



Lappeenranta–Lahti University of Technology LUT

School of Business and Management

Strategic Finance and Business Analytics, Master's thesis

IMPACT OF ENVIRONMENTAL SUSTAINABILITY-RELATED NEWS ON THE NORDIC MARKET

2022

Author: Niko Punkkinen

1st Examiner: Associate Professor Sheraz Ahmed

2st Examiner: Professor Eero Pätäri

ABSTRACT

Author:	Niko Punkkinen
Title:	Impact of environmental sustainability-related news on the Nordic market
Faculty:	Lappeenranta–Lahti University of Technology LUT, School of Business and Management
Master's program:	Strategic Finance and Business Analytics
Year:	2022
Master's thesis:	56 pages, 13 tables, 7 figures, and 1 appendix
Examiners:	Associate Professor Sheraz Ahmed and Professor Eero Pätäri
Keywords:	signaling theory, environmental sustainability, event study

Investors and stakeholders' interest in environmental sustainability has increased rapidly during recent years. Previous studies have indicated mixed results about the market reaction to environmental actions. This study examines the impact of environmental sustainability-related news on Nordic publicly-traded companies' stock prices. Furthermore, the market reaction is studied in subsamples of years, ESG scores, market caps, and countries. The event study methodology is used to find out abnormal returns from examined periods. The data consist of 410 news between 2015 and 2019. The main result for all events indicates a slightly significant positive average abnormal return of 0,133 % on the event date. In years subsample, 2016 and 2019 stands out with significant 0,331 % and 0,232 % average abnormal returns. When ESG score groups are compared, the better ESG performers tend to receive significant 0,213 % abnormal returns a day before the event. For the market caps group, small companies tend to receive stronger reactions from the market for 1,398 % on the event date compared to large companies 0,133 %. When countries are compared together, Finland stands out with significant abnormal returns of 0,249 % day after and 0,379% three days after the event. Sweden received significant abnormal return 0,285 % nine days after the event.

TIIVISTELMÄ

Tekijä:	Niko Punkkinen
Aihe:	Ympäristön kestävään kehitykseen liittyvien uutisten vaikutus pohjoismaisiin markkinoihin
Tiedekunta:	Lappeenrannan-Lahden teknillinen yliopisto LUT, LUT-kauppakorkeakoulu
Pääaine:	Strategic Finance and Business Analytics
Vuosi:	2022
Pro Gradu:	56 sivua, 13 taulukkoa, 7 kuviota and 1 liite
Tarkastajat:	Apulaisprofessori Sheraz Ahmed ja Professori Eero Pätäri
Hakusanat:	Signaaliteoria, ympäristön kestävä kehitys, tapahtumatutkimus

Sijoittajien ja sidosryhmien kiinnostus ympäristön kestävästä kehityksestä on kasvanut nopeasti viimeisimpien vuosien aikana. Aikaisemmat tutkimukset ovat osoittaneet sekalaisia tuloksia markkinareaktiosta ympäristötoimia kohtaan. Tämä tutkimus tutkii ympäristön kestävään kehitykseen liittyvien uutisten vaikutusta pohjoismaisten pörssiyritysten hintoihin. Lisäksi markkinareaktiota tutkitaan osaotoksilla jaettuna vuosiin, ESG pisteisiin, markkina-arvoon ja maihin. Tapahtumatutkimusmenetelmää käytetään selvittämään epänormaalituotot tutkituilta ajanjaksoilta. Data koostuu 410 uutisesta vuosien 2015 ja 2019 väliltä. Päätulokset kaikista tapahtumista viittaavat jossain määrin merkittävää positiivista epänormaalituottoa 0,133 % tapahtumahetkellä. Vuosien osaotoksessa vuodet 2016 ja 2019 poikkeavat tuloksissa 0,331 % ja 0,232 % keskimääräisillä epänormaalituotoilla. Kun ESG pisteiden ryhmiä vertaillaan, parempien ESG pisteiden ryhmä saa 0,213 % epänormaalituoton päivää ennen tapahtumaa. Markkina-arvoryhmässä pienet yritykset saavat voimakkaampia reaktioita markkinoilta tapahtumahetkellä, 1,398 % verrattuna isojen yritysten 0,133 %. Kun maita vertaillaan keskenään, Suomi poikkeaa merkittävästi epänormaalituotoilla 0,249 % päivä tapahtuman jälkeen ja 0,379 % kolme päivää tapahtuman jälkeen. Ruotsi sai merkittäviä epänormaalituottoja 0,285 % yhdeksän päivää tapahtuman jälkeen.

TABLE OF CONTENTS

1 Introduction.....	7
1.1 Objectives and research questions.....	11
1.2 Structure	13
2 Theoretical Framework	14
2.1 Corporate social responsibility and sustainability.....	14
2.2 Signaling theory	15
2.3 CSR and Reputation	16
2.4 CSR and value creation	17
2.5 Efficient Market Hypothesis	18
2.6 Literature review	19
3 Hypotheses.....	22
4 Data and Methodology	24
4.1 Data selection	24
4.2 Market data	26
4.3 ESG Scores	26
4.4 Subsamples	27
4.5 Event Study.....	28
4.6 Issues of the event study methodology	32
5 Empirical Results	34
5.1 All events sample.....	34
5.2 Subsample on event years.....	37
5.3 Subsample on ESG scores	40
5.4 Subsample on market caps.....	43
5.5 Subsample on countries	45
6 CONCLUSIONS	48
REFERENCES	52
APPENDICES.....	57

LIST OF FIGURES

Figure 1. CSR occurrences in newspapers.

Figure 2. The number of signatories and assets under management.

Figure 3. Estimation and Event windows.

Figure 4. Cumulative AAR from days -10 to +10 for all events sample.

Figure 5. Cumulative AAR from days -10 to +10 for each year sample.

Figure 6. Cumulative AAR from days -10 to +10 for ESG score groups.

Figure 7. Cumulative AAR from days -10 to +10 for samples of countries.

LIST OF TABLES

Table 1. Selection criteria for environmental sustainability-related news.

Table 2. The distribution of the events in the sample by country and year.

Table 3. ESG Score category weights.

Table 4. Average abnormal returns for all events.

Table 5. Cumulative average abnormal returns for all events.

Table 6. Average abnormal returns for each year sample.

Table 7. Cumulative average abnormal returns for each year sample.

Table 8. Average abnormal returns for high and low ESG score groups.

Table 9. Cumulative average abnormal returns for ESG score groups.

Table 10. Average abnormal returns for market cap samples.

Table 11. Cumulative average abnormal returns for market cap samples.

Table 12. Average abnormal returns for samples of countries.

Table 13. Cumulative average abnormal returns for samples of countries.

LIST OF APPENDICES

Appendix 1. List of the event data.

LIST OF ABBREVIATION

AR	Abnormal return
AAR	Average abnormal return
CAR	Cumulative abnormal return
CAAR	Cumulative average abnormal return
CS	Corporate sustainability
CSR	Corporate Social Responsibility
EMH	The Efficient Market Hypothesis
ESG	Environmental, Social, Governance
PRI	Principles of Responsible Investing

1 Introduction

Nowadays firms are making commitments to cut down greenhouse gases, manufacturing materials are chosen to make a low carbon footprint and supply chains are selected carefully to match the values of overall sustainability and investors' demand. These are just a few examples of increasing interest concerning sustainability, environmental, economic, and social-related actions. Socially Responsible Investing (SRI) and Corporate Social Responsibility (CSR) have become even more important topics for investors in the current decade. After the global financial crisis of 2007-2009 responsibility was taken more into account in the markets. This led to increasing transparency between investors and firms. From this point, SRI, CSR, and environmental, social, and governance (ESG) have become common practices. (Scholtens & Sievänen 2013)

One early evidence of increasing interest towards sustainability is the significant growth of media coverage of CSR-related news during the last decade. Capelle-Blancard and Petit (2017) discussed in their study the rapid growth of CSR and finance occurrences in newspapers collected from Dow Jones Factiva which includes over 10 000 news sources. In figure 1, the left scale indicates the occurrences of the word “corporate social responsibility” and the right scale shows occurrences divided by “finance” occurrences. A strong increase in media attention towards CRS can be noticed between 2000-2010.

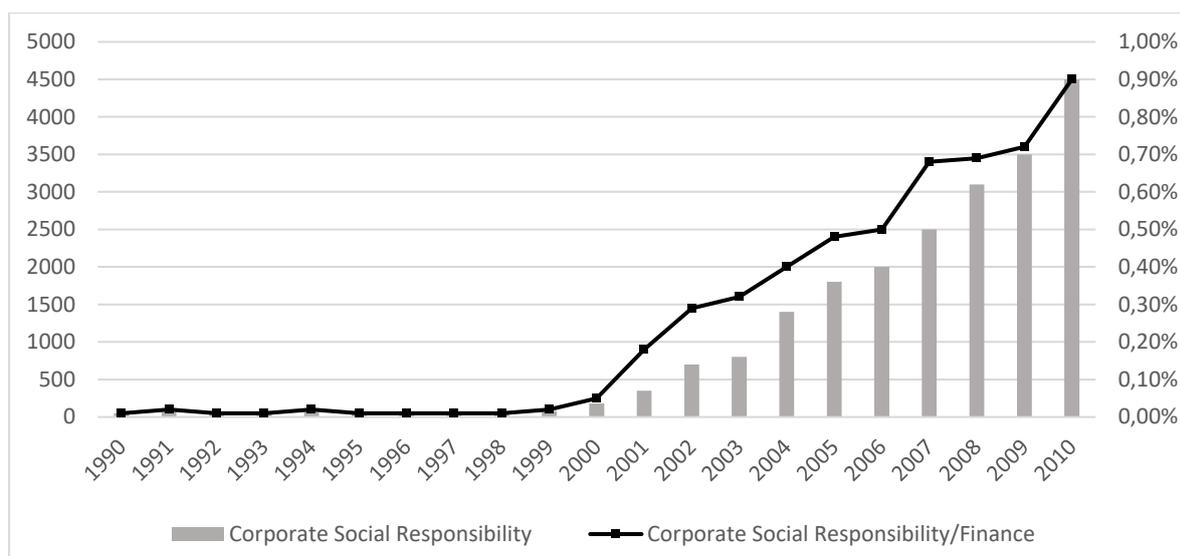


Figure 1. CSR occurrences in newspapers. Capelle-Blancard and Petit (2017)

A similar kind of trend can be noticed also in web searches during the last decade. DWS's and The University of Hamburg's ESG Study 2018 showed that investors' interest measured with Google search volume of "ESG" in financial context has increased tenfold globally during 2015-2018 (DWS 2018). These are just a few indicators of the growing interest in sustainable development which is partly driven by investors' demand.

One factor that promoted SRI and sustainable development of firms were the UN's Principles of Responsible Investing (PRI). Kofi Annan with a group of large institutional investors innovated PRI in 2005 and established it at the New York Stock Exchange in April 2006. PRI focuses on understanding the impacts of ESG values on financial performance and helping PRI signatories to integrate these values into decision-making and risk management. It is supported by the United Nations (UN) and it cooperates with global policymakers, but it has no connections to governments. Therefore, it has a great impact on the ESG development of firms via large institutional investors. The number of signatories has raised from 100 to over 3000 having over 103 trillion USD in assets under management in 2020. The growth of assets under management and the number of signatories is indicated in figure 2. (PRI 2020)

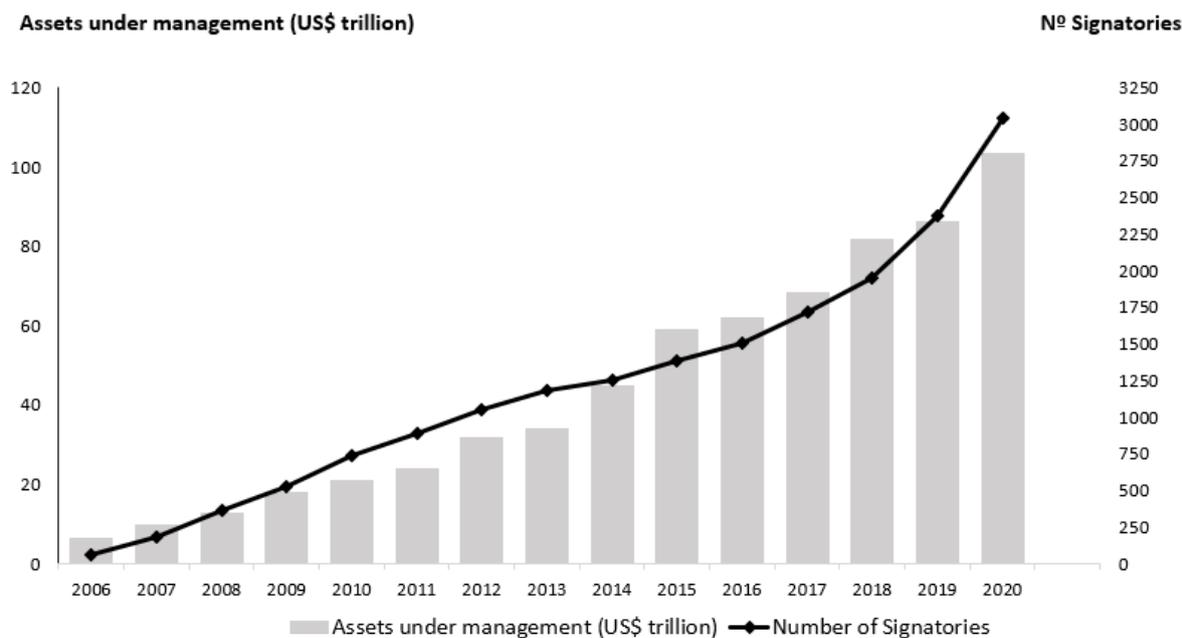


Figure 2. The number of signatories and assets under management. PRI (2020).

SRI is certainly a growing theme among investors but is investors' high demand towards sustainable values sufficient for firms to make commitments within CSR and ESG? Interest in participating in CSR can be viewed from the supply and demand perspective. Liang and Renneboog (2017) found a strong connection between legal origins and CSR scores. Civil law countries have typically stricter regulations and stronger legal protection which provides stakeholders better protection to reflect social preferences and expect stronger CSR commitment from firms. Similarly, when regulations and social preferences drive the adoption of CSR, firms have more independence to focus on CSR development. Civil law countries' companies tend to score higher CSR scores compared to common law origins and the highest CSR scores were found in Scandinavian civil law origins especially in environmental aspects.

Environmental aspects such as CO₂ emission, global warming, and climate change have been discussed widely among countries' governments. When regulations play a major role in the adoption of CSR, Scandinavian countries' high CSR performance in the environmental area can be partly explained by The EU's actions regarding climate-neutrality and the Paris Climate Agreement in 2016. The EU and its Member States are committed to achieving climate neutrality by 2050. The main aim of the agreement is reducing emissions and limiting the increase of long-term global average temperature well below 2 Celsius. Similarly, The

European Green Deal and its initiatives such as the European Climate Law focus on achieving the goals by 2050. (European Commission 2020). These kinds of actions have a strong effect on governments' legislation and regulations which reflect companies' CSR actions.

Stakeholders growing demand for CSR and climate actions obligates companies to give more sustainability-related information which is mostly given voluntarily through different channels. One approach to study the relation between CSR and shareholders' profit maximization is through voluntary disclosure theory. Hummel and Schlick (2016) studied the relationship between sustainability performance and sustainability disclosures. Voluntary disclosure theory suggests that a firm with a good sustainability performance should report high-quality information about its sustainable actions to increase its market value. Similarly, with legitimacy theory firms with poor sustainability performance could avoid transparency to protect the sustainability image and give low-quality disclosures. Results showed a positive relationship between good performers and high-quality disclosures whereas poor performers got negative relationships with low-quality disclosures.

Griffin and Sun (2013) studied market reaction on firms' greenhouse gas emission-related releases published in CSRWire news service. The study was based on prediction from voluntary disclosure theory whereby an optimal disclosure should gain shareholders' overall benefit. Also, company size and the amount of public information should affect decreasingly to the net benefit. Larger companies tend to release more information about sustainable actions compared to smaller ones. Because of the availability of public information, the reaction for smaller companies is suggested to be stronger. Results with green disclosures showed significant positive returns especially for small companies with a limited amount of public information.

Ramiah, Morris, Moosa, Gangemi, and Puican (2016) made research to study green policy announcements' effect on equity portfolios in Britain. They managed to capture positive abnormal returns related to environmental regulations announcements. Also, Amato and Amato (2012) studied impacts on firms listed in Newsweek's "The Greenest Big Companies in America" list. Results showed a positive impact on stock prices for firms with high ranks.

However, Capelle-Blancard and Petit (2017) studied ESG news impact on stock prices with 33 000 negative or positive news. The study resulted in a negative relationship on stock prices for negative news whereas the positive impact was only marginal. The negative impact was also smaller if a firm released previously more positive ESG news and when the industry has a good ESG reputation. These findings are partly contrary to previous findings.

Based on voluntary disclosure theory and these previous studies it is interesting to expand this field. Nordic countries are considered to be among the top performers related to overall sustainability and environmental development but there are not many studies about the relationship between sustainability performance and stock prices from Nordic markets. Therefore, this study aims to contribute to the small extent of research from Nordic markets and give evidence about the connection between sustainability performance, public information, and market value. The focus is on environmental sustainability-related news.

1.1 Objectives and research questions

The main goal of this study is to find out if there is any significant impact on Nordic countries' stock prices when environmental or "green" news is released. To give answers to this problem following research questions are formed:

Q1: Is there a significant relationship between environmental sustainability news and stock prices on Nordic companies?

Earlier research has quite mixed results whether companies' environmental actions and disclosures reflect market value. Both positive (Griffin and Sun, 2013; Ramiah et al., 2016) and negative (Jacobs, Singhal and Subramanian, 2010; Capelle-Blancard and Petit, 2017) impacts have been captured with a different type of announcements. Therefore, more especially from Nordic markets is reasoned.

Q2: Does the possible impact vary between countries?

Nordic countries have mutual legal origins, and they can be seen as top performers in ESG aspects. However, individuals of countries can have a different level of interest in sustainable investing. Reyes (2021) compared Nordic countries' willingness to make economic contributions to the environment. Overall Nordic countries had higher willingness in economic sacrifices compared to Western Europe and other EU but there were differences within Nordic countries. For example, Denmark was more willing to pay higher taxes compared to the rest. Therefore, it is interesting to check if there are any differences in reactions between Nordic countries.

Q3: Does the possible impact vary over time?

The Paris Climate Agreement in 2016 and the EU's climate actions have an impact on Nordic countries' regulations through legislation. Since the demand for sustainable actions has increased year by year it is interesting to study if there are any differences over time.

Q4: Does a company's CSR performance reflect the possible impact?

Scandinavian companies have the highest CSR scores and good sustainability performers have resulted in a positive impact on market value (Hummel & Schlick 2016; Liang & Renneboog 2017). CSR or ESG scores can be used as an indicator of sustainability performance to dig deeper into the research problem of whether CSR performance or reputation has a significant impact.

Q5: Does the size of a company reflect the possible impact?

Company size can affect the possible impact of the announcement. A smaller firm is suggested to benefit more from positive news when the availability of public information is low (Griffin and Sun 2013). Since Hummel and Schlick (2016) suggested that sustainability performance affects the possible impact, the company size and sustainability performance can be studied side by side.

An event study is chosen for the methodology to answer these research questions. The market model is used to estimate expected returns and abnormal returns are calculated from the difference of estimated and actual returns around event dates. According to Brooks (2014), an event study also measures market efficiency. When markets are informationally efficient, the impacts should not affect further than the exact event day. The event data is collected from Refinitiv Eikon from 2015 to the end of 2019 including all listed firms from Finland, Sweden, Norway, Denmark, and Iceland. The major challenge of this study is related to event data and its significance or magnitude. The data consist of different types of environmental events which might have different impacts on markets. Data collection and methodology are discussed in more detail in chapter 4.

1.2 Structure

The structure of this thesis is following. The theoretical framework is discussed in chapter 2. The discussion is focused on CSR, ESG, and overall sustainable actions connections in market value and reputation. Also, evidence from previous literature around a similar subject is opened. In chapter 3, hypothesis development is described in detail. Chapter 4 describes how the data is collected and chosen methodology more specifically. In Chapter 5, the results of all samples are presented. Finally, chapter 6 includes conclusions and suggestions for future research.

2 Theoretical Framework

This chapter focuses to open the theoretical background of how sustainability-related announcements can create positive value for companies. First CSR and sustainability-related concepts are defined more closely. Next information asymmetry-related theories and their relation to competitive advantage are discussed. Lastly, the relationship of value and CSR information and literature review are gone through.

2.1 Corporate social responsibility and sustainability

Corporate social responsibility is a diverse concept that also includes elements of sustainability. Sustainability and CSR are often discussed in the same context. The base for corporate social responsibility can be considered to be settled up when Howard R. Bowen wrote the book *"Social Responsibilities of the Businessman"* in 1953 (as cited in Carroll & Shabana 2010). After this, the common debate was related to mainly companies' contributions towards society. Carroll (1979) specified CSR characteristics into four elements within which companies participate to meet society's expectations: economic, legal, philanthropic, and ethical. These four attributes have been used commonly in research to describe companies' CSR activities for decades. (Carroll & Shabana 2010).

Since CSR-related actions are linked to stakeholders' expectations, companies have had to develop their organization's sustainability. According to Linnenluecke & Griffiths (2010), to embrace corporate sustainability, companies must adapt to the sustainability-oriented culture. Corporate sustainability (CS) as a context has the same basis as sustainability which was first defined by World Commission on Environment and Development in their report *"Our Common Future"* in 1987. WCED (1987) defined it as the following: *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs"*. Since then, sustainability has had various definitions regarding it from the perspective. Lozano (2015) examined drivers of CS. The common framework of sustainability consists of three aspects social, economic, and environmental within which a corporation can

interact short- and long-term and with internally and externally. Proactive Leadership was considered the most important inter driver of CS whereas customer demands and expectations, and regulation and legislation were the most meaningful external ones. Reputation can be considered as a connecting driver between external and internal drivers.

Carroll & Shabana (2010) brought up some criticism against CSR activities. The most common argument comes from the grounds of finance theory, a company must maximize the profits of shareholders (Friedman 1970). Participating in CSR actions might be just the opposite of that. One argument against is that a company's competitiveness could be lower globally. These arguments are from decades ago but some favour them still. The next chapters offer insights to profit and competitiveness arguments.

2.2 Signaling theory

Signaling theory offers one approach to the question of why companies and investors might value sustainable actions. The signaling theory was first introduced in Michael Spence's (1973) study *Job Market Signalling*. Spence used an example of an employer hiring employees based on their attributes. These attributes can be seen as signals for the employer which reduces information asymmetry between applicants and employer.

Hetze (2016) describes company signals as a sign of its motives, actions, and goals indirectly or directly. The process of signaling can have three components; the signaller, who sends the signal and, the receiving participant. Simaens and Koster (2013) specified these factors' characteristics. The signaller usually has private information which can be seen as an indicator of quality to different stakeholders. The signal itself is a way to communicate positive information from the organization and to fulfill the demand of the receiver. Hetze (2016) also stated that the quality of the signal is an important factor. A strong signal can be understood only in one way. The receiver is described as the outsider, in this case, stakeholders, who don't have the information but would benefit from it. This setup reflects the information asymmetry

between a company and stakeholders when a company is reporting a positive image of its sustainable actions.

Based on the signaling theory, a company should release positive information of its sustainable action to increase its positive image and decrease the information asymmetry which could benefit the stakeholders. If stakeholders experience the received information valuable, the company benefits from that and can have a competitive advantage over its competitors. Yu, Lopin and Mao-Feng (2017) stated that quality CSR information that is comparable and easy to understand reflects a firm's competitive advantage. Their results suggest companies' environmental sensitivity can have a significant impact on competitive advantage.

2.3 CSR and Reputation

Companies' image and reputation are an important part of the information which stakeholders receive through media, press, and other sources. As mentioned earlier, positive information can create value for stakeholders if they experience it as valuable. Consumers are one member of stakeholder which can affect to firm's value for example through consuming or investing. Currás-Pérez, Dolz-Dolz, Miquel-Romero and Sánchez-García (2018) studied social, economic, and environmental factors of CSR on consumer pursued value. Each factor was tested for the impact on utilitarian, emotional, and social values. As result, economic factor has a significant impact on utilitarian value. Additionally, social performance was shown to create value in all three categories. This supports companies' participation in social initiatives. However, environmental aspects created only emotional value. They argued, companies' environmental activities only boost consumers' value by making them feel good about their choices. Companies' image and reputation are linked to emotional factors which could create value for the company.

Hetze (2016) proposed an interesting theory with psychological factors of how stakeholders value the received information and how it reflects companies' reputation. First, a company reduces information asymmetry by signaling CSR commitments. These CSR signals are valued based on a signaling context and stakeholders' CSR perceptions. The outcome of the context valued by stakeholders, positive or negative, depends on signals of the company, competitors, and third parties. A company can have a good or bad reputation, as well as competitors, have their signals which affect stakeholders' perceptions. If the context is positive, the corporate image improves whereas, in a negative context, the image doesn't. The second filter relates to the stakeholder's psychological factors which are attributions, values, and organizational commitment. According to Connelly, Certo, Ireland and Reutzel (2011), the outcome is positive if these needs based on psychological factors are met. If the signal is valued positively after these two filters, the outcome for the reputation is positive.

2.4 CSR and value creation

Attention towards CSR and sustainability has increased in academic literature from various perspectives but there is still a debate whether CSR and sustainability actions are valuable for companies from a financial point of view. Cheng, Ioannou, and Serafeim (2014) studied the relationship between CSR actions and capital constraints. They argued that a firm with better CSR performance can have lower constraints for accessing finance from the market. The results showed significant relation with lower capital constraints especially in environmental and social aspects of CSR performance. Reasons behind this can be found in lower agency costs and a decrease in information asymmetries. A better CSR performance can lower agency costs via increased stakeholders' engagement which leads to mutual trust and management committing to CSR activities in a long term. They also stated companies with better CSR performance tend to release more information about their activities which increases transparency and decreases investors' risk when information asymmetry is decreased. These factors together can result in firms gaining capital resources from market participants more easily.

Dhaliwal, Li, Tsang, and Yang (2011) examined voluntary disclosure of CSR activities' impact on the cost of equity capital. The results indicated that firms with better CSR performance within their industry receive a lower cost of equity capital after releasing CSR reports. Additionally, these firms draw more institutional investors and analysts. Superior CSR performance firms are also more eager to raise additional capital from secondary equity offerings after two years of disclosure and receive significantly more compared to non-disclosing companies.

Yim, Bae, Lim and Kwon (2019) examined the link between CSR and financial performance. Previous studies have had inconsistent findings of the link. Hence, the study aimed to describe the relationships with moderated mediation model where corporate reputation is a mediating role for CSR and financial performance. Firm's marketing capability moderates the link between CSR and reputation. In this framework, the synergy of CSR and marketing capabilities is considered to reduce information asymmetry. The results indicated a significant and positive relation with marketing capabilities as moderating the CSR and reputation link. They stated that firms should strongly communicate their CSR activities to stakeholders with marketing. This leads to a positive impact on firms' reputation which affects competitive advantage and financial performance.

2.5 Efficient Market Hypothesis

The Efficient market hypothesis (EMH) creates a ground for event studies abnormal return interpretations. Fama (1970) brought up insights into the EMH. Based on the EMH the market can be defined as efficient if all available information is fully accounted into prices. When the information is released, it is assumed to be priced in securities without any delay. Therefore, achieving abnormal returns in an efficient market should not be possible in a long run (Malkiel 2013).

Fama (1970) divided market efficiency into three forms. In the weak form efficiency, the market is reflected only by historical information and therefore the historical price cannot be used to make a profit of the future prices. The semi-strong form incorporates all obvious information available in the market. This includes historical information and present announcements like result warnings as well. The assumption is that all public information is already accounted into stock prices. The strong form of efficiency includes all information publicly available and additionally companies' insider information. In this form, it is argued that investors can't capture higher profit than others since they don't have the access to insider information. Fama (1997) backed up the EMH and stated that based on literature evidence market anomalies for under and overreactions are as frequent. Additionally, pre-event abnormal returns can occur as repeatedly as during the post-event window.

2.6 Literature review

Klassen and McLaughlin (1996) examined firms' environmental management's link with financial performance. The study used environmental awards as a strong environmental performance signal to investors. Environmental crises were an indicator of poor environmental management. The data contained 140 positive and 22 negative news from 1985 to 1991. The results indicated positive significant abnormal returns on average 0,82 % after award announcements and negative reaction on average -1,5 % after environmental crises. They stated that through environmental performance a firm can achieve cost savings and benefit from the market.

Cheung (2011) analyzed the market reaction of inclusions and exclusions on the Dow Jones Sustainability World Index between 2002 to 2008. The results didn't show any significant impact on returns. However, on the days near the event, inclusions resulted in a significant short-time increase of returns, and similarly, a decrease in exclusions.

Flammer (2013) studied environmental CSR-related news impact on the US market. The study contained publicly traded US companies between 1980 and 2009. The study showed a positive impact on news of eco-friendly initiatives and negative for eco-harmful ones. Participating in environmental CSR actions seems to be institutionalized as a norm. Companies that don't participate in green initiatives are penalized. Additionally, the more firms take part in environmental CSR, the less they are awarded for it. Furthermore, additional participation adds less benefit if a company has already a good record of green initiatives. Additional participation can still act as insurance since the loss is smaller in case of eco-harmful events.

Krüger (2015) extended the research by studying CSR-related events, both positive and negative, impact on the US market. The study included 2116 events between August 2001 and April 2007. The results indicated a notable negative reaction to negative events among investors. More specifically environmental and community-related news caused a stronger impact. When positive events were examined, the reaction was slightly negative but less strong and irregular. However, Krüger notes that positive news can lead to positive reactions by investors if the event most likely doesn't cause an agency problem or the event is related to managerial decisions to fix previous CSR misconducts.

Yadav, Han, and Rho (2016) made research on large US firms' environmental performance impact on firm value. The study focused on 416 publicly traded US companies listed on Newsweek's green ranking list in 2012. They found out that firms that continuously improved their environmental performance compared to the previous year gained a stronger positive impact. Environmental damage was measured with the environmental impact score which was the most significant factor explaining the increase of firm value. Furthermore, they add that investors value consistent improvement on environmental aspects, especially avoidance of environmental damage.

Aureli, Gigli, Medei, and Supino (2020) examined ESG disclosures relationship with stock returns for Dow Jones Sustainability World Index listed companies. The study included publications from 2006 to 2016 with 50 companies and 170 reports. The results indicated that

31% of analyzed stocks had significant CARs inside the event window t-4 to t+4. Moreover, they noted that significance and created value increased when reports were released after 2013. This implicates growing investors' interest in ESG activities.

Although previously mentioned studies indicate a positive relationship, Jacobs et al. (2010) brought up contrary insights. They researched environmental performance announcements' impact on stock prices. The data was divided into Corporate Environmental Initiatives and Environmental Awards and Certifications between 2004 and 2006. The study didn't indicate a significant impact on the market. However, when events were examined on the category level, philanthropic environmental gifts and ISO 14001 certifications resulted in positive significant abnormal returns and voluntary emission reduction negative significant abnormal returns.

3 Hypotheses

This study aims to find out if Nordic countries' environmental sustainability-related positive news has a significant impact on the market. Hypotheses are formed based on research questions and theory and the market reaction is examined from various perspectives. The basic null hypothesis for an event study is that there is no significant impact on returns when certain announcements are given. This is in line with market efficiency as Malkiel (2005) suggests markets being efficient and accounting for all new information without delay which removes arbitrage possibilities. Based on signaling theory, a firm can achieve competitive advantage and reputational benefits by communicating quality information (Conelly et al. 2010; Hetze 2016). Decreasing information asymmetry and uncertainty with CSR-related announcements can create financial value by increasing transparency with stakeholders and engaging management on sustainable actions (Cheng et al., 2014; Dhaliwal et al, 2011; Yim et al., 2010). Therefore, the first hypotheses are following:

H1: Positive environmental news has a significant positive impact on Nordic firms' stock prices.

Studies indicated changes in the intensity of the impact on environmental actions over time. Flammer (2013) suggested environmental actions becoming a norm in the market. Additionally, Aureli et al. (2020) captured stronger reactions after 2013. Therefore, the second hypothesis is following:

H2: Significant market reactions vary over time.

The following hypotheses relate to signaling theory and the link between CSR actions and reputations. Studies implicate that a better CSR performance results in higher firm value (Dhaliwal et al., 2011; Yim et al., 2019). Furthermore, Griffin and Sun (2013) and Hummel and Schlick (2016) stated that firm size affects the magnitude of possible impact since the

availability of information in the market is lower. This is in line with previous studies and therefore, the third and fourth hypotheses are following:

H3: Positive significant market reaction is higher for better environmental sustainability performers.

H4: Significant market reaction is stronger for smaller companies.

Although Nordic countries have quite similar demographics, markets can have different reactions. Reyes (2021) indicated slight differences in Nordic countries' willingness to contribute to environmental aspects. The fifth hypothesis is following:

H5: Significant market reactions between Nordic countries vary.

4 Data and Methodology

In this chapter, the data selection process with classifications is described. The chosen methodology for the study is event study which is clarified in detail before empirical results.

4.1 Data selection

The first step was searching for proper events for selected companies. Market participants may come across news from many different sources such as the media and companies' press releases. Therefore, the event data was collected from the Refinitiv Eikon database, which includes real-time financial news wires, global press publications, and web news. This also made it possible to search from wide media coverage. The event news was searched for each company under topics ESG, Environmental ESG, and Environmental. Additionally, news containing the word "sustainability" in the text was included to increase the number of possible events. Each news was handpicked and read before including in the sample. Suitable news was searched for each company listed in Nasdaq Nordic including Copenhagen, Stockholm, Helsinki, and Iceland stock exchanges. Norwegian shares were added from The Oslo Børs. The total number of companies to be checked was 815. Events were searched between 01.01.2015 – 31.12.2019.

The focus of this study is on Nordic companies' environmental actions, reputation, and performance. Therefore, a careful selection criterion of the news data is essential to achieve a more reliable outcome since news can have a different value from each other. In suitable news, a company had to be in a positive context since the expectation is a positive reaction. Additionally, a company had to be in the center of the news. Too comprehensive news with a company or multiple companies mentioned was ignored. The focus of selection was on the news whose content wasn't too "soft" or shallow. The selection criteria for environmental events can be seen in Table 1. Environmental sustainability and reputational factors are divided to separate categories with related key terms to increase consistency within the event data.

Table 1. Selection criteria for environmental sustainability-related news.

Category	Key Terms	Example headline
Climate change	CO2 emissions	<i>"Norwegian Air to cut annual CO2 emissions by 16,000 tonnes per year"</i>
Sustainable actions	Innovations	<i>"Neste to introduce 100% renewable diesel"</i>
	Commitments	<i>"H&M to use 100% sustainably sourced materials by 2030"</i>
	Production	<i>"Stora Enso invests in producing bio-based carbon materials for energy storage"</i>
Resources	Use of resources	<i>"Kesko now purchases 100% renewable electricity"</i>
Pollution	Pollution reduction	<i>"Carlsberg Group investment halves water usage at its brewery in Fredericia, Denmark"</i>
Reputation	Acknowledgments	<i>"Sandvik hailed as one of world's most sustainable firm"</i>

During the search, the first appearance of news was selected to capture the market reaction. Additionally, any major financial events around the event date were screened which could contaminate the sample. For example, sustainability reports are often released side by side with annual reports. News related to these kinds of events had to be ignored since annual reports' financial information usually has a significant impact as well. The event date was switched to the next trading day if it occurred on weekends or non-trading days.

The total number of suitable events based on selection criteria was 482 news. After removing clustered and too generic events, the number of the final sample was 410 events for 128 companies. Table 2 presents the sample distribution for countries and years.

Table 2. The distribution of the events in the sample by country and year.

						SUM
Denmark	2	1	2	16	20	41
Iceland	-	-	-	-	1	1
Finland	25	27	23	52	53	180
Norway	-	1	5	9	20	35
Sweden	15	23	17	40	58	153
	2015	2016	2017	2018	2019	410

4.2 Market data

Daily stock prices for each company in the sample were collected from Yahoo Finance. The adjusted closing price was selected so that any possible splits and dividend distributions are considered. Therefore, undesired impacts within returns are reduced. Market indices were acquired from Nasdaq Nordic's stock exchanges and for Norwegian shares from The Oslo Børs. For this study, market returns were calculated from price indices. Price indexes don't take into account dividends so indexes reflect only true price changes. Chosen indexes are OMX Helsinki PI, OMX Copenhagen PI, OMX Stockholm PI, OMX Iceland All-Share PI, and for Norwegian shares OMX OSLO 20 PI.

In the case a company had several series of stocks, the B series was chosen due to its normally higher liquidity compared to the A series. Additionally, if a company was listed in multiple stock exchanges, all shares were calculated individually.

4.3 ESG Scores

ESG scores were used as a measurement of reputation and indicator of overall sustainable performance. In this study, these scores were collected from the Refinitiv Eikon database. Eikon's ESG scores are calculated based on 186 subsets from over 500 company level ESG-measurements. These subsets are grouped into 10 distinct sections of environmental, social,

and governance categories. The relative sum of weights can vary between industries for environmental and social categories whereas governance is the same for all. The outcome is a normalized percentage in the range of 0 to 100. Table 3 presents the weight distribution between ESG categories. ESG scores were checked annually for each firm and matched with the year of an individual event.

Table 3. ESG Score category weights. Refinitiv Eikon. (2021).

Environmental	Resource use	20 %
	Emissions	28 %
	Innovation	20 %
Social	Workforce	30 %
	Human rights	8 %
	Community	14 %
	Product responsibility	10 %
Governance	Management	35 %
	Shareholders	12 %
	CSR strategy	9 %

4.4 Subsamples

The main sample of this study was compiled to answer the first resource question. For the rest of the questions, subsamples are formed from that. The second question relates to possible impacts' variability between years and the third to variability between countries. Table 2 describes distributions for the years and countries. None of these years have a too-small sample size, however the years 2018 and 2019 form over half of the total observations. Additionally, Sweden and Finland have a remarkably larger portion of total observations. Iceland had only one observation which had to be ignored from the subsample of countries.

The fourth question was formed to find out the possible impact of reputational factors. In chapter 4.3, the ESG score data collection was described. The ESG scores weren't available in Refinitiv Eikon for all companies or years, therefore, the subsample of ESG scores doesn't include all observations from the main sample. The data was available for 231 events in total.

Based on this subsample, the average ESG score was calculated and divided into two separate groups. The better ESG performers group had a score over 72,98 and worse performers below that. Refinitiv Eikon considers values over 75 to show an excellent ESG performance and high transparency in reporting. (Refinitiv Eikon 2021).

Lastly, the companies of the main sample were divided into three groups based on the market cap of a firm. Market cap thresholds were taken from Nasdaq Nordic's allocations. A Large Cap firm has a market value of over one billion, a Mid Cap between 150 million and one billion, and a Small Cap below 150 million euros. The main sample consists mainly of Large Cap companies with 342 events. Mid Cap had 59 events and Small Cap 9 events. To be noted, 9 observations is a small sample size which might not give reliable results.

4.5 Event Study

Event studies have been used in financial studies since the year 1933 (MacKinlay 1997). Later, Fama's (1970) EMH brought more practical insights in the event study field and created the basis for modern event studies which are also tests for market efficiency. The basic idea of the method is to capture possible abnormal movements around specific events on the measured variable, usually stock prices. The first step is to determine identifiable events and the event window within which abnormal returns are examined. In event studies that focus on announcements with daily data, the event window includes the event date. However, it has been custom to inspect a wider period around the distinct event. According to Armitage (1995), a two-day event window is sufficient if there isn't an uncertainty about the event date. A shorter event window has better precision to capture abnormal returns whereas a larger one can be used to accumulate abnormal returns before and after the event date. In this study, the chosen event window is from $t - 10$ to $t + 10$. Within this period, shorter periods are calculated additionally to increase the reliability.

Peterson (1989) notes a good estimation period for calculating expected returns is from 100 to 300 days. According to Armitage (1995) and Brooks (2014), longer estimation periods can give more accurate parameter predictions but simultaneously increase the risk of other market events affecting estimations. The chosen estimation window for this study is 252 trading days beginning from $t-10$ which presents one year in trading days. The Estimation and event windows can be seen in figure 3.

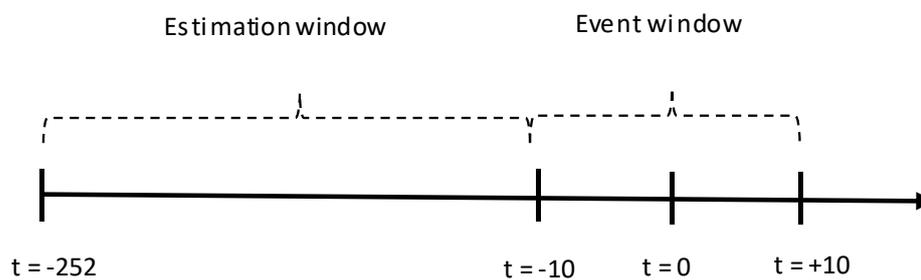


Figure 3. Estimation and Event windows.

MacKinlay (1997) states, there are two models used commonly to estimate an expected return, a constant mean return model and a market model. In the constant mean return model, the expected return is considered to be constant whereas in the market model expected returns are estimated with linear regression with market and security returns. Brooks (2014) notes the market model is the most commonly used in event studies. The market model is used in this study as well. The estimation parameters α_i and β_i are derived with linear regression from the equation:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{it} \quad (1)$$

Where $R_{i,t}$ is a security return and $R_{m,t}$ is a market return. The error term ε is assumed to be 0 in the market model (MacKinlay 1997). Therefore, expected returns $E(R_{i,t})$ is derived to the following equation:

$$E(R_{i,t}) = \alpha_i + \beta_i R_{m,t} \quad (2)$$

After estimations of expected returns, abnormal returns $AR_{i,t}$ can be calculated by deducting the expected return from the actual return for each stock i in the sample for time period t :

$$AR_{i,t} = R_{i,t} - ER_{i,t} \quad (3)$$

The actual returns for a company i are calculated with the logarithmic returns which are more symmetrical compared to ordinary returns. The equation for R_i is following:

$$R_{it} = \ln \frac{P_i}{P_{i-t}} \quad (4)$$

The next step was to calculate the average abnormal returns AAR_t within the event window from time $t - 10$ to $t + 10$ for all companies i . The equation is following where N presents the number of events:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{i,t} \quad (5)$$

Additionally, the cumulative abnormal returns CAR_i are calculated for each company i by summing abnormal returns between time period t and T . N presents the number of events:

$$CAR_i = \frac{1}{N} \sum_{i=t}^T AR_{i,t} \quad (6)$$

After calculation of average and cumulative abnormal returns, the cumulative average abnormal returns $CAAR_i$ can be formed by taking the arithmetic mean from all CAR_i of the sample.

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

Finally, when AARs and CAARs results are produced, the significance of these values must be tested. The basic assumption of a cross-sectional event study is that the events are independent and there are no cross-correlations (Brooks 2014). In the case of cross-correlation, returns can be aggregated into a portfolio or use a test statistic which would consider the cross-correlation. According to Kolari and Pynnönen (2010), even a small amount of cross-correlation within clustered events can lead to over-rejection of the null hypothesis. Armitage (1995) stated cross-correlations are present when events, estimation periods, and industries are the same. For this study, clustering was checked for the same company's events. Additionally, events are gathered from various industries being independent events. Therefore, the t-test is used as a test statistic for AARs and CAARs.

T-test for average abnormal returns for a single event window day t is calculated by dividing AAR by standard deviation of AARs and multiplied with the root of the number of events:

$$t_{AAR_t} = \sqrt{N} \frac{AAR_t}{\sqrt{\sigma^2(AAR_t)}} \sim t(N) \quad (8)$$

Where $\sigma^2(AAR_t)$ is the cross-sectional variance of abnormal returns for event window day t .

$$\sigma^2(AAR_t) = \frac{1}{N-1} \sum_{i=1}^N (AR_{i,t} - AAR_t)^2 \quad (9)$$

The T-test is calculated for CAARs as well where CAAR is divided by its standard deviation and multiplied with the root of the number of events:

$$t_{CAAR} = \sqrt{N} \frac{CAAR}{\sqrt{\sigma^2(CAAR)}} \sim t(N) \quad (10)$$

Equation $\sigma^2(CAAR_t)$ denotes the cross-sectional variance of cumulative abnormal returns for the studied event window.

$$\sigma^2(CAAR) = \frac{1}{N-1} \sum_{i=1}^N (CAR_{i,t} - CAAR)^2 \quad (11)$$

Based on t-test values, p-values for significance levels for CAARs and AARs are calculated. The focus of this study is on positive news and the expected outcome is a positive return. Therefore, p-values are checked with a one-tailed test. The null hypothesis expects the difference of means to be 0 within the event window. If p-values are significant, the null hypothesis can be rejected.

4.6 Issues of the event study methodology

Even though events study methodology is a powerful method to capture abnormal movement from the market, it has its limitations. According to MacKinlay (1997), the event date uncertainty can affect the reliability of the outcome. When event dates are gathered from various sources there might not be a full certainty that the information hasn't been on the market before. All through, this can be tackled with a wider event window. A second issue relates to the possible contamination of events. Events are screened during the search process but there can be some released information at the same period which can affect abnormal returns. Additionally, major market events within the event window can disturb the outcome.

A thin trading problem can arise if some stocks have infrequent trading. Event studies use often daily price data which is taken from the closing price at the end of a trading day. When stocks are not traded every day or during the trading day, this can cause a bias to the estimation betas which are calculated mostly based on actively traded shares. However, corrections to this issue are usually ineffective. (Armitage 1995; MacKinlay 1997).

5 Empirical Results

This chapter goes through the empirical results of the event study. First, the main sample is analyzed and presented in tables and figures. After that, the results of the subsamples over years, ESG scores, market caps, and countries are examined. Samples AARs within the event window $[-10, 10]$ and CAARs for $[-1, 1]$, $[-5, 5]$, and $[-10, 10]$ are also presented in tables and figures to illustrate the overall impacts.

5.1 All events sample

In table 4, the average abnormal returns for all events are presented within the event window from day $t -10$ to $t +10$. On the event day, the impact of environmental sustainability-related news was positive. Returns were on average 0,133 % and significant at 10 % level. From the table can be seen that returns were negative four days before and after the event, although not significantly. This significant rise at the event date hints the Nordic market is efficient. According to Fama (1970) in efficient markets, all available information is reflected in stock prices without delay. But when returns are examined further, from day $t +5$ to $t +10$, returns turn positive. Unexpectedly, Day $t+9$ results in positive AAR with 0,22 % which is significant at 5 % level. Figure 4 indicates cumulative AAR's during the event window. From the figure, the positive trend can be seen clearly after day $t +5$. This may indicate a delay in the information signaling to all stakeholders. Stakeholders can receive information from various channels, and it might take time for the signal to spread from the original source. Furthermore, investors may receive some additional information about events that affect decision-making.

This notable market reaction indicates Nordic countries valuing firms' environmental actions. Overall, the positive impact was significant only at 10 % level on the event date and the reaction was quite marginal within the event window. Although these results hint that the market has a minor reaction to environmental news, the null hypothesis of no positive significant abnormal returns being present around the event can be rejected with for the first hypothesis.

Table 4. Average abnormal returns for all events.

n = 410

Day	AAR	p-value
-10	-0,025 %	0,638
-9	-0,058 %	0,761
-8	0,030 %	0,346
-7	-0,072 %	0,711
-6	0,057 %	0,281
-5	0,096 %	0,158
-4	-0,187 %	0,908
-3	-0,078 %	0,812
-2	-0,014 %	0,549
-1	-0,022 %	0,596
0	0,133 % *	0,072
1	-0,002 %	0,509
2	-0,070 %	0,747
3	-0,068 %	0,648
4	-0,013 %	0,553
5	0,066 %	0,323
6	0,060 %	0,238
7	0,026 %	0,380
8	0,001 %	0,495
9	0,220 % **	0,016
10	0,005 %	0,479

Significance levels are *** 1%, ** 5%, * 10%

Table 5 presents cumulative average abnormal returns from three different time periods inside the event window. Although the event date and ninth day resulted in significant returns, a similar impact cannot be observed from a longer period. In overall, windows [-1, +1] and [-10, +10] resulted positive CAARs whereas period [-5, +5] was negative. However, the examined windows were insignificant and inconsistent. This is in line with Capelle-Blancard and Petit (2017) study, positive environmental news having just a marginal impact around the event date. On the contrary, Flammer (2013) and Klassen and McLaughlin Klassen (1996)

resulted in significant positive impacts on the event date for positive environmental-related announcements which are partly in line with these results. To be noted, Flammer resulted in positive significant CAARs for longer windows as well.

Table 5. Cumulative average abnormal returns for all events.

n = 410

t	CAAR	p-value
[0]	0,133 %	0,0721 *
[-1, 1]	0,109 %	0,2529
[-5, 5]	-0,159 %	0,6742
[-10, 10]	0,086 %	0,4268

Significance levels are *** 1%, ** 5%, * 10%

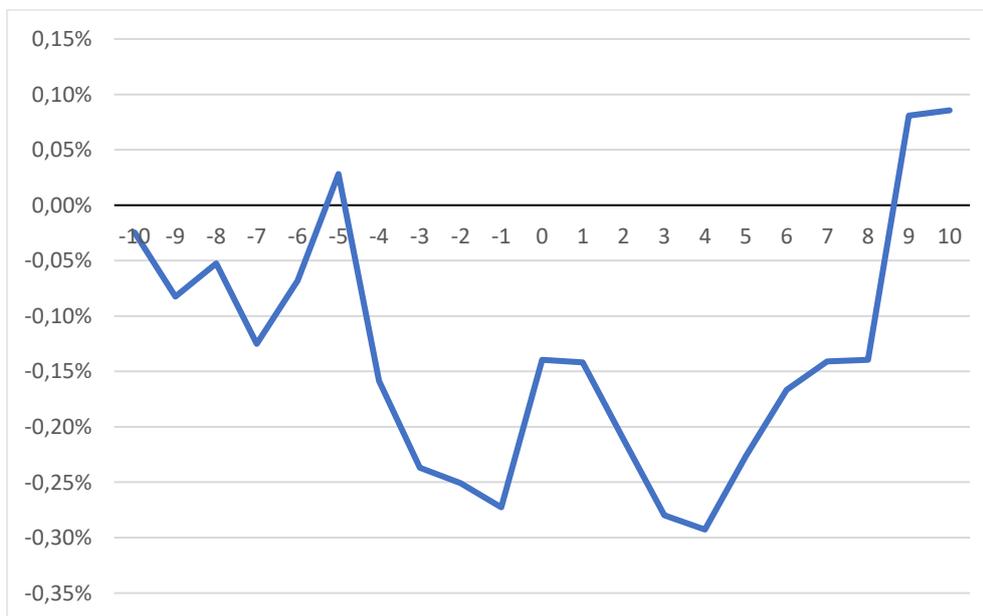


Figure 4. Cumulative AAR from days -10 to +10 for all-events sample.

5.2 Subsample on event years

After the analysis of the main sample, events were divided into subsamples for years. The individual AARs for the event window $[-10, +10]$ are presented in table 6 below. Individual significant positive AARs are present in the years 2016, 2018, and 2019. On the event date, only 2016 and 2019 received a significant positive reaction of 0,331 % and 0,233 % from the market at 10 % level. In the year 2018, on day $t -6$ the return was significant 0,363 % at the 10% level but this result is inconsistent and marginal. The year 2016 results are surprising overall since significant returns are present on days $t -10$, $t -5$, $t 0$, and $t +9$ at 10 % level, and on days $t -2$, $t +5$, $t +6$, and $t +10$ at 5% level. Additionally, there were significant returns of 0,585 % at 5 % level two days prior to the event which could indicate an information leakage to investors from different channels. However, when examined only more significant results at the 5 % level, the impact is weighted to post-event window four days after the event. A similar delay than in 2016 can be noticed from 2019, where returns increased significantly six days after the event. The alike reaction was present in all-events sample as well. This could indicate that information flows irregularly to the market participants.

Table 7 and figure 5 below illustrate the cumulative average abnormal returns on the years' sample. When comparing CAAR's between years and different event windows, the results are inconsistent varying from positive to negative. The only significant CAARs were in year 2016 for event windows $[-1, +1]$ 0,589% at 10 % level, $[-5, +5]$ 1,666% at 5 % level, and for $[-10, +10]$ 4,407 % at 1 % level. The outcome is unexpectedly strong compared to overall results which could indicate market events affecting prices. This aspect should be checked more carefully. Aureli et al. (2020) showed stronger impacts in ESG disclosures after 2013 but Flammer (2013) suggested environmental CSR actions becoming a norm to the market which levels later positive impacts. The second hypothesis predicted variability in possible impacts. Within the event window, 2016 and 2019 resulted in significant positive returns mainly on the post window. This could indicate the market's willingness to reward firms for environmentally sustainable actions. Therefore, the second hypothesis can be accepted.

Table 6. Average abnormal returns for each year sample.

Day	2015 n = 42		2016 n = 52		2017 n = 47		2018 n = 117		2019 n = 152	
	AAR	p-value	AAR	p-value	AAR	p-value	AAR	p-value	AAR	p-value
-10	0,005 %	0,493	0,263 % *	0,089	-0,015 %	0,535	-0,102 %	0,789	-0,074 %	0,736
-9	-0,363 %	0,803	0,272 %	0,147	-0,172 %	0,831	0,003 %	0,490	-0,099 %	0,795
-8	0,075 %	0,417	0,068 %	0,377	0,105 %	0,281	-0,024 %	0,566	0,023 %	0,413
-7	0,144 %	0,236	0,222 %	0,271	-0,093 %	0,724	-0,497 %	0,899	0,100 %	0,189
-6	0,034 %	0,442	-0,030 %	0,559	-0,209 %	0,951	0,363 % *	0,094	-0,060 %	0,684
-5	0,052 %	0,405	0,633 % *	0,056	0,029 %	0,427	0,102 %	0,323	-0,059 %	0,694
-4	-0,158 %	0,741	-0,274 %	0,910	0,014 %	0,472	-0,514 %	0,884	0,025 %	0,432
-3	-0,295 %	0,802	0,116 %	0,327	-0,136 %	0,730	-0,170 %	0,834	0,004 %	0,489
-2	-0,113 %	0,697	0,585 % **	0,022	-0,039 %	0,590	-0,165 %	0,697	-0,067 %	0,700
-1	0,216 %	0,267	-0,051 %	0,576	0,131 %	0,261	-0,149 %	0,758	-0,027 %	0,599
0	-0,051 %	0,572	0,331 % *	0,083	-0,114 %	0,692	0,080 %	0,317	0,233 % *	0,077
1	0,215 %	0,153	0,309 %	0,138	-0,053 %	0,612	0,148 %	0,238	-0,268 %	0,951
2	-0,026 %	0,547	-0,221 %	0,815	-0,097 %	0,757	-0,312 %	0,858	0,165 %	0,104
3	-0,204 %	0,846	0,100 %	0,365	-0,023 %	0,540	0,445 %	0,129	-0,498 %	0,920
4	-0,408 %	0,963	-0,229 %	0,848	0,085 %	0,315	0,219 %	0,206	-0,039 %	0,634
5	-0,208 %	0,866	0,367 % **	0,049	-0,159 %	0,809	0,270 %	0,274	-0,048 %	0,630
6	0,155 %	0,281	0,587 % **	0,012	-0,192 %	0,832	-0,102 %	0,714	0,056 %	0,325
7	-0,168 %	0,739	0,333 %	0,122	-0,237 %	0,928	-0,176 %	0,871	0,211 % *	0,068
8	0,194 %	0,264	0,157 %	0,263	-0,374 %	0,923	-0,307 %	0,898	0,248 % *	0,088
9	-0,078 %	0,632	0,354 % *	0,074	-0,164 %	0,818	0,148 %	0,164	0,431 % **	0,027
10	-0,219 %	0,771	0,515 % **	0,017	-0,444 %	0,994	0,161 %	0,192	-0,089 %	0,718

Significance levels are *** 1%, ** 5%, * 10%

Table 7. Cumulative average abnormal returns for each year sample.

t	2015 n = 42		2016 n = 52		2017 n = 47		2018 n = 117		2019 n = 152	
	CAAR	p-value	CAAR	p-value	CAAR	p-value	CAAR	p-value	CAAR	p-value
[0]	-0,051 %	0,572	0,331 % *	0,083	-0,114 %	0,692	0,080 %	0,317	0,233 % *	0,077
[-1, 1]	0,380 %	0,227	0,589 % *	0,094	-0,036 %	0,536	0,079 %	0,416	-0,061 %	0,602
[-5, 5]	-0,981 %	0,907	1,666 % **	0,027	-0,362 %	0,721	-0,046 %	0,521	-0,575 %	0,855
[-10, 10]	-1,203 %	0,814	4,407 % ***	0,003	-2,157 %	0,996	-0,579 %	0,760	0,167 %	0,418

Significance levels are *** 1%, ** 5%, * 10%

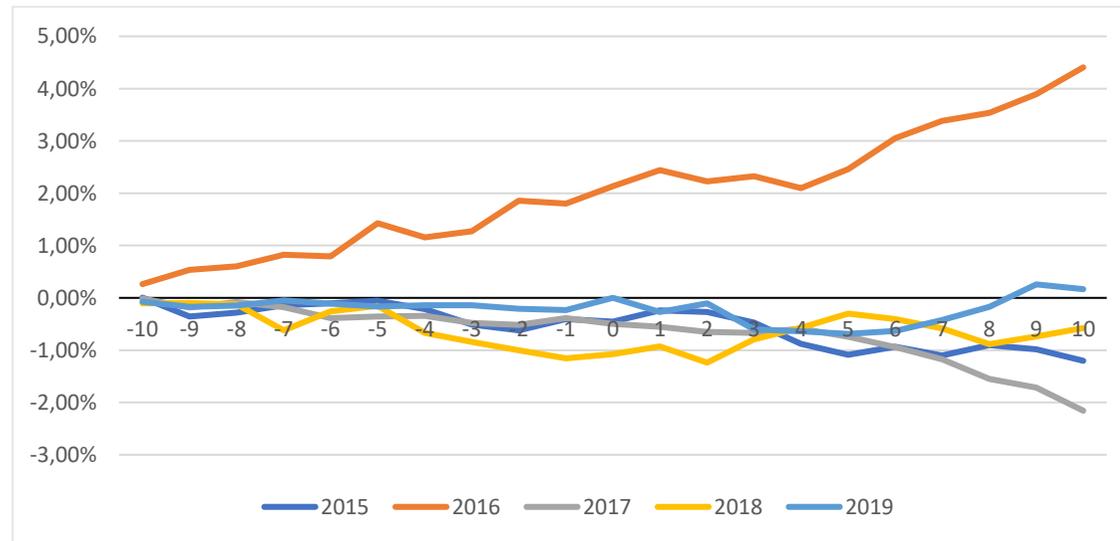


Figure 5. Cumulative AAR from days -10 to +10 for each year sample.

5.3 Subsample on ESG scores

The third subsample was formed based on companies' individual ESG scores at the time of the event. Scores were divided into two groups, better ESG performers and weaker. Table 3 presents AARs for the better performers ($ESG > 72,98$) and weaker ($ESG < 72,98$). Both groups had positive AAR on the event date, but this was not a significant result. However, for the better performers group, there was a significant impact of 0,213 % at the 5 % level one day prior to the event. The positive reaction started three days before the event which was also significant at the 10 % level. Further, there were significant returns of 0,256 % at the 5 % level on the ninth day. The reaction in the post-event window was present also for the weaker performers group, only significant impacts were on the day $t + 8$ and $t + 10$ where the AAR was 0,475 % at the 5 % level. This phenomenon follows the results of previous samples. According to Fama (1970), prior abnormal returns may indicate that investors received the information before the event. It is always possible that there has been other news about the event before the release date examined here. The reaction in the post-event window is similar compared to other samples' results. It may be that investors take time to process firms' environmental sustainability-related actions and motives.

Table 8. Average abnormal returns for high and low ESG score groups.

Day	ESG > 72,98 n = 116		ESG < 72,98 n = 115	
	AAR	p-value	AAR	p-value
-10	-0,088 %	0,778	-0,123 %	0,790
-9	-0,036 %	0,626	-0,031 %	0,577
-8	0,097 %	0,170	-0,280 %	0,977
-7	0,012 %	0,465	0,149 %	0,196
-6	-0,009 %	0,531	0,048 %	0,379
-5	-0,109 %	0,815	0,154 %	0,229
-4	-0,070 %	0,685	-0,539 %	0,890
-3	0,150 % *	0,080	-0,139 %	0,765
-2	0,197 % *	0,075	0,131 %	0,208
-1	0,213 % **	0,022	-0,120 %	0,754
0	0,147 %	0,163	0,060 %	0,368
1	-0,173 %	0,908	0,097 %	0,330
2	-0,059 %	0,666	-0,238 %	0,953
3	-0,306 %	0,992	-0,153 %	0,810
4	-0,008 %	0,530	-0,226 %	0,943
5	-0,303 %	0,996	0,198 %	0,138
6	0,135 %	0,165	0,121 %	0,226
7	-0,059 %	0,662	0,220 %	0,123
8	0,064 %	0,319	0,276 % *	0,070
9	0,256 % **	0,011	0,180 %	0,112
10	-0,047 %	0,662	0,475 % **	0,012

Significance levels are *** 1%, ** 5%, * 10%

In table 9, cumulative average abnormal returns for both groups are presented. It can be noted that for both groups abnormal returns were positive just around the event date but not significant. The better performer group had significant abnormal returns prior to the event but as figure 6 demonstrates, the reaction starts to go negative right after the event. The figure also visualizes the reaction in the post-event for the weaker group. When both groups are compared, the better performers group has stronger evidence of market reaction around the event date when positive environmental announcements are released. This is in line with

Amato and Amato (2012) and Hummel and Schlick (2016) that superior CSR or ESG performance can increase a firm’s value. Therefore, the third hypothesis of the market reaction being higher for better environmental sustainability performers can be accepted.

Table 9. Cumulative average abnormal returns for ESG score groups.

t	ESG > 72,98 n = 116		ESG < 72,98 n = 115	
	CAAR	p-value	CAAR	p-value
[0]	0,147 %	0,163	0,060 %	0,368
[-1, 1]	0,187 %	0,213	0,037 %	0,461
[-5, 5]	-0,321 %	0,805	-0,776 %	0,885
[-10, 10]	0,004 %	0,497	0,258 %	0,401

Significance levels are *** 1%, ** 5%, * 10%

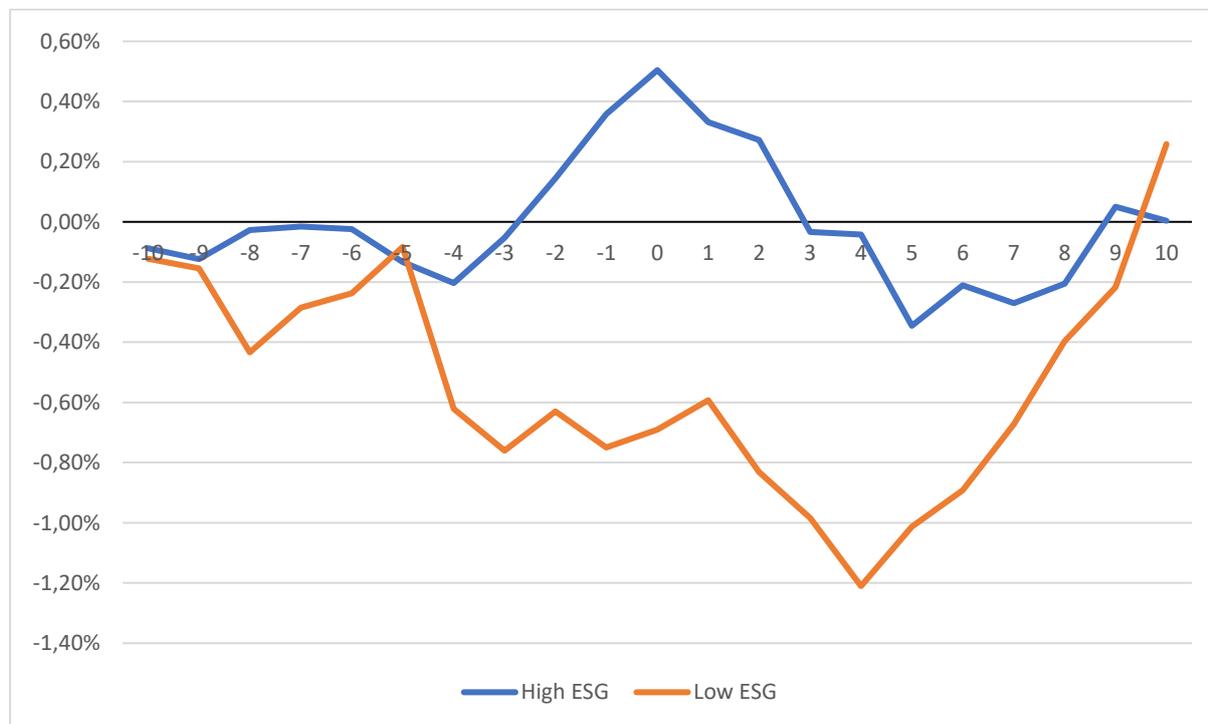


Figure 6. Cumulative AAR from days -10 to +10 for ESG score groups.

5.4 Subsample on market caps

Average abnormal returns sampled by the firm's market cap are presented in table 10. Large market cap companies received significant abnormal returns most compared to others. The effect two days prior was 0,137 % which was significant at 5 % level. The event date's impact was 0,133 % at 10% level. In the post-event, days t+6 and t+9 impacts were significant 0,106 % at 10 % level and 0,145 % at 5 % level. The medium market cap group has only one significant abnormal return on day t +9 with 0,847 % at 10 % level. The small market cap group resulted in significant abnormal returns on the event date for 1,398 % at a 5 % level. However, the sample size of nine observations is too low to make any general conclusions about the market reaction. Griffin and Sun (2013) suggested larger companies release more information compared to smaller ones. Therefore, smaller companies should have a stronger impact when the information asymmetry is decreased. Large companies' abnormal returns follow previous findings from other samples. In table 11, CAARs for the samples are calculated but none of them were significant. CAARs were quite marginal being slightly positive or negative. Therefore, the market reaction can be seen to be a quite short term. However, the reaction for smaller firms was stronger and the fourth hypothesis is accepted.

Table 10. Average abnormal returns for market cap samples.

Day	Large n = 342		Medium n = 59		Small n = 9	
	AAR	p-value	AAR	p-value	AAR	p-value
-10	0,034 %	0,318	-0,223 %	0,851	-0,940 %	0,862
-9	-0,031 %	0,635	-0,145 %	0,750	-0,530 %	0,729
-8	-0,023 %	0,636	0,285 %	0,184	0,386 %	0,369
-7	0,078 %	0,172	-0,030 %	0,553	-6,065 %	0,889
-6	-0,006 %	0,534	0,073 %	0,380	2,349 %	0,249
-5	0,046 %	0,304	-0,069 %	0,612	3,073 %	0,085
-4	-0,177 %	0,869	-0,054 %	0,573	-1,432 %	0,885
-3	0,014 %	0,434	-0,573 %	0,948	-0,354 %	0,727
-2	0,137 % **	0,043	-0,281 %	0,879	-3,991 %	0,839
-1	0,021 %	0,391	0,170 %	0,281	-2,917 %	0,906
0	0,133 % *	0,085	-0,063 %	0,594	1,398 % **	0,037
1	-0,033 %	0,634	-0,076 %	0,612	1,671 %	0,155
2	-0,085 %	0,836	-0,301 %	0,882	2,013 %	0,268
3	-0,047 %	0,704	-0,457 %	0,932	1,682 %	0,415
4	-0,085 %	0,879	0,181 %	0,289	1,456 %	0,306
5	-0,051 %	0,735	0,136 %	0,296	4,055 %	0,248
6	0,106 % *	0,092	-0,266 %	0,851	0,444 %	0,401
7	0,043 %	0,309	-0,006 %	0,509	-0,425 %	0,755
8	-0,009 %	0,533	0,408 %	0,161	-2,284 %	0,932
9	0,145 % **	0,023	0,847 % *	0,065	-1,035 %	0,833
10	0,084 %	0,170	-0,145 %	0,670	-2,011 %	0,947

Significance levels are *** 1%, ** 5%, * 10%

Table 11. Cumulative average abnormal returns for market cap samples.

t	Large n = 342		Medium n = 59		Small n = 9	
	CAAR	p-value	CAAR	p-value	CAAR	p-value
[0]	0,133 % *	0,085	-0,063 %	0,594	1,398 % **	0,037
[-1, 1]	0,121 %	0,235	0,031 %	0,473	0,152 %	0,477
[-5, 5]	-0,126 %	0,668	-1,387 %	0,917	6,655 %	0,259
[-10, 10]	0,295 %	0,245	-0,590 %	0,641	-3,457 %	0,648

Significance levels are *** 1%, ** 5%, * 10%

5.5 Subsample on countries

Table 12 presents AARs for samples based on firms' countries. Overall, the impact on the event date was positive but insignificant. However, Finland and Sweden resulted in significant abnormal returns in the post-event window. Finland had significant abnormal return of 0,249 % at 5 % level. Furthermore, after three days the impact is 0,379 % being significant at 10 % level. According to Hetze's (2016) framework, this may indicate that Finnish companies' environmental actions are experienced more meaningful by investors creating value and meeting their demands. Sweden had also a significant market reaction of 0,285 % at a 5 % level on day t+9. This might relate to information flow as in other samples.

Table 13 and figure 7 illustrates CAARs within the examined event window. All in all, none of the CAARs for different event windows were significant. However, Finland and Sweden's positive CAARs differ from Denmark and Norway whose CAARs are negative. CAARs movement is presented in figure 7 which clearly indicates a downward slope for Denmark and Norway. The reason for this might relate to industry differences between countries, for example, oil and gas production in Norway. Based on mainly individual AARs, the fifth hypothesis of countries' impact varying can be accepted.

Table 12. Average abnormal returns for samples of countries.

Day	Denmark n = 41		Finland n = 180		Norway n = 35		Sweden n = 153	
	AAR	p-value	AAR	p-value	AAR	p-value	AAR	p-value
-10	0,138 %	0,166	-0,043 %	0,662	-0,446 %	0,894	0,050 %	0,328
-9	0,076 %	0,354	-0,080 %	0,713	-0,300 %	0,863	-0,003 %	0,510
-8	-0,194 %	0,856	-0,005 %	0,517	0,269 %	0,206	0,075 %	0,278
-7	0,022 %	0,458	-0,032 %	0,547	-0,718 %	0,991	-0,013 %	0,541
-6	0,118 %	0,341	0,092 %	0,312	-0,046 %	0,570	0,045 %	0,339
-5	0,016 %	0,470	0,149 %	0,194	-0,058 %	0,579	0,098 %	0,229
-4	0,196 %	0,190	-0,315 %	0,861	-0,149 %	0,660	-0,167 %	0,911
-3	-0,529 %	0,940	-0,014 %	0,539	-0,179 %	0,684	-0,007 %	0,524
-2	-0,145 %	0,769	-0,005 %	0,510	0,087 %	0,412	-0,004 %	0,513
-1	-0,062 %	0,602	-0,075 %	0,674	-0,408 %	0,957	0,141 %	0,113
0	0,194 %	0,253	0,152 %	0,117	0,056 %	0,437	0,106 %	0,251
1	-0,444 %	0,872	0,249 % **	0,044	-0,649 %	0,985	-0,030 %	0,582
2	-0,253 %	0,818	-0,164 %	0,800	0,286 %	0,112	-0,002 %	0,505
3	-0,670 %	0,994	0,379 % *	0,076	-1,488 %	0,847	-0,105 %	0,765
4	0,194 %	0,211	-0,031 %	0,575	0,061 %	0,456	-0,068 %	0,758
5	-0,243 %	0,776	0,241 %	0,209	-0,396 %	0,841	0,054 %	0,313
6	0,234 %	0,126	0,132 %	0,168	-0,578 %	0,949	0,084 %	0,247
7	0,330 %	0,159	0,063 %	0,306	-0,016 %	0,521	-0,069 %	0,699
8	0,196 %	0,383	-0,035 %	0,594	0,033 %	0,450	0,001 %	0,499
9	0,860 %	0,130	0,048 %	0,332	0,027 %	0,455	0,285 % **	0,011
10	-0,317 %	0,785	0,056 %	0,353	0,255 %	0,169	-0,033 %	0,611

Significance levels are *** 1%, ** 5%, * 10%

Table 13. Cumulative average abnormal returns for samples of countries.

t	Denmark n = 41		Finland n = 180		Norway n = 35		Sweden n = 153	
	CAAR	p-value	CAAR	p-value	CAAR	p-value	CAAR	p-value
[0]	0,194 %	0,253	0,152 %	0,117	0,056 %	0,437	0,106 %	0,251
[-1, 1]	-0,312 %	0,761	0,326 %	0,110	-1,001 %	0,978	0,217 %	0,249
[-5, 5]	-1,747 %	0,980	0,566 %	0,170	-2,836 %	0,955	0,015 %	0,487
[-10, 10]	-0,283 %	0,556	0,763 %	0,123	-4,357 %	0,960	0,436 %	0,196

Significance levels are *** 1%, ** 5%, * 10%

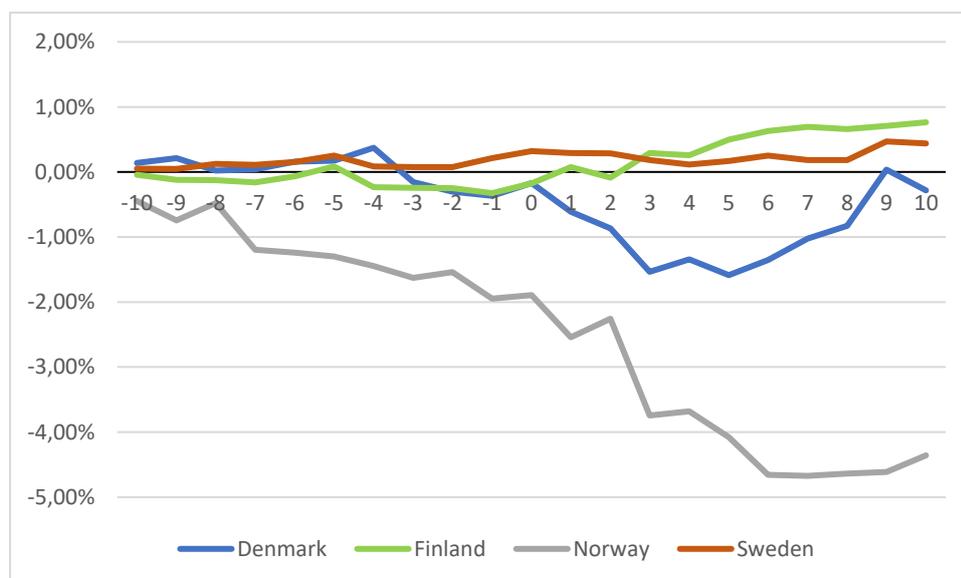


Figure 7. Cumulative AAR from days -10 to +10 for samples of countries.

6 CONCLUSIONS

The main goal of this study was to examine the potential market reaction towards firms' environmental sustainability-related news and announcements. Investors' attention to firms' CSR and environmental actions has increased over time rapidly which affects management's strategic decisions. When stakeholders evaluate environmental news based on attributions, values, and organizational commitment, the underlying action or commitment, whether it is a reduction of CO₂ emissions or acknowledgment of superior CSR performance, can be considered as signals for decreasing information asymmetry. When information asymmetry is reduced, stakeholders' perceived value can create value for the firm as well if the signal itself has quality. Companies' good CSR and ESG performance relate to company reputation which can be seen as a quality factor. This study focused on the Nordic market which participants are considered one of the top ESG and sustainability performers. The data included in total 410 environmentally positive news from Danish, Finnish, Swedish, Norwegian, and Icelandic publicly traded companies between 2015 and 2019. The study aimed to give answers to the following research questions:

Q1: Is there a significant relationship between environmental sustainability news and stock prices on Nordic companies?

Q2: Does the possible impact vary between countries?

Q3: Does the possible impact vary over time?

Q4: Does a company's CSR performance reflect the possible impact?

Q5: Does the size of a company reflect the possible impact?

The main findings for the whole events sample indicated a positive reaction of 0,133 % from the market right after when environmentally positive sustainability-related news was released. An interesting aspect was noticed in the post-event window which showed a significant increase in the abnormal returns around nine days after the actual event. The

market reaction on the event date, although it was significant only at a 10 % level, was in line with Flammer (2013) and Klassen and McLaughlin Klassen (1996) studies, which resulted in more significant impacts around the event date. This study's impact was only slightly significant and CAAR didn't indicate any longer impact. The first hypothesis for positive abnormal returns was present after the news was accepted. Even though the reaction was minor, these results still hint that the market participants can have a positive reaction towards environmental aspects. The thin impact can be a result of the announcement quality. This study used certain criteria for the news selection, but it doesn't mean that these announcements have the same value for stakeholders. As Currás-Pérez et al. (2018) argued, consumers tend to have only emotional value from companies' CSR commitments.

Other subsamples examined the impact over time, ESG reputation, market caps, and countries. The subsample of years resulted in significant abnormal returns on the event date for 2016 and 2019 which might indicate variability among investors' experienced value. Flammer (2013) suggested environmental actions becoming a norm for the market which could even out the possible reactions over time. Aureli et al. (2020) noticed a stronger impact after 2013. The second hypothesis of impact varying over time was accepted.

ESG reputation was measured with companies' ESG scores. Although the measured impact wasn't significant on the event date, the better performer group had more significant abnormal returns compared to the weaker group. Especially, the better performers had a significant impact just before the event which implies information leakage. This is in line with Hummel & Schlick (2016). Higher ESG performers might release more quality information to stakeholders which reduces the information asymmetry compared to weaker performers. Based on these results the third hypothesis of positive significant market reaction is higher for better environmental sustainability performers was accepted.

Market caps were divided into large, medium, and small groups. The hypothesis expected smaller companies to benefit better compared to larger ones. The results indicated a significant market reaction for the large group on the event date by 0,133 %. Additionally,

there was a significant impact two days prior to the event and nine days after. The medium group didn't capture any significant abnormal returns whereas the small group had a significant impact of 1,398 % on the event date. To be noted, the sample size was only nine observations, but the reaction was stronger compared to others. Therefore, the fourth hypothesis was accepted.

Lastly, possible country differences were examined. The results indicated interestingly significant reactions only for Finland and Sweden. Finland had significant abnormal returns of 0,249 % a day after and 0,379 % three days after the event whereas Sweden received a significant impact of 0,285 % nine days after the event. These results suggest that Finnish markets react more efficiently to positive environmental news compared to Sweden. Sweden's reaction might relate to information taking time to reach all stakeholders. Another explanation could be that stakeholders tend to process environmental news longer and these might not be the initial reasons to invest. Perhaps these announcements can give some backup for later investment decisions. Furthermore, CAARs for Finland and Sweden were positive whereas for Denmark and Norway these were negative. Although these weren't significant, the result might relate to countries' industry differences. Overall, the fifth hypothesis for countries having varying significant impacts was accepted.

All in all, the study indicated that the Nordic market tends to react to firms' efforts to commit environmental sustainability-related actions. However, the market reaction tends to be quite marginal and lasts only a short time. Also, often the impact was captured on the post-event window around nine days after the actual event which indicates inefficiency in market information flow.

This study has limitations and event categories can be noted as the most crucial. Even within the category, events can have different magnitudes for investors. This study didn't draw a line between these categories since the focus was on the overall effect of any environmentally friendly action. Since the results hint that the market might value environmental actions, it would be interesting to dig deeper into investors' decision-making process and study what are

the psychological factors that investors and stakeholders value. Since Hetze (2016) proposed a theoretical framework of how signals are processed, this could be reflected to examine how investors experience the value for certain CSR actions.

REFERENCES

- Amato, L. H. & Amato, C. H. (2012). Environmental Policy, Rankings and Stock Value. *Business Strategy and the Environment*, vol. 21, pp. 317–325.
- Armitage, S. (1995). Event Study Methods and Evidence on their Performance, *Journal of Economic Surveys*, vol. 8(4), pp. 25–52.
- Aureli, S., Gigli, S., Medei, R. & Supino, E. (2020). The value relevance of environmental, social, and governance disclosure: Evidence from Dow Jones Sustainability World Index listed companies. *Corporate Social - Responsibility and Environmental Management*, vol. 27(1), pp. 43-52.
- Brooks, C. (2014). *Introductory econometrics for finance*. Cambridge.
- Capelle-Blancard, Gunther & Aurlien Petit (2017). Every Little Helps? ESG News and Stock Market Reaction. *Journal of Business Ethics*, vol. 1, pp. 1-23.
- Carroll, A. B. (1979). A Three-dimensional conceptual model of corporate social performance. *The Academy of Management review*, vol. 4(4), pp. 497–504.
- Carroll, A. B. & Shabana K. M. (2010). The Business Case for Corporate Social Responsibility: A Review of Concepts, Research and Practice. *International journal of management reviews*, vol. 12(1), pp. 85–105.
- Cheng, B., Ioannou, I. and Serafeim. G. (2014). Corporate Social Responsibility and Access to Finance. *Strategic management journal*, vol. 35(1), pp. 1–23.
- Cheung, A. (2011). Do stock investors value corporate sustainability? Evidence from an event study. *Journal of Business Ethics*, vol. 99, pp. 145-165.
- Connelly, B.L., Certo, S.T., Ireland, R.D. and Reutzel, C.R. (2011). Signaling theory: A review and assessment, *Journal of Management*, vol. 37(1), pp. 39-67.

Currás-Pérez, R., Dolz-Dolz, C., Miquel-Romero M.J. and Sánchez-García, I. (2018). How Social, Environmental, and Economic CSR Affects Consumer-perceived Value: Does Perceived Consumer Effectiveness Make a Difference? *Corporate social-responsibility and environmental management*, vol. 25(5), pp. 733–747.

Dhaliwal D., Li O., Tsang A., & Yang Y. (2011). Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting. *The Accounting Review*, vol. 86(1), pp. 59–100.

DWS, (2018). ESG Study 2018. Available at https://download.dws.com/download?elib-assetguid=714aed4c2e83471787d1ca0f1b559006&wt_eid=2156623951900953270&wt_t=1566240624353 [accessed 28.9.2020]

European Commission, (2020). 2050 long-term strategy. Available at https://ec.europa.eu/clima/policies/strategies/2050_en [accessed 17.10.2020]

Fama, E. F. 1970. Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, vol. 25(2), pp. 383-417.

Fama, E. F. 1997. Market efficiency, long-term returns, and behavioural finance. *Journal of Financial Economics*, vol. 49, pp. 283-306.

Flammer, C. (2013). Corporate Social Responsibility and Shareholder Reaction. *Academy of Management Journal*, vol. 56(3), pp. 758-781

Friedman, M. (1970). The social responsibility of business is to increase its profits. *New York Times Magazine*, vol. 32 (13). pp. 122–126.

Griffin, P., and Sun, Y. (2013). Going green. Market reaction to CSR newswire releases. *Journal of Accounting and Public Policy*, vol. 32, pp. 93–113.

Hetze, K (2016). Effects on the (CSR) Reputation: CSR Reporting Discussed in the Light of Signalling and Stakeholder Perception Theories. *Corporate reputation review*, vol. 19(3), pp. 281–296.

Hummel, K., Schlick, C. (2016). The Relationship Between Sustainability Performance and Sustainability Disclosure – Reconciling Voluntary Disclosure Theory and Legitimacy Theory. *Journal of accounting and public policy*, vol. 35(5), pp. 455–476.

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*, vol. 28(5), pp. 430–441.

Kolari, J. W. & Pynnönen, S. (2010). Event Study Testing with Cross-Sectional Correlation of Abnormal Returns. *The Review of financial studies*, vol. 23(11), pp. 3996–4025.

Klassen, R. D., & McLaughlin, C. P. (1996). The impact of environmental management on firm performance. *Management Science*, vol 42, pp. 1199–1214.

Krüger, P. (2015). Corporate Goodness and Shareholder Wealth. *Journal of Financial Economics*, vol. 115, pp. 304-329.

Liang, H. & Renneboog, L. (2017). On the Foundations of Corporate Social Responsibility. *The Journal of finance (New York)*, vol. 72(2), pp. 853–910.

Linnenluecke, M.K. & Griffiths, A. 2010. Corporate sustainability and organizational culture. *Journal of World Business*, vol. 45(4), pp. 357-366.

Lozano, R. (2015). A Holistic Perspective on Corporate Sustainability Drivers. *Corporate Social Responsibility and Environmental Management*, vol. 22, pp. 32-44.

MacKinlay, A. C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature*, vol 55, pp. 13–39.

Malkiel, B. G. (2003) The Efficient Market Hypothesis and Its Critics. *The Journal of Economic Perspectives*, vol 17(1), pp. 59–82.

Malkiel, B.G. (2005). Reflections on the Efficiency Market Hypothesis: 30 Years Later. *The Financial Review*, vol. 40, pp. 1-9.

Peterson, P. P. (1989). Event Studies: A Review of Issues and Methodology. *Quarterly Journal of Business and Economics*, vol. 28, pp. 36-66.

Principles for Responsible Investment (PRI), (2020). About the PRI. Available at <https://www.unpri.org/pri/about-the-pri> [accessed 28.9.2020]

Ramiah, V., Morris, T., Moosa, I. Gangemi, M. & Puican, L., (2016). The effects of announcement of green policies on equity portfolios Evidence from the United Kingdom. *Managerial Auditing Journal*, vol. 31(2), pp.138-155.

Refinitiv Eikon. (2021). Environmental, Social and Governance scores from refinitiv. Available at https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/refinitiv-esg-scores-methodology.pdf [accessed 23.9.2021]

Reyes, J. (2021). How Different Are the Nordics? Unravelling the Willingness to Make Economic Sacrifices for the Environment. *Sustainability (Basel, Switzerland)*, vol. 13(3), pp. 1294–.

Scholtens, B., & Sievänen, R. (2013). Drivers of socially responsible investing: A case study of four nordic countries: *JBE. Journal of Business Ethics*, vol. 115(3), pp. 605-616.

Simaens, A. and Koster, M. (2013). Reporting on Sustainable Operations by Third Sector Organizations: A Signalling Approach. *Public management review*, vol 15(7), pp. 1040–1062.

Spence, M. (1973). Job Market Signaling. *The Quarterly journal of economics*, vol. 87(3), pp. 355–374.

World Commission on Environment and Development (WCED). (1987). *Our Common Future*. Oxford University Press, Oxford, UK.

Yadav, P. L., Han, H.S. and Rho, J.J. (2016). Impact of Environmental Performance on Firm Value for Sustainable Investment: Evidence from Large US Firms. *Business strategy and the environment*. Vol. 25(6), pp. 402–420.

Yim, S., Bae, Y. H., Lim, H. and Kwon, J. (2019). The Role of Marketing Capability in Linking CSR to Corporate Financial Performance: When CSR Gives Positive Signals to Stakeholders. *European journal of marketing*, vol 53(7), pp. 1333–1354.

Yu, H, Lopin K., and Mao-Feng K. (2017). The Relationship Between CSR Disclosure and Competitive Advantage. *Sustainability accounting, management and policy journal*, vol 8(5), pp. 547–570.

APPENDICES

Appendix 1. List of the event data.

Firm	Event date	Country	ESG score	Market cap
Carlsberg	2016-09-28	Denmark	69,16	L
Carlsberg	2017-06-13	Denmark	67,31	L
Carlsberg	2018-09-06	Denmark	68,03	L
Carlsberg	2018-10-24	Denmark	68,03	L
Carlsberg	2019-09-25	Denmark	71,86	L
Carlsberg	2019-10-11	Denmark	71,86	L
CBRAIN	2019-04-03	Denmark		M
Chr. Hansen Holding	2019-09-23	Denmark	80,24	L
Coloplast	2015-03-03	Denmark	74,43	L
Danske Bank	2019-06-17	Denmark	68,75	L
Danske Bank	2019-12-05	Denmark	68,75	L
FLSmidth & Co.	2019-10-10	Denmark	66,06	L
Københavns Lufthavne	2019-07-01	Denmark		L
A.P. Møller - Mærsk	2017-06-08	Denmark	56,48	L
A.P. Møller - Mærsk	2018-02-19	Denmark		L
A.P. Møller - Mærsk	2018-05-08	Denmark		L
A.P. Møller - Mærsk	2018-12-05	Denmark		L
A.P. Møller - Mærsk	2019-02-01	Denmark	58,22	L
A.P. Møller - Mærsk	2019-03-25	Denmark	58,22	L
Novo Nordisk	2015-11-24	Denmark	67,95	L
Novo Nordisk	2018-07-13	Denmark	78,90	L
Novo Nordisk	2019-04-30	Denmark	82,37	L
Novozymes	2019-10-21	Denmark	80,35	L
Ørsted	2018-02-02	Denmark	73,80	L
Ørsted	2018-11-28	Denmark	73,80	L
Ørsted	2019-08-08	Denmark	74,34	L
Ørsted	2019-10-07	Denmark	74,34	L
Pandora	2018-09-04	Denmark	54,50	L
Rockwool	2018-11-13	Denmark		L
Rockwool	2018-12-19	Denmark		L
Rockwool	2019-03-04	Denmark	60,46	L
SAS	2019-06-04	Denmark	67,79	M
SP Group	2018-04-20	Denmark		M
SP Group	2018-10-01	Denmark		M
SP Group	2018-10-30	Denmark		M
SP Group	2019-06-07	Denmark		M
SP Group	2019-09-27	Denmark		M
TORM	2018-11-09	Denmark	52,85	M
Vestas Wind Systems	2018-07-02	Denmark	81,82	L
Vestas Wind Systems	2019-03-18	Denmark	72,99	L
Nordea Bank Abp	2019-09-30	Denmark	61,63	L
Alma Media Oyj	2018-10-11	Finland		M
Altia Oyj	2019-12-16	Finland		M
Ahlstrom-Munksjö Oyj	2017-12-01	Finland		L
Ahlstrom-Munksjö Oyj	2018-06-14	Finland		L
Ahlstrom-Munksjö Oyj	2018-11-08	Finland		L
Ahlstrom-Munksjö Oyj	2018-12-18	Finland		L
Ahlstrom-Munksjö Oyj	2019-03-29	Finland		L

Ahlstrom-Munksjö Oyj	2019-04-24	Finland		L
Ahlstrom-Munksjö Oyj	2019-06-11	Finland		L
Apetit Oyj	2018-06-07	Finland		S
Aspo Oyj	2018-08-20	Finland		M
Cargotec Oyj	2015-06-11	Finland	58,40	L
Cargotec Oyj	2016-03-16	Finland	56,50	L
Cargotec Oyj	2016-06-15	Finland	56,50	L
Cargotec Oyj	2017-01-25	Finland	62,37	L
Cargotec Oyj	2018-04-24	Finland	72,93	L
Cargotec Oyj	2019-03-20	Finland	73,61	L
Cargotec Oyj	2019-06-26	Finland	73,61	L
Citycon Oyj	2017-05-17	Finland		L
Citycon Oyj	2018-10-02	Finland		L
Citycon Oyj	2019-11-05	Finland		L
Elisa Oyj	2018-12-10	Finland	52,56	L
Enedo Oyj	2018-12-10	Finland		S
Finnair Oyj	2016-10-25	Finland		M
Finnair Oyj	2018-12-10	Finland		M
Fortum Oyj	2015-09-24	Finland	78,52	L
Fortum Oyj	2015-10-23	Finland	78,52	L
Fortum Oyj	2015-11-04	Finland	78,52	L
Fortum Oyj	2016-10-26	Finland	76,81	L
Fortum Oyj	2018-04-10	Finland	70,64	L
Fortum Oyj	2019-03-25	Finland	75,64	L
Fortum Oyj	2019-06-27	Finland	75,64	L
HKScan Oyj	2015-11-17	Finland		M
HKScan Oyj	2016-04-22	Finland		M
HKScan Oyj	2016-10-25	Finland		M
HKScan Oyj	2019-03-19	Finland		M
Huhtamäki Oyj	2017-12-21	Finland	58,99	L
Huhtamäki Oyj	2018-05-21	Finland	64,72	L
Huhtamäki Oyj	2018-09-18	Finland	64,72	L
Huhtamäki Oyj	2019-02-11	Finland	70,50	L
Huhtamäki Oyj	2019-04-09	Finland	70,50	L
Huhtamäki Oyj	2019-05-22	Finland	70,50	L
Huhtamäki Oyj	2019-07-19	Finland	70,50	L
Huhtamäki Oyj	2019-11-20	Finland	70,50	L
Konecranes Oyj	2018-06-13	Finland		L
Kemira Oyj	2015-11-09	Finland	50,79	L
Kemira Oyj	2015-12-16	Finland	50,79	L
Kemira Oyj	2016-10-26	Finland	58,73	L
Kemira Oyj	2017-10-26	Finland	59,18	L
Kemira Oyj	2018-11-19	Finland		L
Kemira Oyj	2019-04-17	Finland	64,95	L
Kemira Oyj	2019-12-16	Finland	64,95	L
Kesko Oyj	2015-01-22	Finland		L
Kesko Oyj	2015-09-08	Finland		L
Kesko Oyj	2015-11-04	Finland		L
Kesko Oyj	2016-05-09	Finland		L
Kesko Oyj	2017-01-30	Finland		L
Kesko Oyj	2017-06-21	Finland		L
Kesko Oyj	2017-09-13	Finland		L
Kesko Oyj	2017-10-24	Finland		L
Kesko Oyj	2017-11-20	Finland		L

Kesko Oyj	2018-02-06	Finland		L
Kesko Oyj	2018-05-16	Finland		L
Kesko Oyj	2018-07-30	Finland		L
Kesko Oyj	2018-09-14	Finland		L
Kesko Oyj	2018-11-12	Finland		L
Kesko Oyj	2019-01-22	Finland	63,30	L
Kesko Oyj	2019-09-16	Finland	63,30	L
Kesko Oyj	2019-10-07	Finland	63,30	L
KONE Oyj	2015-11-05	Finland	46,85	L
KONE Oyj	2019-01-23	Finland		L
Lassila & Tikanoja Oyj	2015-09-02	Finland		M
Lassila & Tikanoja Oyj	2019-06-03	Finland		M
Lehto Group Oyj	2018-12-19	Finland		S
Metsä Board Oyj	2018-01-31	Finland		L
Metsä Board Oyj	2018-05-11	Finland		L
Metsä Board Oyj	2019-09-18	Finland	57,73	L
Metsä Board Oyj	2019-10-07	Finland	57,73	L
Marimekko Oyj	2017-11-14	Finland		M
Metso Oyj	2017-02-09	Finland	77,27	L
Metso Oyj	2018-05-14	Finland	79,36	L
Neste Oyj	2015-01-23	Finland	68,88	L
Neste Oyj	2015-03-05	Finland	68,88	L
Neste Oyj	2015-09-11	Finland	68,88	L
Neste Oyj	2015-11-04	Finland	68,88	L
Neste Oyj	2016-01-21	Finland	75,60	L
Neste Oyj	2016-03-08	Finland	75,60	L
Neste Oyj	2016-04-11	Finland	75,60	L
Neste Oyj	2018-02-21	Finland	78,10	L
Neste Oyj	2018-06-11	Finland	78,10	L
Neste Oyj	2019-01-23	Finland	73,41	L
Neste Oyj	2019-04-17	Finland	73,41	L
Neste Oyj	2019-05-07	Finland	73,41	L
Neste Oyj	2019-09-20	Finland	73,41	L
Nokia Oyj	2018-12-11	Finland	90,66	L
Nokia Oyj	2019-12-03	Finland	91,26	L
Outotec Oyj	2015-01-22	Finland	69,16	L
Outotec Oyj	2015-09-10	Finland	69,16	L
Outotec Oyj	2016-01-21	Finland	64,83	L
Outotec Oyj	2017-01-18	Finland	67,08	L
Outotec Oyj	2018-01-23	Finland	72,09	L
Outotec Oyj	2018-11-01	Finland	72,09	L
Raisio Oyj	2018-12-18	Finland		M
Raisio Oyj	2019-04-09	Finland		M
Robit Oyj	2018-12-28	Finland		S
Sotkamo Silver AB	2018-07-02	Finland		S
SSAB A	2016-02-19	Finland	62,72	L
SSAB A	2016-04-04	Finland	62,72	L
SSAB A	2016-10-11	Finland	62,72	L
SSAB A	2016-11-23	Finland	62,72	L
SSAB A	2017-06-28	Finland		L
SSAB A	2017-10-25	Finland		L
SSAB A	2018-06-20	Finland	67,43	L
SSAB A	2019-09-19	Finland		L
SSAB A	2019-11-14	Finland		L

SSAB A	2019-12-04	Finland		L
Stora Enso Oyj	2016-02-22	Finland	80,89	L
Stora Enso Oyj	2016-10-27	Finland	80,89	L
Stora Enso Oyj	2017-01-24	Finland		L
Stora Enso Oyj	2018-01-23	Finland	87,02	L
Stora Enso Oyj	2018-06-04	Finland	87,02	L
Stora Enso Oyj	2018-12-04	Finland	87,02	L
Stora Enso Oyj	2019-01-22	Finland		L
Stora Enso Oyj	2019-03-29	Finland		L
Stora Enso Oyj	2019-05-15	Finland		L
Stora Enso Oyj	2019-06-18	Finland		L
Stora Enso Oyj	2019-07-19	Finland		L
Stora Enso Oyj	2019-12-10	Finland		L
Taaleri Oyj	2016-11-04	Finland		M
Taaleri Oyj	2017-07-26	Finland		M
Taaleri Oyj	2018-12-03	Finland		M
Taaleri Oyj	2019-01-15	Finland		M
Telia Company	2019-08-26	Finland		L
Nokian Renkaat Oyj	2017-09-11	Finland	47,47	L
Nokian Renkaat Oyj	2018-04-18	Finland		L
Nokian Renkaat Oyj	2018-09-14	Finland		L
Nokian Renkaat Oyj	2019-02-14	Finland		L
UPM-Kymmene Oyj	2016-04-18	Finland		L
UPM-Kymmene Oyj	2016-07-21	Finland		L
UPM-Kymmene Oyj	2018-01-23	Finland		L
UPM-Kymmene Oyj	2018-06-15	Finland		L
UPM-Kymmene Oyj	2018-07-05	Finland		L
UPM-Kymmene Oyj	2018-09-13	Finland		L
UPM-Kymmene Oyj	2018-11-27	Finland		L
UPM-Kymmene Oyj	2018-12-04	Finland		L
UPM-Kymmene Oyj	2019-01-22	Finland	87,01	L
UPM-Kymmene Oyj	2019-03-07	Finland	87,01	L
UPM-Kymmene Oyj	2019-09-16	Finland	87,01	L
UPM-Kymmene Oyj	2019-10-24	Finland	87,01	L
Uponor Oyj	2016-07-08	Finland		M
Vaisala Oyj	2015-09-08	Finland		M
Vaisala Oyj	2015-11-05	Finland		M
Vaisala Oyj	2017-01-30	Finland		M
Valmet Oyj	2016-05-23	Finland		L
Valmet Oyj	2016-09-08	Finland		L
Valmet Oyj	2016-10-25	Finland		L
Valmet Oyj	2017-10-30	Finland		L
Valmet Oyj	2018-04-10	Finland	67,90	L
Valmet Oyj	2018-05-28	Finland	67,90	L
Valmet Oyj	2018-09-13	Finland	67,90	L
Valmet Oyj	2019-01-22	Finland		L
Valmet Oyj	2019-09-16	Finland		L
Valmet Oyj	2019-12-04	Finland		L
Viking Line Abp	2015-07-06	Finland		M
Viking Line Abp	2017-03-22	Finland		M
Viking Line Abp	2017-11-20	Finland		M
Wärtsilä Oyj Abp	2015-03-24	Finland	79,27	L
Wärtsilä Oyj Abp	2015-06-02	Finland	79,27	L
Wärtsilä Oyj Abp	2015-11-02	Finland	79,27	L

Wärtsilä Oyj Abp	2015-12-30	Finland	79,27	L
Wärtsilä Oyj Abp	2016-01-13	Finland	72,68	L
Wärtsilä Oyj Abp	2016-09-09	Finland	72,68	L
Wärtsilä Oyj Abp	2017-11-20	Finland	75,58	L
Wärtsilä Oyj Abp	2018-01-24	Finland	78,02	L
Wärtsilä Oyj Abp	2018-08-20	Finland	78,02	L
Wärtsilä Oyj Abp	2018-12-25	Finland	78,02	L
Wärtsilä Oyj Abp	2019-04-17	Finland	84,44	L
YIT Oyj	2019-06-14	Finland	45,96	L
YIT Oyj	2019-09-23	Finland	45,96	L
Nordea Bank Abp	2019-09-30	Finland	61,63	L
Icelandair Group	2019-09-27	Iceland		M
Aker Solutions	2018-11-19	Norway	72,37	M
Aker Solutions	2019-04-22	Norway	66,80	M
Aker Solutions	2019-09-24	Norway	66,80	M
Aker Solutions	2019-10-23	Norway	66,80	M
Atea	2018-06-07	Norway		L
Borregaard	2019-12-10	Norway		L
DNB	2017-07-31	Norway	76,39	L
Entra	2016-09-16	Norway		L
Entra	2017-03-15	Norway		L
Entra	2017-11-02	Norway		L
Entra	2019-05-14	Norway		L
Equinor	2017-03-09	Norway	80,61	L
Equinor	2018-05-07	Norway	81,85	L
Equinor	2018-11-20	Norway	81,85	L
Equinor	2019-01-11	Norway	80,01	L
Equinor	2019-04-24	Norway	80,01	L
Fjord1	2018-10-22	Norway		M
Hexagon Composites	2019-06-03	Norway	36,10	M
Havyard Group	2019-03-19	Norway		S
Mowi	2019-09-04	Norway	68,67	L
Norwegian Air Shuttle	2018-10-19	Norway		M
Norwegian Air Shuttle	2019-05-14	Norway	90,71	L
Norwegian Air Shuttle	2019-07-26	Norway	90,71	L
Norwegian Air Shuttle	2019-08-12	Norway	90,71	L
Norwegian Air Shuttle	2019-11-29	Norway	90,71	L
Norway Royal Salmon	2019-12-05	Norway	90,71	L
SAS	2019-06-04	Norway	70,22	L
SAS	2019-09-18	Norway	70,22	L
SpareBank 1 SR-Bank	2018-01-23	Norway		L
Storebrand	2019-09-23	Norway		L
Wallenius Wilhelmsen	2019-12-03	Norway	40,14	M
Yara International	2017-05-10	Norway		L
Yara International	2018-05-24	Norway	74,54	L
Yara International	2018-08-15	Norway	74,54	L
Yara International	2019-07-16	Norway	75,86	L
AAK	2017-07-05	Sweden		L
ABB Ltd	2016-11-07	Sweden	88,92	L
ABB Ltd	2018-08-22	Sweden	90,37	L
ABB Ltd	2018-11-15	Sweden	90,37	L
ABB Ltd	2019-04-01	Sweden		L
Alfa Laval	2018-03-12	Sweden	90,75	L
Alfa Laval	2018-09-03	Sweden	90,75	L

Alfa Laval	2018-12-18	Sweden	90,75	L
Ahlstrom-Munksjö Oyj	2017-12-01	Sweden		L
Ahlstrom-Munksjö Oyj	2018-06-14	Sweden		L
Ahlstrom-Munksjö Oyj	2018-11-08	Sweden		L
Ahlstrom-Munksjö Oyj	2018-12-18	Sweden		L
Ahlstrom-Munksjö Oyj	2019-03-29	Sweden		L
Ahlstrom-Munksjö Oyj	2019-04-24	Sweden		L
Ahlstrom-Munksjö Oyj	2019-06-11	Sweden		L
Atlas Copco	2015-05-21	Sweden	78,06	L
Atlas Copco	2015-07-08	Sweden	78,06	L
Atlas Copco	2015-09-10	Sweden	78,06	L
Atlas Copco	2016-01-21	Sweden	76,52	L
Axfood	2016-10-18	Sweden		L
Axfood	2017-02-07	Sweden	69,33	L
Axfood	2017-09-29	Sweden	69,33	L
Axfood	2018-05-11	Sweden		L
Axfood	2018-12-27	Sweden		L
Axfood	2019-03-25	Sweden	72,98	L
Axfood	2019-05-14	Sweden	72,98	L
Fast. Balder	2019-05-21	Sweden	44,43	L
BillerudKorsnäs	2015-11-06	Sweden		L
BillerudKorsnäs	2016-05-03	Sweden		L
BillerudKorsnäs	2016-09-08	Sweden		L
BillerudKorsnäs	2017-11-13	Sweden		L
BillerudKorsnäs	2019-04-05	Sweden		L
BillerudKorsnäs	2019-07-11	Sweden		L
BillerudKorsnäs	2019-10-11	Sweden		L
Boliden	2018-07-20	Sweden	74,98	L
Boliden	2019-04-02	Sweden	79,14	L
Bonava	2019-12-04	Sweden	40,96	M
Boozt	2018-11-19	Sweden		M
Castellum	2015-10-16	Sweden	74,27	L
Castellum	2016-09-08	Sweden	80,56	L
Castellum	2017-09-08	Sweden	84,89	L
Castellum	2018-09-14	Sweden	82,75	L
Catella A	2019-12-10	Sweden	85,98	M
Concordia Maritime	2018-04-18	Sweden		S
Concordia Maritime	2019-04-09	Sweden		S
Clas Ohlson	2016-05-30	Sweden		M
Diös Fastigheter	2019-09-24	Sweden	41,32	M
Duni	2015-11-17	Sweden		M
Duni	2017-08-31	Sweden		M
Duni	2019-04-01	Sweden		M
Electrolux	2018-04-17	Sweden		L
Electrolux	2018-09-13	Sweden		L
Electrolux	2018-11-20	Sweden		L
Electrolux	2019-01-22	Sweden	78,13	L
Electrolux	2019-03-12	Sweden	78,13	L
Essity	2018-09-13	Sweden		L
Essity	2018-11-16	Sweden		L
Essity	2018-12-20	Sweden		L
Essity	2019-02-15	Sweden	61,42	L
Essity	2019-06-05	Sweden	61,42	L
Fabege	2016-04-22	Sweden	71,30	L

Fabege	2019-03-18	Sweden		L
Fabege	2019-06-12	Sweden		L
Fabege	2019-09-11	Sweden		L
Gunnebo	2018-03-19	Sweden	60,52	M
HM	2015-08-25	Sweden	75,05	L
HM	2016-03-18	Sweden	70,11	L
HM	2018-05-07	Sweden	79,88	L
HM	2018-10-24	Sweden	79,88	L
HM	2019-01-10	Sweden	71,70	L
HM	2019-03-14	Sweden	71,70	L
Holmen	2017-01-17	Sweden		L
Holmen	2017-10-04	Sweden		L
Holmen	2019-01-14	Sweden	53,13	L
Holmen	2019-04-02	Sweden	53,13	L
Holmen	2019-05-15	Sweden	53,13	L
Holmen	2019-12-11	Sweden	53,13	L
Husqvarna	2017-07-13	Sweden		L
Husqvarna	2019-05-16	Sweden	83,36	L
ICA Gruppen	2015-02-11	Sweden	50,84	L
ICA Gruppen	2015-12-07	Sweden	50,84	L
ICA Gruppen	2016-05-04	Sweden		L
ICA Gruppen	2019-08-15	Sweden		L
JM	2018-05-15	Sweden	78,20	L
Kungsleden	2018-03-15	Sweden		L
Latour	2016-09-01	Sweden		L
Lundin Gold	2017-11-22	Sweden		M
Lundin Gold	2019-11-19	Sweden	44,41	L
NCC	2015-12-01	Sweden	42,78	L
NCC	2018-10-30	Sweden	57,23	L
NCC	2018-11-30	Sweden	57,23	L
Nordea Bank Abp	2019-09-30	Sweden	61,63	L
Nobina	2017-03-30	Sweden	59,53	M
Nobina	2019-02-07	Sweden	53,90	M
Opus Group	2015-10-02	Sweden		M
Peab	2019-01-25	Sweden	41,29	L
Railcare Group	2019-02-18	Sweden		S
Rejlers	2015-12-21	Sweden		M
Rejlers	2018-05-15	Sweden		M
Sandvik	2016-02-29	Sweden	74,38	L
Sandvik	2016-04-19	Sweden	74,38	L
Sandvik	2016-09-08	Sweden	74,38	L
Sandvik	2017-01-25	Sweden	75,17	L
Sandvik	2017-10-16	Sweden	75,17	L
Sandvik	2018-01-23	Sweden	76,60	L
Sandvik	2018-08-14	Sweden	79,01	L
Sandvik	2019-02-21	Sweden	79,01	L
Sandvik	2019-09-16	Sweden	79,01	L
SAS	2019-06-04	Sweden	79,01	M
SAS	2019-09-18	Sweden	79,01	M
Samhällsbyggnadsbo. i Norden	2019-02-01	Sweden	25,50	L
SCA	2018-05-21	Sweden	87,14	L
SCA	2019-01-22	Sweden	81,02	L
SEB	2015-11-25	Sweden	74,36	L
SEB	2018-09-13	Sweden	69,26	L

SEB	2019-08-27	Sweden	73,85	L
Skanska	2015-12-01	Sweden	52,23	L
Skanska	2016-09-15	Sweden	56,27	L
Skanska	2016-10-27	Sweden	56,27	L
Skanska	2017-12-04	Sweden		L
Skanska	2018-03-15	Sweden		L
Skanska	2018-08-29	Sweden		L
Skanska	2018-11-21	Sweden		L
Skanska	2018-12-17	Sweden		L
Skanska	2019-08-21	Sweden	62,58	L
Skanska	2016-09-19	Sweden	78,49	L
Skanska	2019-10-29	Sweden	76,09	L
SSAB	2016-02-19	Sweden	62,72	L
SSAB	2016-04-04	Sweden	62,72	L
SSAB	2016-10-11	Sweden	62,72	L
SSAB	2016-11-23	Sweden	62,72	L
SSAB	2017-10-25	Sweden		L
SSAB	2019-09-19	Sweden		L
SSAB	2019-11-14	Sweden		L
SSAB	2019-12-04	Sweden		L
Stora Enso	2016-02-22	Sweden	80,89	L
Stora Enso	2016-10-27	Sweden	80,89	L
Stora Enso	2017-01-24	Sweden		L
Stora Enso	2018-01-23	Sweden	87,02	L
Stora Enso	2018-12-04	Sweden	87,02	L
Stora Enso	2019-01-22	Sweden		L
Stora Enso	2019-03-29	Sweden		L
Stora Enso	2019-05-15	Sweden		L
Stora Enso	2019-06-18	Sweden		L
Stora Enso	2019-07-19	Sweden		L
Stora Enso	2019-12-10	Sweden		L
Swedbank	2019-01-28	Sweden	77,89	L
Telia Company	2019-08-26	Sweden	78,09	L
Volvo	2015-09-10	Sweden	81,64	L
Volvo	2018-09-18	Sweden	83,27	L
Volvo	2018-11-21	Sweden	83,27	L
Wallenstam	2019-08-27	Sweden		L
Wihlborgs Fastigheter	2019-06-27	Sweden	52,16	L