four factor alpha between 1984 and 2009, hinting that especially the employee satisfaction components of "S" pillar might produce superior outcomes. Nagy et al. (2016) in turn were able

to outperform the MSCI World Index by constructing ESG focused strategies. Havlinova & Kukacka (2023) use S&P 500 companies in the period 2007-2020 to examine post financial crisis stock returns and ESGC score. ESGC score is Thomson Reuter's new sophisticated score. This score adjusts the importance of the social and environmental factors based on the company's industry, while the governance factor is weighted according to the company's home country. Depending on the model specification, one percentile point increase in ESGC score leads to 0,8 % or 0,9 % increase in share price (Havlinova & Kukacka, 2023, p. 231). They also make a distinction between strategic and secondary CSR activities and yet, the results prevail.

To some degree in line with Edmans (2011), Pedersen et al. (2021) display that some subcomponents of ESG pillars possibly produce excess returns. Their paper is perhaps one of the best efforts within the field of finance to explain ESG and its relation to stock returns theoretically. So much so that it deserves closer scrutiny. Before returning to the empirical findings of Pedersen et al. (2021), it is reasonable to review their theory.

The theory attempts to explain how the adoption of ESG criteria in investment decisions affects portfolio choices and asset prices (Pedersen et al., 2021). First, they define three distinct investors groups. Type-U, who are unaware of ESG and simply aim to maximize their portfolio's unconditional mean-variance utility. Type-A investors are aware of ESG dimension, and they seek to achieve conditional mean-variance optimization, using ESG scores to revise their views. Type-M investors are ESG motivated, and they are willing to sacrifice either return or risk, to gain more exposure to high ESG stocks. Pedersen et al., (2021, p. 573) are able to simplify the three-dimensional issue by combining the risk and return in Sharpe ratio (SR). Thus, the portfolio optimization puzzle is contracted to finding the highest possible SR conditional on ESG score.

It is possible to calculate the highest attainable SR for every level of ESG, when investors care about risk, return, and ESG. The pattern that forms is called ESG-efficient frontier

(Pedersen et al., 2021). Figure 3 shows how the three types of investors are located on the frontier. Based on this theory, the ESG “aware” group is able to derive the highest SR. The frontier itself does not represent investor preferences but only security characteristics. Hence, it does not matter whether an investor has a preference for ESG or not. All investors with an equal amount of information should agree upon the shape of the frontier (Pedersen et al., 2021).

Pedersen et al., (2021) claim that when ESG information is incorporated into investment decisions, every portfolio to the left or below tangency portfolio is inefficient. That is, either ESG, SR, or both can be improved. Type-U investors possibly choose those inefficient portfolios, because they are not aware of the information contained in ESG scores. Type-A investors invest in tangency portfolio. Type-M group lies on the right side portion of the curve and the exact position depends on the degree of ESG preference (Pedersen et al., 2021).

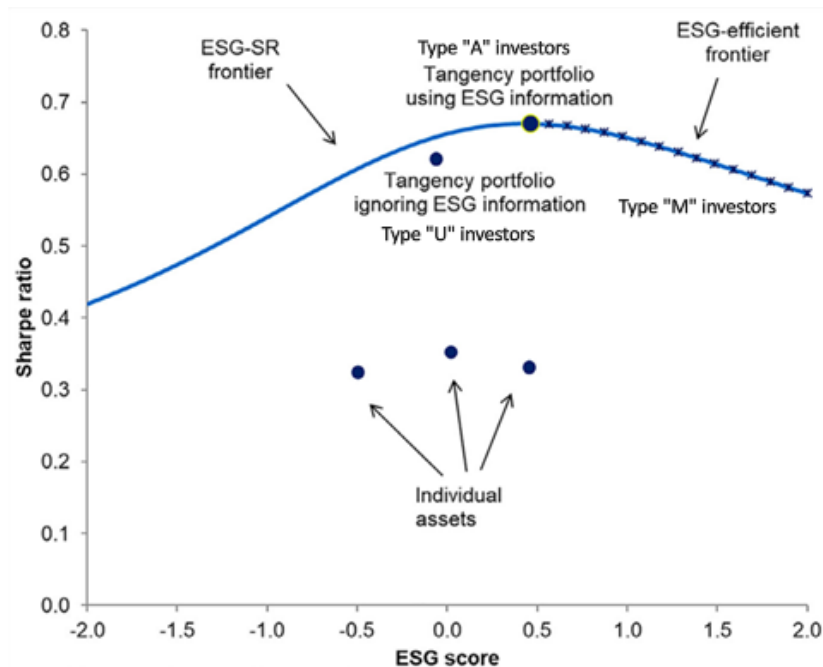


Figure 4. ESG-efficient frontier (Pedersen et al. 2021).

Furthermore, Pedersen et al., (2021, p.575) derive the expected returns that depend on the mix of investor types in the market. Their theoretical assumptions are illustrated in the ESG-adjusted CAPM model (Figure 4). When markets are saturated with ESG unaware investors, high-ESG stocks can deliver high expected returns. This occurs because these investors overlook the profitability associated with high-ESG stocks, leaving their prices relatively lower and resulting in higher expected returns. In contrast, when the market has a large number of Type-A investors, who use ESG information to refine their assessments of risk and return, the prices of high-ESG stocks are bid up to reflect their

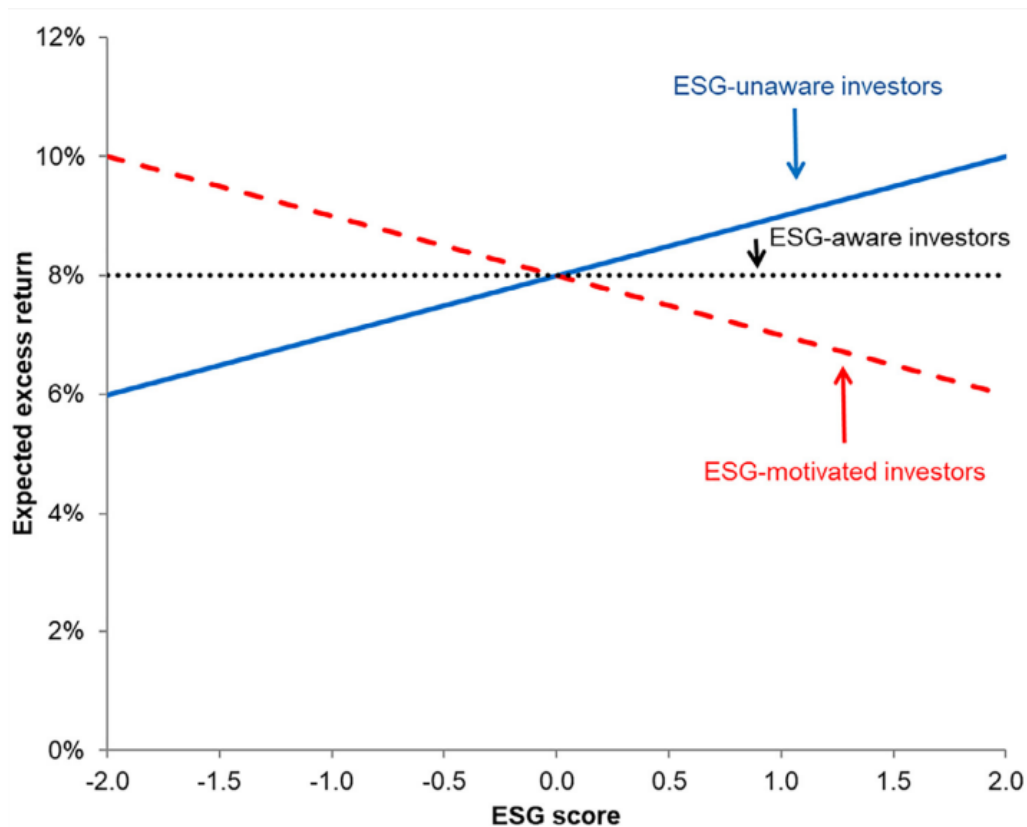


Figure 5. Environmental, social, and governance–adjusted capital asset pricing model (ESG-CAPM) (Pedersen et al. 2021).

expected profitability. Finally, should the market be predominantly composed of Type-M investors, who prioritize ESG scores and are willing to accept lower financial returns for higher ESG exposure, high-ESG stocks tend to have lower expected returns. This is

because the strong demand from ESG-motivated investors inflates the prices of high-ESG stocks, driving down their future returns (Pedersen et al., 2021).

Returning back to the empirical findings of Pedersen et al. (2021), they show evidence, that governance score, proxied by accounting accruals, predicts returns in the sample of S&P 500 companies. Lower accruals are perceived as a higher governance score. Low accruals seem not to be priced in the stock market. Pedersen et al., (2021, p. 592) present that low accruals (high governance score) predict future firm profits, and the market does not appear to acknowledge that. The economic and statistical significance of governance score's correlation with stock returns in their regressions is high. For equally weighted S&P500 portfolio, the yearly alpha is around 7 % and for value weighted portfolio 3 %, and the results persist after they control for Fama-French factors. However, their proxy for G is very specific and probably not representative of G pillar as a whole.

For E (low carbon emissions) there is some weak evidence of positive alpha. S (non-sin stocks) shows somewhat stronger predictive power, but the alpha is negative -4 %. Composite ESG score is non-significant in predicting returns.

Some papers, in turn, have processed the subject in event study setting and present evidence of negative return for stocks that are deleted from social indices, but the opposite is not true for stocks that are added to these indices. Becchetti et al. (2012) study how additions and deletions to Domini 400 Index, which is recognized as a CSR benchmark index, affect stock returns. They utilize an event study which focuses on the days around additions and deletions to the index. They use sample periods 1990-1998 and 1999-2004 and find that additions to the index do not have any significant effect on returns on either of their sample periods, but deletions have a significant negative effect on returns on their second sample period which is from 1999 to 2004. Thus, their findings do not contradict the evidence of increasing importance of CSR events over time. Collectively, their result implies that the negative effect of deletion from the index might depend on the

reaction of responsible investing funds rather than the expected negative shock on shareholder value. This goes along with the notion of growing assets under the management of CSR focused funds. These funds may sell stocks independently of the expected performance of the stock.

Table 1. Relevant previous studies on the connection of CSR and crisis period stock returns

Authors	Journal	Country	Sample Size	Period	Sample	Dependent variables	Independent variables	Research results
Lins et al. (2017)	The Journal of Finance	United States	1673	2007-2009 (financial crisis) and 2001-2003 (Enron/Worldcom)	Listed non-financial firms (microcaps excluded)	FF4-factor model abnormal return and raw return	CSR, market cap, debt, cash holdings, ROA, book-to-market, momentum, idiosyncratic risk, industry	High-CSR firms' returns outperform low-CSR firms during crisis.
Tsai and Wu (2022)	Journal of Business Ethics	United States	6304	1993-2013 (financial crisis)	Listed firms	FF4-factor model abnormal return	Combined CSR, CSR dimensions	Overall, CSR enhances stock returns regardless of market conditions, but the effect is amplified during crisis period.
Zolotoy et al. (2019)	Journal of Banking and Finance	United States	3501	1995-2010 (financial crisis)	Listed firms	Market model and FF4-factor model abnormal return	CSR, religious adherence, leverage, market cap, book-to-market, ROA, cash, idiosyncratic risk, financial constraints index, takeover vulnerability	CSR has a positive effect on stock returns during crisis, but this effect is attenuated by strong local religious norms.
Bae et al. (2021)	Journal of Corporate Finance	United States	1750	2020 (COVID-19)	Listed firms (microcaps excluded)	FF4-factor model abnormal return and raw return	CSR, market cap, debt, cash holdings, ROA, book-to-market, momentum, idiosyncratic risk, industry	No connection between CSR and COVID-19 period returns.
Demers et al. (2021)	Journal of Business Finance and Accounting	United States	1642	2020 (COVID-19)	Listed firms (financial and real estate excluded)	Buy-and hold abnormal return	CSR, cash, debt, ROA, ITO, intangible assets, R&D, dividend ratio, size, market share, firm age, earnings announcement speed (for all controls, see Demers et al. (2021))	No connection between CSR and COVID-19 period returns.
Cardillo et al. (2022)	Journal of Business Finance and Accounting	Europe	1204	2020 (COVID-19)	Listed firms in 15 countries	Raw return, market-adjusted return, excess return	CSR, COVID-19 cases and deaths, FF5-factors, health index, stringency index, economic index	Firms with higher CSR show higher returns when an increase in COVID-19 related cases and deaths is reported.

The findings of Becchetti et al. (2012) align with those of Doh et al. (2010), who illustrate a negative impact on stock returns following deletions from the Calvert social index, while observing no significant effect following additions to the index. They posit that this asymmetry in returns surrounding announcements may be attributed to information imbalances. Companies with favorable social performance tend to be more forthcoming in their disclosures to the public compared to those with poor social performance. Consequently, this transparency may result in the integration of information into stock prices prior to index additions in cases of positive news, but not for negative news. From the evidence presented, it is not possible to conclusively state that positive CSR activities do not result in higher returns, as stock prices may adjust to positive information well before the event window and the inclusion in a social index.

Tsai & Wu (2022) use an extensive US sample in the period 1993-2013 and find that a portfolio (up) of firms with large positive change of overall ESG score from previous year produces a significantly positive risk-adjusted return of 0,40% per month. The portfolio (down) of firms with large negative change on overall ESG score has a risk-adjusted return that is not significantly different from zero. Interestingly, they show that if the financial crisis period 2008-2009 is separated from their sample period and the periods are inspected separately, the non-crisis period risk-adjusted return for the “up” portfolio is 0,29 % per month and for the crisis period 0,79 % per month respectively. The “down” portfolio does not outperform the market in either period.

4.2 The financial crisis

Supporting the evidence of Tsai & Wu (2022), higher financial crisis period returns are observed by (Lins et al., 2017; Zolotoy et al., 2019). Investigating a sample during two time periods that include Enron/Worldcom scandal (2001-2003) and the financial crisis (2008-2009), firms with high CSR intensity had stock returns four to seven percentage higher than low-CSR firms (Lins et al., 2017). Lins et al. (2017) provide evidence that firm-

specific social capital that is built before crisis, pays off during a period of low trust, such as the financial crisis. They also find that the effect is stronger in areas where individuals are more trusting. However, there is no evidence of differing stock performance between high- and low-CSR firms after the crisis.

More support for relatively higher stock returns of high-CSR firms against low-CSR firms during crisis is offered by (Zolotoy et al., 2019). Using market model and Fama–French–Carhart model to capture abnormal returns of US firms, they attain similar results to (Lins et al., 2017). Higher CSR during crisis appears to lead to higher stock returns. However, the effect is moderated by strong religious norms where the firm is headquartered and hence the insurance mechanism of CSR is weakened.

Using the methodology of (Lins et al., 2017) but mainly focusing on Tobin’s Q, Buchanan et al. (2018) present results that indicate higher changes in stock returns for high-CSR firms during the financial crisis for Russell 3000 firms. However, due to their model specification they are unable to tell whether the level of stock returns is higher for high-CSR firms. In line with (Lins et al., 2017), they find that the post crisis returns between the two groups are insignificantly different.

4.3 The COVID-19 pandemic

Most of the established literature on the subject is focused on inspecting the US financial markets and the body of high-quality studies is narrow overall. However, Ding et al. (2021) carried out a broad analysis on a global setting. They join the group of researchers who find a positive connection between CSR and stock returns during the pandemic. Their sample included 6700 firms in 61 countries and to the best of knowledge of the writer of this thesis, it is the most comprehensive study conducted outside the U.S, linking stock returns and CSR. Ding et al. (2021) demonstrate, that ESG score as a composite and all the individual subscores were statistically significant determinants of stock returns in the

pandemic period. When they interacted the ESG score and returns with social norms (can be interpreted as trust in society), the effect is intensified. Consequently, it can be inferred that the impact of CSR practices on financial performance becomes more pronounced in societies such as Nordics, where trust and social norms are robust.

Khanchel et al. (2023) studied the French stock market with a sample of 464 nonfinancial firms. Their study was focused on the COVID-19 crisis. They utilized an event study method around the day the French government admitted human-to-human transmission of the virus. Their results imply that firms which engaged in CSR activities around the event window had better resistance against the negative shock of the event. The findings suggest that investors may have placed more trust in companies actively involved in CSR initiatives during this critical time compared to non-CSR adopter companies.

Similar results are presented from another European based study by (Cardillo et al., 2023). They use a sample of 1204 European listed firms from 15 countries. They find that when the COVID-19 cases and deaths increase in the economy, high-ESG firms have better returns with all models (raw returns, market-adjusted returns, and excess returns) compared to low-ESG firms.

Qiu et al. (2021) conducted an event study method with a relatively small sample of 40 listed Chinese hospitality companies. They find that investors reacted positively, measured by abnormal returns, to pandemic related CSR activities that were in the news during the COVID-19 pandemic period, aligning with the findings of Khanchel et al. (2023).

To challenge the suggested positive relationship between CSR and stock returns, particularly amidst the COVID-19 crisis, some evidence is presented by Bae et al. (2021). Using a sample of 1750 U.S. firms and applying the methodology of Lins et al. (2017), they find no confirmation for the positive connection between stock returns and CSR. The result

holds for post-crisis recovery period. CSR does not seem to offer any insurance properties against the market shock caused by the COVID-19.

Demers et al. (2021) end with similar conclusions as Bae et al. (2021). Using a sample of 1652 U.S. firms (excluding real estate and finance), they find that firms with higher ESG scores did not achieve better returns during the first quarter of 2020 and neither during the full year. They instead concluded that investments in intangible assets are an economically and statistically significant positive driver of stock returns during the COVID-19 crisis period.

Overall, studies focusing on the U.S. stock market during the pandemic have not seemed to find a positive link between ESG scores and returns. However, outside the U.S., there appears to be more evidence supporting a positive relationship between these two variables. One U.S. based study however, by Bizjak et al. (2022), found a negative indirect connection between CSR and stock returns during the pandemic. They studied a sample of 312 publicly traded U.S. firms with physical stores, and they discover interesting outcomes. First, they show that if the CEO of a company is a republican, the relative store traffic increases by 6 % to 11 % compared to democrat CEO store, depending on model specifications. Furthermore, their analysis indicates that more store visits lead to statistically significant and higher stock returns. Moreover, the ESG rating of a firm was found to be negatively correlated with store visits (Bizjak et al., 2022). All in all, if a higher CSR score leads to lower store visits, it can be inferred that higher CSR was negatively affecting stock returns as stock returns were dictated by store visits. So, in the U.S. context the political orientation of CEO appeared to be a significant driver of stock returns during the pandemic, a feature undiscovered by other studies.

4.4 Ukraine crisis

Russia launched a full-scale attack on Ukraine on 24th of February 2022. The ongoing crisis in Ukraine sparks an opportunity to investigate, whether ESG scores affect stock price behavior when the war escalated. However, literature is still scarce and the pieces that exist must be reviewed carefully. Clancey-Shang & Fu (2024) compare US domestic firms and US-listed foreign stocks in terms of market quality deterioration during the outbreak of the war in Ukraine in 2022. They study whether CSR performance proxied by Bloomberg ESG scores, has a mitigating effect on the mentioned market quality deterioration. They define market quality as a multidimensional concept that includes stock volatility and liquidity. Clancey-Shang & Fu (2024, p. 7) find that better CSR performance was associated with lower volatility during the early stages of the war implicating risk reducing effect by ESG scores. Interestingly, they specify that the effect is much stronger for US listed foreign firms than US domestic firms. Furthermore, they confirm the same result for liquidity. Higher CSR scores protect stocks from liquidity deterioration, but once again, the effect is only prominent for US listed foreign stocks.

Cosma et al. (2024) chose to analyze fund performance during the onset of the war differentiating between socially responsible funds and regular funds. Their dataset contained 490 European equity funds. They divide the funds into three categories based on SFDR articles. First are the conventional funds which do not integrate sustainability criteria into the investment process, meaning that brown stocks may be included. The second category is light green, including funds that do consider ESG matters but still mainly focus on financial materiality. The third category is dark green, which contains funds that specifically aim to make sustainable investments. They provide evidence for dark green category outperforming the other two categories, showing higher returns, but the out-performance was only present for the first couple months of the crisis outbreak. The result suggests, as similarly shown by (Alnafrah, 2024; Clancey-Shang & Fu, 2024), that higher ESG scores mitigated some risk during the early stages of the war.

More general study by Fiorillo et al. (2024), examining the geopolitical risk and ESG scores' possible defensive property against stock price declines ends with analogous findings. Their sample contains 4402 firms from 64 countries. They find that top ESG quartile firms exhibit lower price crash risk when geopolitical risk rises. They separate the three dimensions of ESG and convey that social and environmental dimensions are the elemental pieces of ESG, explaining the results (Fiorillo et al., 2024). To sum up, it is very feasible, based on the reviewed literature, to assume that ESG had a minor hedging effect on stock price decline during the early stages of Ukraine-Russia crisis. It is likely that the hedge was short-lived however, as (Alnafrah, 2024; Clancey-Shang & Fu, 2024; Cosma et al., 2024) suggest. Moreover, the literature provides no implicative evidence that ESG stocks would underperform conventional stocks during periods of significant geopolitical instability.

5 Data and methodology

In this chapter the data and methods used in the empirical part are introduced. The first part presents the data and sample that was utilized in the analysis. The second part describes the methodology and the regression variables.

5.1 Data and sample

Company-level variables and ESG data was sourced from LSEG (London Stock Exchange Group) Worldscope and Datastream, that offer data on the world's leading public and private companies representing over 95 % of global market value. The data in this study encompasses listed Nordic companies on the Finnish (OMXH), Swedish (OMXS), Norwegian (OSEBX), Danish (OMXC) and Icelandic (OMXI) indices. Stock return data spans from five years prior to the onset of the pandemic until the 5th of June 2020. Fama-French factors were obtained from the Kenneth R. French Data Library website, and factor loadings of individual stocks were estimated using stock returns from the 60-month period preceding the pandemic in order to estimate the market model and factor loadings. Financial data used as control variables in the returns analysis was obtained from firms' year 2019 financial statements sourced from LSEG database.

The COVID-19 pandemic, according to The World Health Organization started on 31st of December 2019. Many stock indices fell sharply during the first quarter of 2020 and subsequently recovered from the initial market shock. Research focused on stock returns during the COVID-19 pandemic has primarily emphasized the first quarter of 2020 in their analyses (Albuquerque et al., 2020; Bae et al., 2021; Demers et al., 2021).

This study also applies the first quarter of stock returns in the crisis period regressions, but dates are adjusted consistent with the methodology employed by Bae et al. (2021).

They defined the COVID-19 pandemic crisis period to span from 18th of February to 20th of March. That period corresponds to the dates when the U.S. stock indices started plummeting and eventually reached the bottom of the crisis. OMX Nordic 40 index, which is market cap-weighted of the 40 most traded Nordic stocks (excluding Norway) followed a similar pattern. Thus, this study follows Bae et al. (2021) in the definition of crisis period by adjusting the beginning date to be 20th of February and the end date of crisis period to be 23rd of March, when the OMX Nordic 40 reached bottom as seen in Figure 6. The beginning and the end of the crisis period are marked with vertical lines. The post-crisis period begins from the second vertical red line and ends on the 5th of June, during which the index rose approximately 37,50 %, recovering most of the decline seen earlier.

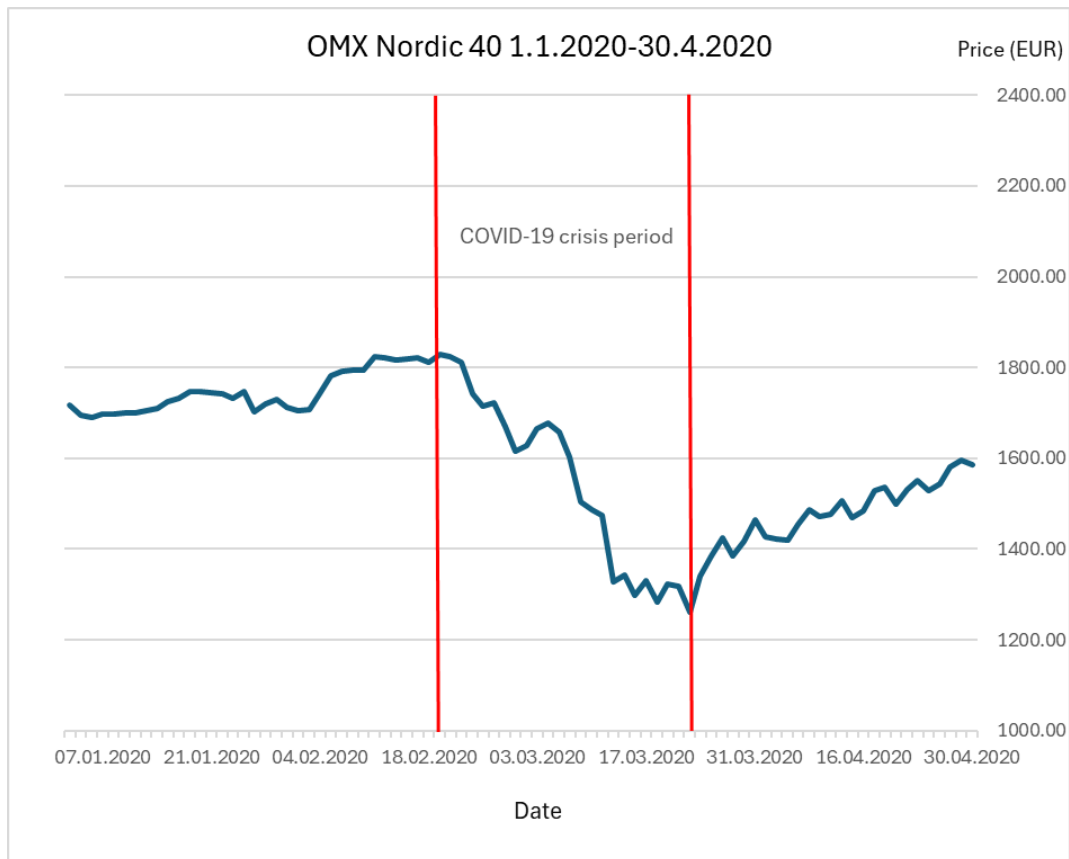


Figure 6. Performance of the OMX Nordic 40 Index from January 1, 2020, to April 30, 2020, highlighting the impact of the COVID-19.

In the final sample, following Bae et al. (2021), Garel & Petit-Romec (2021) and Lins et al. (2017) financial firms were excluded due to their unique regulatory and operational characteristics, which could influence their performance during the crisis. According to the Worldscope TRBC industry classification, the financial sector firms were excluded.

Table 2. Sample industry distribution.

Industry	Count	% of total
Energy	24	8.6%
Basic Materials	34	12.2%
Industrials	73	26.2%
Consumer Cyclicals	37	13.3%
Consumer Non-Cyclicals	30	10.8%
Healthcare	34	12.2%
Technology	35	12.5%
Utilities	5	1.8%
Others	7	2.5%
Total	279	100%

After excluding the financial sector, nine major industry groups remain (Table 2). Micro-cap firms with under 250 million Euros market capitalization were also dropped out of the final sample as the low trading volume of these firms may create unexpected stock price moves. The definition of microcap firm is sourced from The U.S. Securities and Exchange Commission (SEC) (2016) website where they define microcap firm as a firm with market capitalization of less than 250 million or 300 million USD. Furthermore, this thesis follows very closely the methodology of Lins et al. (2017) and Bae et al. (2021), who used the 250 million USD definition for microcaps. All unbounded variables were winsorized at the top and bottom 1 % to mitigate the effect of outliers. The final sample is 279 Nordic companies, after removing the financial sector, micro-cap firms and firms with missing data (Table 3). All Icelandic companies were dropped when applying the filters.

Table 3. Sample determination.

LSEG Datastream original sample of Nordic firms	816
<i>Dropping:</i>	
Industry	-147
Microcaps	-309
ESG data missing	-74
Stock return data missing	-7
Number of firms in the final sample	279

5.2 Variables

This section provides an explanation of the variables selected for the study. The choice of control and dependent variables aligns closely with the methodology employed by Lins et al. (2017) who examined stock returns during the financial crisis. Almost identical dependent and independent variables were also used in the study of Bae et al. (2021), who measured the effect of CSR on stock returns during the COVID-19 pandemic in the U.S. markets. In contrast to the forementioned studies, this study focuses on Nordic markets and uses the COVID-19 period as the timeframe for investigation similar to Bae et al. (2021). The descriptive statistics of the variables are presented in Table 4, followed by correlations between variables in Table 5.

5.2.1 Variables of interest

The main variables of interest are raw crisis period return and abnormal crisis period return. The raw crisis period return is the firm's buy-and-hold return between 20th of February and 23rd of March 2020. During this period the OMX Nordic 40 Index fell 31 %. The second measure, abnormal crisis period return is the raw return minus expected return that is estimated with market model. Unlike Bae et al. (2021) who used weekly

CARs to calculate the abnormal return, this study employs buy-and-hold abnormal returns (BHARs) of the crisis and post-crisis periods. Market model is estimated using the stock price data from 2014 to 2019, in total 60 months. Fama-French three factor model betas are estimated using the same time period. Post-crisis period returns are also considered. That period is set to range from the 24th of March to 5th of June, during which the index recovered 83 % of the lost value. The chosen post-crisis timeline closely aligns Bae et al. (2021) consideration for the post-crisis definition, where the first stagnation of rallying market in June acts as a threshold.

5.2.2 Control variables

Capturing the effect of CSR on stock returns, one must consider the financial health of a firm and control the variables that are most likely to affect returns. Following Lins et al. (2017) this study utilized some of the most essential variables associated with firms' financial health.

Book-to-market and firm size were controlled for, as both are heavily correlated with the average stock returns (Daniel & Titman, 1997). Book to market is the book value of equity divided by market value of equity. Firm size is the market capitalization of a company. Momentum is also controlled for; it is the raw return on the stock in 2019. As Jegadeesh & Titman (1993) initially suggested, Novy-Marx (2012) confirms that the past 12 month returns can contribute to stock returns. Initially, negative book-to-market dummy was added, because negative book-to-market firms are most likely facing financial distress and behave like high book-to-market firms, rather than low book-to-market firms (Lins et al., 2017, p. 1797). However, few firms were having the dummy assigned. In addition, the variable did not contribute to the models, so it was dropped. For market capitalization a natural logarithm is normally used as the distribution of market capitalization is often right-skewed. Despite the traditional log transformation, a raw form of market capitalization was used in this study as it better captured the effect of size on returns. The

logged form of market capitalization did not behave well in the regressions, and it slightly reduced models' adjusted R-squared values compared to raw form as well as led to worse model fits as measured by BIC, AIC, and Wald F -statistics. Furthermore, the log of market capitalization appeared as statistically non-significant in some specifications with very high ($>0,90$) p-values, which is not expected.

Short-term debt is the amount of short-term debt and the current portion of long-term debt divided by assets. Long-term debt includes debt that is due in more than one year divided by assets. The amount of debt was shown to affect stock returns during the COVID-19 (Ding et al., 2021). Profitability is operating income divided by assets. It is widely used as a control variable in stock return regressions, and it was also found to affect stock returns during the COVID-19 (Ding et al., 2021).

Cash Holdings (cash and short-term investments divided by total assets) is among the controlled variables. According to Duchin et al. (2010) during the financial crisis, the returns of cash-rich firms were substantially higher compared to low-cash firms' returns. As the income flows of firms plummeted temporarily during the COVID-19 crisis, it can be expected that firms with more cash were less affected by the crisis. The assumption of firm's immunity against the COVID-19 is further confirmed by Ding et al. (2021), who state that the drop in stock returns was moderated for firms that had more cash.

ESG scores of the companies will be used as proxy for CSR activity. In their study Lins et al. (2017) used MSCI ESG data. This study, however, utilizes the LSEG Thomson Reuters ESG data (formerly Refinitiv), whereas Bae et al., (2021) used both datasets. The environmental pillar consists of resource use, emissions, and innovation subscores. The social pillar includes workforce, human rights, community, and product responsibility scores. Lastly, the governance dimension contains management, shareholders, and CSR strategy score. The total ESG score is a scaled number between zero and one, and it is a result of these sub-dimensions with specific weights assigned to each of them based on the number of indicators within each pillar.

Table 4. Descriptive statistics

	Mean	SD (Std.Dev)	25 th perc.	Median	75 th perc.
ESG Score (LSEG Thomson Reuters)	0.576	0.174	0.455	0.594	0.705
Crisis period raw ret.	-0.370	0.149	-0.453	-0.381	-0.282
Crisis period mkt-adj. ret.	-0.081	0.198	-0.220	-0.071	0.040
Post-crisis period raw ret.	0.488	0.282	0.302	0.448	0.643
Post-crisis period mkt-adj. ret.	0.120	0.310	-0.060	0.096	0.271
Market capitalization (in billions €)	6.138	12.906	0.684	1.752	5.798
Long-term debt	0.218	0.146	0.119	0.196	0.303
Short-term debt	0.056	0.057	0.016	0.036	0.073
Cash holdings	0.111	0.139	0.038	0.071	0.123
Profitability	0.072	0.097	0.035	0.066	0.106
B/M	0.502	0.416	0.197	0.369	0.669
Momentum	0.292	0.387	0.077	0.288	0.435
Idiosyncratic risk	0.008	0.008	0.003	0.006	0.009
Number of firms					279

Notes: ESG Score is the total ESG Score of a company ranging from 0 to 1. Crisis period raw ret. is the buy-and-hold return between 19th of February and 23rd of March 2020. Crisis period mkt-adj. ret. is the market model adjusted return over the period 19th of February to 23rd of March 2020, with market model estimated over the 60-month period ending December 2019. Post-crisis period raw ret. is the buy-and-hold return between 24th of March 2020 and 5th of June 2020. Post-crisis period mkt-adj. ret. is the marked adjusted return between 24th of March 2020 and 5th of June 2020, using the previously estimated market model. Market Capitalization is displayed in billions of Euros. Long-Term Debt is all interest-bearing financial obligations (excluding amounts due within one year) divided by total assets. Short-Term Debt is the debt to be paid within one year including the current portion of long-term debt divided by total assets. Cash Holdings is cash and short-term investments divided by total assets. Profitability is the operating income divided by total assets. Book-to-Market is the inverse of Market-to-Book. Momentum is the raw annual stock return in 2019. Idiosyncratic risk is the residual variance from the estimated market model. Financial firms and micro-caps (firms with under 250 million Euros market capitalization at the 2019 financial statement) are removed from the sample. All control variables are winsorized at the 1st and 99th percentiles.

Table 5. Pearson's correlation matrix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Crisis period raw ret.	1												
(2) Crisis period mkt-adj. ret.	0.55***	1											
(3) Post-crisis period raw ret.	-0.48***	-0.21***	1										
(4) Post-crisis period mkt-adj. ret.	-0.34***	-0.61***	0.82***	1									
(5) ESG Score	0.11*	0.15**	-0.13**	-0.14**	1								
(6) Market cap (Billions €)	0.22***	0.14**	-0.15**	-0.13**	0.41***	1							
(7) Long-term debt	-0.27***	-0.30***	0.01	0.09	-0.10	-0.08	1						
(8) Short-term debt	-0.05	-0.08	0.00	0.04	-0.12**	-0.10	0.11*	1					
(9) Cash holdings	0.07	0.24***	0.12*	-0.05	-0.09	-0.01	-0.33***	-0.23***	1				
(10) Profitability	0.15**	0.11*	-0.07	-0.08	0.08	0.22***	0.02	0.02	-0.33***	1			
(11) B/M	-0.28***	-0.07	-0.01	-0.06	0.02	-0.17***	0.11*	0.02	-0.19***	-0.23***	1		
(12) Momentum	0.11*	0.19***	0.06	-0.05	-0.17***	0.03	-0.14**	0.03	0.07	0.15**	-0.31***	1	
(13) Idiosyncratic risk	-0.09	0.34***	0.10*	-0.22***	-0.17***	-0.11*	-0.09	0.45	-0.09	0.01	0.01	0.02	1

Notes: Correlations between the variables. Statistical significancy is indicated as 1% (***), 5% (**), and 10% (*).

5.3 Methodology

The main methodology and model specifications strictly follow the earlier work laid out by Bae et al., (2021), who inspected the COVID-19 period returns and their correlation with ESG scores, and Lins et al., (2017) who covered the same topic but in the context of the financial crisis. Regression analysis of cross-sectional data includes controls for industry, the estimated Fama-French three factor betas and firm-specific characteristics. Formula 1 presents the main regression of this study,

$$R_i = \beta_0 + \beta_1 ESG_i + \sum \beta_j \text{Control variables} + \sum \beta_k \text{Factor loadings} \quad (1) \\ + \sum \beta_l \text{Industry fixed effects} + \varepsilon_i,$$

where R_i is either the raw or market adjusted return of stock i during the crisis or post-crisis period. All the variables are explained in Table 6 below.

Table 6. Regression variables.

VARIABLE	DESCRIPTION
Crisis period raw return	Buy-and-hold return between 20th of February and 23rd of March 2020.
Crisis period mkt-adj. return	Market model adjusted return over the period 20th of February to 23rd of March 2020, with market model estimated over the 60-month period ending December 2019.
Post-crisis period raw return	Buy-and-hold return between 24th of March 2020 and 5th of June 2020.
Post-crisis period mkt-adj. return	Market adjusted return between 24th of March 2020 and 5th of June 2020, using the previously estimated market model.
ESG Score	Total ESG Score of a company scaled to range from 0 to 1.
Market capitalization (in billions of €)	Firm market capitalization scaled to billions.
Long-term debt	All interest-bearing financial obligations (excluding amounts due within one year) divided by total assets.
Short-term debt	Debt to be paid within one year including the current portion of long-term debt divided by total assets.
Cash holdings	Cash and short-term investments divided by total assets.
Profitability	Operating income divided by total assets.

VARIABLE	DESCRIPTION
Book-to-Market	Inverse of Market-to-Book; the book value of equity divided by market value of equity.
Momentum	Raw annual stock return in 2019.
Idiosyncratic risk	Residual variance from the estimated market model.

6 Research results

This chapter presents the research results which were obtained using the EViews program. In the first section, the main regressions of the study are reported. All regressions in the empirical part include raw and market-adjusted returns as dependent variables. ESG is the main variable of interest. The models were tested for the crisis period (20.02.2020—23.03.2020) and the post-crisis period (24.03.2020—05.06.2020). Regressions were also run with and without firm-specific control variables. Industry fixed effects and Fama-French three factor model loadings were included in all model specifications. The secondary analysis focused on the details of the ESG scores. The scores were divided into ten subcomponents of the environmental, social, and governance pillars as classified in LSEG Thomson Reuters ESG data. Similarly, these variables were placed in the regressions with and without firm-specific controls for both periods.

6.1 CSR and stock returns during and after the COVID-19 crisis

To examine the relationship between corporate social responsibility (CSR) and stock returns during the COVID-19 pandemic, the following regression model (1) as defined in the methodology section was estimated.

$$R_i = \beta_0 + \beta_1 ESG_i + \sum \beta_j \text{Control variables} + \sum \beta_k \text{Factor loadings} + \sum \beta_l \text{Industry fixed effect} + \varepsilon_i \quad (1)$$

This specification tests the hypothesis one, whether higher levels of corporate social responsibility (CSR), as measured by ESG scores, improved stock returns of Nordic companies during the COVID-19 pandemic.

The regressions were run with and without firm-specific control variables for the crisis period and post-crisis period. The findings are reported in Table 7. Industry fixed effects and Fama-French three factor loadings are included in all regressions in columns (1)–(8). In columns (1) and (3), the dependent variable is raw crisis period returns. First regression in column (1) is run without firm-specific control variables, including only industry fixed effects and factor loadings. The main variable of interest is ESG. The ESG variable has a positive coefficient of 0,018. The coefficient is not statistically significant. Given that the ESG score is standardized to a [0, 1] interval, the coefficient estimate implies that a firm transitioning from the minimum ESG score (0) to the maximum score (1) is associated with almost trivial and economically nonsignificant 1,8 percentage point increase in raw stock returns in baseline specification. Furthermore, as shown, this relationship is not statistically significant.

Column (3) shows opposite effect for ESG score on raw stock returns, after firm-specific control variables are added. The coefficient of ESG is again not statistically significant. The economic scale of the effect is also small, given that a firm with an ESG score of 0 was associated to only 5,5 percentage point differential in raw crisis period returns compared to firm with a maximum score of 1. The R-squared from column (1) model is improved from 0,337 to 0,392, showing that controlling for industries and factor loadings explains most of the returns. Market capitalization and long-term debt show statistically significant coefficients on the 1% level. For market capitalization, the coefficient is approximately 0,0027, which translates to 0,29 percentage point increase in returns when adding one billion on firm market capitalization. One standard deviation increase (12,609) in firm market capitalization is associated with approximately 3,40 percentage points higher raw returns, which is a relatively small economic impact, the crisis period mean raw return being -37 % for the sample. For long-term debt the one standard deviation (0,146) increase is linked to -2,32 percentage point change in raw returns. This effect is once again economically small. Profitability has a coefficient of 0,136 and it is statistically significant at the 10 % level. One standard deviation increase in profitability is related to

a 1.32 percentage point increase in raw crisis period returns. The rest of the variables are not statistically significant in column (3).

After analyzing the crisis period raw return regressions, there is no evidence that ESG scores affected returns. Results are corroborated by similar coefficient signs and significances observed by Bae et al. (2021) and Ding et al. (2021) for crisis period return models. In their studies, cash holdings were also strongly positively linked to crisis period returns, whereas in this sample that was not the case.

In columns (2) and (4), the dependent variable is market adjusted return. In Column (2) ESG score shows positive connection to crisis period market adjusted returns, but the coefficient is not statistically significant.

In column (4) the effect of ESG on returns is close to zero and not statistically significant. Market capitalization and long-term debt are significant at the 1 % level, book-to-market at the 5 % level and momentum at the 10 % level. One standard deviation increase in market capitalization ($12,906 * 0,0028$) and long-term debt ($0,145 * -0,171$) have approximately 3,61 and -2,48 percentage point effect on market adjusted crisis period stock return, respectively. For long-term debt the coefficient is nearly equivalent to the raw return model. Book-to-market in turn, has a positive coefficient of 0,073. One standard deviation increase ($0,416 * 0,076$) thus translates to an increase of 3,16 percentage points in market adjusted returns. Momentum has a coefficient of 0,054 and one standard deviation ($0,387$) increase translates to 2,09 percentage point increase in market-adjusted return. All the forementioned variables have an economically meaningful effect on market adjusted returns during the crisis.

6.2 CSR and stock returns in the post-crisis period

At first the returns were regressed without Fama-French control variables (Appendix 1). The ESG variable had statistically significant coefficients in three out of four specifications and economically large negative coefficients in the post-crisis period. However, after running the regressions with Fama-French three factor model loadings added as controls, the role of ESG as explaining the returns was consequently subdued.

For post-crisis period regressions (5)—(8), the R-squared is significantly lower in comparison to crisis period models. That is expected however, as a similar relative drop in the model explanatory power was observed in the study of Bae et al. (2021), when shifting to post-crisis models. For raw return post-crisis model including only industry fixed effects and factor loadings (5), and the model with firm-specific controls (7) added, the R-squared values are 0,176 and 0,204 respectively. In column (5) the economic magnitude of the ESG' effect on raw post-crisis returns is large and statistically significant at 1 % level. A one standard deviation increase in ESG is associated with -4,45 percentage point change in raw post-crisis period stock returns.

In column (7), after adding firm-specific control variables, the statistical significance of ESG fades, but the economic magnitude of ESG coefficient remains prominent. In this column market capitalization and book-to-market are statistically significant at the 10 % and 5 % levels. One standard deviation change in market capitalization ($12,906 \times -0,0024$) and book-to-market ($0,416 \times -0,144$) are associated with -3,10 and -5,99 percentage point changes in raw post crisis period returns, respectively.

In columns (6) and (8), market-adjusted returns are examined. In column (6) the economic significance of the ESG score remains notable in the stripped model and the variable is statistically significant at the 5 % level. A one standard deviation increase in ESG score is associated with -3,77 percentage point change in the post-crisis period market-adjusted returns. In column (8) firm-specific control variables are added. The economic

significance of ESG score remains similar to the raw return model in column (7), although lower than in the model without firm-specific control variables. That said, the coefficient of ESG loses its statistical significance in column (8). Market capitalization and book-to-market are statistically significant, at the 10 % and 1 % levels, respectively. A one standard deviation increase in market capitalization is linked to approximately -3,48 percentage point decrease in post-crisis market-adjusted returns. For the book-to-market the same interpretation yields an economically large -7,45 percentage point change in market-adjusted return. The rest of the independent variables are not statistically significant.

Further tests were run with ESG controversies score added to the regressions (Table 8). As defined by Thomson Reuters, controversy score measures whether company has had negative exposure in the news connected to environmental, social or governance issues. The score takes a scaled value [0, 1], where values deviating from 1 indicate recent negative news coverage associated with ESG. The results can be seen in Table 8. None of the specifications show a statistically significant effect for recent ESG controversies. Bae et al. (2021) used MSCI concerns which is a corresponding measure in terms of the underlying idea of capturing ESG related problems. They report analogous findings.

The findings of Tables 7 and 8 do not support the directional hypothesis of the thesis that higher Corporate Social Responsibility (CSR) as measured by Environmental, Social, and Governance (ESG) scores improved stock returns during the COVID-19 pandemic. Thus, the null hypothesis is not rejected.

Table 7. CSR and the COVID-19 period related returns.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Crisis period		Post-crisis period					
	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj
ESG	0.018 (0.407)	0.048 (0.866)	-0.055 (-1.023)	-0.013 (-0.199)	-0.256*** (-2.657)	-0.217** (-2.083)	-0.135 (-1.162)	-0.134 (-1.062)
Market cap (billions €)			0.0027*** (3.642)	0.0028*** (3.617)			-0.0024* (-1.646)	-0.0027* (-1.848)
Long-term debt			-0.159*** (-3.102)	-0.171*** (-2.927)			0.007 (0.053)	0.010 (0.078)
Short-term debt			-0.076 (-0.515)	-0.031 (-0.215)			-0.160 (-0.582)	-0.175 (-0.632)
Cash holdings			0.046 (0.576)	0.056 (0.634)			0.088 (0.606)	0.063 (0.380)
Profitability			0.136* (1.771)	0.074 (0.710)			-0.157 (-0.860)	-0.137 (-0.731)
B/M			0.019 (0.720)	0.073** (2.235)			-0.144** (-2.435)	-0.179*** (-2.689)
Momentum			0.031 (1.270)	0.054* (1.671)			0.015 (0.236)	-0.021 (-0.295)
Idiosyncratic risk			0.036 (0.019)	1.257 (0.619)			3.649 (1.059)	-0.309 (-0.081)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fama-French loadings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.337	0.516	0.392	0.555	0.176	0.248	0.204	0.266
Observations	279	279	279	279	279	279	279	279

Notes: This table presents regression estimates for crisis period and post-crisis period. Heteroskedasticity-robust Huber-White t-statistics are in parentheses. Statistical significance is indicated as 1% (***), 5% (**), and 10% (*).

Table 8. CSR and the COVID-19 period related returns with ESG controversies added.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Crisis period				Post-crisis period			
	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj
ESG	0.020 (0.408)	0.046 (0.790)	-0.047 (-0.863)	-0.007 (-0.105)	-0.208** (-2.017)	-0.167 (-1.511)	-0.115 (-0.972)	-0.113 (-0.892)
ESG controversies	0.004 (0.117)	-0.003 (-0.075)	0.032 (0.838)	0.025 (0.611)	0.112 (1.261)	0.119 (1.342)	0.087 (0.857)	0.090 (0.909)
Firm-specific controls	No	No	Yes	Yes	No	No	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fama-French loadings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.334	0.514	0.391	0.553	0.178	0.250	0.204	0.266
Observations	279	279	279	279	279	279	279	279

Notes: This table presents regression estimates for crisis period and post-crisis period. ESG controversies takes a value of 1 as default but will be lower if a company has had negative exposure in the news connected to environmental, social or governance issues. Heteroskedasticity-robust Huber-White t-statistics are in parentheses. Statistical significance is indicated as 1% (***), 5% (**), and 10% (*).

6.3 ESG components and stock returns in crisis and post-crisis period

In this chapter the results of the regressions with the three pillars E, S and G, as main variables of interest are presented. First, environmental, social, and governance pillars were examined as they are, and finally they were split further into ten subcomponents as classified by Thomson Reuters. Pillars take values of 0-100, but they were scaled to range [0, 1] to ease the interpretation of the variables.

The three pillars and the subcomponents are not weighed equally in Thomson Reuters' total ESG score calculation. Instead, the total ESG score is a weighted average of the underlying ten category scores. To construct E, S, and G for this study, each pillar's score was calculated by aggregating its subcomponents using their relative weights (e.g., 32,78 % for Resource Use within the environmental pillar as environmental category includes 61 indicators and Resource Use is calculated using 20 indicators). In the regressions, an equal weight was given to each of the calculated ESG pillars.

The regressions with ESG pillars are shown in Table 9. In the crisis period only Governance pillar appears as statistically significant at the 5 % level in raw return columns (1) and (3). The coefficient is negative, and it indicates that when governance score is given an increment from minimum of 0 to maximum score of 1, it is linked to a decrease of approximately 8,7 percentage points in raw returns in column (3). For market-adjusted specifications the coefficient stays negative but not statistically significant. Environmental and social pillars are not statistically significant in any specification. However, for environmental pillar the coefficients are slightly positive whereas for social pillar the coefficients are essentially zero with small t-stats.

Ding et al. (2021) and Qiu et al. (2021) observed in their global samples that all pillars were protecting stock values during the pandemic, which is not observed in this sample. Albuquerque et al. (2020) displayed, that firms in the U.S. with high combined environmental and social scores significantly outperformed other firms. Also Garel & Petit-

Romec (2021) report similarly that the U.S. firms with higher environmental scores were performing better. In contrast, Bae et al. (2021) conclude that no CSR activities affected stock returns during the pandemic and they partly refute findings of Garel & Petit-Romec (2021) by rerunning their models with microcaps excluded and controlling for logarithm of market capitalization. The results of this study align mostly with Bae et al. (2021) with no clear evidence of individual pillars affecting pandemic period stock returns.

For the post-crisis period environmental pillar has statistically and economically significant coefficients in columns (5) and (6). The statistical significance disappears after adding firm-specific controls, but the coefficients remain economically meaningful. The environmental pillar is most likely driving also the total ESG score post-crisis coefficients in Table 7, which are also negative. The environmental score observation in Table 9 is consistent with Bae et al. (2021), who observe similar economically large negative coefficients that lose statistical significance with firm-specific controls. Social and governance pillars are not statistically significant in the post-crisis period regressions.

Table 9. E, S, and G pillar COVID-19 related returns.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Crisis period				Post-crisis period			
	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj
Environmental	0.065 (1.418)	0.066 (1.138)	0.020 (0.403)	0.033 (0.543)	-0.267*** (-2.917)	-0.240** (-2.501)	-0.161 (-1.617)	-0.164 (-1.604)
Social	0.005 (0.089)	0.037 (0.487)	-0.020 (-0.318)	-0.007 (-0.086)	-0.044 (-0.335)	-0.046 (-0.307)	-0.063 (-0.465)	-0.052 (-0.348)
Governance	-0.084** (-2.082)	-0.068 (-1.386)	-0.087** (-2.163)	-0.061 (-1.226)	0.076 (0.788)	0.072 (0.714)	0.090 (0.953)	0.067 (0.683)
Firm-specific controls	No	No	Yes	Yes	No	No	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fama-French loadings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.334	0.514	0.391	0.553	0.178	0.250	0.204	0.266
Observations	279	279	279	279	279	279	279	279

Notes: This table presents regression estimates for crisis period and post-crisis period. Environmental score consists of Resource Use, Emissions, and Environmental Innovation. Social consists of Workforce, Human Rights, Community, and Product Responsibility. Governance consists of Management, Shareholders, and CSR Strategy. Heteroskedasticity-robust Huber-White t-statistics are in parentheses. Statistical significance is indicated as 1% (***), 5% (**), and 10% (*).

6.4 Subcomponents of ESG pillars and the COVID-19 related stock returns

This section breaks down the three pillars of ESG into ten subcomponents as classified by Thomson Reuters. The returns of the crisis period and post-crisis period were regressed on all subcomponents' net scores that take values of 0-100, but which were also scaled to range [0, 1] to ease the interpretation of the variables. Thomson Reuters divides the environmental pillar into resource use, emissions, and environmental innovation. Social pillar constituents are workforce, human rights, community, and product responsibility. Governance pillar covers management, shareholders and CSR strategy. The regression results are presented in Table 10.

The models with ESG subcomponents have roughly the same explanatory power as the plain ESG score models, as evidenced by similar adjusted R-squared values in all specifications. In all columns from (1) to (8), only environmental innovation, community, and shareholders variables appear as statistically significant. Environmental innovation score shows statistically significant positive coefficient at column (2). In all post crisis regressions (5)–(8), the coefficient is negative and on three out of four occasions it is statistically significant at 10 % and at the 5% levels. The statistical significance remains in the market-adjusted return column (8), even after adding all controls. Based on the coefficients, environmental innovation had a connection to negative returns post-crisis. Environmental innovation subcomponent is thus the most prominent component affecting also the whole E pillar in the previous Table 9.

Community score is statistically significant and negative post-crisis at the 10 % level in columns (5) and (7). As column (7) indicates, the result has robustness to controls in raw returns, but overall, the effect is not very strong across the specifications. Shareholders score has a statistically significant negative coefficient in columns (1) and (2), but the effect fades after adding firm-specific controls. In general, the Shareholders component seemed to have a slight negative association with stock returns during the pandemic.

The coefficient turned positive for the recovery period, yet none of the coefficients are statistically significant in post-crisis columns.

Overall, the results are mixed, in similar vein to findings of Bae et al (2021), who also ran regressions on net scores of ESG subcomponents. There is no strong evidence of any component affecting stock returns during or after the pandemic. For Environmental Innovation there is some weak evidence of lower post-crisis returns.

Similar analyses regressing the COVID-19 period returns on subcomponents of individual ESG pillars have also been conducted Ding et al. (2021), Garel & Petit-Romec (2021), and Qiu et al. (2021). Ding et al. (2021) found negative effects for the antitakeover devices on the crisis period returns. Shareholders score takes into account the antitakeover devices but no clear effect is detected in this study. Garel & Petit-Romec (2021) found a positive association with environmental components and returns. In Table 10, the coefficients of the three environmental components are mostly positive although only environmental innovation appears statistically significant in specification without firm-specific controls. Thus, similar results with Garel & Petit-Romec (2021) are not observed in this study. Qiu et al., (2021) notice a strong positive association with returns and community scores, which is again not observed in this study.

Table 10. Pillar subcomponents and the COVID-19 related returns.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Crisis period				Post-crisis period			
	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj
Resource Use	0.019 (0.445)	0.004 (0.075)	-0.003 (-0.083)	-0.009 (-0.192)	-0.055 (-0.565)	-0.022 (-0.223)	-0.057 (-0.580)	-0.033 (-0.330)
Emissions	0.008 (0.193)	0.031 (0.642)	0.019 (0.480)	0.028 (0.604)	-0.084 (-0.933)	-0.104 (-1.094)	-0.017 (-0.185)	-0.032 (-0.339)
Env. Innovation	0.045 (1.551)	0.055* (1.772)	0.016 (0.572)	0.031 (0.996)	-0.106* (-1.774)	-0.121** (-1.983)	-0.085 (-1.354)	-0.112* (-1.729)
Workforce	0.014 (0.273)	0.032 (0.496)	-0.023 (-0.420)	-0.004 (-0.062)	0.173 (1.557)	0.125 (1.087)	0.100 (0.902)	0.072 (0.632)
Human Rights	-0.029 (-0.683)	-0.017 (-0.377)	-0.019 (-0.453)	0.005 (0.098)	-0.074 (-0.797)	-0.069 (-0.736)	-0.050 (-0.510)	-0.073 (-0.723)
Community	0.046 (1.181)	0.001 (0.018)	0.021 (0.541)	-0.033 (-0.747)	-0.133* (-1.728)	-0.070 (-0.876)	-0.137* (-1.709)	-0.061 (-0.743)
Product Resp.	-0.025 (-0.761)	-0.000 (-0.007)	-0.009 (-0.273)	0.012 (0.325)	-0.035 (-0.489)	-0.045 (-0.624)	-0.022 (-0.299)	-0.036 (-0.482)
Management	-0.043 (-1.325)	-0.005 (-0.132)	-0.050 (-1.628)	-0.009 (-0.229)	0.016 (0.214)	-0.025 (-0.312)	0.045 (0.562)	-0.013 (-0.148)
Shareholders	-0.051* (-1.942)	-0.067** (-2.297)	-0.035 (-1.318)	-0.040 (-1.338)	0.044 (0.848)	0.070 (1.284)	0.024 (0.450)	0.043 (0.782)
CSR Strategy	-0.018 (-0.518)	-0.029 (-0.723)	-0.020 (-0.595)	-0.021 (-0.502)	0.058 (0.784)	0.082 (1.078)	0.077 (1.008)	0.089 (1.111)
Control variables	No	No	Yes	Yes	No	No	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fama-French loadings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.337	0.516	0.392	0.555	0.176	0.248	0.204	0.266

Observations	279	279	279	279	279	279	279	279
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Notes: This table presents ESG subcomponent regression estimates for crisis period and post-crisis period. The scores capture ESG performance across ten categories: Resource Use is efficiency in materials, energy, and water use; Emissions is reduction of environmental pollutants; Environmental Innovation is eco-friendly product/process innovation; Workforce is safety, diversity, and employee development; Human Rights is adherence to human rights standards; Community is ethics, public health, and corporate citizenship; Product Responsibility is customer safety, quality, and privacy; Management is the commitment towards best governance principles; Shareholders is equitable treatment of shareholders and anti-takeover safeguards; CSR Strategy is integration of financial, social, and environmental priorities on daily level (Thomson Reuters, Asset4 Data Glossary in Datastream). Heteroskedasticity-robust Huber-White t-statistics are in parentheses. Statistical significance is indicated as 1% (***), 5% (**), and 10% (*).

7 Discussion and conclusion

This final chapter outlines the background of the paper once more and then it moves to an overview of the results and practical implications. The limitations of the study as well as suggestions for future research are suggested.

This paper was grounded in three theoretical frameworks central to CSR literature: institutional theory, stakeholder theory, and legitimacy theory. These theories collectively emphasize the connection between societal trust, corporate behavior, and stakeholder expectations. As discussed earlier in this thesis, corporate social responsibility is an increasingly relevant topic for various stakeholders connected to firms and the considerations for these values are gradually added in investment decisions by investment entities. Firms can also aim to enhance their contribution towards CSR, because societal norms are adjusting, and some values are becoming more central. Finally, to also maintain their legitimacy in the eyes of society and to validate their existence firms must act in the realms of laws and restrictions. Consequently, the topic should not be entirely dismissed as a cost-inducing burden. Especially, in the context of this thesis where Nordic firms were inspected, the role of trust in society is emphasized and therefore social responsibility related activities should be seen as highly valued.

The COVID -19 caused an exogenous shock to the economy and consequently offered an opportunity to inspect the effects of corporate social responsibility on stock returns during the crisis. Nordic region, for the mentioned reasons, suited well for the scrutiny. The main interest of the study was to find an answer to whether ESG scores, which proxy the firm-level CSR, protected firm share price from a decline around the crisis.

Some previous papers have found a positive connection between environmental and social pillars and the COVID-19 period stock returns. This thesis followed methodology laid out by earlier studies, which had been conducted on the connection of CSR and crisis period stock returns. Contrary to what could be expected based on the relevance of the

CSR related theories in the Nordic environment, the findings of the study indicate that there was no connection between ESG scores and the stock returns of the Nordic listed companies during the COVID-19 pandemic. For the post-crisis period there was weak evidence of higher environmental scores being associated with lower returns, which has also been explored by Bae et al., (2021). This thesis contributes by focusing exclusively on the Nordic region, which had not been explored previously in the literature.

Since there was no connection found between corporate social responsibility and the COVID-19 period Nordic stock returns, investors who had preference for higher ESG stocks, were not benefiting from the tilt in their portfolios. Moreover, corporate managers would have found no utility in investing more in particular sustainability acts preceding the crisis when measured by realized stock returns. Investors should likely avoid overweighing stocks with high environmental scores, since the weak evidence hints at lower returns for such stocks in the post-crisis recovery period. Despite the findings, not too far-reaching conclusions can be made about future crises and the price behavior of sustainable stocks. For example, in the U.S. ESG scores protected stock prices during the financial crisis, whereas not such phenomenon was observed during the COVID-19 crisis.

This study does not come without limitations. For the stock returns, only buy-and-hold abnormal returns were used, whereas in many studies cumulative abnormal returns have been utilized. Using both abnormal return measures could offer a more robust and complete overview of the returns. Sample size was also a limiting factor in conducting country and industry focused analysis. Another limitation is using only LSEG Thomson Reuters ESG scores. Previous literature has utilized scores from different databases such as MSCI and Bloomberg. It is well known that different data providers tend to have contradictory ratings between the scores, that could lead to different outcomes.

The notions of the limitations lead us to future research suggestions. Upcoming literature could incorporate cumulative abnormal returns alongside buy-and-hold abnormal returns. To address inconsistencies in ESG ratings and add robustness, researchers

should employ multi-source ESG data from different providers. Future studies could explore how different ESG rating methodologies (e.g., scope, weighting, disclosure reliance) influence empirical outcomes. Future studies have also the possibility to focus on the upcoming global crises and retest the connection of CSR and returns in the Nordic context.

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Appendices

Appendix 1. CSR and COVID-19 period related returns without Fama-French three factor model controls.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Crisis period		Post-crisis period					
	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj	Raw	Mkt-adj
ESG	0.060 (1.306)	0.135** (2.048)	-0.058 (-1.036)	0.102 (1.437)	-0.325*** (-3.448)	-0.338*** (-3.191)	-0.142 (-1.200)	-0.279** (-2.152)
Market cap (billions €)			0.0029*** (3.933)	0.0027*** (2.807)			-0.0031** (-2.207)	-0.0032** (-2.080)
Long-term debt			-0.159*** (-2.949)	-0.159** (-2.248)			-0.005 (-0.032)	-0.015 (-0.101)
Short-term debt			-0.033 (-0.216)	-0.072 (-0.456)			-0.263 (-0.965)	-0.181 (-0.668)
Cash holdings			0.045 (0.530)	0.193 (1.543)			0.075 (0.550)	-0.111 (-0.589)
Profitability			0.119 (1.462)	0.313* (1.913)			-0.131 (-0.740)	-0.409* (-1.910)
B/M			-0.012 (-0.537)	0.096** (2.493)			-0.109** (-2.073)	-0.208*** (-3.083)
Momentum			0.025 (1.040)	0.119*** (3.185)			0.033 (0.542)	-0.086 (-1.190)
Idiosyncratic risk			-1.964 (-1.140)	2.188 (1.072)			6.281** (2.022)	-1.070 (-0.263)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.276	0.171	0.361	0.292	0.149	0.096	0.190	0.130

Observations	279	279	279	279	279	279	279	279
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Notes: This table presents regression estimates for crisis period and post-crisis period. Heteroskedasticity-robust Huber-White t-statistics are in parentheses. Significance levels are indicated as 1% (***), 5% (**), and 10% (*).