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ESG news and stock market reaction: Evidence from Nordic countries

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TIIVISTELMÄ:
Sijoittajat huomioivat yhä enenevässä määrin sijoituskohteiden arvioinnissa ympäristöön, yhteiskuntaan ja yritysten hallintotapaan liittyviä tekijöitä tunnistaakseen niihin liittyviä kasvumahdollisuuksia ja riskejä. Tämän seurauksena yritykset ovat mukauttaneet viestintästrategioitaan ja julkaisevat tietoja, joissa he korostavat heidän suoriutumistaan ja edistyksiään ESG-asioissa. Medialla ja uutisilla on keskeinen rooli sijoittajien mielikuvien muokkaamisessa ja tiedon välittämisessä koskien yritysten vastuullisuutta sekä vastuuttomuutta. Nykypäivänä uutisten ja saatavilla olevan tiedon määrän kasvaessa herää kysymys, onko ESG-uutisilla vaikutusta yritysten arvoon.

Tämän tutkielman tarkoitus on selvittää, onko mediassa julkaistuilla ESG-uutisilla vaikutusta yritysten arvoon pohjoismaisilla markkinoilla. Vaikka pohjoismaita pidetään laajalti kestävän kehityksen edelläkävijöinä, aiempaa tutkimusta ESG-uutisten vaikutuksista kyseisiltä markkinoilta ei ole. Toinen keskeinen tavoite on antaa kattava analyysi siitä, missä määrin positiiviset ja negatiiviset ESG-uutiset vaikuttavat yrityksen osakkeen arvoon. Tutkielma pyrkii siten vastaamaan kysymykseen, rankaisevatko sijoittajat yrityksiä niiden vastuuttomasta käyttäytymisestä yhtä paljon kuin he palkitsevat yrityksiä niiden vastuullisesta käyttäytymisestä. Kolmanneksi tutkielmassa tarkastellaan sitä, vaihteleeko uutisen aiheuttama vaikutus yrityksen osakkeen hintaan sen mukaan, mikäli uutinen käsittelee ympäristöön, yhteiskuntaan vai yritysten hallintotapaan liittyviä asioita.

Tässä tutkimuksessa ESG-uutisten julkaisuun liittyvää osakemarkkinareaktiota tutkitaan tapahtumatutkimusmenetelmällä. Tutkimuksessa analysoidaan 40 pohjoismaisen yrityksen päivittäisiä tuottoja vuosien 2013 ja 2020 välillä. MSCI Nordic Countries -indeksi edustaa markkinatuottoa tapahtumatutkimuksessa. Tutkimuksessa analysoidaan yhteensä 16 765 ESG-uutista, jotka on kerätty Bloomberg Terminalista. Empiiriset tulokset osoittavat, että negatiivisia ESG-uutisia seuraa tilastollisesti merkitsevä negatiivinen markkinareaktio. Tutkielmassa selviää, että negatiivisten ja positiivisten ESG-uutisten vaikutusten välillä on epäsymmetriaa, sillä positiivisten uutisten ei havaita vaikuttavan yrityksen arvoon. Lisäksi tulokset osoittavat, että vahvimmat reaktiot liittyvät yhteiskuntaa ja ympäristöä käsitteleviin negatiivisiin uutisiin. Tulokset viittaavat siihen, että yritysten vastuullisuuteen liittyvät vaatimukset ovat kasvaneet, ja vastuuttomasta toiminnasta aiheutuvat negatiiviset vaikutukset ovat suuremmat kuin vastuullisesta toiminnasta koituvat positiiviset vaikutukset. Nämä tulokset ovat kiinnostavia sekä yritysjohdolle että sijoittajille, ja auttavat ymmärtämään, miten markkinat reagoivat julkisesti saatavilla oleviin yritysten vastuullisuutta käsitteleviin tietoihin.

AVAINSANAT: ESG, corporate social responsibility, news, event study, stock market reaction, socially responsible investing

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ABSTRACT:
Investors are increasingly applying ESG factors to their investment processes to identify growth opportunities and risks. Consequently, companies have adapted their communication strategies by disclosing information that highlights their ESG improvements. Furthermore, news form expectations and opinions of investors and the media plays an essential role in the dialogue around corporate social responsibility as well as irresponsibility. With an overwhelming flow of news and information available to investors, the question arises as to whether ESG news affects a company's value.

The purpose of this thesis is to examine whether ESG news published by the media affects a company's value in the Nordic market. Although the Nordic countries are often perceived as forerunners of sustainability, this market has not been covered in previous research focusing on ESG news and stock market reaction. Second, this paper gives a comprehensive analysis of the extent to which positive and negative ESG news affect firm's stock price. More specifically, this thesis investigates whether investors penalize companies for their irresponsible behaviour as much as they reward responsible behaviour. Third, this paper explores whether the impact of ESG news on firm's stock price varies depending on whether the news addresses environmental, social, or governance issues.

In this study, the stock market reaction associated with the ESG news announcements is examined using an event study method. The daily stock returns of 40 Nordic publicly listed companies are analysed over the period from 2013 to 2020. Moreover, MSCI Nordic Countries Index represents the market returns in the event study. The analysis is based on 16,765 ESG news collected from Bloomberg Terminal. The results show that negative ESG news are followed by a statistically significant negative market reaction. This paper provides evidence that there is an asymmetry between the effects of positive and negative ESG news as positive news are not found to affect the value of a firm. Furthermore, the strongest effects are found regarding negative environmental and negative social news. These findings suggest that there is a growing pressure on companies to behave responsibly and thus the punishment for irresponsible behaviour is greater than the reward for responsible behaviour. These results are relevant to corporate leaders as well as investors to better understand how market reacts to publicly available information on firm's ESG actions.

KEYWORDS: ESG, corporate social responsibility, news, event study, stock market reaction, socially responsible investing

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1 Introduction

Transparency is now the new normal with increasing global awareness and evolving stakeholder expectations. This has led to an unprecedented need for the integration of ESG issues into all aspects of business. Evidence suggests that environmental, social, and governance (ESG) concerns can affect a company's value, and managers can no longer ignore this. Furthermore, the media plays an essential role in the dialogue around corporate social responsibility (CSR).

In the early stages of the COVID-19 pandemic, many were concerned that ESG issues would be overlooked as investors and companies focus on immediate impacts and consequences of the coronavirus pandemic. However, the research by J.P. Morgan (2020) suggests that the crisis has acted as a wake-up call for decision makers to prioritize a more sustainable approach to investment. Lefkovitz (2020) reports that 89% of Morningstar's ESG indices outperformed their broad market counterparts in the first quarter of 2020. Conceivably, some of the few benefits in COVID-19 crisis is the significant boost it has given sustainability and the opportunity it has provided to take advantage of the moment to build a better world (Reynolds, 2020).

A company that neglects employee rights and the environment does not attract investors or financiers. The move towards sustainable investing is a global shift. According to the Forum for Sustainable and Responsible Investment (2020), the total US-domiciled assets under management using sustainable investing strategies was 639 billion dollars in 1995, and by the beginning of 2020, the amount had risen to as much as 17.1 trillion dollars (see Figure 1).

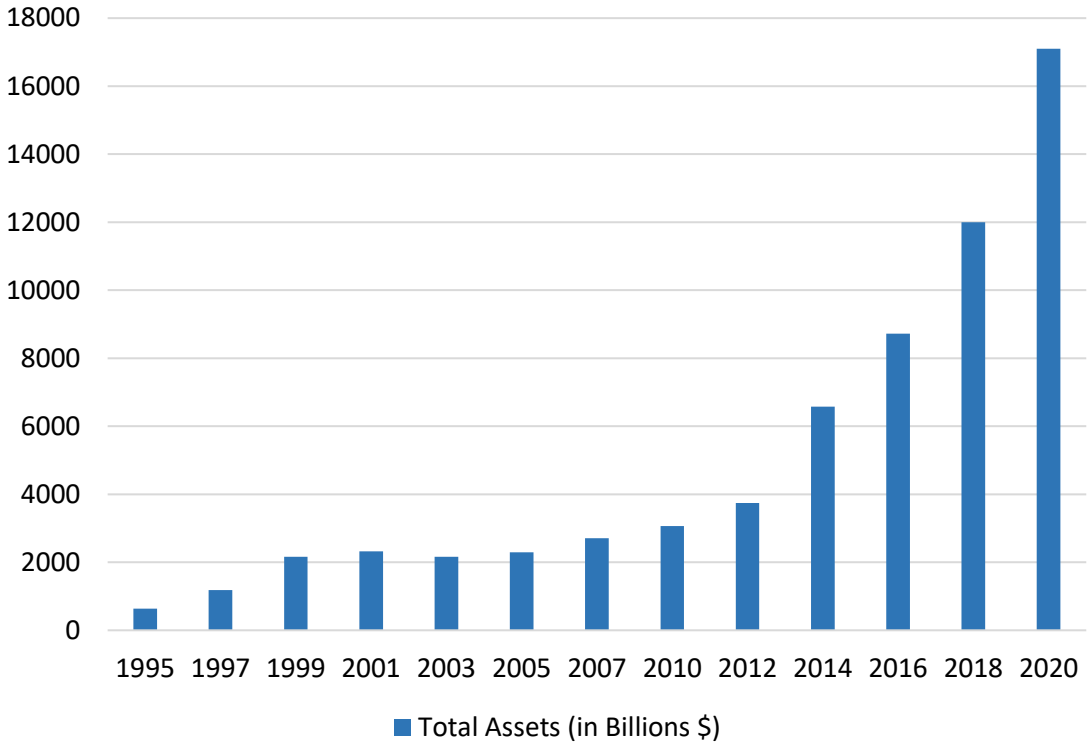

Figure 1. Sustainable investing in the United States 1995–2020 (US SIF, 2021).

However, recent history provides many occasions where the news has revealed information about companies' poor corporate social responsibility that has caused significant destruction of shareholder value. Moreover, Nordic banks appear to be over-represented in cases of banks disciplined for anti-money laundering and sanction violations (Yeoh, 2019, p. 122). Substantial and deeply suspicious money flows were channelled through Danske Bank's Estonian branch totalling over 200 billion dollars between 2007 and 2015 (Danske Bank, n.d.). Danske Bank stock price has declined since March 2017, when Berlingske first published a series of news articles on money laundering claims (Lund et al., 2018).

The distribution of information plays a vital role in shaping financial markets (Strycharz et al., 2018). Moreover, financial news, market forecasts, and corporate news are reflected in volatile stock market reactions. With an overwhelming flow of information

available to investors, the question arises as to whether investors penalize companies for their irresponsible behaviour while rewarding for their responsible behaviour.

1.1 Purpose of the study

The aim of this paper is to give a comprehensive analysis of the extent to which positive and negative ESG news affect firm's stock price. More specifically, the research focuses on the short-term market reaction associated with the ESG news announcements. This study sheds a light on how the market process public environmental, social, and corporate governance information in the short run. Shareholders' reactions reflect how valuable they consider corporate social responsibility. This information is relevant to managers and boards of directors as to whether it is worthwhile to design and implement effective CSR policies to pursue long-term goals.

The stock market reaction associated with the ESG news announcements will be examined using an event study method. The event study is a statistical method for measuring the impact of a specific event on the value of a firm. The idea is to find the abnormal return associated with the event being studied by adjusting the return that stems from the price fluctuations in the overall market. More specifically, cumulative abnormal returns surrounding the events are measured.

Previous research has often focused on so-called extreme events such as oil spills, corporate frauds, and toxic releases. However, corporate social responsibility is an issue that should be considered in the day-to-day practices of a company, not only in avoiding ecological and social disasters. Therefore, the purpose of this study is also to investigate the impact of ordinary ESG news on company's stock price.

The potential number of ESG news to be analysed is enormous: thousands are published every day by the newspapers, non-governmental organizations (NGO), consultants, and the firms themselves. There is an information asymmetry in the financial markets as

investors and regulators cannot observe firm's choices regarding corporate social responsibility. Accordingly, firms have an incentive to greenwash by highlighting their ESG improvements and understating their bad ESG practices. To overcome this challenge, this paper focuses on outcomes of corporate behaviour in the form of news published by the media.

According to RobecoSAM (2021) country ESG ranking, the Nordic countries Sweden, Finland, Norway, and Denmark were ranked top four in the world. As the Nordic countries are widely known for emphasizing the importance of ESG issues, it is interesting to analyse the extent to which ESG news affect firm's stock price in the Nordic market. No previous study on the topic has been conducted on the Nordic market. Thus, this study will contribute to the financial literature which has mainly focused on the reaction in the US stock market.

1.2 Research hypotheses

Numerous studies examine how news affect companies' stock returns and provide evidence that news stories reported by the media contain information that is related to stock market movements (Engelberg & Parsons, 2011; Fang & Peress, 2009; Heston & Sinha, 2017; Tetlock, 2007; Tetlock et al., 2008). According to the efficient market hypothesis (EMH), share prices should reflect all available information affecting firm's future cash flows (Fama et al., 1969). Accordingly, there should be an immediate stock price reaction if investors value the information provided by the news. Thus, the event study method should measure the financial impact of the news on the value of a firm.

This paper provides understanding how investors react to positive and negative ESG news and how event study methodology can be conducted for these kinds of events. Due to the non-financial nature of ESG factors, ESG news are often considered as soft news. The rise in media coverage of ESG news does not yet imply that they have a significant impact on firms' value. Moreover, Orlitzky (2013) argues that ESG information

amplifies noise in the stock market that leads to excess market volatility. He claims that corporate social responsibility is not systematically correlated with firms' economic fundamentals. Second, he states that opportunistic managers are incentivized to distort information about their corporate social responsibility, resulting in information asymmetry in the stock market. However, theoretical research remains unclear about the impact of CSR on company value (Albuquerque et al., 2019).

Several academic papers study the relationship between ESG news and stock price returns. Jacobs et al. (2010) find that the market does not react to ESG news which refers to that ESG information is financially immaterial. However, most prior studies suggests that ESG news affects a company's value (Capelle-Blancard & Petit, 2019; Flammer, 2013; Klassen & McLaughlin, 1996; Krüger, 2015; Serafeim & Yoon, 2021). Based on the prior literature, the first hypothesis is as follows:

H_1: *ESG news have a significant impact on firms' stock price.*

The second hypothesis relates to how investors tend to respond to positive ESG news compared to negative ESG news. The question is whether investors penalize companies for their irresponsible behaviour as much as they reward responsible behaviour. Flammer (2013), Klassen and McLaughlin (1996) and Serafeim and Yoon (2021) find a statistically significant effect in both cases, with positive ESG news followed by a positive reaction and negative ESG news followed by a negative reaction. However, Capelle-Blancard and Petit (2019) and Krüger (2015) provide evidence that negative news has a greater effect, which suggests that the impact is asymmetric. Surprisingly, Krüger (2015) finds that positive news leads to a weakly negative market reaction. This supports the view that a company's ESG efforts are associated with agency costs, which increases a company's costs and weakens its competitiveness (Friedman, 1970). Hence, the second hypothesis is:

H_2: *The impact of ESG news on firm's stock price is larger for negative news compared to positive news.*

There is little research on which ESG area is potentially the most important for investors, and which news will thus cause the greatest stock market reaction. Accordingly, previous studies examining how ESG news affects a company's stock price rarely differentiate the effects between ESG categories. The question arises as to whether it matters if the news is related to environmental, social or governance issues. Knowing how the market processes ESG information is important for business leaders pursuing their long-term goals. Capelle-Blancard and Petit (2019) compare cumulative average abnormal returns between ESG categories, but they do not find difference between them. To provide further insight, this study examines each ESG category separately and explores the differences between them.

1.3 Structure of the thesis

The structure of this thesis is as follows. The second chapter provides an overview of the concepts of ESG and CSR. Furthermore, it discusses how ESG issues are addressed in the Nordic countries. The third chapter reviews existing literature regarding the relationship between news and stock market reactions with focus on studies examining the short-term market reaction associated with the ESG news announcements. The fourth chapter discusses theoretical framework considering the efficient market hypothesis and the effect of CSR on firm value. The fifth chapter includes a description of the data and methodology used in this study. In the sixth chapter, the results of the empirical analysis are presented and discussed. Finally, the seventh chapter provides conclusions and suggestions for further research.

2 Fundamentals of ESG and CSR

Companies have increasingly shifted their focus to engaging in activities aimed at adding value to society. Younger investors and consumers report strong belief in CSR. A 2020 survey for millennials and Gen Zs conducted by Deloitte (2020) reveals that millennials and Gen Zs feel strong sense of responsibility to drive the change they want to see in the world. Three-fourths of respondents said that they will strive to make a positive impact on their community in the future. The study also finds that they want to see both companies and government reflect these same values, and thus put people ahead of profits. Moreover, results show that millennials and Gen Zs want companies and government to prioritize environmental sustainability and create opportunities for employees to participate more in their community.

According to United Nations Principles for Responsible Investment (PRI), climate change is the highest priority of environmental, social and governance issues (PRI, n.d.). A primary goal of the 2021 United Nations Climate Change Conference (COP26) in Glasgow was to accelerate action and ambition towards the goals of the Paris Agreement (United Nations, n.d.). A report published by the Intergovernmental Panel on Climate Change (IPCC) states, that climate change poses a fundamental threat, and that there is little time to limit the average global temperature to 1.5 degrees (IPCC, 2021).

ESG issues are of increasing interest to companies, their investors, and other stakeholders. Furthermore, regulators are placing more emphasis and requirements on ESG-related disclosure. This chapter provides more depth understanding of the concepts of ESG and corporate social responsibility. In addition, subchapter 2.1 outlines how ESG issues are addressed in the Nordic countries. Finally, subchapter 2.3 discusses different perspectives on how CSR can affect a company's financial performance.

2.1 Environment, social and governance (ESG)

Historically, investors awareness of ESG issues began with the exclusion of “sin stocks” (Capelle-Blancard & Petit, 2019, p. 546). A sin stock is a publicly traded company engaging in practise that is considered unethical or immoral, such as alcohol, tobacco, gambling, and weapons manufacturers (Blitz & Fabozzi, 2017, p. 106). Although ESG investment strategies and practices have evolved, literature provides evidence that investors seem to penalize companies more for their irresponsibility compared to reward for responsible behaviour (Capelle-Blancard & Petit, 2019; Krüger, 2015).

Today, one of every three dollars of assets under management is invested using ESG criteria (US SIF, 2021). Environmental, social, and corporate governance are the three key factors in assessing the sustainability and societal impact of an investment or business. Fuelled by increased public activism on issues such as climate change, water supply, diversity, and human rights, the adoption of ESG principles has grown significantly in recent years.

Socially conscious investors use set of standards to screen potential investments by assessing the potential risks associated with a company and how the company is prepared for them. There are several different terms to describe sustainable investing, such as socially responsible investing, ethical investing, and impact investing. The Forum for Sustainable and Responsible Investment (US SIF) defines sustainable investing as “an investment discipline that considers environmental, social and corporate governance criteria to generate long-term competitive financial returns and positive impact” (US SIF, 2021).

The environmental portion of ESG reflects how a company interacts with its environment. More specifically, it considers the impact of company’s use of natural resources and the effects of their operations and supply chains on the environment. Moreover, the environmental factor invokes issues such as greenhouse gas emissions, pollution, climate change, deforestation, water use and utilization of resources. Environmental issues are becoming increasingly important as the effects of various unprecedented climatic events

like heatwaves, floods, wildfires, and hurricanes, worsen. Companies that fail to incorporate the environmental impact of their practices may be exposed to a higher financial risk. Accordingly, a company neglecting the impact of its business on the environment leaves itself open to regulatory sanctions, criminal prosecution, and reputational damage. An extreme example is the Deepwater Horizon oil spill in the Gulf Mexico in 2010, which cost the oil company BP no less than 61.6 billion dollars (Mufson, 2016).

The social factor refers to how a firm manages its relationships with its employees, customers, suppliers as well as the surrounding community. Element S in ESG examines whether a firm provides a healthy and safe work environment for its employees and whether it donates its resources to the local community. Social issues have become increasingly prominent in the public debate. Moreover, the world's largest asset manager, BlackRock, is forcing companies for greater ethnic and gender diversity on their boards and workforces (Kishan, 2020). According to a report published by the United Nations Principles for Responsible Investment, the social issues in ESG can be the most difficult for investors to assess (Sloggett & Reinboth, 2017). Moreover, they argued that the lack of data and consistency poses challenges in assessing how social matters affect a company's performance.

Governance covers a wide range of business activities, including everything related to how a company is governed and how the company's management and board relate to different stakeholders. Moreover, it is the set of rules, procedures, auditing, structure, and policies that guide a company. Governance element involves issues such as board composition, executive compensation, and corporate disclosure. Investors want to know that the company they invest in has ethical governance practices, and that the company's accounting is accurate and transparent. A classic example of poor governance is the Volkswagen emissions scandal in 2015, where German car manufacturer Volkswagen Group had programmed diesel cars to cheat emissions tests, which cost the company over 33 billion dollars in vehicle refits and regulatory fines (Hotten, 2015).

An ESG rating is one of the tools used in assessing a company's exposure to environmental, social and governance risks. ESG ratings are produced by various rating agencies, such as MSCI, Systainalytics and Standard & Poor's. These ratings seek to tell an investor how well a company manages ESG risks and opportunities. Rating providers use different kinds of methodologies, metrics, data, and weightings. Moreover, a study by Chatterji et al. (2016) provide evidence that ratings for the same company vary significantly between rating agencies, which in turn has led to criticism of their usefulness.

Different ESG concerns can be material for different industries. For example, the management of environmental issues is specifically relevant to the fossil fuel and transport industries, whereas in the financial sector, key concerns are related to social and governance. Thus, it is important for a company to identify the most essential ESG issues for a given industry and communicate them transparently to its stakeholders.

In the early 1990s, there were only a few companies that issued reports that contained ESG data. Today, most of the large companies listed are carrying out ESG reporting. Despite the recent impressive growth, standardization and measurements associated with ESG implementation are not fully established. The growing awareness of investors requires companies to provide comparable and consistent information on their sustainability. There is a great need for the development of a set of common metrics and disclosures on non-financial factors for investors and other stakeholders. A key objective is to bring transparency to the reporting of ESG disclosures. According to a study conducted by the Index Industry Association (2021), 64% of asset managers were concerned about the lack of transparency and disclosure on companies' ESG activities.

The Nordic countries have a long tradition of promoting ESG-goals. This can be seen for example in that the Nordic countries have been early with women's right to vote, the establishment of equal rights for everyone, and with the protection of environment. Moreover, according to the Morningstar Sustainability Atlas in 2020, Finland, Sweden, and Denmark are among the top five countries in the sustainability ranking (Baselli,

2020). Meanwhile, the highest positions in the World Economic Forum's (2021) Global Gender Gap report's quality ranking are held by Iceland, Norway, Finland, and Sweden.

The Nordic countries are at the forefront of reducing carbon emissions and have implemented ambitious climate plans (Nordic Energy Research, n.d.). More specifically, Finland is committing to carbon neutrality by 2035, and Sweden by 2045. On top of that, the Nordic countries are committing to carbon-negative status by 2050. It can be said that the Nordic countries are in a leading position in many aspects related to sustainability. It is thus interesting to examine how investors in these countries value news that reveal information about companies' ESG activities.

2.2 Corporate social responsibility (CSR)

Corporate social responsibility is a broad concept whose definition can vary depending on the company and industry. CSR is a type of business self-regulation that helps a company to be socially accountable to its stakeholders. CSR initiatives often aim to have a positive impact on the public, the economy, or the environment. CSR is not only about avoiding environmental and social crises, but it should be seen as part of all the company's operations and day-to-day practices (Capelle-Blancard & Petit, 2019).

There are a variety of external and internal reasons why a company chooses to become more responsible and conscious on topics related to ESG issues. Companies may change their strategy due to external pressures, such as regulation, customer demands and competitors' actions. Internal aspects such as the willingness of employees to work, customers to buy products and the community to allow the company to operate, have a potential impact on a company's long-term profitability. Accordingly, a study by Cone Communications (2016) found that 64% of millennials would refuse to take a job if the company had a weak CSR policy, and that 83% would be more loyal to a company which helps them participate in contributing social and environmental issues. Moreover, Renneboog et al. (2008) argues, that so-called responsible consumption, in which

consumers are willing to pay more for products that are in line with their personal values, has grown significantly.

The media plays an important role in the dialogue around corporate social responsibility (Tetlock, 2007). Social media creates a platform for companies to share information about their CSR policies and initiatives as well as build their brand to meet stakeholder demands and expectations. Moreover, social media allows customers and other stakeholders to discuss their experiences, ideas, and satisfaction with the company. This can help companies improve their performance in ESG matters based on the feedback they receive.

Different traditional and digital media channels can share information about a company's improvements on ESG issues, such as how a company attempts to make its products and processes more environmentally friendly or strives to support its community. They may also disclose information about the poor performance of a company in ESG matters. For example, a news article published by The Guardian reveals that multinational companies Coca-Cola, PepsiCo and Nestle have been named the world's top plastic polluters for the third year in a row (McVeigh, 2020). Previous literature provides evidence that ESG news can have a direct impact on the market value of a firm (Capelle-Blancard & Petit, 2019; Flammer, 2013; Klassen & McLaughlin, 1996; Krüger, 2015; Serafeim & Yoon, 2021).

Companies disclose increasingly information in which they highlight their ESG improvements to influence the media and consumers. However, the credibility of the positive news published by companies raises doubts among investors (Capelle-Blancard & Petit, 2019). Companies have an incentive to overstate their good records which can mislead shareholders (Krüger, 2015, p. 305). So-called window dressing refers to a company's activities designed to influence public opinion by communicating the company's positive socially responsible behaviour, without having to make any actual improvements or changes in business practices (Byun & Oh, 2018). Similarly, greenwashing refers to

marketing that seeks to make a company's products, aims, and policies appear more environmentally friendly than they really are. Greenpeace USA (2019) reports, that companies often use greenwashing terms such as "eco" and "green" in their marketing. For example, the word "bioplastics" is used in contexts where the plastic can contain even fossil fuel-based plastic (Greenpeace USA, 2019, p. 10).

2.3 Relationship between CSR and financial performance

Economist Milton Friedman (1970) has argued that corporate social responsibility is not a goal that companies should pursue. According to his view, the only social responsibility goal of companies should be to use resources in a way that allows them to increase profits in the long run. Accordingly, he saw CSR as a cost that lowers the profits of a company. Moreover, he argues that social problems should be solved by the actions of free enterprise system and free society. Friedman's theory has since received much criticism (Carroll, 1991).

According to the negative view, the benefits of corporate social responsibility are seen as irrelevant compared to rising costs (Renneboog et al., 2008). Additionally, this perspective views that socially responsible investment strategies limit diversification opportunities and increases risk (Nofsinger & Varma, 2014). Thus, proponents of the negative view argue that taking socially responsible factors into account can negatively impact financial performance.

An alternative view is that CSR investments can generate a sustainable competitive advantage which allows firms to improve their financial performance. Porter and van der Linde (1995) were the first to introduce the theory that forcing companies to act in a sustainable way can induce efficiency and improve their competitiveness. They proposed that properly designed regulations can simulate innovations that both offset the costs of compliance and enhance competitiveness. Proponents of positive perspective consider also that companies that do not integrate CSR concerns in their business operations are

more likely to disclose negative information that reduces their value (Bauer et al., 2005). The relationship between CSR and firm value and the related theory are further discussed in subchapter 4.2.

A survey by Morgan Stanley (2019) finds that 85% of individual investors are interested in sustainable investing. Moreover, the results show that up to 95% of millennials express their interest in responsible investing. These results suggest that investors perceive corporate social responsibility and social impacts as important factors in their investment decisions. However, based on these results, it is not clear whether the motives of investors are purely related to their desire to invest according to their personal values or their view that CSR is associated with the financial performance of a company.

3 Prior empirical evidence

News form expectations and opinions of investors, and the distribution of information plays a crucial role in shaping financial markets. This chapter provides overview of the existing literature exploring the relationship between news and stock market reactions. The first subchapter briefly discusses research on whether news media is related to stock market movements in general. The second subchapter focuses on studies examining the short-term market reaction associated with the ESG news announcements. As this thesis examines the abnormal returns related to ESG news, these studies are discussed more thoroughly.

3.1 News and the stock market

Interest in the relationship between media and stock market reactions has increased significantly among researchers (Tetlock, 2007). Leading studies by Tetlock (2007) and Tetlock et al. (2008) provide evidence that qualitative information embedded in news stories is associated with stock market movements. Tetlock (2007) examines the relationship between content of media reports and stock market volatility by studying the immediate impact of the Wall Street Journal's market column on US stock market returns. He finds that the negative tone of reporting in the market column predicts a decline in market prices. Tetlock et al. (2008) further demonstrates that a higher frequency of negative words used in news stories predicts earnings and stock returns.

Fang and Peress (2009) study the association between media activity and stock market reactions and find a relation between media coverage and expected stock returns. More specifically, their results imply that the extent to which the information provided by the news spread affect stock returns in the US market. Furthermore, Engelberg and Parsons (2011) find a link between news coverage and US stock market reactions by showing that investors are more likely to trade a stock after an earnings announcement if that announcement is covered in investor's local newspaper.

Heston and Sinha (2017) investigate the differences between the effects of positive and negative news in the US market with a dataset of 900,754 news stories collected from the Thomson Reuters news database. They provide evidence that the tone of the news influences future stock returns. More specifically, their results show that positive news predicts positive stock returns for a week, while negative news predicts negative stock returns up to 13 weeks. Overall, prior research outlines a vital role of the news media in financial markets. Moreover, there is limited research on how the news media affect the Nordic stock market.

3.2 ESG news and the stock market

Numerous studies have been conducted to examine the relationship between stock market reaction and ESG related events. Previous studies focus mainly on only one or two of the E, S, and G categories, but more recent studies examine each of them. The main findings of the research that focus on the event study methodology and short-run value implications caused by ESG news are discussed and summarized in this subchapter.

Klassen and McLaughlin (1996) study the link between firm's environmental management and financial performance. More specifically, they examine whether strong environmental management indicated by announcements of environmental awards as well as weak environmental management indicated by environmental crises affect stock prices over the period from 1985 to 1991. The sample consists of a total of 140 award announcements and 22 environmental crises in the US market. Their paper provide evidence that firm's environmental efforts have an impact on stock price. The results show a significant positive reaction followed by the announcement of environmental performance awards. Moreover, they find decline in stock prices following the news about environmental crises. However, the sample of environmental crises is relatively small that more thorough conclusions could be drawn from it.

Jacobs et al. (2010) focus on the environmental perspective and analyse the effects of firm's environmental performance on shareholder value in the US market. Moreover, they study the stock market reaction associated with 417 announcements of Corporate Environmental Initiatives (CEIs) and 363 announcements of Environmental Awards and Certifications (EACs) during the period 2004–2006. CEIs represent self-reported firm-level actions whereas EACs are third-party recognition for environmental performance. They find that market does not react to the announcements of CEIs and EACs. However, the results show significant reactions for certain subcategories. More specifically, they find positive reactions associated with announcements of philanthropic gifts for environmental causes and ISO 14001 certifications. Surprisingly, their findings show a negative impact associated with voluntary emission reductions and non-government awards.

Corporate social responsibility and shareholder reaction: The environmental awareness of investors by Flammer (2013) also explores only one dimension of ESG. She examines the relationship between environmental CSR and stock prices, and that how the relationship has evolved over time. Moreover, she focuses on both positive and negative news collected from Wall Street Journal about publicly traded companies in the United States from 1980–2009. The sample consists of 117 eco-friendly news and 156 eco-harmful news. The study finds significant results both way; announcements of eco-harmful behaviour lead to -0.65% abnormal returns while the abnormal return for eco-friendly initiatives is 0.84%. Furthermore, the results provide evidence that over time the negative stock market reaction to negative news has increased while the positive reaction for positive news has decreased. She argues that external pressure to behave responsibly increases the punishment related to eco-harmful behaviour and reduces the compensation for eco-friendly initiatives. This analysis confirms the view that CSR is increasingly important for companies.

Krüger (2015) investigates how investors react to positive and negative news concerned with firm's social and environmental issues. He examines 2,116 corporate events with 574 positive and 1,542 negative news concerning publicly listed US firms from

2001–2007. In this study, ESG events are classified into six categories: community, corporate governance, diversity, employee relations, environment, human rights, and product. The results show that negative news is followed by a stock price decrease, and that this reaction is particularly strong for events related to community and environment. Moreover, the results indicate that the reaction for positive news is weakly negative. These findings are consistent with the view that investors react more strongly to negative news compared to positive news.

Capelle-Blancard and Petit (2019) study the stock market reaction to ESG news published by the media, NGOs, consultants, and firms themselves. The analysis is based on 33,067 events concerning 100 listed multinational companies over the period from 2002–2010. The broad set of news is collected from original database provided by a Swiss company Covalence EthicalQuote. In the study, they emphasize investigating not only the so-called extreme events, but also ordinary news related to ESG issues. Consistent with previous studies, they find that negative news lead to negative cumulative abnormal returns and these results are statistically significant at the 1% level. Furthermore, the results show that positive news has no effect. These findings provide evidence that stock market does not always perceive ESG initiatives as profitable. When looking at the differences between news related to environmental, social, or corporate governance issues, they find no difference in the market reaction. Moreover, the results show that sector's good reputation regarding ESG can reduce company's losses in a situation where negative news is published about the company. Accordingly, the more positive the previous media coverage of ESG issues in a sector, the lower the loss due to negative ESG news.

A recent study by Serafeim and Yoon (2021) approaches the topic from a different perspective by examining whether ESG ratings predict future ESG news and the associated stock market reaction. Moreover, they investigate 31,854 ESG news between 2010 and 2018 in the US market. ESG news are collected from TruValue Labs, which is a data provider that uses artificial intelligence to quantify ESG data found in text sources including news, trade journals, NGOs, and industry reports (ETF Stream, n.d.). The ESG ratings used

in the study are from MSCI, Sustainalytics, and Thomson Reuters. They find that positive (negative) ESG news is associated with a positive (negative) stock market reaction. Furthermore, they separate the sample into those with high and low ESG rating. The results suggest that the market reaction to positive news is smaller for firms with high ESG rating. They interpret the result that much of the positive news is already reflected in stock prices. This is in line with the view that positive news does not have as much effect on stock prices as negative news. Additionally, their findings imply that ESG ratings predict future ESG news, but the predictive ability is weakened if a company's rating varies considerably between different ESG rating providers.

The previous literature is summarized in Table 1. It presents which areas of ESG research focus on. The majority of studies examine the US market with only Capelle-Blancard and Petit (2019) examining multinational companies around the world. The literature offers no information on the effects of ESG news on stock prices in the Nordic market. Moreover, the number of events in previous studies has increased significantly, which may be related to the fact that recent studies do not focus merely on extreme events. Accordingly, one key deficiency in previous studies is the relatively small sample size of the studies (Flammer, 2013; Jacobs et al., 2010; Klassen & McLaughlin, 1996). The previous literature covers sample periods from 1985 to 2018.

Overall, most of the studies provide results that ESG news has an impact on stock prices in the short term (see Table 1). As for the positive and negative news, previous studies suggest that negative news has a greater impact than positive ones. It can be concluded that the impact of positive news is ambiguous. Declining stock prices following the announcement of negative stakeholder information is consistent with the view that there is a cost associated with company's irresponsible behaviour from an ESG perspective. Finally, Capelle-Blancard and Petit (2019) are only to examine the differences between ESG categories, but they find no differences between their effects.

Table 1. Summary of previous research on ESG news and stock market reactions.

Author(s)	Sample period	Sample market	ESG area	Number of events	Key findings
Klassen and McLaughlin (1996)	1985–1991	US	E	162	Environmental news has a statistically significant effect. Positive abnormal returns (0.628%) for positive news and negative abnormal returns for negative news (-0.815%).
Jacobs et al. (2010)	2004–2006	US	E	780	Market does not react significantly to environmental news.
Flammer (2013)	1980–2009	US	E	273	Positive environmental news generates positive abnormal returns (0.84%) and negative news is associated with negative abnormal returns (-0.65%). Over time the negative stock market reaction to negative news has increased while the positive reaction for positive news has decreased.
Krüger (2015)	2001–2007	US	ES	2,116	Positive news lead to weakly negative reaction (-0.47%) whereas negative news is followed by a strong negative reaction (-0.88%).
Capelle-Blancard and Petit (2019)	2002–2010	Australia, Canada, Finland, France, Germany, Japan, Korea, Netherlands, Sweden, Switzerland, UK, US	ESG	33,067	Positive ESG news has no effect while firms facing negative ESG news experience a drop in their market value of -0.85% in a 3-day event window and -0.139% in a 10-day event window. There is no difference in the reaction when the news concern environmental, social or governance issues.
Serafeim and Yoon (2021)	2010–2018	US	ESG	31,854	Positive market reaction to positive ESG news and negative reaction to negative news. The market reaction to positive news is smaller for firms with high ESG rating (0.0738% vs 0.4159%). For negative news, reactions are similar with lower and higher ESG rating (-0.189% vs -0.218%).

4 Theoretical framework

In order to analyse how ESG news affect a company's share price using the event study method, it is important to understand the role of information in the financial markets as well as the relationship between CSR and firm value. The efficient market hypothesis (EMH) is one of the assumptions in event studies (MacKinlay, 1997). Subchapter 4.1 provides theoretical basis for EMH, its underlying assumptions, and related criticism. Subchapter 4.2 discusses theory and literature regarding the effect of CSR on firm value.

4.1 Efficient market hypothesis

The theoretical background of the efficient market hypothesis is closely associated with Eugene Fama's (1970) article. The EMH states that share prices reflect all available information. Accordingly, in efficient markets, share prices reveal market participants' rational assessments of market fundamentals. Moreover, the EMH assumes that as new information becomes public, it is immediately reflected in share prices. Furthermore, the EMH provides the basis for modern theories of asset prices.

According to the EMH, it is not possible to consistently beat the market in terms of risk-adjusted returns (Bodie et al., 2014, pp. 351-355). However, in efficient markets, stock prices may deviate from their "correct" value, but these deviations are unpredictable. As a result, market participants may occasionally outperform the market (Fama, 1970). Moreover, event studies are used to measure market efficiency and to assess the impact of a particular event on stock prices.

The EMH is based on various assumptions, such as that information is widely and easily available to all market participants (Fama, 1970). Fama's (1970) theoretical model assumes that there are no costs associated with trading securities. The theory also assumes that investors are rational and thus make informed predictions about future

events. Accordingly, all market participants agree on the impact of the available information on the company's share price.

According to Fama's (1970) paper, there are three different degrees of market efficiency: weak efficiency, semi-strong efficiency, and strong efficiency. These categories are associated with the statement "prices reflect all available information". In a weakly efficient market, the prices of securities reflect historical information, such as trading volumes and historical prices. Semi-strong form suggests that securities prices contain all current publicly available as well as historical information. The event study method assumes that markets are semi-strong efficient. Moreover, assuming semi-strong efficiency and that news provide new information about securities, stock price reactions should be immediate if investors consider information important. Finally, in the strongly efficient market, the prices of securities reflect not only historical and publicly available information but also all private information. Thus, if the conditions of strong form efficiency are met, investors are not able to seek abnormal returns even with insider information.

Empirical evidence does not generally support strong forms of the EMH. In the real world, it is apparent that investors do not have equal access to all available information, and that there are costs associated with trading. Moreover, while the EMH suggests that investors are rational, behavioural finance claims that investors can be irrational. Behavioural finance views that financial markets are subject to a wide range of social dynamics (Orlitzky, 2013). Accordingly, different psychological biases and dynamics that are not related to business fundamentals can influence investor decision-making (Cassidy, 2009). Theories of behavioural finance suggest that the inefficiency of financial markets is attributed to cognitive biases and human errors (Baker et al., 2010). These biases include, for example, overreaction, overconfidence, and information bias. Furthermore, the existence of anomalies and economic bubbles have been difficult to rationalize with EMH theory (Bodie et al., 2014, p. 381).

4.2 The impact of CSR on firm value

Although much research has been conducted on the relationship between CSR and firm value, the effect of CSR on firm value is not fully understood (Albuquerque et al., 2019). For example, Kubik et al., (2012) argue that companies tend to invest more in CSR when they are doing well financially. More specifically, they show that companies with less financial constraints have higher corporate social responsibility scores. They argue that this issue may lead to a biased assessment of the relationship between CSR and firm value. This subchapter presents different theories and results on how CSR can directly or indirectly affect a company's value.

Buchanan et al. (2018) examine the effect of CSR on firm value and present two different effects: conflict resolution and overinvestment effect. Moreover, they argue that the impact of CSR on firm's value depends essentially on which of these effects dominates. According to the conflict resolution theory, CSR efforts can have a positive impact on the value of a firm by mitigating conflicts of interest between different shareholders. Furthermore, this theory suggests that a firm's high performance in CSR improves its reputation and profitability. The overinvestment theory implies that CSR efforts can be costly especially when the level of CSR investing is beyond that which maximizes the value of a firm. Accordingly, managerial altruism, where managers prioritize their own incentives regarding firm reputation, can lead to overinvestment that destroys the value of a firm.

Luo and Bhattacharya (2006) suggest that CSR can provide a variety of benefits to companies, such as favourable corporate image, customer satisfaction and loyalty. They argue that CSR efforts thus give companies more pricing power. However, they also find that CSR can lower customer satisfaction and negatively impact a firm value if the level of innovation in the firm is low. Similarly, Servaes and Tamayo (2013) propose a positive relation between CSR and firm value when certain conditions are met. Moreover, they provide evidence that there is a positive relationship between CSR and the value of the company if customers are aware of the company's operations. In their research, the company's advertising expenditure is used as a measure of awareness. Their results show

that in companies with low customer awareness, this relationship is either negative or insignificant.

Albuquerque et al. (2019) examine whether CSR affects a company's value and systematic risk. Furthermore, they study whether this potential impact of CSR varies between firms. They provide evidence that CSR lowers systematic risk and increases the value of a firm, and these effects are particularly strong in firms with high product differentiation. Moreover, they find that systematic risk is significantly lower for firms with higher CSR scores. In line with Servaes and Tamayo (2013), their results show that the relationship between Tobin's Q and CSR is positive. Similar results are obtained by Lins et al. (2017), who find that during financial crisis, companies with a high CSR score had 4-7% higher stock returns compared to companies with a low CSR score. These findings suggest that a company's engagement in CSR activities may have a risk-reducing effect.

Edmans (2011) explores the relationship between employee satisfaction and stock returns. He demonstrates that CSR and firm value are positively associated by showing that firms with high employee satisfaction generate significantly higher stock returns compared to industry benchmarks. Furthermore, Dimson et al. (2015) analyse how market reacts to ESG activism by studying environmental, social, and governance engagements of institutional investors. Their results reveal that CSR engagements are followed by positive abnormal returns. The results by Edmans (2011) and Dimson et al. (2015) are in accordance with the view that CSR efforts can improve a company's profitability.

While many studies demonstrate a positive relationship between CSR and firm value, Cheng et al. (2014) and Masulis and Reza (2015) argue that engaging in CSR can be unproductive. They suggest that spending on CSR and corporate giving are due to agency problems. Moreover, they provide evidence that CSR mainly benefits managers and their reputation, and efforts in CSR are made at the expense of shareholders. These findings are in line with the overinvestment theory as well as the view that a company's CSR efforts are associated with agency costs.

5 Data and methodology

The aim of this study is to measure the impact of ESG news on firm's stock prices during the period 2013–2020. For this purpose, a set of ESG news and daily stock prices of the 40 Nordic companies are collected. The direct impact of ESG news on stock prices is assessed using the event study methodology. This study follows the event study method by MacKinlay (1997) that is widely used to examine the effect of a specific event on a value of a firm. The purpose of this chapter is to provide detailed information on the data as well as the methodology used in this paper. The last subchapter presents the limitations related to the research method.

5.1 Event data

The amount of news published in the media that could be examined is extensive. In this study, the ESG news are collected from Bloomberg Terminal. Bloomberg LP is a financial information services company founded by Michael Bloomberg in 1981 (Bloomberg, n.d.). The company is headquartered in New York, USA, and its main business area is the delivery of Bloomberg Terminals. Bloomberg Terminal is a major source of financial and economic information for financial professionals. It provides data and news about broad markets and individual securities. In addition to Bloomberg's own news content, the Bloomberg Terminal carries more than 1,000 news sources worldwide and provides a search engine to capture content from 90,000 online sources and social media.

The initial collected sample includes a total of 34,547 news associated with 40 publicly listed companies over an 8-year period (2013–2020). More specifically, the news articles are published between January 2013 and December 2020. Various news occurs with the same company on the same day, which makes it impossible to make interpretations of the market reaction. Therefore, these news are dropped, leaving 16,765 events to be examined (48.53% of the initial sample). The average amount of news per company is 425. There are no big differences in the volume of news in the data over the years. The

focus in each case is on the publication date of the news article. The information reaches some people faster, thus this study also examines days preceding the publication date. The event windows are further examined in the third subchapter.

In this paper, ordinary news related to environmental, social, and governance issues are examined. As interpreted in the study by Capelle-Blancard and Petit (2019), ordinary news means that the focus is not only on extreme events such as social crises or environmental awards, but also on daily news on the activities and performance of companies regarding their corporate social responsibility. The news data used is unique and hand-collected from Bloomberg Terminal. Bloomberg Terminal search engine allows you to search news based on a set of complex criteria, such as content, publication date, language, and source. In this study the news articles are collected from 144 sources written in English. Most of the news (17.79%) are collected from Bloomberg News that is Bloomberg's own news content. Other key source is Dow Jones Institutional News (13.17%). In this study, the name of the company, the publication date, and the source of the news are known for each news article.

Bloomberg Terminal allows you to perform a news search based on whether the news is potentially positive or negative for the company. As can be seen from Figure 2, there is substantially more positive (87.28%) news compared to negative (12.72%) in the study sample. Of the 16,765 ESG news, 14,632 are positive and 2,133 negative. It can be concluded that companies strive to disclose information in which they emphasize their ESG improvements to paint the best possible picture for media and consumers. The large number of positive news versus negative news is in line with study by Capelle-Blancard and Petit (2019).

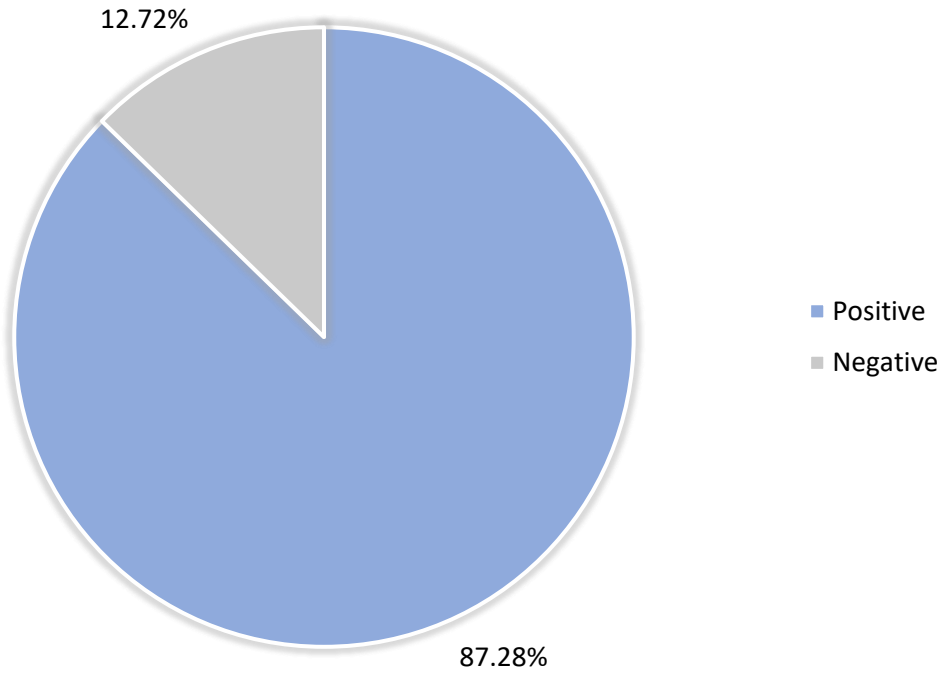

Figure 2. Proportion of positive and negative ESG news in the sample.

In this study, the news articles are divided into negative and positive and according to their content: environment, social, and governance. As can be seen from Figure 3, the biggest subsample includes governance-related news (45.14%). More specifically, this group consists of 7,567 news, of which 6,427 are positive and 1,140 are negative. Second, there are 6,228 news handling environmental issues, of which 5,799 are positive and 429 are negative. The smallest subsample deals with social aspects, and it contains total of 2,970 news of which 2,406 are positive and 564 are negative.

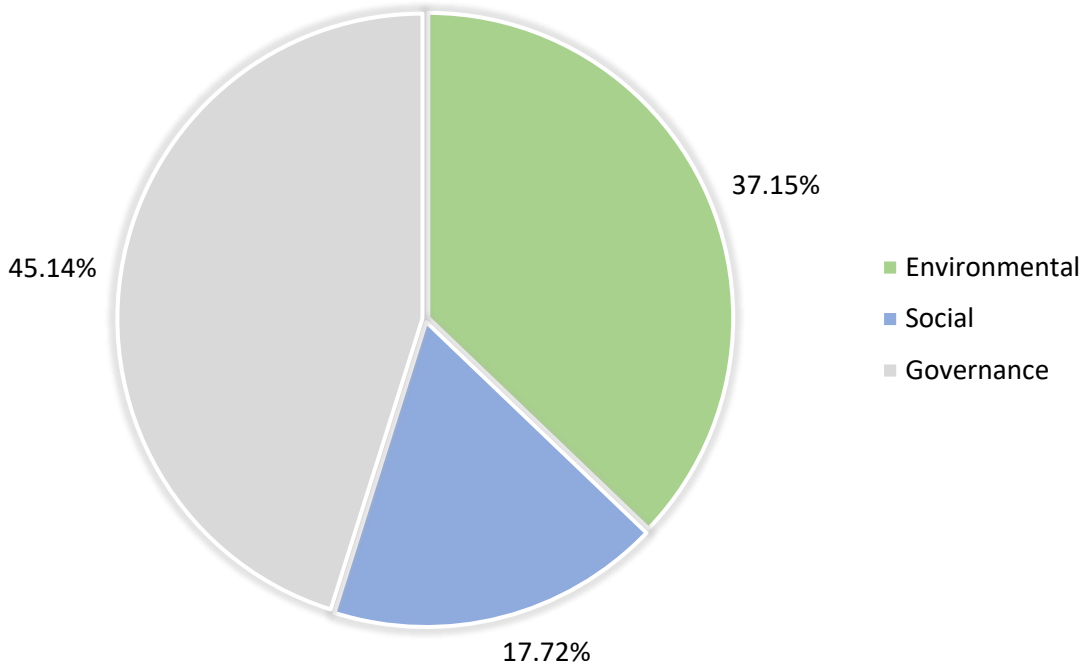

Figure 3. Distribution of news among ESG categories in the sample.

Very different ESG issues can be relevant for different industries, and it is difficult to assess the reasons why the amount of news varies with subsamples. However, corporate governance is an essential part of ESG, and some of the biggest corporate scandals in 21st century, such as Volkswagen emissions test scandal and Enron scandal, are related to poor corporate governance practices. Nevertheless, there is no consensus in the literature as to which category of ESG news generates the greatest stock price reaction.

The Nordic market consists of five countries: Denmark, Finland, Iceland, Norway, and Sweden. Consistent with other studies focusing on the Nordic market, Iceland is not included in this study due to its small size. Figure 4 shows how the news data is distributed among countries. Not surprisingly, most of the news concerns Swedish companies (38.14%), as the majority of the largest companies in the Nordic region are Swedish. The second subchapter reviews the companies selected for the study in more detail.

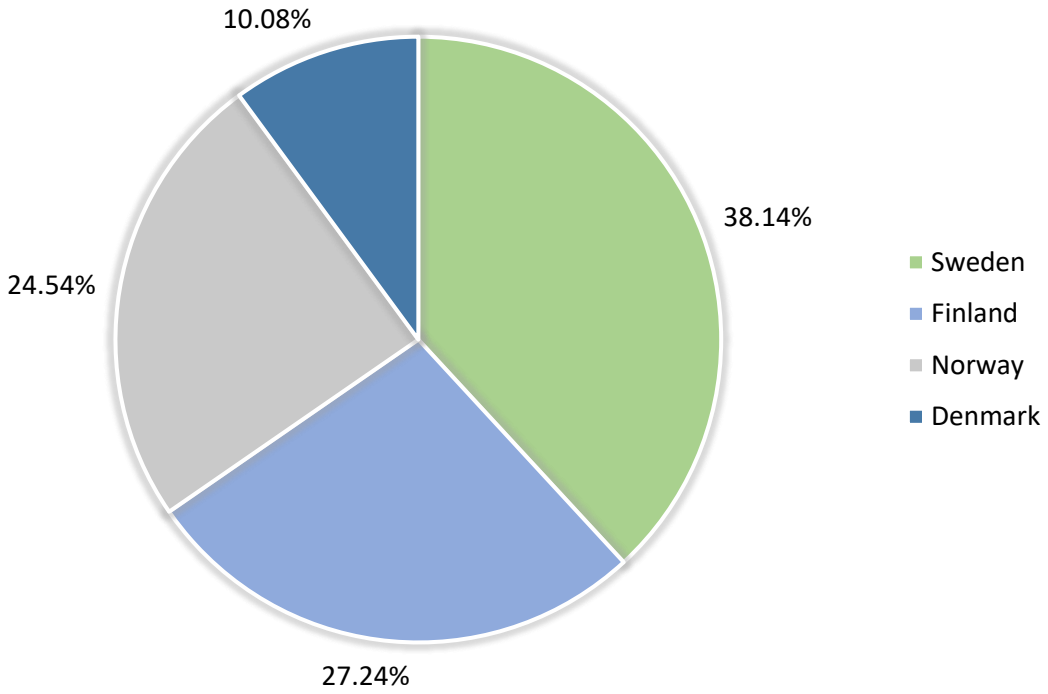

Figure 4. Distribution of news among countries in the sample.

Nordic countries are often perceived as forerunners of sustainability. Due to their high results in international rankings that rate companies on their ESG performance, Nordic business community and government policies are viewed as exemplary (Scholtens & Sievänen, 2013). However, there are no studies on how ESG news affects firm's stock prices in the Nordic market.

5.2 Stock market data

To study the impact of positive and negative news articles on firms' stock prices, the daily stock prices of companies are retrieved. The daily stock return data is collected from Refinitiv database, formerly known as the Thomson Reuters, in the form of total return index. Total return index captures both the capital gains and the income generated from cash payments such as dividend and interests. Accordingly, total return index better reflects the actual returns an investor would receive in contrast to price index.

The sample consists of 40 Nordic publicly listed companies from different industries (see the list in Appendix section). Table 2 provides descriptive statistics of the firm-level variables collected from Refinitiv on 17.05.2021. The largest Nordic companies based on turnover have been selected for this study. For companies that present their financial statements in other currencies than euros, values are converted to euro values with euro course on 6.12.2021. Debt ratio is calculated by dividing total debt by total assets.

Table 2. Descriptive statistics of the firm-level variables 2020.

	Mean	Median	Max.	Min.	Std. Dev.
Employees (000s)	36.136	19.900	292.877	4.825	49.300
Turnover (M€)	9,579.14	7,784.94	41,402.78	3,707.81	7,269.04
Market value (M€)	14,713.44	9,012.62	45,757.98	334.88	12,841.83
Total assets (M€)	17,047.88	9,961.47	97,267.57	1,577.69	19,719.85
Debt ratio	0.24	0.20	0.68	0.05	0.14

Logarithmic returns are used to measure the daily returns on stocks and the MSCI Nordic Countries Index. Table 3 presents descriptive statistics of the daily logarithmic returns for the sample and the MSCI Nordic Countries Index for the whole sample period from 2013–2020. The daily logarithmic returns are calculated from total return index data. There are no major differences between the returns of the sample and the index. Both are negatively skewed, which means that in the distribution of returns, more values are concentrated on the right side of the distribution. Moreover, the sample as well as the index have a rather high kurtosis.

Table 3. Descriptive statistics of the daily logarithmic returns 2013–2020.

	Mean	Median	Max.	Min.	Std. Dev	Skewness	Kurtosis
Sample	0.0004	0.0000	0.5385	-0.5864	0.0202	-0.1787	4.0164
MSCI Nordic countries	0.0004	0.0004	0.0642	-0.1255	0.0111	-0.5280	2.2775

5.3 Short-term event study

The event study has its roots in the 1930s and it is widely used methodology with variety of applications (MacKinlay, 1997). The event study methodology is used in research to measure investors' reaction to different unexpected events and at the same time control market-wide effects on stock prices. The initial task of an event study is to identify an event window, which is the period during which company's share prices are examined (MacKinlay, 1997). As in the study by Capelle-Blancard and Petit (2019), the event window periods of [-1; 1] and [-5; 5] are used. These event windows contain 3 days and 11 days respectively, and time 0 represents the date of the event (see Figure 5). The event in this study is the publication date of the news article on firm's positive or negative ESG activity. The event window includes the time before the announcement as possible leakage of information is considered (Flammer, 2013).

Event studies rely on the semi-strong form of efficient market hypothesis, as discussed in subchapter 4.1. Thus, the effects of a specific event can be studied by observing stock prices over a relatively short period (MacKinlay, 1997). The literature provides evidence that further extending the event window may reduce the power of event study tests such as nonparametric and bootstrap tests (Kothari & Warner, 1997; MacKinlay, 1997). Furthermore, Mcwilliams and Siegel (1997) argue that longer event window increases the probability that the time period includes other confounding announcements that may affect the company's stock price.

The estimation window estimates the normal stock returns without the effect of an event. However, there is no consensus in the literature on the proper length of the estimation window. According to MacKinlay (1997), it often ranges from 90 days to 250 days. In this study the estimation window is 120 days, and the period starts 130 days before the event and ends 11 days prior to the event. The estimation window and event windows of this study are illustrated in the Figure 5.

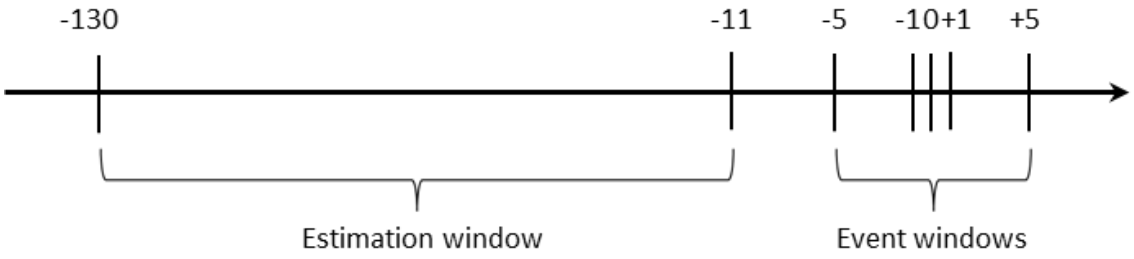

Figure 5. Event study timeline.

The data of companies' stock prices is collected from Refinitiv database in the form of total return index. Logarithmic returns are used as positive and negative percent returns are equal unlike with arithmetic returns. Moreover, using logarithmic returns help to reduce the effect of skewness in the return distribution. Daily continuously compounded returns are calculated using the following formula:

$$R_{it} = ln\,(\frac{r_{it}}{r_{it-1}}), \quad (1)$$

where

R_{it} = logarithmic return of the stock i on day t

r_{it} = total return of the stock i on day t

r_{it-1} = total return of the stock i on day t-1.

MacKinlay (1997) presents two common statistical models for estimating normal returns: market model and constant mean return model. The constant mean return model assumes that the mean return of a security stays constant over time. This assumption can cause a problem in times where the volatility is high. In this study, normal stock returns are estimated by the market model in which stock returns are regressed on the market returns. The market model is a statistical model that assumes a stable linear relationship between market returns and stock return. The market model is the most frequently used and widely accepted in event studies. In this study, MSCI Nordic Countries Index represents the market returns. The equation of the market model is:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + e_{it}, \quad (2)$$

where

$E(R_{it})$ = expected return of the stock i on day t

R_{mt} = return on the market portfolio on day t

α_i = intercept

β_i = beta

e_{it} = regression error with expected value equal to zero.

Abnormal returns represent an estimate of the percentage change in share price associated with an event. Abnormal returns are obtained by subtracting the model's prediction from the actual returns. The formula for the abnormal returns is as follows:

$$AR_{it} = R_{it} - E(R_{it}), \quad (3)$$

where

AR_{it} = abnormal return of the stock i on day t

R_{it} = actual return for firm i on day t.

The daily average abnormal returns (AAR) are calculated for each stock to eliminate idiosyncrasies in measurement due to particular stocks. That is, to find the effect for each day, abnormal returns are aggregated for all stocks each day in the event window. The equation for calculating the daily average abnormal returns is as follows:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it}, \quad (4)$$

where

AAR_t = average abnormal return on day t

N = number of events.

Finally, the cumulative average abnormal returns (CAAR) are calculated to examine the impact of an announcement on a stock. The cumulative abnormal return (CAR) is the sum of a stock's abnormal returns over the event window period. The formula for cumulative average abnormal return is:

$$CAAR = \frac{1}{N}\sum_{i=1}^{N} AAR_t, \tag{5}$$

where

$CAAR$ = cumulative average abnormal return.

The answer to whether ESG news has a significant impact on stock prices is given by means of hypothesis testing. The null hypothesis states that the mean of the cumulative average abnormal returns within the event window equal to zero. Thus, if CAARs are statistically significantly different from zero, the null hypothesis is rejected. The literature on event-study hypothesis testing is extensive and covers a wide range of tests. To test the null hypothesis, a standard t-test is computed. The most widely used significance levels, 10% (0.1), 5% (0.05) and 1% (0.01) are used in this study. The test-statistic is given by (MacKinlay, 1997):

$$t_{CAAR} = \sqrt{N}\frac{CAAR}{\sigma(CAAR)}, \tag{6}$$

where

t_{CAAR} = test-statistic for testing H_0: $E(CAAR_t) = 0$

$\sigma(CAAR)$ = standard deviation of the cumulative average abnormal return.

The standard deviation of the cumulative average abnormal returns across the sample is based on the following formula:

$$\sigma^2(CAAR) = \frac{1}{N-1}\sum_{i=1}^{N}(CAR_i - CAAR)^2, \quad (7)$$

where

$\sigma^2(CAAR)$ = variance of the cumulative average abnormal return.

5.4 Limitations of methodology

Researchers are increasingly using the event study methodology to analyse the effect of an event on firm performance. However, there are some problems with event studies that should be considered. Thus, it is important to note that there are possible limitations for the empirical research of this thesis.

Firstly, the interpretation of results may be affected by how the event is defined (McWilliams et al., 1999). Since in this study the announcements are obtained from different media news sources, it is not clear when the information initially became public. Therefore, the study also considers days preceding the publication of the news article. Secondly, as in previous studies, all ESG news are treated equally (Capelle-Blancard & Petit, 2019). Accordingly, this study does not specify whether some individual events have a greater impact than others. Thirdly, the thesis focuses on the short-term market reaction and relies on the semi-strong form of efficient market hypothesis. As discussed in the subchapter 4.1, the basic assumptions behind the EMH theory have been challenged by empirical research.

6 Empirical results

This chapter presents the results of the empirical study. I have implemented an event study method to analyse whether there are significant abnormal returns in the days surrounding the publication of ESG news over the period from 2013 to 2020. The sample includes four countries: Sweden, Norway, Finland, and Denmark, with 40 companies selected. The analysis is based on 16,765 ESG news collected from Bloomberg Terminal. The first subchapter presents the empirical results regarding the overall impact of positive and negative ESG news regarding hypotheses 1 and 2. Moreover, the results are classified by news topic to examine whether the impact of ESG news on firm's stock price varies between E, S, and G categories. The results of the robustness checks are presented in the second subchapter. Finally, the third subchapter discusses the results and summarizes the key findings.

6.1 The impact of ESG news on stock prices

The event study analysis starts with a test of the first hypothesis stating that ESG news have a significant impact on firms' stock price. More specifically, I assess whether there are abnormal returns related to ESG news across all events by performing t-test for the cumulative average abnormal returns. Then, I test the second hypothesis, according to which it is expected that the impact of ESG news on firm's stock price is larger for negative news compared to positive news. To test the second hypothesis, I assess the statistical significance of results by setting apart positive and negative ESG news. Table 4 presents the CAARs for two different event windows: [-1; 1] and [-5; 5]. The estimation window is 120 days.

Table 4. The impact of ESG news on firm's market value.

	Positive news	Negative news	All news
$CAAR_{[-1;+1]}$	-0.003	-0.227***	-0.031
	(0.030)	(0.082)	(0.028)
$CAAR_{[-5;+5]}$	-0.074	-0.288*	-0.101**
	(0.052)	(0.154)	(0.050)
Nb. Obs.	14,632	2,133	16,765

Robust standard errors are reported in parentheses. Figures are in percent. The estimation window of 120 days is used. * Denotes the significance of the coefficient at the 10% level, ** at the 5% level, and *** at the 1% level.

As can be seen from Table 4, the publication of ESG news is mainly followed by a decline in a firm's stock price. In support of the first hypothesis, the results show that in a 11-day event window, ESG disclosure cause the CAAR of -0.101%. Although the magnitude of the impact is not substantial, the result is significant at the 5% level. In a 3-day event window, the impact is also negative but not significant. Furthermore, the results show that there is an asymmetry between the effects of positive and negative ESG news. The CAAR for negative ESG news in a 3-day (11-day) event window is -0.227% (-0.288%), and the result is statistically significant at the 1% (10%) level. The results considering positive ESG news are statistically insignificant. This study finds no evidence that investors reward companies for their positive ESG behaviour. Thus, the second hypothesis is also accepted.

Next, I analyse the ESG categories separately to detect and compare the impact of different ESG areas on firm's stock price. Table 5 presents the CAARs for two different event windows: [-1; 1] and [-5; 5]. The estimation window is 120 days.

Table 5. The impact of ESG news on firm's market value grouped by ESG-area.

	Environmental		**Social**		**Governance**	
	Positive	Negative	Positive	Negative	Positive	Negative
$CAAR_{[-1;+1]}$	0.034	-0.342*	0.003	-0.227*	-0.036	-0.184
	(0.046)	(0.199)	(0.078)	(0.136)	(0.045)	(0.116)
$CAAR_{[-5;+5]}$	-0.014	-0.430	-0.201	-0.518**	-0.081	-0.121
	(0.082)	(0.361)	(0.131)	(0.256)	(0.080)	(0.220)
Nb. Obs.	5,799	429	2,406	564	6,427	1,140

Robust standard errors are reported in parentheses. Figures are in percent. The estimation window of 120 days is used. * Denotes the significance of the coefficient at the 10% level, ** at the 5% level, and *** at the 1% level.

Table 5 shows that investors value negative environmental and negative social news. The CAARs for negative social news are significant and negative in 3-day and 11-day event windows at the 10% and 5% level respectively. For negative environmental news, the CAAR in a 3-day event window is -0.342%, and significant at the 10% level. These results are supported by Krüger (2015), whose findings demonstrate that the strongest stock price reaction concerns negative news that are related to community and environment. With regards to positive news, no significance can be found in any ESG-area. The results support the view that investors appear to penalize firms more for their irresponsibility than to reward their positive behaviour. Interestingly, the analysis provides evidence that news about governance has no effect on a company's stock value.

6.2 Robustness checks

To test the robustness of the results, I performed a series of robustness checks. First, the potential influence of the length of the estimation window is tested. Accordingly, the analysis is conducted by using a 200-day estimation window instead of a 120-day. Second, in addition to the presented 3-day and 11-day event windows, the results for a third event window [-10; 10] are presented as robustness check.

The results of the first robustness check with a 200-day estimation window are presented in the Table 6. The table shows the results for the overall impact of positive and negative ESG news. Moreover, the CAARs for two different event windows: [-1; 1] and [-5; 5] are presented.

Table 6. Cumulative average abnormal returns with estimation window of 200 days.

	Positive news	Negative news	All news
$CAAR_{[-1;+1]}$	0.006	-0.224***	-0.023
	(0.030)	(0.082)	(0.028)
$CAAR_{[-5;+5]}$	-0.150**	-0.133	-0.148**
	(0.073)	(0.227)	(0.070)
Nb. Obs.	14,632	2,133	16,765

Robust standard errors are reported in parentheses. Figures are in percent. The estimation window of 200 days is used. * Denotes the significance of the coefficient at the 10% level, ** at the 5% level, and *** at the 1% level.

When comparing the results obtained using the 200-day and the 120-day estimation window in Table 4 and Table 6, it can be concluded that they are almost identical. However, Table 6 shows that the effect of positive ESG news is statistically significant and negative at the 5% level in a 11-day event window. This result is the only difference, and it is consistent with Krüger (2015), who finds that positive news lead to a weakly negative market reaction.

Next, the results of the first robustness check with a 200-day estimation window are presented such that the CAARs are grouped by ESG-area. Table 7 shows the CAARs for two different event windows: [-1; 1] and [-5; 5].

Table 7. Cumulative average abnormal returns with estimation window of 200 days grouped by ESG-area.

	Environmental		**Social**		**Governance**	
	Positive	Negative	Positive	Negative	Positive	Negative
$CAAR_{[-1;+1]}$	0.056	-0.303*	-0.011	-0.230*	-0.032	-0.192
	(0.046)	(0.196)	(0.078)	(0.136)	(0.045)	(0.116)
$CAAR_{[-5;+5]}$	0.052	-0.270	-0.234*	-0.523**	-0.061	-0.174
	(0.081)	(0.352)	(0.130)	(0.252)	(0.079)	(0.219)
Nb. Obs.	5,799	429	2,406	564	6,427	1,140

Robust standard errors are reported in parentheses. Figures are in percent. The estimation window of 200 days is used. * Denotes the significance of the coefficient at the 10% level, ** at the 5% level, and *** at the 1% level.

As can be seen from Table 7, the results are very similar to Table 5 with a 120-day event window. These results confirm that governance-related news has no effect on firm's share price. However, the results show that the release of social positive news is followed

by a decline in the stock prices in the 11-day event window, and this decline is significant at the 10% level. Nevertheless, it can be concluded that the length of the estimation window has little impact on the results.

In my main specification, I relied on two event windows [-1; 1] and [-5; 5]. In my second robustness check, I test whether the results are robust if I instead use an event window of [-10; 10]. Table 8 shows the results for the overall impact of positive and negative ESG news. More specifically, the CAARs in a 21-day event window are presented. The estimation window is 120 days.

Table 8. Cumulative average abnormal returns with 21-day event window.

	Positive news	Negative news	All news
$CAAR_{[-10;+10]}$	-0.150*	-0.133*	-0.148**
	(0.073)	(0.227)	(0.070)
Nb. Obs.	14,632	2,133	16,765

Robust standard errors are reported in parentheses. Figures are in percent. The estimation window of 120 days is used. * Denotes the significance of the coefficient at the 10% level, ** at the 5% level, and *** at the 1% level.

The results for the 21-day event window in Table 8 show that the CAAR for all ESG news is -0.148% and significant at the 5% level, which is in line with the results with the 11-day event window in Table 4. In addition, Table 8 indicates that the effect of negative ESG news is the same as for the 11-day event window (see Table 4). These results suggest that the main results of this study are robust to using a 21-day event window. However, Table 8 shows that the CAAR for positive ESG news is negative and significant at the 5% level. Accordingly, when comparing the results obtained with three different event windows, the third event window [-10; 10] differ in that the release of positive ESG news is followed by a decline in the share price.

Finally, the results of the second robustness check with an event window [-10; 10] are presented such that the effects of ESG news are grouped based on the ESG category. The CAARs in a 21-day event window are presented in Table 9. The estimation window is 120 days.

Table 9. Cumulative average abnormal returns with a 21-day event window grouped by ESG-area.

	Environmental		**Social**		**Governance**	
	Positive	Negative	Positive	Negative	Positive	Negative
$CAAR_{[-10;+10]}$	0.0530	-0.226	-0.568**	-0.191	-0.176	-0.0691
	(0.115)	(0.463)	(0.178)	(0.374)	(0.112)	(0.342)
Nb. Obs.	5,799	429	2,406	564	6,427	1,140

Robust standard errors are reported in parentheses. Figures are in percent. The estimation window of 120 days is used. * Denotes the significance of the coefficient at the 10% level, ** at the 5% level, and *** at the 1% level.

The results obtained in Table 9 are for the most part in line with the results of the 3-day and the 11-day event windows in Table 5. The only difference is in the results regarding social news. Accordingly, the results show that the CAAR for positive social news is -0.568% and the result is significant at the 5% level, while the CAAR for negative social news is not statistically significant.

Overall, extending the event window to 21 days yields slightly different results compared to the results obtained with the 3-day and 11-day event windows. More specifically, the results suggest that in addition to negative ESG news, the release of positive ESG news may also be followed by a decline in share price. However, Mcwilliams and Siegel (1997) argue that a longer event window increases the probability that the time period contain confounding events. This may affect the validity of the results obtained with a 21-day event window.

6.3 Discussion

The purpose of this thesis is to examine whether ESG news announced by the media affect companies' stock prices. Prior research has focused largely on the US market (Flammer, 2013; Jacobs et al., 2010; Klassen & McLaughlin, 1996; Krüger, 2015; Serafeim & Yoon, 2021). Therefore, this thesis contributes to the financial literature by analysing the Nordic market.

This paper provides evidence that ESG news have a significant impact on firm's stock price. The results show that negative ESG news are followed by a negative stock market reaction. Thus, the first hypothesis is accepted. The CAAR for negative ESG news is -0.227% in a 3-day event window, and -0.228% in a 11-day event window. Although the decline in the share price in either event window is not substantial in magnitude, the results are significant at the 1% and 10% level respectively.

Declining stock prices following the publication of negative ESG news is in line with the view that there is a cost associated with irresponsibility. The finding that negative ESG news has an impact on the value of a company is supported by most prior studies (Capelle-Blancard & Petit, 2019; Flammer, 2013; Klassen & McLaughlin, 1996; Krüger, 2015; Serafeim & Yoon, 2021). However, it should be noted that there is an overweight of positive news in the sample. Sample being biased toward positive news may cause differences in the validity of the results for positive and negative events.

This paper finds no evidence that positive ESG news affects firm's share price. According to the results, the CAARs for positive ESG news are insignificant. Thus, my findings suggest that investors place greater emphasis on negative ESG news. Therefore, the second hypothesis is accepted. The view that the release of positive ESG news does not cause a stock market reaction is consistent with Capelle-Blancard and Petit (2019) and Jacobs et al. (2010).

The analysis largely confirms the view that there is an asymmetry between the effects of positive and negative ESG news. One explanation may be that there is a growing pressure from stakeholders on companies to behave responsibly. Moreover, Flammer (2013) argues, that due to this external pressure, companies are penalized more for their irresponsible behaviour compared to how they are rewarded for their eco-friendly initiatives. Furthermore, Serafeim and Yoon (2021) find that company's high ESG rating is associated with a weak stock price reaction to positive ESG news. Accordingly, these results suggest that positive news may already be incorporated into the stock prices.

Moreover, as discussed earlier, the Nordic countries are often seen as forerunners of sustainability. Hence, investors in the Nordic market may demand more from companies, and thus react less to positive ESG news. On the other hand, another possible reason why investors react less to positive ESG news is that investors may have concerns regarding window dressing and greenwashing. If investors recognize that a company may be engaging in greenwashing, it may have an impact on how they react to the positive ESG information published by that company.

When examining differences in how the market responds to news on environmental, social, or governance issues, the analysis provides evidence that there are differences in their effects. Moreover, my findings suggest that investors value negative environmental and negative social news. These results are in line with Krüger (2015), who finds that the strongest stock price reaction is associated with negative news related to community and environment. Unexpectedly, the results show that governance-related news do not affect firm's share price. Furthermore, the CAAR of positive news is insignificant in all ESG areas, supporting the second hypothesis.

To my knowledge, there is no support in the literature that the impact of ESG news on firm's stock price varies between the E, S, and G categories. Furthermore, few studies focus on each ESG category and examine the differences between them. My findings are different from those reported by Capelle-Blancard and Petit (2019), who find that there is no difference in the reaction when the news concern environmental, social or governance issues. This is a topic that should be explored further. Moreover, it would also be interesting to examine whether these effects would be different depending on the industry.

Based on the empirical results of this paper, it is not possible to draw conclusions as to whether the market reaction caused by ESG news is stronger in the 3-day event window or the 11-day event window. This is in contradiction with the efficient market hypothesis

according to which new information should be immediately reflected in stock prices (Fama et al., 1969). Moreover, it would be interesting to examine more closely the day-by-day effects that could help to better understand when the stock price reaction to ESG news is the greatest.

To ensure that my results are robust, I reran the event study using a 200-day estimation window and a 21-day event window. The results of the robustness checks show that the main results obtained are largely robust to the estimation window length as well as to the event window selections. Moreover, Armitage (1995) argues that the results of an event study are not sensitive to varying lengths of the estimation window as long as the length of the window exceeds 100 days. However, unexpectedly, these results suggest that the release of positive ESG news may be followed by a decline in stock prices. This result is supported by Krüger (2015) and confirms the view that the market reaction following positive ESG news is rather ambiguous.

The analysis provides evidence that investors value ESG news, which is relevant information to business leaders as well as to investors. However, the results do not indicate whether the share price reactions are due to investors' genuine interest in ESG or whether it is related to expectations regarding future financial performance. Although positive ESG news were not found to affect the value of a company in the short run, it is possible that they may create value in other intangible ways. Luo and Bhattacharya (2006) argue that CSR may be reflected in, for example, more favourable corporate image, increased brand loyalty, higher customer satisfaction and better pricing power.

7 Conclusion

Investors are increasingly applying ESG factors to their investment processes to identify growth opportunities and risks. Consequently, companies have adapted their communication strategies by disclosing information that highlights their ESG improvements. While news flow regarding corporate social responsibility as well as irresponsibility has grown substantially and gained prominence in the media, the question arises as to how investors react to this information. The purpose of this thesis is to examine the extent to which positive and negative news announced by the media about firm's ESG actions affect firm's stock price.

Based on previous literature, I hypothesized to find a statistically significant stock price reaction associated with the publication of ESG news (Capelle-Blancard & Petit, 2019; Flammer, 2013; Klassen & McLaughlin, 1996; Krüger, 2015; Serafeim & Yoon, 2021). Moreover, previous studies provide evidence that negative ESG news are followed by a greater market reaction compared to positive ESG news (Capelle-Blancard & Petit, 2019; Krüger, 2015). Thus, I hypothesized that investors penalize companies more for their irresponsible behaviour in contrast to how much they reward companies for their responsible behaviour.

The high results of the Nordic countries in international rankings that rate companies on their ESG performance supports the view that Nordic companies are forerunners in ESG matters (Baselli, 2020; RobecoSAM, 2021; World Economic Forum, 2021). However, the Nordic market has not been covered in previous research focusing on ESG news and stock market reaction. Hence, this study contributes to the financial literature by examining companies in Sweden, Norway, Finland, and Denmark.

To investigate whether there is a market reaction associated with the release of ESG news in the Nordic market, I performed the event study that roughly followed the guidelines made by MacKinlay (1997). Moreover, I analysed a comprehensive set of ESG news and the daily stock price returns of 40 publicly listed companies over an 8-year period

(2013-2020). The news data is hand-collected from Bloomberg Terminal and includes a total of 16,765 ESG news, of which 14,632 are positive and 2,133 are negative. While previous research largely focuses on so-called extreme events, this study also examines ordinary ESG-related events as in the study by Capelle-Blancard and Petit (2019).

Based on the empirical analysis, I obtain three main findings. First, negative ESG news are followed by a statistically significant stock price decrease. More specifically, the cumulative average abnormal return for negative ESG news is -0.227% in a 3-day event window, and -0.228% in a 11-day event window. Second, the analysis provides evidence that positive ESG news has no effect on a firm's stock price. Based on these results, it can be concluded that there is an asymmetry between the effects of positive and negative ESG news. Thus, both hypotheses are accepted. Third, the results indicate that the impact of ESG news on the stock price varies between ESG categories. Moreover, the strongest effects are found regarding negative environmental and negative social news. Surprisingly, the results show that news related to governance issues has no effect on the value of a firm.

These results are relevant to corporate leaders as well as investors to better understand how capital-market participants process public ESG information. Furthermore, this thesis adds to the literature that examines whether the market reacts to ESG news by studying the Nordic stock market. This research clearly illustrates that the punishment for irresponsible behaviour is greater than the reward for responsible behaviour. This is in line with the view by Flammer (2013) that external pressure on firms to behave responsibly can reduce the compensation for ESG improvements. Unlike prior studies, this research suggests that the market reaction caused by ESG news varies depending on whether the news addresses environmental, social, or governance issues.

In order to take this study further, researchers should consider exploring the global market more broadly as the majority of studies focus on the US market. Accordingly, it would be interesting to examine further whether there are geographical differences in how ESG

news affects a firm's value. To better understand the implications of my results, future studies could address which ESG concerns are financially material in different industries. This would allow to deepen the analysis of which ESG information has the most significant impact on a company's value for a given industry. One could also examine whether some ESG issues have a longer lasting effect than others. Finally, an interesting approach could be to analyse the relationship between firm value and window dressing. More specifically, further research is needed to determine whether concerns regarding window dressing or greenwashing are related to how investors perceive the release of firm's positive ESG information.

References

Albuquerque, R., Koskinen, Y. & Zhang, C. (2019). Corporate social responsibility and firm risk: Theory and empirical evidence. *Management Science*, 65(10), 4451–4469. https://doi.org/10.1287/mnsc.2018.3043

Armitage, S. (1995). Event study methods and evidence on their performance. *Journal of economic surveys*, 9(1), 25–52. https://doi.org/10.1111/j.1467-6419.1995.tb00109.x

Baker, H. K., Baker, H. K., Kolb, R. W. & Nofsinger, J. R. (2010). *Behavioral Finance: Investors, Corporations, and Markets*. John Wiley & Sons, Incorporated.

Baselli, V. (2020, May 11). *Sustainability Atlas: Measuring the ESG Practices of Countries Around the World*. Morningstar. https://www.morningstar.com/insights/2020/05/11/sustainability-atlas-measuring-esg-practices

Bauer, R., Koedijk, K., & Otten, R. (2005). International evidence on ethical mutual fund performance and investment style. *Journal of Banking & Finance*, 29(7), 1751-1767. https://doi.org/10.1016/j.jbankfin.2004.06.035

Blitz, D. & Fabozzi, F. J. (2017). Sin Stocks Revisited: Resolving the Sin Stock Anomaly. *Journal of Portfolio Management*, 44(1), 105–112. https://doi.org/10.3905/jpm.2017.44.1.105

Bloomberg. (n.d.). *The Terminal - Bloomberg Professional Services*. Retrieved December 17, 2021, from https://www.bloomberg.com/professional/solution/bloomberg-terminal/

Bodie, Z., Kane, A. & Marcus, A. J. (2014). *Investments* (10th global ed.). McGraw Hill Education.

Buchanan, B., Cao, C. X. & Chen, C. (2018). Corporate social responsibility, firm value, and influential institutional ownership. *Journal of Corporate Finance*, 52, 73–95. https://doi.org/10.1016/j.jcorpfin.2018.07.004

Byun, S. K. & Oh, J. M. (2018). Local corporate social responsibility, media coverage, and shareholder value. *Journal of Banking and Finance*, 87, 68–86. https://doi.org/10.1016/j.jbankfin.2017.09.010

Capelle-Blancard, G. & Petit, A. (2019). Every Little Helps? ESG News and Stock Market

Reaction. *Journal of Business Ethics*, 157(2), 543–565. https://doi.org/10.1007/s10551-017-3667-3

Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39–48. https://doi.org/10.1016/0007-6813(91)90005-G

Cassidy, J. (2009). *How markets fail: The logic of economic calamities*. Farrar, Straus and Giroux.

Chatterji, A. K., Durand, R., Levine, D. I. & Touboul, S. (2016). Implications for managers, investors and strategy researchers: Do Ratings of Firms Converge? *Strategic Management Journal*, 37(8), 1597–1614. https://doi.org/10.1002/smj.2407

Cheng, B., Ioannou, I. & Serafeim, G. (2014). Corporate Social Responsibility and access to finance. *Strategic Management Journal*, 35(1), 1–23. https://doi.org/10.1002/smj.2131

Cone Communications. (2016). *Millennial Employee Engagement Study.* https://www.conecomm.com/research-blog/2016-millennial-employee-engagement-study

Danske Bank. (n.d.). *The investigations relating to Danske Bank's Estonian branch*. Retrieved February 06, 2021, from https://danskebank.com/about-us/corporate-governance/investigations-on-money-laundering

Deloitte. (2020). *The Deloitte Global Millennial Survey 2020*. https://www2.deloitte.com/gr/en/pages/about-deloitte/articles/MillennialSurvey2020.html

Dimson, E., Karakaş, O. & Li, X. (2015). Active Ownership. *The Review of Financial Studies*, 28(12), 3225–3268. https://doi.org/10.1093/rfs/hhv044

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

Engelberg, J. E. & Parsons, C. A. (2011). The Causal Impact of Media in Financial Markets. *The Journal of Finance*, 66(1), 67–97. https://doi.org/10.1111/j.1540-6261.2010.01626.x

ETF Stream. (n.d.). *Truvalue Labs*. Retrieved December 18, 2021, from https://www.etfstream.com/companies/truvalue-labs/

Fama, E. F. (1970). Efficient Capital Markets : A Review of Theory and Empirical Work Author. *The Journal of Finance*, 25(2), 383–417. https://doi.org/10.1111/j.1540-6261.1970.tb00518.x

Fama, E. F., Fisher, L., Jensen, M. C. & Roll, R. (1969). The Adjustment of Stock Prices to New Information. *International Economic Review*, 10(1), 1. https://doi.org/10.2307/2525569

Fang, L. & Peress, J. (2009). Media Coverage and the Cross-Section of Stock Returns. *The Journal of Finance*, 64(5), 2023–2052. https://doi.org/10.1111/j.1540-6261.2009.01493.x

Flammer, C. (2013). Corporate social responsibility and shareholder reaction: The environmental awareness of investors. *Academy of Management Journal*, 56(3), 758–781. https://doi.org/10.5465/amj.2011.0744

Friedman, M. (1970, September 13). The Social Responsibility Of Business Is to Increase Its Profits. *The New York Times Magazine,* 32(13)*,* 122-126.

Greenpeace USA. (2019, September 30). *Throwing Away The Future: How Companies Still Have It Wrong on Plastic Pollution "Solutions".* https://www.greenpeace.org/usa/wp-content/uploads/2019/09/report-throwing-away-the-future-false-solutions-plastic-pollution-2019.pdf?_ga=2.35434340.492107787.1648385771-52419562.1642077515

Heston, S. L. & Sinha, N. R. (2017). News vs. sentiment: Predicting stock returns from news stories. *Financial Analysts Journal*, 73(3), 67–83. https://doi.org/10.2469/faj.v73.n3.3

Hotten, R. (2015, December 10). Volkswagen: The scandal explained. *BBC News.* https://www.bbc.com/news/business-34324772

Index Industry Association. (2021). *Measurable Impact: Asset Managers on the Challenges and Opportunities of ESG Investment*. http://www.indexindustry.org/esg-survey/

IPCC. (2021). *Climate Change 2021: The Physical Science Basis. Contribution of Working*

Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/report/ar6/wg1/

J.P. Morgan. (2020, July 1). *Why COVID-19 Could be a Major Turning Point for ESG Investing*. https://www.jpmorgan.com/insights/research/covid-19-esg-investing

Jacobs, B. W., Singhal, V. R. & Subramanian, R. (2010). An empirical investigation of environmental performance and the market value of the firm. *Journal of Operations Management*, 28(5), 430–441. https://doi.org/10.1016/j.jom.2010.01.001

Kishan, S. (2020, December 10). BlackRock to Push Companies on Racial Diversity in 2021. *Bloomberg News*. https://www.bloomberg.com/news/articles/2020-12-10/blackrock-plans-to-push-companies-on-racial-diversity-in-2021

Klassen, R. D. & McLaughlin, C. P. (1996). The impact of environmental management on firm performance. *Management Science*, 42(8), 1199–1214. https://doi.org/10.1287/mnsc.42.8.1199

Kothari, S. P. & Warner, J. B. (1997). Measuring long-horizon security price performance. *Journal of Financial Economics*, 43(3), 301–339. https://doi.org/10.1016/S0304-405X(96)00899-9

Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of Financial Economics*, 115(2), 304–329. https://doi.org/10.1016/j.jfineco.2014.09.008

Kubik, J., Scheinkman, J. A. & Hong, H. (2012). Financial Constraints on Corporate Goodness. *SSRN Electronic Journal*. https://doi.org/10.3386/w18476

Lefkovitz, D. (2020, April 8). *How Did ESG Indexes Fare During the First Quarter Sell-off?* Morningstar. https://www.morningstar.com/insights/2020/04/06/how-did-esg-indexes-fare

Lins, K. V, Servaes, H. & Tamayo, A. (2017). Social Capital, Trust, and Firm Performance: The Value of Corporate Social Responsibility during the Financial Crisis. *The Journal of Finance*, 72(4), 1785–1823. https://doi.org/10.1111/jofi.12505

Lund, M., Bendsten, S. & Jung, E. (2018, August 24). An overview of the Danske Bank money laundering scandal. *Berlingske*. https://www.berlingske.dk/samfund/english-version-an-overview-of-the-danske-bank-money-laundering-scandal

Luo, X. & Bhattacharya, C. (2006). Corporate social responsibility, customer Satisfaction, and market value. *Journal of Marketing*, *70*(4), 1–18. https://doi.org/10.1509/jmkg.70.4.1

MacKinlay, A. C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature*, *35*(1), 13–39.

Masulis, R. W. & Reza, S. W. (2015). Agency problems of Corporate Philanthropy. *The Review of Financial Studies*, 28(2), 592–636. https://doi.org/10.1093/rfs/hhu082

McVeigh, K. (2020, December 7). Coca-Cola, Pepsi and Nestlé named top plastic polluters for third year in a row. *The Guardian*. https://www.theguardian.com/environment/2020/dec/07/coca-cola-pepsi-and-nestle-named-top-plastic-polluters-for-third-year-in-a-row

Mcwilliams, A. & Siegel, D. (1997). Event studies in Management Research: Theoretical and Empirical Issues. *Academy of Management Journal*, 40(3), 626–657. https://doi.org/10.2307/257056

McWilliams, A., Siegel, D. & Teoh, S. H. (1999). Issues in the Use of the Event Study Methodology: A Critical Analysis of Corporate Social Responsibility Studies. *Organizational Research Methods*, 2(4), 340–365. https://doi.org/10.1177/109442819924002

Morgan Stanley. (2019, September 11). *Sustainable Signals: Individual Investor Interest Driven by Impact, Conviction and Choice*. https://www.morganstanley.com/pub/content/dam/msdotcom/infographics/sustainable-investing/Sustainable_Signals_Individual_Investor_White_Paper_Final.pdf

Mufson, S. (2016, July 14). BP's big bill for the world's largest oil spill reaches $61.6 billion. *The Washington Post*. https://www.washingtonpost.com/business/economy/bps-big-bill-for-the-worlds-largest-oil-spill-now-reaches-616-billion/2016/07/14/7248cdaa-49f0-11e6-acbc-4d4870a079da_story.html?utm_term=.ce1ec29d2706

Nofsinger, J. & Varma, A. (2014). Socially responsible funds and market crises. *Journal of Banking and Finance*, 48, 180–193. https://doi.org/10.1016/j.jbankfin.2013.12.016

Nordic Energy Research. (n.d.). *Carbon Neutral Nordics*. Retrieved January 13, 2022, from https://www.carbonneutralnordics.org/

Orlitzky, M. (2013). Corporate social responsibility, noise, and stock market volatility. *Academy of Management Perspectives*, 27(3), 238–254. https://doi.org/10.5465/amp.2012.0097

Porter, M. E. & van der Linde, C. (1995). Toward a New Conception of the Environment-Competitiveness Relationship. *The Journal of Economic Perspectives*, 9(4), 97–118. https://doi.org/10.1257/jep.9.4.97

PRI. (n.d.). *Climate change*. Retrieved January 15, 2022, from https://www.unpri.org/climate-change

Renneboog, L., Ter Horst, J. & Zhang, C. (2008). Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking and Finance*, *32*(9), 1723–1742. https://doi.org/10.1016/j.jbankfin.2007.12.039

Reynolds, F. (2020, September 3). *COVID-19 accelerates ESG trends, global investors confirm*. PRI. Retrieved February 5, 2021, from https://www.unpri.org/pri-blogs/covid-19-accelerates-esg-trends-global-investors-confirm/6372.article

RobecoSAM. (2021). *Country Sustainability Ranking*. https://www.robeco.com/media/3/2/5/325dd63882d778324dd13ad2122d8ecb_202108-country-sustainability-ranking_tcm17-31263.pdf

Scholtens, B. & Sievänen, R. (2013). Drivers of Socially Responsible Investing: A Case Study of Four Nordic Countries. *Journal of Business Ethics*, 115(3), 605–616. https://doi.org/10.1007/s10551-012-1410-7

Serafeim, G. & Yoon, A. (2021). Stock Price Reactions to ESG News: The Role of ESG Ratings and Disagreement. *Review of accounting studies*, 2(1), https://doi.org/10.1007/s11142-022-09675-3

Servaes, H. & Tamayo, A. (2013). The Impact of Corporate Social Responsibility on Firm Value: The Role of Customer Awareness. *Management Science*, 59(5), 1045–1061. https://doi.org/10.1287/mnsc.1120.1630

Sloggett, J. & Reinboth, B. (2017). *ESG integration: How are social issues influencing investment decisions?* Pri. https://www.unpri.org/download?ac=6529

Strycharz, J., Strauss, N. & Trilling, D. (2018). The Role of Media Coverage in Explaining Stock Market Fluctuations: Insights for Strategic Financial Communication. *International Journal of Strategic Communication*, 12(1), 67–85. https://doi.org/10.1080/1553118X.2017.1378220

Tetlock, P. C. (2007). Giving content to investor sentiment: The Role of Media in the Stock Market. *The Journal of Finance*, 62(3), 1139–1168. https://doi.org/10.1111/j.1540-6261.2007.01232.x

Tetlock, P. C., Saar-Tsechansky, M. & Macskassy, S. (2008). More Than Words: Quantifying Language to Measure Firms' Fundamentals. *The Journal of Finance*, 63(3), 1437–1467. https://doi.org/10.1111/j.1540-6261.2008.01362.x

United Nations. (n.d.). *COP26: Together for our planet*. Retrieved January 15, 2022, from https://www.un.org/en/climatechange/cop26

US SIF. (2021). *Sustainable Investing Basics*. Retrieved February 06, 2021, from https://www.ussif.org/sribasics

World Economic Forum. (2021, March 30). *Global Gender Gap Report 2021*. https://www.weforum.org/reports/global-gender-gap-report-2021

Yeoh, P. (2019). Banks' vulnerabilities to money laundering activities. *Journal of Money Laundering Control*, 23(1), 122–135. https://doi.org/10.1108/JMLC-05-2019-0040

Appendix. Sample of firms

Company	Headquarters	Industry
Aker ASA	Norway	Holding company
Alfa Laval AB	Sweden	Manufacturing
Assa Abloy AB	Sweden	Manufacturing
Atea ASA	Norway	Software & Tech Services
Atlas Copco	Sweden	Capital goods
Boliden AB	Sweden	Mining
Electrolux AB	Sweden	Manufacturing
Equinor ASA	Norway	Oil and gas
Ericsson Telefon AB LM	Sweden	Telecommunication
Fortum Oyj	Finland	Utilities
H & M Hennes & Mauritz AB	Sweden	Retail
Hexagon AB	Sweden	Technology
Husqvarna AB	Sweden	Consumer Durables
ICA Gruppen AB	Sweden	Retail
Investor AB	Sweden	Diversified financials
Kesko Oyj	Finland	Retail
KONE Oyj	Finland	Engineering
NCC AB	Sweden	Construction
Neste Oyj	Finland	Oil refining
Nokia Oyj	Finland	Technology
Norsk Hydro ASA	Norway	Industrial
Norwegian Air Shuttle ASA	Norway	Aviation
Orkla ASA	Norway	Media
Outokumpu Oyj	Finland	Stainless steel
Peab AB	Sweden	Construction
Sampo Oyj	Finland	Financial services
Sandvik AB	Sweden	Capital goods
SAS AB	Sweden	Aviation
Securitas AB	Sweden	Security
Skanska AB	Sweden	Construction
SKF AB	Sweden	Manufacturing
SSAB AB	Sweden	Steel
Stora Enso Oyj	Finland	Manufacturing
Telenor ASA	Norway	Telecommunication
Telia Company AB	Sweden	Telecommunication
UPM-Kymmene Oyj	Finland	Materials
Veidekke ASA	Norway	Construction
Vestas Manufacturing A/S	Denmark	Manufacturing
Volvo, AB	Sweden	Automotive
Wärtsilä Oyj Abp	Finland	Manufacturing