Investing green -

Has CSRD changed investor behaviour

An event study on European companies

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For the financial year 2024 the EU Corporate Sustainability Reporting Directive (CSRD) came into effect requiring that certain companies include substantial sustainability information in their annual report. The directive's aim is to equip investors for investing sustainably based on reliable and comprehensive information. This thesis analyses whether CSRD have made investors invest differently causing a significantly different market reaction to annual reports for 2024 than previous years.
The research was made by using theory regarding the efficient market hypothesis, conducting a literature review and analyzing cumulative abnormal returns and performing a Fama & French analysis on data from 40 companies from 5 different countries and 4 different sectors. The results of the analyses are effected by some limitations, the potentially greatest being the market noise from other events particularly from the political top of the USA. This study finds no significant evidence, that CSRD have effected the European stock market, as similar results of the analyses are found from companies reporting on CSRD and the baseline companies who does not. However when adjusting for company size and value, a significant difference can be observed.
This study can therefore conclude, that in its first year implemented the Corporate Sustainability Reporting Directive have had an effect on the European stock market.
Further empirical studies on the effect of CSRD should be performed by conducting a cross-sectional regression taking into account e.g. information from the CSRD reports and company sector.

Aalborg University, 2th June 2025

Ann-Sofie Dahl Revsbeck

Reading guide

To give the reader a better understanding of this report, here are a few details that might help. The figures are named based on the related chapter, like figure 1.1 are in chapter 1, and the figures have a source reference in the brackets. The reference method is based on APA, when referring to a source, which will look like this (Surname, publication year). The figures and tables created for this report will have the source (Author's own creation). All the used sources will be presented in the bibliography at the end of the report. During the writing of the report the Artificial intelligence Copilot have been used as a sparring partner during the analysis. However, no text in this thesis have been written by Copilot, and non of the arguments or conclusions of this report have been provided by any artificial intelligence. During this report at some points EU have been used as shorthand for "the companies from within the EU" or as a bucket term when referring to all of the following: France, Germany, Italy and Denmark. Similarly country name or abbreviation has also been used as a shorthand for the analyzed companies from that country.

Glossary

CAR: Cumulative Abnormal Return
CSR: Corporate Social Responsibility
CSRD: Corporate Sustainability Reporting Directive
EMH: Efficient Market Hypothesis
ESG: Environmental, Social and Governance
FF: Fama & French
FY24: Financial year 2024
NFRD: Non-Financial Reporting Directive
SCAR: Standardized Cumulative Abnormal Return
SME: Small and Medium Enterprises

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1| Introduction

Through this chapter several topics will be presented to justify the interest in the topic and give the reader a better understanding of the topics, prior to reading the rest of the report. With the understanding of the topic, a problem statement will present the problem and hypothesis that will be tested through out the report and answered in the conclusion. Lastly in this section is a section about the limitations of the report and an overview of the structure of the report.

1.1 Finance and sustainability

Several economists have through the years made studies and presented evidence that sustainability reporting result in benefits that outweigh the costs and result in a better financial position.

Some eminent economists have long called for climate matters to have a more central role in economics, famously in 2006 the The Economics of Climate Change: The Stern Review by former Chief Economist and Senior Vice President at the World Bank Nicolas Stern found that: *"the benefits of strong and early action far outweigh the economic costs of not acting."* (Stern, 2006). As a political economist professor Stern made this point with regards to the whole of society. More recently this call has also been taken up by the chairman of the investment Board of Allianz Guenther Thallinger who in a commentary argues, that climate change is a systemic risk to the foundation of the financial sector, as assets become uninsurable e.g. as a consequence of heating and flooding (Thallinger, 2025).

A similar point is being made by the Institute and Faculty of Actuaries in their 2025 report Planetary Solvency, in which they through the use of an actuarian risk-based model finds that the damage being to the Earths systems can cause a global economic contraction with at GDP loss of 25% (Trust et al., 2025).

Based on the available evidence it is clear that there is a clear self-interest for the financial sector, that the forces of capital and capitalism are pulling in a more sustainable direction. Both for the sake of society and the environment, but also in the self-interest of the future of the financial and capital systems.

All the above sources recommend that there is taking action, preferably by law, to force countries to change their current processes in favour of the environment to change the current direction towards event more extreme environmental events.

1.2 Corporate Sustainability Reporting Directive

In 2022 the Corporate Sustainability Reporting Directive (CSRD) was adopted by the European Parliament as part of the European Commission's Green Deal. The aim of the CSRD is to enable sustainable investments to be made based on reliable quantifiable data and create more transparency between companies and investors.

The CSRD is reported on through the European Sustainability Reporting Standards (ESRS), figure 1.1 below, which focuses on 4 main topics: ESRS, Environment, Social and Governance, that all presents different aspects of the reporting firms, the main topics contain 12 standards, 82 disclosure requirements and 1080 data points. The number of data points is far too many data points to report on, therefor the CSRD legislation also require firms to perform a Double Materiality Assessment (DMA), to identify the 7 to 9 most important standards for the individual firm (European Commission, 2023). The identification of the most important standards is done through an DMA, analysing the firm's effect on the environment (impact) and the environments effect on the firm (financial). The biggest change with CSRD is that everything must be approved by an auditor, which is the normal proceedings with the annual report, but have not been the case with previous non-financial publications.

Cross-cutting standards	Environment	Social	Governance
ESRS 1 General requirements	E1 Climate change • 9 disclosure requirements	S1 Own workforce • 17 disclosure requirements	G1 Business conduct • 6 disclosure requirements
ESRS 2 General disclosures • 12 disclosure requirements	E2 Pollution • 6 disclosure requirements	S2 Workers in the value chain • 5 disclosure requirements	
	E3 Water and marine resources • 5 disclosure requirements	S3 Affected communities • 5 disclosure requirements	
	E4 Biodiversity and ecosystems • 6 disclosure requirements	E4 Consumers and end-users • 5 disclosure requirements	
	E5 Resource use and circular economy • 6 disclosure requirements		

Figure 1.1: Overview of the 4 main topics of the CSRD illustrating the width of the information included in CSRD. Based on the (European Commission, 2023).

Based on the excessive reporting, EU have provided a timeline for when different company sizes must report, seen in figure 1.2 below. The first company category to report for the financial year 2024 is large listed companies, whom previously have reported on Non-Financial Reporting Directive (NFRD), for the financial year 2025 other large companies are also required to report, followed in 2026 by SME's and in 2028 non-EU companies with subsidiaries in EU.

Figure 1.2: Timeline of the enacting and implementation of CSRD (PwC, 2025).

A study by Boungou and Dufau (2025) have studied the markets reaction to several EU legislation events related to CSRD, and found that the marked reacts negatively to the events, including the adoption of the CSRD legislation, this indicate that investors are not keen on additional reporting for the companies. This can be explained by the additional cost of reporting, leaving less profit to be distributed to the investors.

The CSRD reporting is expected to cost around 287,000 Euro per listed company to implement the new processes and tools for reporting, and around 320,000 Euro on an annual basis to keep reporting and improving the processes (EFRAG, 2022). However CSRD also brings some benefits for the individual companies, such as cost savings, possible efficiencies of processes and current reporting legislations, behavioural change and improve the companies sustainability (EFRAG, 2022). With the presented costs and benefits of CSRD it might be hard to understand why companies are mandated to report on this, but the legislation is also made to force companies to focus on the environment and create more transparency for the investors, to give them a change to invest more sustainable.

The CSRD legislation have been adopted in EU, meaning that all the individual EU countries must adopt the legislation in their own laws, meaning that the different countries can implement CSRD differently. An overview of the implementation have been made by several different companies, analysing the current implementation in the different EU countries, but the map by Littenberg and Rotter (2024) can be seen in figure 1.3 below.

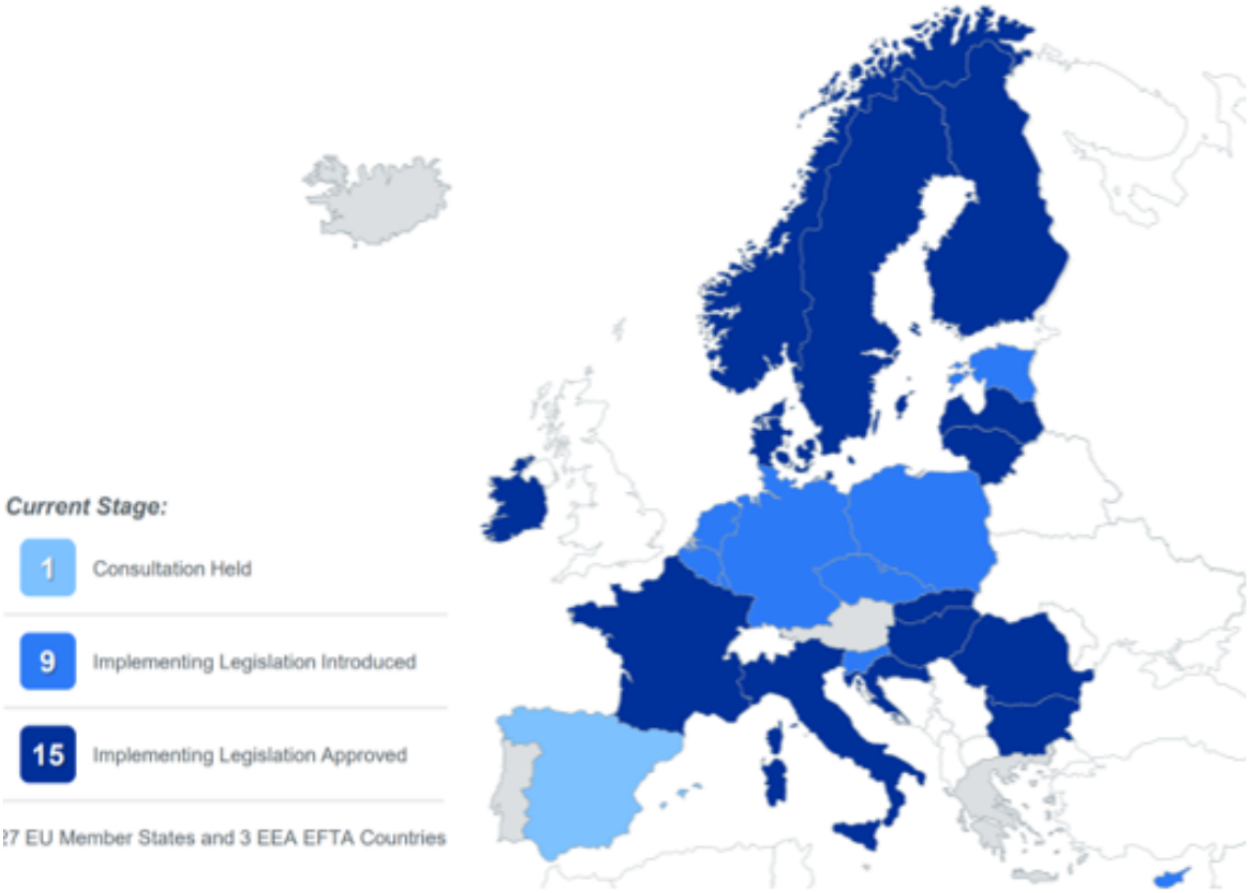

Figure 1.3: Current status of the CSRD implementation across the different EU countries (Littenberg and Rotter, 2024).

The map in figure 1.3 above, present that there have been different implementation across the EU countries, for example Denmark have made a full implementation of the legislation, where France have changed the scope of the firms mandatory to report first, Germany have introduced the legislation but not approved in their own laws yet and Finland have expanded the legislation to make the reports more easily machine readable and include companies of the co-operative business type (Littenberg and Rotter, 2024).

1.3 Efficient Marked Hypothesis

The success of CSRD relies on whether investors change behavior when they are presented with new reliable information on the companies they invest in. At the core of this is a premise of change in knowledge leading to change in behavior. This premise is the basis of the Efficient Market Hypothesis (EMH) which states that:

> *"security prices fully reflect all available information"* as put by Elton et al. (2014).

The hypothesis is not unchallenged Elton et al. (2014), and its central claim that no one can consistently beat the market has been attacked with both empirically and theoretically based arguments. These have been put forward by a variety of people from psychologists to Warren Buffet (Ray, 2024) (Business insider, 2010) and problematize issues like the psychology of investors and the ability of understanding the market based on pure mathematics.

If the EMH is correct, then investors should react to the new information from an annual report with CSRD, resulting in a change in the stock price, making the stock price more accurate to the new information about the sustainability of the firm. However, this requires that investors react to the new information, and not just react to the normally published information in the annual report.

1.3.1 EMH and CSRD

With the additional information provided by CSRD, the level of available information for the EMH have changed, because companies are required to publish a lot more information about the company's impact on the environment, giving investors additional information about the company. The CSRD and DMA also forces companies to examine additional information internally, giving the companies a better foundation for strategies and general business conduct, and a better understanding of how the environment can affect the company. With this additional information both internally and externally creates a better understanding of the company, to set the most accurate stock price.

EU desires a change in behavior resulting from the CSRD legislation, but that is only possible if the EMH works, and investors reacts to the new information and through that forces companies to change for a more sustainable and robust business model. Through this it is possible to test the efficiency of the EMH with the CSRD legislation, by performing an event study to identify the investors reaction to the news. The results of the event study would either be that the investors react and the hypothesis works, or that there is no significant reaction in the stock price, indicating that the market is not rational.

1.4 Investors in a changing world

Investors from all over the world request more information on the sustainability of companies for making greener investments, this indicates that a push toward sustainability exists among some investors. When the European Commission proposed to limit CSRD; 160 major investors, who combined manage some €6.6 trn., together requested that the EU keep the CSRD reporting as it is, to enable them to better make sustainable investments and force companies to work in a more sustainable direction (Havelock, 2025).

Based on the CSRD legislation additional information will be published about the companies, giving investors more data to assess them on. However the investors are not used to understanding and interpretation of this kind of information and with the different ways in which the companies can present it, it can be hard to analyze (Lelong and Humphreys, 2025).

To help the investors a range of information companies such as Bloomberg score the company based on all the new sustainability information, in a score, such as the ESG score or ESG MSCI (Lelong and Humphreys, 2025). The current investors either have to evolve their understanding of businesses to include sustainability information or just trust the scores published by information companies, as the amount of published non-financial information rises. The additional sustainability information can also give the chance for investors to invest long-term, in a more sustainable company, that they are more certain about.

With the new CSRD legislation the EU create a push of sustainability information, but the investors must also demand the information, to create a change in the market, in favor of the environment. ESG scores do not always represent how environmentally friendly a company is, but more how robust it is when looking at sustainability risks (Skovgaard, 2024), the ESG score focuses more on if companies have an action plan to improve in an environmentally friendly way than on the implementation and operation of the plan.

1.5 Event study in a fast changing world

Wanting to study the effect of an event relies on comparing the event - when something specific occurs - to a baseline. The change happening as an effect of the event becomes clearer against a stabile baseline. Looking for an effect on stocks is clearer against a balanced market. To examine the market consequences of implementing CSRD reporting, when the market is constantly affected by several events, some with bigger effects than than the whole financial report of which CSRD is just a part, results in more easily challenged results.

1.5.1 Noise: Trump, Ukraine, Gaza, ...

Through the last 2 years many events have affected the stock market, including war, AI boom, shaking financial positions and geopolitical tensions.

One of the biggest names shaping the news is Donald Trump, re-elected as president and having already signed 157 decrees in just 130 days in office (Federal Register, 2025), this is almost as many as Joe Biden did in his entire presidential period, figure 1.4 below. The number signed decrees is higher than any other president have on average had in a year, indicating that Trump desires a lot of changes for the USA and its relation to the rest of the world.

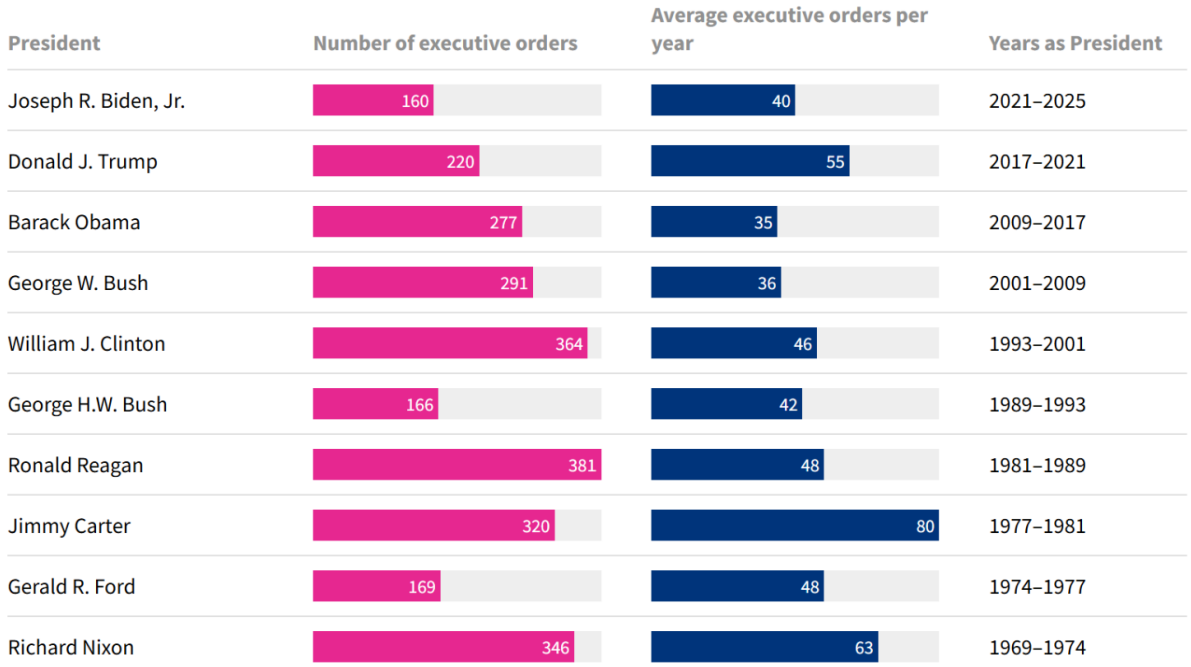

Figure 1.4: The number of decrees each president have signed in their election period(s) (Federal Register, 2025).

With Trump is another name affecting the stock market quite a lot, Elon Musk, with SpaceX, Tesla and now leader of Doge, who are in charge of making the US government more efficient (Clarke, 2025). The two men have together affected the stock market, because of Doge, new tariffs, diversity denial and much more, in a negative way, resulting in dropping indices and stocks in both the US and the rest of the world (Towfighi et al., 2025).

Other events that have affected the stock market are the war in Ukraine, which both Europe and the US have been involved in, both for reaching a peace agreement and supplying weapons to Ukraine, to keep Russia at bay. The AI boom, have also affected the stock market, by creating AI chatbots for the common use of everyone, and created additional competition in the tech industry.

The shaken financial position imposed by Trump, have been a wakeup call for the countries depending on the US, either through currency, trading of goods or as protection in case of war (Koranyi and Navaratnam, 2025). The uncertainty of the economy lies in the imposed tariffs by Trump for all countries, in his attempt to make the American economy great again, resulting in uncertainty and geopolitical tensions between most countries and the US.

1.5.2 Omnibus

On February the 26th 2025 a proposed omnibus legislation was published by the European Commission, to postpone and simplify the CSRD reporting (Directorate-General for Financial Stability and Financial Services and Capital Markets Union, 2025). The proposal of postponing and simplification of the reporting is to *"... creating a more favourable business environment to help EU companies grow, innovate, and create quality jobs."* (Directorate-General for Financial Stability and Financial Services and Capital Markets Union, 2025).

Caused by the Draghi reports identification of the competitiveness of the EU compared to China and the US, indicating that the EU have to change strategy to keep up, forget decarbonisation and increase security. The report indicate that the environment and the current status of the EU are not good enough to compete with China and US, which both have an economy that is based on debt, where the EU economy is more focused on capitalism and social welfare (Draghi, 2024).

The proposed postponing of CSRD was adopted on the 16th April 2025, meaning that the timeline for reporting on CSRD have been changed, for not already reporting companies, because listed firms are still required to continue reporting as before (Rahbek, 2025). The new timeline requires large and SME's firms to start reporting in 2028 and 2029, where they previously would have started the reporting in 2026 and 2027, postponing the reporting with 2 years. The second omnibus proposal of simplification of the reporting requirements have not yet been adopted, but the European Commission is working as fast as possible, to minimize the uncertainty for the listed companies (Weidacher, 2025).

The reaction to the postponing and simplification of the CSRD legislation have both been positive and negative, some countries and firms are relieved that they have more time to prepare the reporting and others are against because of a different view on what the business needs and a fear that this will lead to a standstill of the entire legislation (Janknecht, 2025).

1.6 Reflections

Based on the information presented in the previous sections it is clear that there is a growing focus on sustainability and the environment when companies report, this is desired by both the EU in its legislation and the investors for greener trading. The market is however in an uncertain period, where emotional reactions to e.g. posts from President Trump threatening tariffs or legislative change, occur when the message is sent rather than when or if the change happens. This muddies the reading of stock developments relating to events. CSRD on the other hand is a very quantitative measure seeking to affect investors on the sustainability of their purchases with facts and figures rather than by their emotions. To what degree investors working toward profit will be influenced by CSRD in this situation is unknown.

1.7 Research Question

Whether the reporting mandated in the Corporate Sustainability Reporting Directive affects the stock market, as was the intention of the directive, should be established to determine its success. This might be done by analyzing whether the markets reaction to annual reports including CSRD information for the financial year 2024 is different compared to how the market received previous years reports. Looking for an answer to this has led to the following research question.

Research Question:

Has CSRD reporting affected the European stock market? And how does the reaction vary between countries and sectors?

In order to answer the Research Question - 4 sub-questions have been identified:

1. What does the theory and literature indicate on whether CSRD affects the stock market?
2. Can the CSRD reporting be found to have had different effects on stock returns in different EU countries?
3. Can the CSRD reporting be found to have had different effects on stock returns in different sectors within Europe?
4. Do the size and value of companies affect whether CSRD reporting can be found to have had an effect on its stock return? Does this effect vary between countries and sectors?

To answer the sub-questions 4 hypotheses has been formulated and must be tested and analyzed to answer the Research Question. The first hypothesis H1 has been formulated to test the analysis methodology in depth. The hypotheses are as follows:

- **H1**: CSRD reporting has a positive influence on the associated stock return in Denmark.
- **H2**: CSRD reporting has a positive influence on the associated stock return when investigating different European countries.
- **H3**: CSRD reporting has a positive influence on the associated stock return when investigating different sectors.
- **H4**: CSRD reporting has a positive influence on the associated stock return when calculated with the Fama & French 3 factor model.

1.8 Limitations

In this section the limitations of the report are presented, to better prepare the reader for the rest of the report. The limitations are:

- Time, where more time could have resulted in the use of more countries or sectors.
- Annual report publication timeframe, the included reports are mostly from the first few months of the year, whereas the later publications are not included.
- Elimination of other events occurring doing the event windows, attempted through the use of UK as a control group.
- The report examines the investors' reaction to the CSRD information but does not go in depth with the actual information, only the investors' reaction.

- The recent publications for FY24 were published during Trumps first 100 days in office, and how he is affecting the stock market.
- A possible self-selection bias and omitted variable bias.

Limitations identified during this study are further elaborated on in chapter 7 Discussion.

1.9 Report structure

Chapter content

- **Introduction**
  The context of the problem is explained, and the Research Question and sub-questions are developed.
- **Literature review**
  The structure of the literature review conducted for this study is presented, and the papers, reports and other sources central to this study will be presented and their subjects and findings relevant to the rest of the report explained.
- **Methodology**
  In this chapter the methodologies used for conducting the event study are presented, and the steps involved in conducting the analyzes are explained.
- **Data collection**
  Here the data collection is explained, and the steps taken in choosing the companies whose stock price data is used in this study are explained.
- **Hypothesis for the analysis**
  The hypothesis made to answer the Research Question and sub-questions in the analysis are presented.
- **Analysis**
  The 7 analyses performed to answer the problem of this study are presented serially explaining their function, conduction, results and conclusion.
- **Discussion**
  The findings of the Literature review and Analyses are discussed and assessed along with limitations of the study.
- **Conclusion and perspective**
  The Research Question and the 4 sub-questions are answered and further perspectives are presented.

2| Literature review

Through an extensive literature search on Google Scholar, resulting in approximately 2,5 million results for both event study and sustainability reporting (non-financial reporting) when combined. Through additional filtering presented in figure 2.1, the 15 relevant and included article are identified. These will be presented further, to give the reader a better understanding of the relevancy and current academic context of this topic and the published literature on which this report is based.

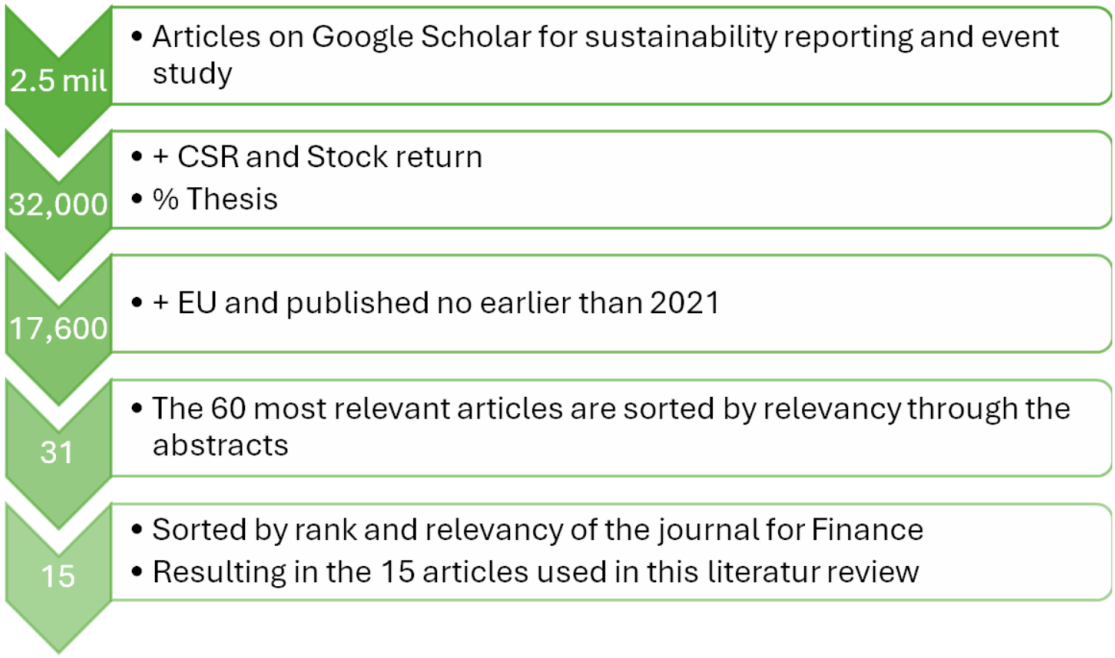

Figure 2.1: The number of articles related to sustainability and event studies, filtered to identify the 15 articles for this report. The filtering started by including the words CSR and Stock return and exclude Thesis, to avoid non-peer-reviewed publications. The next filtering of EU and published no earlier than 2021, was to identify articles primarily focusing on European countries and focus on relatively new articles, because the investors opinion on sustainability might have shifted the last few years. With a result of 17,600 articles, it was not possible to go through them all, therefor the most relevant 60 articles were sorted by the relevancy presented in the abstract, and lastly the remaining articles were sorted by rank (ABDC) and relevancy to the Finance field (Author's own creation).

All the published articles indicate a focus on sustainability from a corporate strategy and investment perspective. The 15 articles that will be presented here present findings on how sustainability reporting affects financial markets and corporate behavior. The sustainability reporting presented will include both voluntary and mandatory reporting. The 15 articles uses different methodologies to examine the companies in scope, but most of them focus on European countries.

2.1 Investor reaction to non-financial reporting prior to CSRD

An important financial aspect of the sustainability reporting is the investors reaction, and the additional transparency between the company and the shareholders. The article by del Toro et al. (2022) examines the shareholders reaction to sustainability reporting published by European energy companies, and finds that the shareholders for some firms do react, while for others there are no reaction, indicating that the reaction is more firm specific than related to the published information or lack of same. The identified significant reaction was both positive and negative, indicating that shareholders react differently depending on the published information, thus proving that sustainability reporting affects stock prices and volatility.

Many factors can also have an effect on how the investors react to the sustainability reporting, which have been examined in the article by Akyildirim et al. (2024) with focus on the effect Brexit had on investors reaction to sustainability reporting, for UK companies. The article finds that after Brexit the investors react less to sustainability events, and reputational damaging events than prior to Brexit, indicating a lowered interest. The article recommend that policymakers have more focus on sustainability regulations to influence investors.

Another factor effecting investors are the sustainability news posted on social media, which were examined by Nicolas et al. (2024) where especially the company's reputational risk from sustainability news were examined against the investors reaction. The article finds that when a sustainability related news-piece is posted on social media, there is a spike in postings, linked to the news. This can be seen on the stock return as well, resulting on average in a significant reduction of 0.29% in the abnormal returns. The study also finds that news about the Social and Governance aspect of sustainability is the topics driving the reaction most for investors.

The shareholders might have trouble identifying real sustainability as opposesed to greenwashing announcements; therefore a study were performed on greenwashing announcements and stock prices in EU by Teti et al. (2024). The study finds that greenwashing announcements have no significant impact on the stock returns in the days after the announcement, but corporate environmental performance and the abnormal return of the stock is negative related after the greenwashing announcement. The article finds that the market are not equipped to penalize greenwashing companies and that ESG ratings does not give a true rating of the companies.

Additional sustainable innovation has also been proven to influence the shareholders reaction to sustainability reporting, examined by Duong et al. (2021) in the construction sector. The study finds that additional innovation in favour of sustainability results in a positive reaction on the market, and that the marked reaction is linked to strategic alliances and the project start date.

Another sectors that have been examined in relation to sustainability reporting is the insurance sector. The study performed by Tommaso and Mazzuca (2023) looks at European countries from 2011 to 2021, which include years before the Paris Agreement (Agreement to limit the global warming to below 2 degrees Celsius) and after, to examine the difference in investors behaviour. The results show a shift in investors reaction to sustainability announcements, where the investors were more sensitive before the Paris Agreement (2015 to 2016), and less sensitive after,

proving the importance of agreements to shape the investors' view of sustainability announcements. The article also finds that a positive announcement leads to a stock price rise of less than 1% and a negative announcement leads to a fall in the stock price of more than 1%, leading to an asymmetric reaction.

2.2 Non-financial reporting risks and market behavior

The financial performance depends on different factors, where a study by Agoraki et al. (2023), examines the ESG reputational risk related to financial performance, from 2007 to 2021, including the CSR legislation and Covid-19. The study finds a negative correlation between ESG reputational risk and financial performance, indicating a higher asymmetry with higher ESG reputational risk, leading to unfavourable selection and an increase in the cost of equity, resulting in lower financial performance. The study when focusing on the financial performance in relation to CSR, additional transparency, and Covid-19, high uncertainty and low transparency, finds that the ESG reputational risk negatively impacts the financial performance.

The ESG reputational risk clearly affect the financial performance, but what about earnings risks in relation to CSR, this was examined by Arif et al. (2022) and finds that the CSR requirements have a positive impact on the quantity of the ESG information. The study also finds that mandatory reporting leads to higher quantity and quality of ESG information, which in turn results in better quality of future earnings estimates and a reduction in earnings risks.

A study by Cuomo et al. (2022) studies the effect of the non-financial reporting directive on CSR. The study finds that the NFRD have a positive influence on CSR performance and transparency, and that the positive influence is greatest for small firms and firms based in countries with a strong legal system. The study also finds that companies reporting on CSR have a lower market risk and cost of equity.

The result of lower cost of equity and thereby equity risk was examined in an article by Bannier et al. (2022), focusing on the reaction to equity risk of CSR for Europe and USA , with the different reporting requirements. The study finds that the EU reporting is more content based whereas the U.S. reporting is more risk focused, resulting in different influences of the investors. The study finds that CSR reporting in the EU reduces the CSR-risk, whereas in the U.S. the CSR reporting increases the CSR-risk, because of scepticism of non-financial information.

The scepticism of non-financial information in the US have resulted in an ESG disclosure simplification act from 2021, in an attempt to create more trustworthy information and create transparency. A study by Wang et al. (2023) examines the markets reaction to the publication of this disclosure in the US, and finds that around the adaptation of the disclosure a negative reaction in the market occurred, possibly caused by the companies' anticipation of the cost of the additional reporting.

The market behaviour in the US for the publication of the disclosure, is quite different than the reaction to the CSR reporting, where the required companies started reporting even before they had to. The firm behaviour in the EU have been studied by Fiechter et al. (2022), focusing on companies behaviour prior to CSR mandated reporting and after. The study finds that the mandated firms start reporting on CSR information even before it is required and that the most inactive firms feel the biggest effect. The study also finds that the reported CSR information is trustworthy and not an attempt on greenwashing.

2.3 Sustainability information usage for responsible investing

Currently there is a rising interest in investing in sustainable and green companies, but the research on this topic is limited, because most studies focus on what the individual companies gain from reporting sustainability information. An article by Daugaard et al. (2023) presents an overview of the current studies and finds that there are different sources of sustainability information, including corporate reporting, industry affiliations, communications between the firm and surrounding stakeholders and ESG ratings. The study finds that the different information affects the investment strategies different, depending on what the strategy is based on. The study makes 14 recommendations for further studies and to close the current information gap on sustainable investments.

As with most studies based on sustainability information and investor perspective, the recommendation or conclusion is that the data quality should be improved and the lack of sustainability reporting leads to additional risk for investors.

2.4 Sustainability legislations in EU and gaps in the literature

Through many years EU have created legislation to push companies to focus more on sustainability, at first creating voluntary reporting and now mandatory reporting. The published overview by Hummel and Jobst (2024) present an overview of the latest sustainability reporting legislations, including the Non-Financial Reporting Directive (NFRD) from 2014, Corporate Sustainability Reporting Directive (CSRD) from 2022 and taxonomy regulations from 2020. The findings of the overview are that there are multiple legislations and that the complexity is increasing in order to insure better data quality and information, and that more and more companies are required to report on the legislations on a mandatory level.

With the different legislation in place, a scope review by Dinh et al. (2022) examines the current research focused on the correlation between sustainability reporting and financial performance for potential research gaps. The article finds that there are many articles focusing on the different legislations through time and that the gaps identified are not related to a specific legislation but

more related to company specifics and the individual aspects of ESG. The biggest gaps in the research are on SME's, financial institutions and the social and governance aspects of the ESG.

2.5 Methodologies and a critical review

All of the presented articles use the event study methodology, difference-in-differences or systematic reviews. The different methodologies depend on the desired test the authors wish to explore, the event study is used to analyse an ESG related event on the stock price, where the difference-in-differences is used to compare a treatment group to a control group and the systematic review is used to compare different studies, for an overview and possible gaps in the published literature.

The articles are based on a lot of different companies in Europe and the US, with information from a lot of different data bases, focusing on different sectors, ESG factors and legislations. The articles finds different results, depending on the factors examined, where some can prove a positive correlation between CSR reporting and lower risks for the firm, other find that the investors sensitivity have changed over the last 20 years. Most of the articles agree that additional transparency will lead to a better financial performance, except in the US, where the investors are especially sceptical of the quality of the non-financial information.

All the articles contribute to the literature about sustainability reporting, but some of the most critical issued identified are the quality of the sustainability data, and the complexity of the current CSRD legislation. The articles also identify several gaps in the current literature, especially focus on SME's and financial institutions, an article also pointed out the missing research of long-term studies for the long-term effect of the legislations.

From the presented articles this highlights a lot of evidence in favour of sustainability and the transparency the additional reporting will create. The most pressing disadvantage for the additional sustainability reporting of CSRD is the cost of implementation and operation, which is abnormally high, caused by the fast implementation and reporting creating additional administrative work (Euronext Corporate Solutions, 2023).

3| Theory and Methodology

Through this chapter, the methodology creating the basis for the analysis will be presented, starting with the efficient market hypothesis, followed by the theory of CSRD, the event study methodology and lastly the Fama & French 3 factor model.

3.1 Efficient Market Hypothesis

The section about the efficient market hypothesis (EMH) is based on the methodology from Campbell et al. (1996) and Elton et al. (2014). The efficient market hypothesis can be traced back to the 1900, however the modern economic approach can be dated back to the 1965 and Samuelson Campbell et al. (1996). The hypothesis was made to support the understanding of the market prices and the fluctuations created by published information, resulting in the hypothesis that the stock price fully reflects the available information. The EMH is composed of 3 levels of efficiency:

1. Weak-form efficiency, where only the historical prices and returns of the stock are included in the pricing,
2. semi-strong-form efficiency, where the historic data and all publicly available information is incorporated in the stock prices and
3. strong-form efficiency, where the historical data, all public information and all private information is incorporated in the stock price.

The 3 levels of efficiency all state different constraints when predicting future stock prices. The weak-form indicates that it is impossible to predict the future stock price based only on historical prices and returns, indicating that the current price is fair based on the past information. The semi-strong-form indicate that the stock price can be predicted based on all publicly available information, which other than historical data includes company reports, broker recommendations and other public information about the company. The semi-strong-form rarely beats the market, even with all the available information, indicating that the stock price is fair, which can be tested through an event study. The strong-form indicate that all both public and private information is incorporated in the stock price, meaning that insider trading cannot beat the market. The strong-form efficiency is very unlikely to happen, because companies will always keep some information to them self and insider trading is illegal, because of the privileged information they have, that the other investors do not.

The different forms all depend on the information efficiency, meaning how quickly the marked reacts to new information and incorporate it in the stock price. The information efficiency de-

pend on the market rationality, where non-economic events should have no effect on the stock price in a rational market, only economic events. The information efficiency also indicate the incorporation period of the news, which in the case of an efficient and rational market should happen instantly. However over the period of the continued development of the EMH, there have been found many exceptions to the efficient and rational market, such as the low Price to Earnings (PE) effect, where firms with low PE ratio provide higher returns, than those with a high PE ratio.

3.2 Corporate Sustainability Reporting Directive - target and content

The section on CSRD is based on the CSRD legislation of the EU (European Commission, 2023). The intention of this section is to inform the reader about the CSRD legislation and the theoretical effects.

The CSRD requires firms to report on a lot of additional data, in their audited annual report, the data can both be data already collected for internal usage or data that the company currant does not have a process for collecting. The required data range from whistle-blower schemes to GHG emissions for scope 1, 2, and 3, indicating that the data can be very different, depending on the material standards for the firms. Some of the required data is also comparing the company's effect on the environment with financial data like CapEx and OpEx. The legislation as known, covered the environment, social and governance, requiring companies to create processes and extract data from several different departments of the company, covering topics like climate change, own workforce and business conduct. The figure 3.1, represents some of the different data point topics required by the CSRD legislation, categorized by the overall ESG topics.

Important to the effects of CSRD is, that the information must be audited by an accredited auditor, which makes the information more reliable thereby making it a better basis for investment decisions. Being legislation it is also very specific with regard to how information is calculated or collected making CSRD information more easily comparable between companies.

Environment	Social	Governance
E1 - Climate change • GHG emission (scope 1, 2 and 3) • Climate change mitigation and adaptation • Carbon credit • Energy consumption (fossil, nuclear and renewable energy) • GHG emissions per net revenue • Climate change risks on financial effects	**S1 - Own workforce** • Employee types, genders and pay • Health and safety • Employee training • Collective bargaining • Employee discrimination • Adequate wages • Social protection • Employee disabilities • Remuneration metrics • Sever human right impacts	**G1 - Business Conduct** • Anti-corruption and bribery • Whistleblower schemes • Political lobbying and donations • Supplier relationships and payment practices
E2 - Pollution • Air pollution • Water pollution • Soil pollution • Substances of (high) concern • Microplastics • Anticipated financial effects of pollution	**S2 - Workers in the value chain** • Working conditions • Child and forced labour	
E3 - Water and marine resources • Water consumption • Water withdrawal • Water discharges • Water recycling • Anticipated financial effects of water	**S3 - Affected Communities** • Human rights impacts • Cultural rights • Community engagement • Affected communities	
E4 - Biodiversity and Ecosystems • Land use • Ecosystem impacts • Species affected • Biodiversity sensitive areas	**S4 - Consumers and End-users** • Product safety and accessibility • Data privacy and marketing practices	
E5 - Resource use and circular Economy • Material in- and outflow • Waste handling and treatment • Recycling		

Figure 3.1: Overview of subjects within the CSRD - each dot containing several data points. Understanding the information and its potenital consequences requiring specialist knowledge (Author's own creation) based on (European Commission, 2023).

With the many different kinds of information required, the company's financial performance can be effected differently through optimization or indirectly through changed reputation.

Most of the required data have never been published before by the mandated companies, creating additional transparency between the company and the investors, resulting in a financial performance adjustment. However the CSRD legislation can also brings a positive direct financial effect, in that now companies are collecting and presenting data, that they might now have a chance to change, such as waste management, more effective processes, and better employee well-being. All the mentioned data that companies must collect, can reveal some low hanging fruits for the company, to take advantage of, both for more productivity and lowering costs.

The investors have more and more tools, to identify sustainable investments, such as ESG score and other certificates, provided by third party individuals. When reporting on CSRD, there are even more data to base the scores and certifications on, creating a more transparent market for investors to navigate on.

3.3 Event study

The event study as a methodology is well known in financial research, where the method can be used to examine events and reaction to for example stock splits or macroeconomic announcements. An event study can be used on a one-time event or a generic class of events. The following chapter is written based on the event study methodology from Campbell et al. (1996), Linton (2019) and Brown and Warner (1985); other sources are referenced to where used.

3.3.1 History

The event study methodology have been perfected over many years, to the methodology used today. One of the first event studies performed were by Dolley in 1933 Campbell et al. (1996), used to examine stock splits, which were a common event at that time, to examine the stock price reaction to the actual splits.

The methodology have since been modified to better examine the developing events affecting the stock price, Fama et al. (1969) used the methodology on monthly data, where Brown and Warner (1985) tested the methodology on daily data. Another way the methodology have been tested through the years are with the model for calculating the expected return, which have included more significant factors, to more precisely predict the actual abnormal return, the models include the market model, the CAPM and the Fama & French factor models.

The most common use of event study methodology today is based on daily data and the market model for the expected return, with the use of other models testing the robustness of the results.

3.3.2 Basis for an event study

An event study can be used to analyze stock price reaction to an event, where looking at stock returns prior and after an event can indicate the investors' reaction. To get a more general conclusion, most event studies examine more companies, to get a broader reaction to the event.

The event study is an effective tool when analysing events, the strength of the event study is based in the efficient marked hypothesis which "states that share prices reflect all available information" Downey (2024). This means that all publicly available information should as a minimum be reflected in the share price; by conducting an event study it becomes possible to analyse the effects of any event, as its effect spreads like rings in the financial waters rebounding of investors of all types.

With this in mind, there are several steps to go through, in performing an event study, and in order to reach a trustworthy result. These steps will be presented in the following sections.

Event and estimation window

The first step is to identify the event subject to analysis, and the needed window of information to analyse the reaction. The event window can start shortly before the event and end sometime after, depending on the expected reaction time to the event.

At one end of the event window investors might anticipate the event and react, resulting in a changed share price even before the event. At the other one end of the event window the investors might not know of or react to the event therefore retarding their reaction by few days. On top of this there will be reaction to reactions which will further affect the share price over time (Elton et al., 2014). This reaction patters are in line with the EMH on the semi-strong-form, where all available information is presented in the stock price.

The length of the event window are not specified in event study methodology, because the event window depends on the event, and if there is an anticipation period prior to the actual event day and the time it takes investors to react after the event day. Most studies use between a few days and around 40 days including prior and following days to the event (Campbell et al., 1996) and chapter 2 Literature review.

In the case of multiple companies, the chronological time might not be the same across companies, and therefore the used time in an event study is event time, where the actual dates are changed to at time scale where the event day (0) and prior days (-) and following days (+). E.g. if looking at the publication of quarterly reports as the event; then the publication date will be day 0 for all companies despite them publishing on different dates.

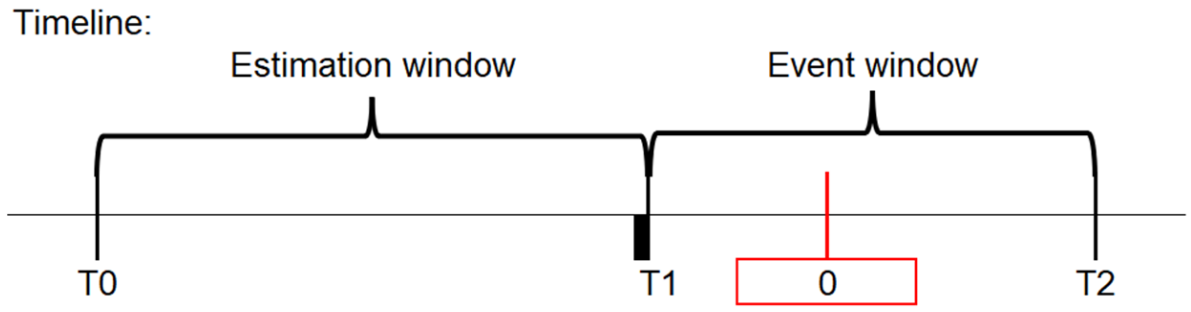

Figure 3.2: Timeline where 0 is the event day, T0 is the first day of the estimation window, T1 the last day of the estimation window and T2 the last day of the event window. The event window starts at time T1+1 day and goes to T2, which is sometime after the event date (Author's own creation).

The window before the event is the estimation window as shown in figure 3.2, T0 to T1, which in academic literature can span from 250 days prior to the event to 120 days prior to the event, which is the smallest recommended number of days (Campbell et al., 1996). The estimation window does not contain the event window, to eliminate the possibility of the event effecting the normal performance of the security's return. In some event studies the estimation window ends a few days prior to the event, because there might be an expectation around the event date which could influence the normal performance.

Selection criteria

The next step is to identify the criteria the selection of the firms is based on, which can be availability, firms listed on a specific marked, different sectors or countries. There are many possibilities for the selection criteria, but it is important to have a good selection criteria, and not just choose companies that support the expected result of the event study, but have an clear argument for the selection. When choosing the selection criteria, it is important to note the possible biases there might be in the selection and try to eliminate them, if possible.

Normal and abnormal return

The next step is to calculate the expected and abnormal returns for the chosen securities, for the event window. There are several model for calculating the expected return, the constant mean model, the marked model, the CAPM and the Fama French factor model. All the models focuses on different factors for the expected return, but for the event methodology the marked model is the most common model, where CAPM and Fama French can be used as robustness testing of the marked model result. The marked model:

$$E[R_{it}] = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}, \quad \varepsilon_{it} \sim N(0, \sigma^2_{\varepsilon_i}) \tag{3.1}$$

where $E[R_{it}]$ is the expected return of the security i at time t, α_i and β_i are calculated based on the estimation window for security i and R_{mt} is the return on the marked portfolio.

With the expected return and the actual return, the abnormal return must be calculated with this formula:

$$AR_{i,t} = R_{i,t} - E[R_{it}] \tag{3.2}$$

where $R_{i,t}$ is the actual return for security i at time t, and the error term must looks like this:

$$\varepsilon^*_{is} = R_{is} - \alpha_i - \beta_i R_{ms}, \quad s = t_{0i} - k, \ldots, t_{0i} + k \tag{3.3}$$

Which under the null hypothesis indicates that the random variables should have a mean = 0 and a variance = $\sigma^2_{\varepsilon_i}$. If the error term is normally distributed, then the difference between the error term and the variance is equal to a normal distribution between 0 and 1. S in the formula is the event time

Testing and results

When the abnormal return is calculated for the securities, the next step is to test the result against a null hypothesis Campbell et al. (1996):

H0: There given event has no impact on the mean or variance of returns

With the null hypothesis in order, an alternative hypothesis must be made, in case of a rejection of the null hypothesis. With the hypothesis in order the abnormal return must be aggregated to draw conclusion on the results of the event study. The aggregation can be done on multiple dimensions, where time and across securities are the most common, but it can also be done on industries or sectors, by geography or other characteristics depending on the event and alternative hypothesis.

The aggregation presented her will be with focus on time and across securities, which the other aggregations can be derived from. To aggregate through time for one security the cumulative abnormal return (CAR) can be used:

$$\widehat{CAR}_l(\tau_1, \tau_2) = \gamma' \hat{e}^*_i \quad and Var\left[\widehat{CAR}_l(\tau_1, \tau_2)\right] = \sigma^2_i(\tau_1, \tau_2) = \gamma' V_i \gamma \tag{3.4}$$

where $\widehat{CAR}_i(\tau_1, \tau_2)$ is the cumulative abnormal return for the event window, is a vector used to weight the error term for the event window and $\hat{e}^*_i \sim N(0, \mathbf{V}_i)$ is the distribution of the abnormal return. Under the null hypothesis the CAR formula looks like this:

$$\widehat{CAR}_l(\tau_1, \tau_2) \sim N(0, \sigma^2_i(\tau_1, \tau_2)) \tag{3.5}$$

To test the null hypothesis, the standardized cumulative abnormal return (SCAR) formula is used:

$$\widehat{SCAR}_l(\tau_1, \tau_2) = \frac{\widehat{CAR}_l(\tau_1, \tau_2)}{\sigma_i^2(\tau_1, \tau_2)} \tag{3.6}$$

With the SCAR value, a student t-test can be performed, with $L_2 - 2$ degrees of freedom, to accept or reject the null hypothesis, at a significance level of 95% (0.05). This aggregation only focusing on time, the aggregation for time and across securities look similar, with a few differences:

$$\overline{CAR}(\tau_1, \tau_2) = \gamma'\bar{e}^* \Rightarrow \overline{CAR}(\tau_1, \tau_2) = \frac{1}{N}\sum_{i=1}^{N} \widehat{CAR}_l(\tau_1, \tau_2)$$

$$Var\left[\overline{CAR}(\tau_1, \tau_2)\right] = \overline{\sigma}^2(\tau_1, \tau_2) \Rightarrow \frac{1}{N^2}\sum_{i=1}^{N} \sigma_i^2(\tau_1, \tau_2) \tag{3.7}$$

where $\overline{CAR}(\tau_1, \tau_2)$ is the cumulative abnormal return across securities for the event window, γ is a vector used to weight the error term for the event window and $\bar{e}^* = \frac{1}{N}\sum_{i=1}^{N} \hat{e}_i^*$ is the sample average abnormal return vector of the N events.

With the calculated CAR across securities, the SCAR and student t-test can be performed using these formulas:

$$\overline{SCAR}(\tau_1, \tau_2) = \frac{1}{N}\sum_{i=1}^{N} \widehat{SCAR}_l(\tau_1, \tau_2)$$

$$J = \frac{\overline{CAR}(\tau_1, \tau_2)}{[\overline{\sigma_i}^2(\tau_1, \tau_2)]^{1/2}} \sim N(0, 1) \tag{3.8}$$

When using the student t-test to test the null hypothesis, the goal is to detect if there are any abnormal returns different from zero. The student t-test is a two-sided test, where J under the null hypothesis is distributed normally. Both the SCAR and the student t-test will in all cases result in the same, either reject or not reject, and the results can be determined if the SCAR value is below -1.96 or above 1.96 and the t-test value is below 0.05 the hypothesis can be rejected with 95% confidence.

Interpretation and conclusion

With the calculated SCAR and t-test results, the null hypothesis can either be rejected or not rejected, resulting in proof of impact of the mean or variance caused by the studied event. If the null hypothesis is not rejecting, it indicates that the event have no impact on the mean or variance, based on the current used model for expected return, where it might be worth it to test the result with the CAPM or Fama & French factor model, because there might be other factors affecting the abnormal return, to test the robustness of the results.

Based on the results no matter if the null hypothesis is rejected or not, the results must be interpreted, to identify the cause of the result, and the possible mechanisms affecting the stock return. There might also be other explanations for the results, which might lead to further tests and analysis.

When interpreting the results, an important effect to be aware of is the efficient marked hypothesis (EMH), which stated that the marked reacts instantly to all publicly available information. The EMH however have different possible levels, weak, semi-strong and strong effect, depending on how much information is presented in the marked, where the weak effect captures only historical prices, semi-strong effect captures all publicly available information and strong effect includes insider trading (CFI Team).

Methodology limitations and criticism

It is important for the reader to know that there are limitations in performing an event study such as the trading day intervals, where weekly or intraday trading data might be to big or to small an interval to capture a reaction to the event. Another limitation to the event study is the identification of the event day, in some cases it can be hard to identify the exact event day with certainty. The last big limitation is the possibility of biases in the event study, stemming amongst others from the fact that the daily closing prices occur at different times, and not always at the same time every day, another bias is the investors tendency to follow the heard, and copy other investors. The last big limitation to the event study methodology is to remove other events from the study, where only focusing on the desired event and assuming that nothing else is accruing, which is impossible in a changing world (Chen, 2017).

3.4 Fama & French 3 factor model

The Fama & French 3 factor model builds on top of the market model, by analysing the stock return with more factors. The Fama & French test the robustness of the test results from the marked model, by introduces additional factors that might adjust the outperformance of the stock, caused by excessive risk. The model ads the factors of firm size and book to marked value, which gives the formula:

$$R_i - R_f = \alpha + \beta_1 \times (R_m - R_f) + \beta_2 \times SMB + \beta_3 \times HML + \varepsilon \tag{3.9}$$

Where R_i is the return of the stock and R_f is the risk-free rate. The betas are the factor loadings for the market, size and value factors, and $(R_m - R_f)$, SMB and HML are the excess return of the marked portfolio, size premium and value premium (Hayes, 2024).

The additional factors SMB and HML each present the historical excess return for the small-cap over large-cap companies and high book-to-market value over low book-to-market value (Hayes, 2024). The 3 factors all contribute to capturing the full prediction of the return. This happens by adjusting for positive tendencies and adjusting the results downwards (Campbell et al., 1996).

The 3-factor model captures the variation of the stock returns better than the marked model, resulting in a more nuanced result.

4| Data collection and selection

The data selected and used for this report will be presented here, with focus on fulfilling the event study methodology.

4.1 Event and estimation window

The desired events to examine is the publication of the first annual report containing the sustainability statement mandated by the CSRD legislation, for listed companies in the EU, against the two previous publications of the annual report for the financial years 2022 and 2023. The 2 previous reportings will be used to identify the normal reaction around the publication, and through that only show the reaction to the CSRD reporting, and create a baseline for the normal reaction caused by the publication of the annual report and the financial situation the company is in. It is however important that the estimation and event window is the same length for all the securities, but the publication dates will most likely not be on the same date, which is fine, as long as the publication dates for all securities are on event day 0.

To identify the best fitting estimation and event window for this report, following the methodology, a test was conducted which will be presented in the analysis, along with the results.

4.2 Security selection criteria

To test the possible reaction to the annual report publication with CSRD, the event study is performed using 40 different companies from 5 different countries. The companies also belong to 4 different sectors, resulting in 2 companies per sector per country. The selection criteria for countries, sectors, companies and benchmark indices will be presented through the following section.

4.2.1 Countries:

The countries were selected based on the G-7 countries based in Europe (U.S. Department of the treasury), which is a group of 7 countries plus the leaders of the European union, who deals with issues on a global scale such as the global economy, trade and climate (G7G20 documents database, 2025). This group also include some European countries in which it is mandatory to report on CSRD for listed companies. The companies chosen were: France, Germany, Italy and United Kingdom and Denmark. Denmark is not a G-7 country, but have been one of the front runners in the sustainability reporting (Strand, 2024), (McNally, 2025). For the mentioned countries, it is mandatory to report on CSRD in the financial report for 2024, except for the United

Kingdom, which is included in this study to try to eliminate other events from affecting the results and only focus on the CSRD reactions. The United Kingdom is included in this study as a control group, because of the many similarities to the European countries, especially relevant is the prioritization of sustainability, biggest differences will be found with regards to their lack the newest EU legislation caused of Brexit.

The United Kingdom and the EU in general have a strong economy (Harari, 2025), but the United Kingdom, even after Brexit and current Trump tariffs have an economy in growth, which is comparable with France, Germany and Italy, which also expect growth for 2025, although less than the United Kingdom.

4.2.2 Sectors:

The sectors were selected based on the level of volatility, where the most volatile sectors were selected, to see the biggest price movements, and possible detect a reaction to the publication of the annual report with CSRD. Based on standard deviation, the top 5 most volatile sectors include Energy, Financials, Technology and Consumer Discretionary (herafter Consumer cyclicals) (Davis, 2022), and are the included sectors in this report.

4.2.3 Companies:

The companies were selected based on the availability of data on Markedscreener.com and FactSet. With the data available the companies from each sector and country were selected based on the highest company Capitalization in USD, which means the companies with the highest value of the outstanding shares at the current market price. The capitalization values were used as it presents the markets perception of the company's total equity value. In appendix A, a comprehensive list of the chosen firms, with country and sectors, can be found.

It is worth mentioning that the individual companies are traded based on their home currency, but since the event study examines if there is a reaction different from 0 and does not compare the stock prices but only the return, the different currencies are not an issue, for the further analysis.

4.2.4 Index benchmarks

To be able to use the marked model for calculating the expected return, there must be identified a marked portfolio, which in this case is 5 indices, one for each country. The reasoning for the selection of 5 different indices instead of 1 for all companies is to compare the individual companies with an index from the same country, and through that minimize the risk of selecting an index that is not compatible with all the companies from the different countries. The indices for the individual countries can be seen in figure 4.1 below.

Country	Indices
Denmark	OMX Copenhagen 25
United Kingdom	FTSE 100 index
France	CAC 40 index
Germany	DAX Germany index
Italy	FTSE MIB (Milano Indice di Borsa)

Table 4.1: Overview of which index have been used in the analyses for each of the 5 countries (Author's own creation).

The OMX Copenhagen 25 index is composed of the 25 largest and most traded shares on the Copenhagen stock exchange, Nasdaq (Indexes.nasdaqomx, 2025). The FTSE 100 index is composed of the 100 UK companies with the 100 highest capitalization companies, listed on the London stock exchange (FTSE Russell, 2025). The CAC 40 index is composed of the 40 companies with the highest capitalization value, listed on the French stock exchange, Euronext Paris (Trading economics, 2025a). The DAX Germany index is composed of the 40 companies with the highest capitalization value, listed on the German stock exchange (Trading economics, 2025b). The FTSE MIB is composed of the 40 companies with the highest capitalization value listed on the Italian stock exchange, Borsa Italiana (Trading economics, 2025c).

4.2.5 Correlation

The theory focuses on no correlation between the estimation and event windows between the companies, which in practice is impossible to fulfill. The possible correlation of estimation and event windows can be overlooked in this event study because of the assumption that the investors only reaction to the information in the individual company's annual report.

The publication months for the used annual report are presented in the figure 4.1 below:

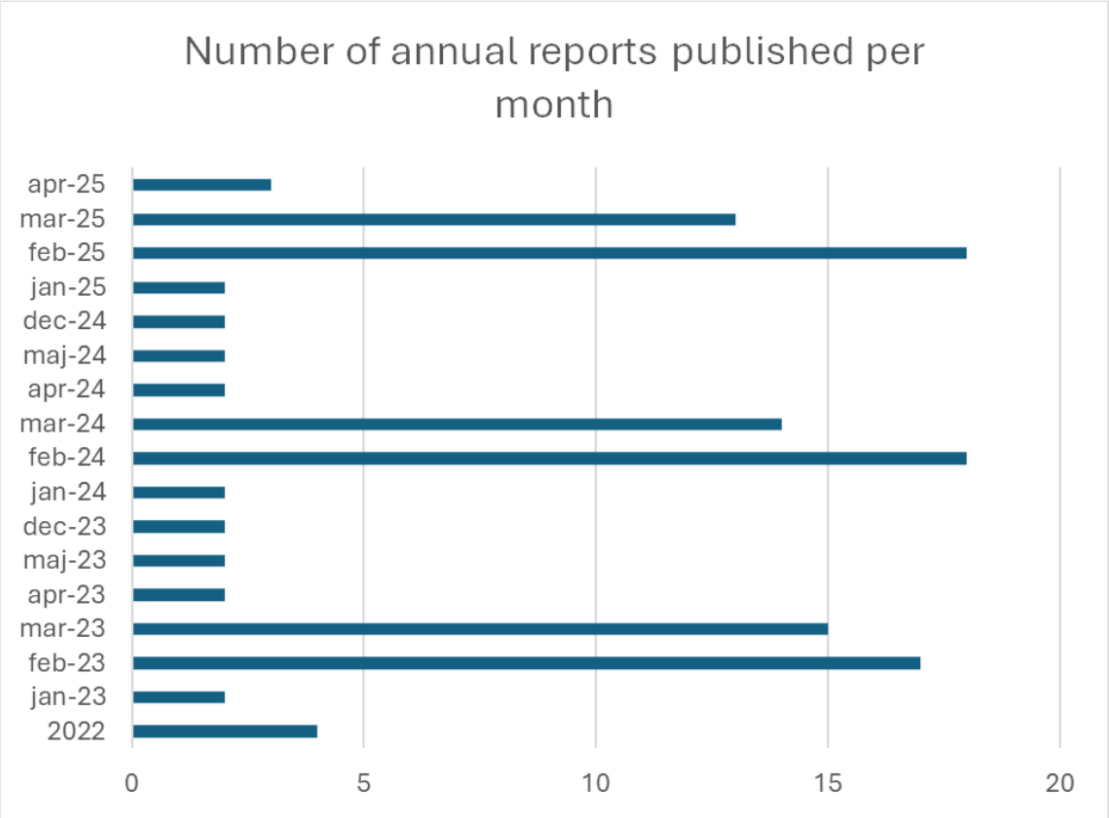

Figure 4.1: Graph showing the distribution of the 120 dates for the annual report publications studied in the analyses for this report. The publications mostly happening in February and March, with little change in pattern across years (Author's own creation).

Most of the publication dates are clustered in the months February and March, with a few in January, April, May and December.

4.3 Data - gathering, treating and calculating

The stock prices and dates is collected from FactSet, while the publication dates are collected from Marked screener and confirmed by the website of the individual company, and all the calculations are done in excel.

With all the before mentioned criteria fulfilled, the data must be processed before the tests can be performed, which will be presented more in dept here.

The used data is daily closure prices, which gives the data for the desired tests, no need to use intra-daily or weekly data, because intra-daily data could maybe give a reaction instantly after the publication, but since investors might take a few days to react, this would be to detailed. However, weekly data would not be detailed enough to capture the possible significant reaction, because of many trading days between the weekly data. The daily data presents the reaction based on a daily schedule, which could both capture the possible expectations leading up to the event and the reaction after the event.

With the downloaded share prices for the last 3 years, first the security and benchmark data were matched based on trading days, and the inconsistencies were removed. Then the publication date was identified to make the dates into event days, meaning that the publication date is 0, and the time prior to the publication are negative and the dates after er positive. Then the estimation and event windows were identified for the 3 reporting publications.

Window	Date	Event time	Event occation	Price [DKK]	Benchmark [DKK]
Estimation	01-27-25	-7	FY24	1361,50	1775,92
Estimation	01-28-25	-6	FY24	1354,00	1763,87
Event	01-29-25	-5	FY24	1377,50	1770,21
Event	01-30-25	-4	FY24	1400,00	1781,77
Event	01-31-25	-3	FY24	1380,50	1773,18
Event	02-03-25	-2	FY24	1380,00	1743,40
Event	02-04-25	-1	FY24	1374,00	1746,74
Event	02-05-25	0	FY24	1341,50	1765,50
Event	02-06-25	1	FY24	1347,00	1789,84
Event	02-07-25	2	FY24	1319,50	1790,43
Event	02-10-25	3	FY24	1332,00	1785,23
Event	02-11-25	4	FY24	1322,50	1794,67
Event	02-12-25	5	FY24	1327,50	1782,70
Event	02-13-25	6	FY24	1319,50	1789,22

Table 4.2: Example of data ready for analysis, having been modified to show days before and after the event day. The data is for FY24 and for the Danish jewelry company Pandora A/S (Author's own creation).

Figure 4.2 above, shows the finished data modification, before the tests can be performed, with the estimation and event windows, together with the stock price and benchmark index.

To test the data based on the methodology the price of the stock is first calculated to simple return:

$$\text{Return} = \frac{(Price\,today - Price\,yesterday}{Price\,yesterday} \Rightarrow \frac{1347.0 - 1341.5}{1341.5} \approx 0.0041 \tag{4.1}$$

For this example the price for the Pandora stock is used to calculate the simple return on the day after the publication of the annual report. The return on the 6th February 2025 is then 0.0041 DKK.

Next the expected return or normal return is calculated:

$$E[R_{it}] = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \Rightarrow 0.0012 + 0.8088 \times 0.0138 = 0.0124 \tag{4.2}$$

The alpha and beta to calculate the expected return is calculated based on the estimation window

and the return on the marked portfolio is the return of the index, in this case the OMX Copenhagen 25. The expected return on the 6th February 2025 is then 0.0124 DKK. The last needed return is the abnormal return:

$$AR_{i,t} = R_{i,t} - E[R_{it}] \Rightarrow 0.0041 - 0.0124 \approx -0.0083 \tag{4.3}$$

The abnormal return is then -0.0083 DKK meaning that the marked outperformed the stock on this particular day. With the abnormal return calculated for the entire event window, the cumulative abnormal returns can be calculated:

$$\widehat{CAR}_l(\tau_1, \tau_2) = \gamma' \hat{e}_i^{\times}$$

$$\widehat{CAR}_l(\tau_1, \tau_2) = (0.013 + 0.010 + (-0.011) + 0.012 + (-0.007) + (-0.034)$$

$$+(-0.008) + (-0.022) + 0.011 + (-0.013) + 0.008) = -0.041 \tag{4.4}$$

Resulting in a 10 days CAR of -0.041. With the CAR the variance and SCAR can be calculated (Bhandari, 2023):

$$\textit{Mean} = -0.0116$$

$$\text{Var}[\widehat{CAR}_l(\tau_1, \tau_2)] = \sigma_i^2(\tau_1, \tau_2) = \frac{\sum(X - \overline{x})^2}{L - 2} \Rightarrow$$

$$\text{Var}[\widehat{CAR}_l(\tau_1, \tau_2)] = \frac{(0.013 - (-0.0116))^2 \ \ldots \ ((-0.041) - (-0.0116))^2}{11 - 2} \approx 0.001$$

The variance for the 10 days CAR for pandora in 2024 is 0.001, leading to the SCAR and t-test:

$$\widehat{SCAR}_l(\tau_1, \tau_2) = \frac{\widehat{CAR}_l(\tau_1, \tau_2)}{\sigma_i^2(\tau_1, \tau_2)} \Rightarrow \frac{-0.041}{\sqrt{0.001}} \approx -1.3185$$

$$J = \frac{\overline{CAR}(\tau_1, \tau_2)}{[\overline{\sigma_i}^2(\tau_1, \tau_2)]^{1/2}} = 0.187 \tag{4.5}$$

With the results of the SCAR and the T-test, the hypothesis can be rejected or not rejected, in this example not rejected for the 10 days CAR.

The tests performed here will be performed on 4 different CARs, to capture the possible reaction

at different intervals of the event window. The CARs used are as presented the 10 days CAR, and additionally a 15 days, 20 days and 30 days CARs, all starting 5 days prior to the event and the event day of 0 meaning the CARs ends 5, 10, 15 and 25 days after the event. These CARs are chosen based on the possible lagged response for the information in the annual report, where some investors might react instantly and other some days later.

The reasoning for the selected CARs can be found in section 6.4, where a test were performed to choose the most soothing CARs for these tests.

4.3.1 Fama & French 3 factor model

The Fama & French test is performed using the Fama & French 3 factor model data from (Fama and French, 2025).

The Fama & French 3 factor model is used on the same stock return data to test the robustness of the results calculated with the marked model. The only change in the presented calculations of the data is an additional small amount of data which represents the factors for the formula for the expected return.

Before calculating the expected return, some information is missing for the formula:

$$R_i - R_f = \alpha + \beta_1 \times (R_m - R_f) + \beta_2 \times SMB + \beta_3 \times HML + \varepsilon \tag{4.6}$$

The alpha and betas must again be calculated based on the estimation window, through excess return of the security and the return of the marked portfolio, SMB and HML. By using the numbers from Pandora, here is the new result for the expected return on the 6th February 2025:

$$R_i - R_f = (-0.0187) + (-0.0070) \times (0.81) + 0.0002 \times (-0.45) + (-0.0062) \times 0.96 = -0.0190 \tag{4.7}$$

Resulting in an expected return on -0.0190 compared to the expected return from the marked model of 0.0124. With the different expected returns the abnormal return will also be different:

$$\textit{Marked model } AR = R_{i,t} - E[R_{it}] \Rightarrow 0.0041 - 0.0124 \approx -0.0083$$

$$\textit{Fama \& French } AR = R_{i,t} - E[R_{it}] \Rightarrow 0.0041 - (-0.0190) = 0.0231 \tag{4.8}$$

The difference in abnormal return can be caused by the additional factors from Fama & French in explaining the return of the stock.

The next requirement to fulfill the event study methodology is the hypothesis, needed to test the data against. The hypothesis and the testing will be presented in the following section.

5| Hypotheses for the analyses

Through this chapter the hypothesis testing for the analysis will be presented, to give the reader a better understading of hypothesis testing used in this report, together with the tested hypothesis. The chapter is written based on the hypothesis use and the (Campbell et al., 1996).

The event study methodology is based on a null hypothesis, that can either be rejected or not-rejected. The null hypothesis is:

H0: The event has no influence on the associated stock return.

The null hypothesis expects the stock returns to act normally, despite the event. This means then when performing an event study, there must also be made an alternative hypothesis, which is the desired hypothesis to test, to answer the problem statement. The alternative hypothesis is only relevant when rejecting the null hypothesis, because that means that the alternative hypothesis is accepted to be true.

The desired problem to investigate through this report is to test if the EU's desired reaction to CSRD reporting actually works, or if investors are less interested in the environment than the opportunity to earn money. This will be tested through a series of hypotheses:

H1: CSRD reporting has a positive influence on the associated stock return in Denmark

H2: CSRD reporting has a positive influence on the associated stock return when investigating different European countries.

H3: CSRD reporting has a positive influence on the associated stock return when investigating different sectors.

H4: CSRD reporting has a positive influence on the associated stock return when calculated with the Fama & French 3 factor model.

When testing the hypotheses the results might prove a reaction over a short or longer period and the reaction could be permanent or temporary, depending on the news, however in most cases the reaction is temporary. The result of a rejection of the null hypothesis can either be an underrection or overreaction, where the results ends in a not-reject, there is not enough evidence of a reaction to reject the null hypothesis.

6| Analyses

Through this chapter 7 analyses will be performed to answer the presented hypotheses and the problem statement. The chapter is composed of 7 analyses building on to each other. At the end of each analysis is a short discussion of the results and a conclusion, leading on to the following analysis.

6.1 CSRD in the Efficient market hypothesis

The additional published information from the companies change the normal level of public information that can influence the stock price, meaning that the semi-strong-form of the efficient market hypothesis can base the stock price on even more information, indicating the sustainability of the company, based on the environment, social and governance. The new information also presents information about how the firm affects the environment, but also how the environment affects the firm, seen from a financial perspective. The CSRD publication moves information previously in the strong-form of efficiency to the semi-strong-form, where every investor have a chance to review and assess the information.

The efficient market hypothesis based on the market prior to the CSRD publication is most likely the weak- to semi-strong-form, where the stock price reflects the past prices and publicly available information, where after the CSRD publication, the market is on the same level, but the amount of information available to the public is a lot bigger, and more through of the company.

As presented in the Chapter 2 Literature review , the company's reputation are also affected by the CSRD publication, where companies focusing on improvement and sustainable focus have a better reputation and therefore perform better.

The semi-strong form of efficiency can be tested through an event study, to identify the investors reaction to the event, and the adjusted stock price, to the new public information, which will be done through the rest of the chapter.

Modern consequences of the EMH

When applying the EMH to the concrete problem, some question arise when adjusting it to studying the efects of CSRD in 2025. There are also more human factors influencing how information is turned into market reaction. Two of these are: 1 the ability to understand the available information and its implications, 2 how technology have influenced the speed of the efficiency.

The information which is becoming available due to CSRD lay somewhat outside the usual subject knowledge of economy educated investors, having to do with e.g. environmental effects.

By comparing two report it will be simple to see which of the two performs best, but working out what the further future implications are requires different specialist knowledge. The essence of this is, that what creates change is not information, but the recipients understanding of that information.

The reaction of the market has also changed since the hypothesis was first proposed more than 100 years ago. During this time the transfer of information has changed from telegraphs to internet, cutting transport time from days to microseconds influencing how quickly an investor can react to an event.

Relevant to both human factors is the development of generalized artificial intelligence both speeding up information transfer by performing research for the investor, and by providing a means to better understand specialized knowledge from other fields thereby facilitating better understands for the recipient.

6.2 Analysis structure

Common to all analyses are the time range of the datasets. The analyses are performed on data from the 3 most recent financial years, FY22 and FY23 act as a baseline for "normal" market reactions to the publishing of a financial report, which is then compared to the reaction to a CSRD enhanced financial report in FY24.

Throughout the analyses simple returns have been used, to represent the actual return between the stock prices, ignoring the compounding effect, because of the small changes in the daily prices.

Preliminary analyses were performed to determine the event and estimation window and to test the methodology on company stock price data from one country, before performing the tests on data from 4 additional countries. In total 7 analyses will be performed in order to answer the research question - the analyses and their targets will be briefly described in the below bullets; and then more fully elaborated in the following sections.

- **Preliminary analysis A** – ascertaining the most optimal estimation and event windows to use in the main analyses.
- **Preliminary analysis B** – testing the proposed methodology and which CAR timeframe(s) is most relevant.

Then the main analyses are conducted to answer the research question.

- **Analysis 1** – testing whether there are significant differences in the reactions to the publication of the annual reports in Danish companies with CSRD compared to before its implementation. Using hypothesis 1
- **Analysis 2** – testing whether there are significant differences between reactions to the publication of the annual reports between Danish companies reporting on CSRD and UK companies not reporting an CSRD. Using hypothesis 1

- **Analysis 3** – testing whether there are significant differences among reactions to the publication of the annual reports including CSRD between different European countries. Using hypothesis 2
- **Analysis 4** - testing whether there are significant differences among reactions to the publication of the annual reports including CSRD between different sectors across the included counties. Using hypothesis 3
- **Analysis 5** – Testing the robustness of the results of the previous 4 analyses by redoing all the analyses using the Fama & French model for expected returns. Using hypothesis 4

Each analysis will include sections explaining: (1) The purpose of the analysis (the hypothesis tested), (2) the methodology used including refences to the underlying theory, and finally (3) the results and which conclusions might be drawn.

6.3 Preliminary analysis A - Optimal estimation and event window

The theoretical basis for choosing estimation and event window is quite wide therefore, the first test performed are for choosing the most appropriate time frames for the main analyses. Time frames for the estimation window should be as long as possible but max 250 days **??**metode - hvorfor 250 dage) to provide the best possible baseline return estimate for the stock in question. The time frame for the event window should be long enough to encompass all the reaction to the event, but so short that the risk of it taking in other events is minimized.

To choose the most appropriate estimation and event windows a test was performed on data from Vestas A/S to identify the publication dates and the reactions around it. The goals of which are to ensure that in the main analyses:

1. The extent of the estimation window is as close as possible to the theoretical max of 250 days without including the publication of and reaction to the previous year's annual report.
2. The extent of the event window should be optimized to cover the complete reaction to the publication of the annual report, while avoiding other events.

The desired estimation window is without the previous reaction to the publication of the annual report, which may be achieved by shortening either the event window or the estimation window.

6.3.1 Tests and analysis

The first test is to find the number of trading days not including the publication days (event day) between annual report publications. To find this number the stock price data for all the companies studied in all the report is collected and prepared as explained in the section 4.3 along with the selection criteria of the companies. The trading days between publications for the 40 companies was found to be:

- At least 240 days all 3 year for 37 companies
- 239 days for 1 year and at least 240 days for 2 years for 2 companies, and
- 229 days for 1 year and at least 240 days for 2 years for 1 company.

Determining the number of trading days based on the worst (229 days) would remove significant valid data from the other companies. It was therefore determined to use 240 days as this was available for 117 of the 120 events collected for this study, and then pay special attention while analyzing the results of the 3 events of less than 240 days. Having 240 trading days between the publications, gives an estimation of 240 days to predict one event day. However, for this analysis looking at only the event day would overlook possible reactions before and after the publication day.

The analysis looking for the optimal windows is based on trialing 2 estimation windows against possible event windows. The trialed estimation windows are:

- A shorter estimation window (210 trading days) and a longer event window (31 trading days including the event day). This estimation window starts 215 days prior to the event and ends 6 days prior to the event, while the event window starts 5 days prior to the event and end 25 day after the event.
- A longer estimation window (215 trading days), resulting in a shorter event window (26 trading days including the event day). This estimation window starts 220 days prior to the event and ends 6 days prior to the event, while the event window starts 5 days prior to the event and end 20 day after the event.

The trialed estimation windows are illustrated in the below figure 6.1.

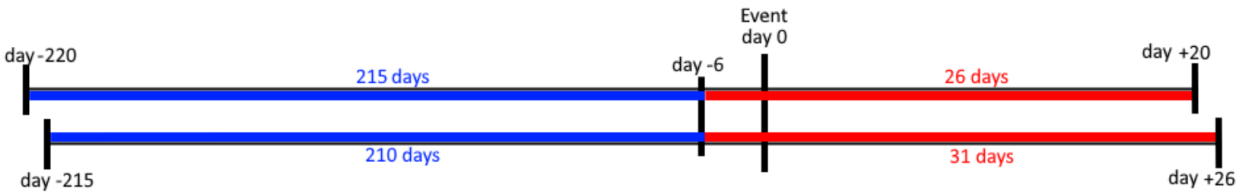

Figure 6.1: Shows the 2 different lengths of the estimation and event windows, with the same event date, to identify the best lengths for the further testing (Author's own creation).

With the estimation windows ending 6 days prior to the event, the calculated estimations will not be affected by the reaction of the publication and should therefore give an accurate estimate of the normal fluctuations of the share prices.

6.3.2 Testing the event windows

To test the effects of choosing different event windows, a series of different Cumulative Abnormal Return (CAR) were trialed. The different CARs were used to calculate the reaction of different event windows and capture possible different reaction. The methods used for conducting CAR is

explained in section 3.3.2, the results of the CAR is further analysed using a t-test, to identify the significances of the results. The CARs used in this section are:

- 10-days CAR, starting 5 days prior to the event and ends 5 days after the event,
- 15-days CAR, starting 5 days prior to the event and ends 10 days after the event,
- 20-days CAR, starting 5 days prior to the event and ends 15 days after the event and either
- 25-days CAR, starting 5 days prior to the event and ends 20 days after the event or
- 30-days CAR, starting 5 days prior to the event and ends 25 days after the event

The different event lengths shown by the CARs, represent different reactions. The 10-days CAR shows the anticipation leading up to the event date and the immediate reaction after the event, where the 15-, 20- 25- and 30-days CAR represents more time after the publication, where the investors might still react to the publication.

In total 8 tests were made according to the below table 6.1.

Estimation days	10 event days	15 event days	20 event days	25 event days	30 event days
210 days	X	X	X		X
215 days	X	X	X	X	

Table 6.1: Shows different CARs for the two estimation and event window lengths (Author's own creation).

The figure 6.2 below, shows the results of the t-tests performed on the different event and estimation windows. The longer estimation window has 5 insignificant t-tests (results above 0.05), compared to the shorter estimation window, which only have 3 t-tests not significant.

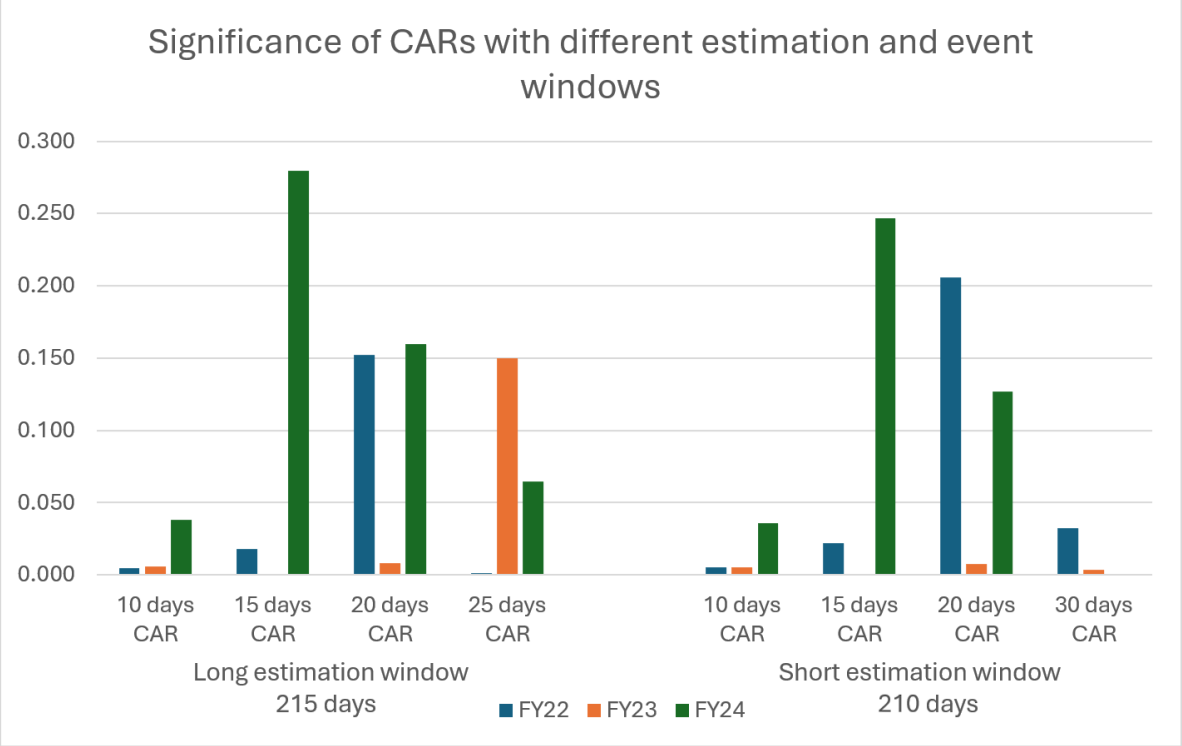

Figure 6.2: Presents the t-test results for all the calculated CARs and the two estimation windows, to identify the significant results, whish must be below 0.05 (Author's own creation).

6.3.3 Conclusion of the preliminary analysis A

The estimation window is used to calculate the normal flow of the share prices and calculate the alpha and beta of the share, to capture as much as possible of the normal annual flow, without including the previous reaction around the last annual report publication.

The 3 last reporting periods are chosen to have a better understanding of the normal reactions around the publication date of the annual report of the first 2 years, in order to compare them with the publication with the CSRD information contained in the last report. Depending on the publication and the world events of the reported year, the reaction to the publication might wary, where 2 years of publications gives a more accurate baseline which excludes one-off reactions to extraordinary information. By looking at Figure 6.2 above, the results of the test for estimation and event windows, it becomes clear that the shorter estimation window shows more significant reaction to the annual report publication in general. The conclusion of the estimation and event window analysis is that there is a bigger reaction, when shortening the event window.

The efficient marked hypothesis states that the share price should reflect all available information, which for this test means that the reaction should occur shortly after the publication, which is not the case, meaning that the investors might not be aware of the publication or react to it instantly. This means that the reaction might not be only based on the information in the annual report, but might also be a example of herding behaviour, where investors copy other investors.

6.4 Preliminary analysis B - Test of methodology and CAR time frames

The second preliminary analysis tests the methodology on 8 Danish companies, both to identify possible errors or mistakes but also in an attempt to identify if any of the CAR values could be chosen as a single indicator of abnormal behavior. The test is conducted on Danish companies, because of their focus on the full implementation of EU legislations (Lampinen and Uusikylä, 1998) and high focus on sustainability (Europe Sustainable Development Report 2025, 2025). The test is conducted based on the theoretical methodology from section 3.3.2 on the individual companies, and on all the companies together to test across securities.

This preliminary analysis is done to test if it is possible to identify a reaction for the individual companies and across all the securities. In this analysis the method described in section 3.3.2 is used again to calculate the CAR, and the t-test results, to identify the significant results and periods.

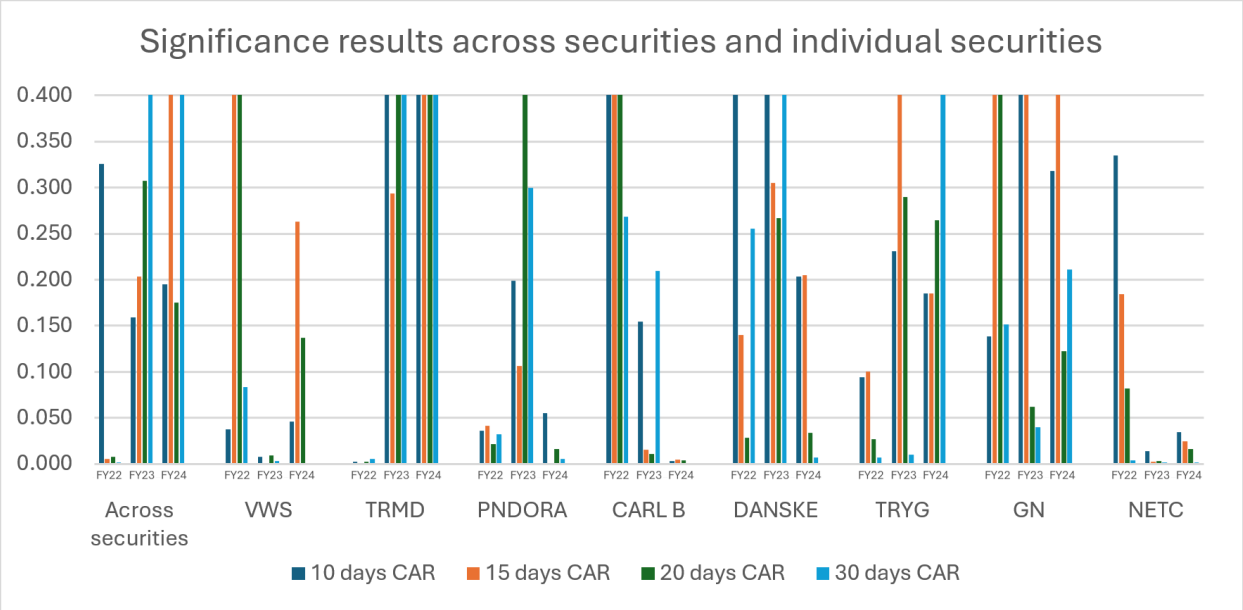

Figure 6.3: Presents the t-test results for all the calculated CARs, for the individual securities and across all the securities, to identify the significant results, whish must be below 0.05 (Author's own creation).

The figure 6.3 shows the significant results for the individual companies and the result across all the Danish securities. These results both identify significant and not significant results, indicating that the methodology works, as presented in section 3.3, with the use of the most common CARs in the academic literature, presented in chapter 2. To continue the testing, different CARs must be tested, to identify the best lengths to capture the reaction. As presented in the theory section 3.3 there are no specific length of the event window, leading to endless possibilities for the length of the CARs.

By examining several companies around the annual report publication have shown that there

in most cases are an anticipation leading up to the publication and a reaction afterwards, but in an attempt to identify the most representative CARs for this report, several CARs have been calculated, to identify significance and capture the entire reaction to the publication.

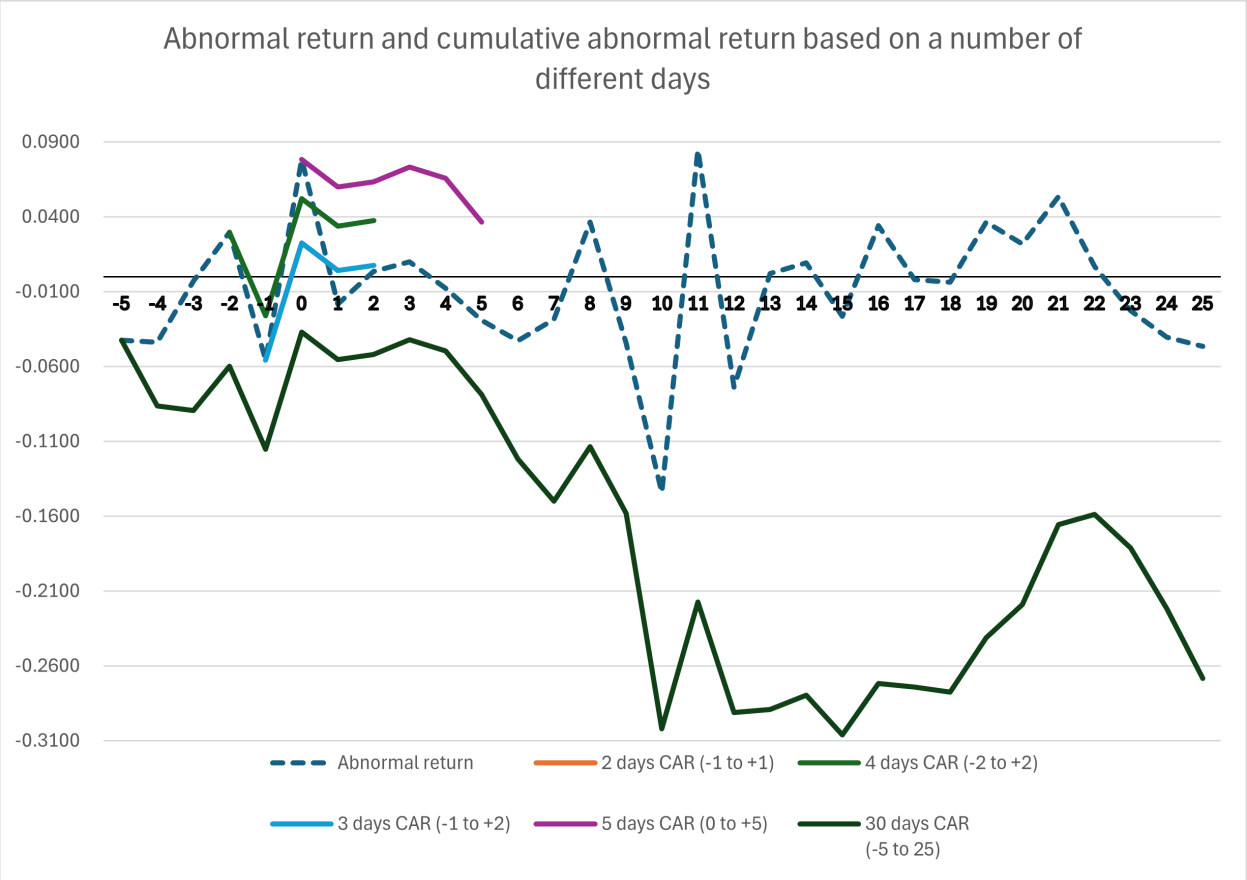

Figure 6.4: To identify the most optimal CARs for this report several CARs have been tested, to capture the possible reaction to the annual report publication, shown together with the abnormal return (Author's own creation).

Figure 6.4 presents the abnormal return of TORM plc for FY22, together with different possible CARs. The graph shows that there are a change in the abnormal return around the event day, but that something is also happening prior and after the event day. The different CARs used in this test are:

- 2 days CAR starting 1 day prior and ends 1 day after the event
- 4 days CAR starting 2 days prior and ends 2 days after the event
- 3 days CAR starting 1 day prior and ends 2 days after the event
- 5 days CAR starting at the event day and ends 5 days after the event
- 30 days CAR starting 5 days prior and ends 25 day after the event

The 30 days CAR can also be changed into shorter periods, that also start 5 days prior to the event, but would not show on the graph, because they follow the same line. The results based on

this test is that there is a significant result for the 30 days CAR, this indicate that the reaction is not instantly, but happens over time, in this case a negative reaction. The result of the 30 days CAR, can then be changed, to make the reaction period shorter, to test the significance at different times. The test of the shorter reaction period, revealed an additional significant reaction for the 10 days, 15 days and 20 days CARs, all starting 5 days prior to the event.

6.4.1 Conclusion of the preliminary analysis B

The conclusion of the tests performed are that the methodology works for identification of a reaction to an event both for individual companies and across several securities. The identification of CAR lengths for the test have shown that there are in this case an anticipation leading up to the event and a reaction after the event. This have resulted in a 10 days-, 15 days-, 20 days- and 30 days CARs for this report.

6.5 Analysis 1 - Danish companies

The first analysis tests the investors reaction to CSRD in Denmark, with 8 companies. The analysis is testing the hypothesis:

***H1**: CSRD reporting has a positive influence on the associated stock return.*

The hypothesis will here be tested based on the individual companies and across all 8 securities, to examine the individual reaction to make sure the result across all securities make an accurate depicting of the securities. The methodology used, presented in section 3.3, presents that the test can be performed on individual firms or across securities, however the results across several securities can get blurred because of different results for the individual securities, causing the possible reaction that might occur on the individual securities might not show.

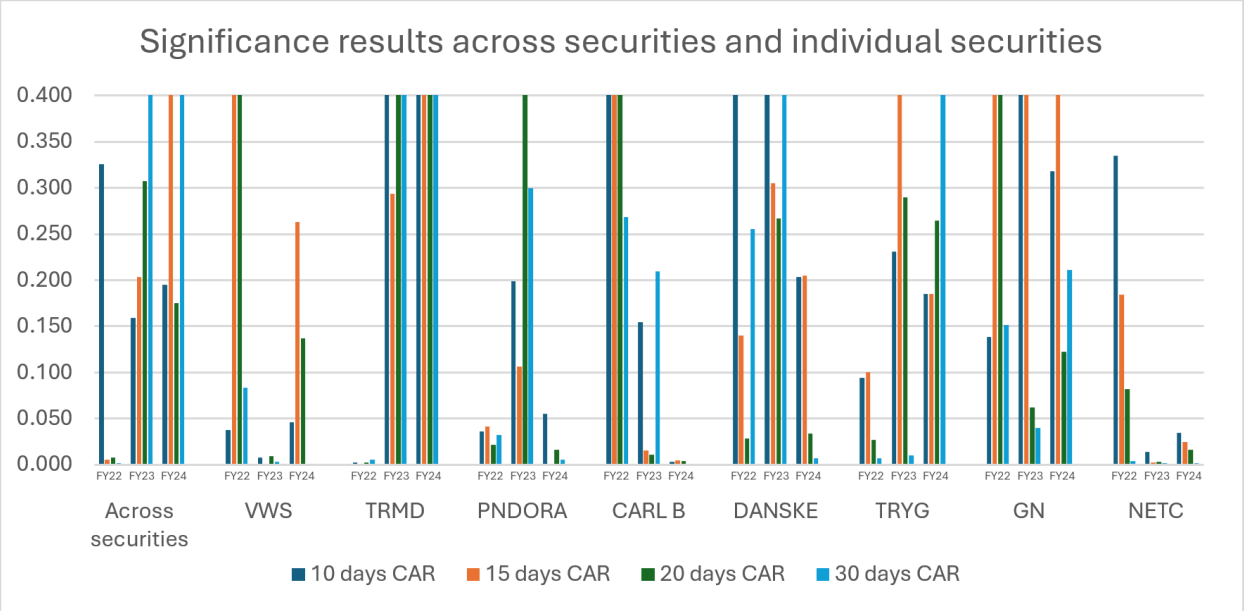

Figure 6.5: Presents the t-test results for all the calculated CARs, for the individual securities and across all the securities, to identify the significant results, whish must be below 0.05 (Author's own creation).

Figure 6.5 shows the significance results for the individual securities and across all 8 securities. Where the green squares in figure 6.2 represent the tests where the null hypothesis can be rejected with 95% confidence level. Proving that there is a reaction to the event and that the mean or variance is different from zero, in the event window.

The results for 2024 based on the test performed across all the Danish securities cannot reject the null hypothesis of no reaction with any significance, even though securities like Pandora, Carlsberg and Net Company can with significance reject, and prove that there is a reaction to the enlarged annual report.

		Across all securities	VWS	TRMD	PNDORA	CARL B	DANSKE	TRYG	GN	NETC
FY22	10 days CAR	0.325	0.038	0.003	0.036	0.704	0.833	0.094	0.139	0.335
	15 days CAR	0.005	0.417	0.000	0.042	0.454	0.140	0.100	0.734	0.184
	20 days CAR	0.008	0.487	0.003	0.022	0.570	0.028	0.027	0.595	0.082
	30 days CAR	0.002	0.083	0.005	0.033	0.269	0.255	0.007	0.152	0.004
FY23	10 days CAR	0.159	0.008	0.887	0.199	0.155	0.795	0.231	0.516	0.014
	15 days CAR	0.203	0.001	0.294	0.106	0.016	0.305	0.785	0.547	0.003
	20 days CAR	0.308	0.009	0.871	0.586	0.011	0.267	0.290	0.062	0.003
	30 days CAR	0.433	0.003	0.624	0.300	0.210	0.630	0.010	0.040	0.002
FY24	10 days CAR	0.206	0.046	0.743	0.187	0.003	0.203	0.185	0.318	0.034
	15 days CAR	0.905	0.263	0.530	0.017	0.004	0.205	0.185	0.813	0.024
	20 days CAR	0.169	0.137	0.920	0.017	0.004	0.034	0.264	0.122	0.015
	30 days CAR	0.625	0.000	0.876	0.005	0.001	0.007	0.963	0.211	0.001

Table 6.2: Presents the t-test results, where the ones marked green are significant results and the white are not significant (Author's own creation).

The results for 2022 and 2023 across all the Danish securities are different and varied, for the 15-, 20- and 30-days CAR, the results for 2022 can reject the null hypothesis and prove that there is a reaction, which is not the case for any of the calculated CARs in 2023. The results based on the individual companies, gives a mixed result where 5 companies only react on one of the publications and not the other and 3 companies reaction to both publications but not as strong for both publications. 4 companies have a significant reaction on all 4 CARs, where the other 4 companies only react with significance on a few of the CARs.

DK	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.027	- 0.183	0.093
FY23	0.000	0.018	- 0.050	0.086
FY24	0.000	0.027	- 0.165	0.124

Table 6.3: Statistics for the abnormal return across the Danish securities (Author's own creation).

By looking at the standard deviation in table 6.3 of the 3 reporting periods, the result is the same for FY22 and FY24, however the mean for FY is slightly negative where the mean for FY24 is very close to 0. The results for FY22 and FY24, also shows a slight positive shift in the minimum and maximum data points from FY22 to FY24. The results for FY23 have the lowest standard deviation, together with the lovest minimum and maximum, indicating very small differences between the

data points and the mean. The low standard deviations indicate that the returns does not fluctuate that much from the mean.

The different reaction across the individual companies and the calculated CARs across all the securities have quite different results, which may be caused by the difference on positive and negative reactions to the publication. Some of the securities have a negative reaction to the annual report publication, which will outweigh the positive reaction others have. The reasoning for the difference in positive and negative can be caused by the published information, if the company downsize the expectations for the coming year or have outperformed the expectations for the reported year.

To better understand the different reaction there are after the annual report publication, two examples of different reactions and the possible reasoning behind them are presented for Pandora and Carlsberg. Pandora had a negative reaction to the publication of the financial report for 2024, caused by many different factors:

- Weakened expectations for the financial performance and downgraded outlook for 2025 (Crux, 2025).
- A lot of global events, affecting different countries, and the overall fear of a recession (Crux, 2025).
- Organic growth slowdown from 13% to 7 or 8% (Crux, 2025) and
- The lack of a Governance section in the annual report in the sustainability statement (CSRD software, 2025).

These factors are related both to the general financial position and the new CSRD reporting, which the individual companies must perfect, as they have their current financial reporting. Carlsberg on the other hand had a positive reaction to the publication of the financial report for 2024, caused by many factors:

- Acquisition of Britvic plc and partner buyout in India and Nepal (Carlsberg Group, 2025b),
- Revenue and profit growth (Carlsberg Group, 2025b),
- High proposed dividend payout (Carlsberg Group, 2025b),
- The exit from Russia (Carlsberg Group, 2025b) and
- A strong performance in the sustainability statement (Carlsberg Group, 2025a).

All these factors had a positive influence on the share price reaction, where good news from both the financial position and the CSRD reporting, creates positive expectations for 2025.

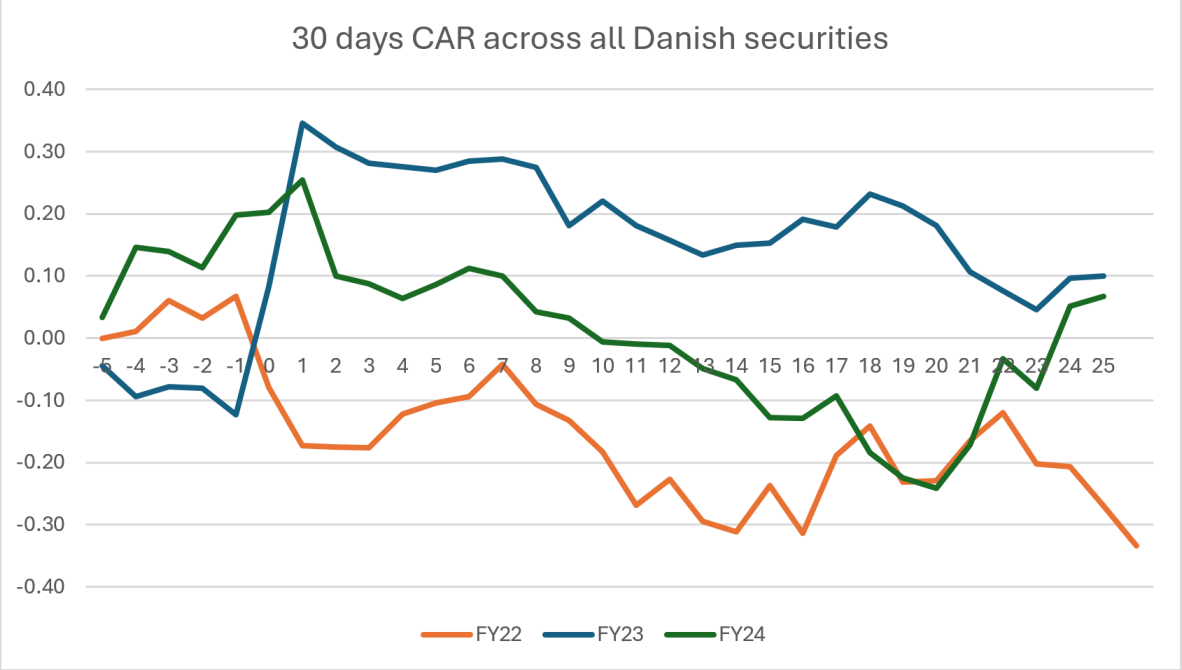

Figure 6.6: The 30-days CAR presents the flow of the over the event window for the 3 reporting periods (Author's own creation).

The figure 6.6 above, presents the 30-days CAR across all the Danish securities, for the 3 reporting periods. Even though on the graph it looks like there is a significant reaction especially on the financial report for 2023, this cannot be proven by testing the CAR, where the only significant reaction which can be proved is for the annual report for 2022.

6.5.1 Conclusion of test on Danish companies

The conclusion of the danish companies is that it is possible to identify significant reaction on the individual securities, but when testing across all the securities, the result becomes not significant, and the hypothesis cannot be rejected, meaning that it is not possible to prove a significant reaction to the CSRD publication in the annual report.

6.6 Analysis 2 - Danish and United Kingdom companies

This analysis investigates the investors' reaction to CSRD in Denmark, compared with 8 companies from the United Kingdom, used as a control group, as presented in section 4.2.1. The results of analysis 1, section 6.5, might be put down to reactions to world events taking place during the period of annual report publishing, e.g. in 2023 the Covid-19 pandemic was declared over by WHO, in 2024 US primaries and in 2025 the beginning of President Trumps 2nd term in office. In order to explore the effects of CSRD without these disturbing elements, this analysis compares the results from the Danish companies with results from UK companies, to eliminate other events, that might affect the share prices. This analysis is continuously testing the hypothesis:

***H1**: CSRD reporting has a positive influence on the associated stock return.*

The hypothesis will here be tested by comparison of the Danish and UK companies, to test if the same non-significant reaction happened in UK for the 2024 publication, or if that was just the case in Denmark. The methodology used, as presented in section 3.3, presents that the test can be performed on individual firms or across securities, aggregated to investigate the possible event reaction depending on different factors, such as location. The figure 6.4 below, represents the sample abnormal return and 30 days CAR across the securities aggregated by country and financial reporting period.

	DK						UK					
	DK FY22		DK FY23		DK FY24		UK FY22		UK FY23		UK FY24	
Event day	ε	CAR 30 days	ε	CAR 30 days	ε	CAR 30 days	ε	CAR 30 days	ε	CAR 30 days	ε	CAR 30 days
-5	0,011	0,011	-0,044	-0,044	0,033	0,033	-0,071	-0,071	0,050	0,050	0,077	0,077
-4	0,049	0,061	-0,049	-0,093	0,113	0,146	0,047	-0,024	0,032	0,082	0,005	0,082
-3	-0,028	0,033	0,016	-0,078	-0,007	0,139	0,021	-0,002	-0,023	0,058	-0,070	0,012
-2	0,034	0,067	-0,002	-0,080	-0,025	0,114	0,013	0,010	0,066	0,125	-0,056	-0,044
-1	-0,147	-0,080	-0,043	-0,123	0,085	0,198	0,026	0,036	-0,077	0,048	-0,038	-0,082
0	-0,093	-0,173	0,206	0,083	0,005	0,203	-0,001	0,035	0,008	0,055	0,095	0,013
1	-0,003	-0,175	0,263	0,345	0,051	0,254	-0,011	0,024	0,066	0,121	0,038	0,051
2	-0,001	-0,177	-0,039	0,307	-0,155	0,100	-0,016	0,008	0,017	0,138	-0,014	0,036
3	0,054	-0,122	-0,026	0,281	-0,013	0,087	-0,058	-0,050	0,022	0,160	-0,008	0,029
4	0,018	-0,105	-0,006	0,275	-0,024	0,064	0,035	-0,015	0,029	0,189	-0,038	-0,009
5	0,011	-0,094	-0,005	0,270	0,023	0,087	-0,039	-0,054	0,006	0,195	0,017	0,007
6	0,051	-0,043	0,014	0,284	0,026	0,112	0,063	0,009	0,009	0,204	-0,040	-0,033
7	-0,063	-0,106	0,003	0,288	-0,012	0,100	-0,020	-0,012	0,005	0,209	-0,022	-0,054
8	-0,026	-0,132	-0,013	0,274	-0,058	0,042	-0,071	-0,083	-0,021	0,188	0,062	0,008
9	-0,052	-0,183	-0,093	0,181	-0,010	0,032	0,035	-0,048	-0,037	0,151	-0,037	-0,029
10	-0,085	-0,269	0,039	0,220	-0,038	-0,006	-0,028	-0,076	-0,011	0,139	-0,070	-0,099
11	0,042	-0,227	-0,040	0,180	-0,003	-0,009	-0,052	-0,128	-0,009	0,130	-0,033	-0,131
12	-0,068	-0,295	-0,023	0,157	-0,003	-0,012	0,001	-0,126	-0,070	0,061	-0,094	-0,226
13	-0,016	-0,312	-0,023	0,134	-0,037	-0,049	0,019	-0,107	-0,014	0,046	0,028	-0,198
14	0,074	-0,237	0,015	0,149	-0,018	-0,067	-0,001	-0,108	-0,012	0,034	-0,017	-0,214
15	-0,076	-0,314	0,004	0,153	-0,061	-0,128	-0,074	-0,182	0,036	0,070	-0,023	-0,237
16	0,126	-0,188	0,039	0,192	-0,001	-0,129	0,041	-0,142	0,020	0,091	-0,042	-0,280
17	0,047	-0,141	-0,013	0,178	0,037	-0,092	-0,042	-0,184	-0,028	0,063	0,032	-0,248
18	-0,091	-0,232	0,054	0,232	-0,091	-0,184	-0,008	-0,192	-0,014	0,049	0,033	-0,215
19	0,003	-0,229	-0,019	0,213	-0,041	-0,225	-0,091	-0,283	0,035	0,084	-0,015	-0,230
20	0,063	-0,166	-0,031	0,182	-0,017	-0,241	-0,031	-0,314	0,064	0,148	-0,037	-0,267
21	0,046	-0,120	-0,074	0,107	0,070	-0,171	-0,013	-0,327	-0,076	0,071	-0,022	-0,289
22	-0,082	-0,202	-0,031	0,076	0,139	-0,033	0,037	-0,290	0,036	0,107	0,007	-0,282
23	-0,005	-0,206	-0,031	0,045	-0,047	-0,080	-0,043	-0,333	0,011	0,119	-0,012	-0,294
24	-0,063	-0,269	0,051	0,097	0,132	0,052	-0,059	-0,392	-0,051	0,067	-0,039	-0,332
25	-0,065	-0,334	0,003	0,100	0,015	0,067	0,040	-0,352	-0,047	0,020	-0,019	-0,352

Table 6.4: Shows the abnormal return for the Danish and United Kingdom companies for the 3 reporting periods and the 30-days CAR (Author's own creation).

The graph in figure 6.7 shows the cumulative abnormal return for the 30 days CARs for the different reporting periods and countries.

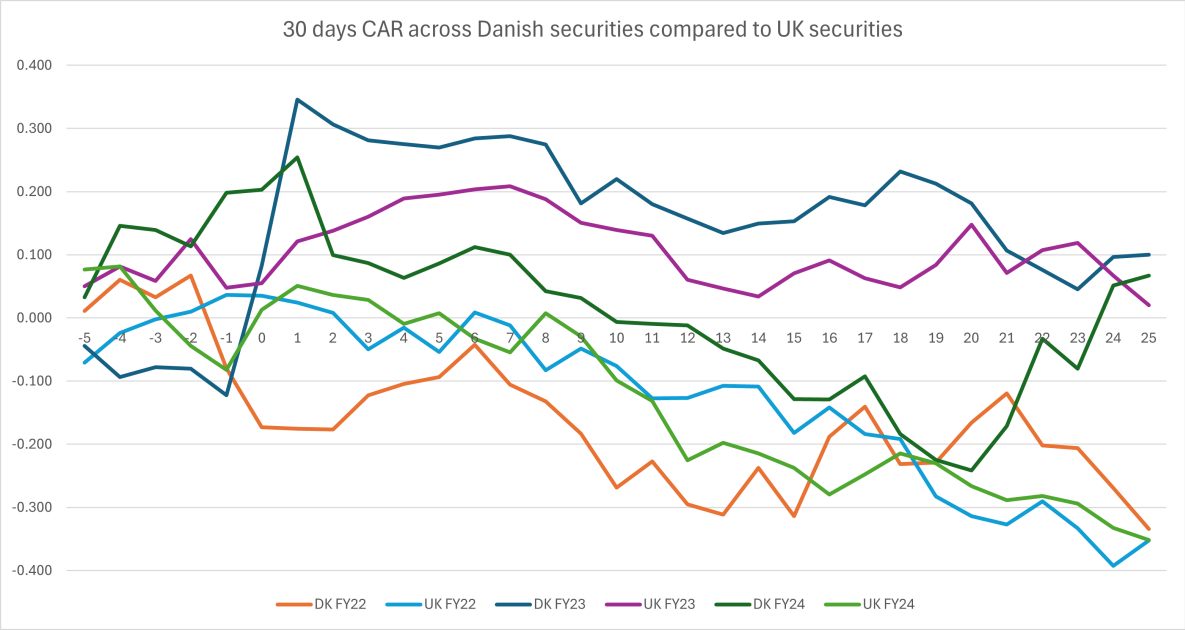

Figure 6.7: Presents the 30-days CAR for the Danish and United Kingdom companies for the 3 reporting periods to visualize the flow (Author's own creation).

As figure 6.7 above, presents that the CARs wary in direction for both countries depending on the financial publication year. The results show mostly positive results for DK FY23 and UK FY23, and the other publications mostly start with a positive cumulative abnormal return, and then after some time becomes negative, which might indicate a negative reaction to the information in the annual report.

When analyzing the different CARs, the results wary, depending on the length of the reaction period, presented through the different CARs. The t-test results in table 6.5 below, show that for some reporting periods, the is significant reactions to the publication, and in other periods no reaction, depending on the CAR.

	Danish t-test results			UK t-test results		
	FY22	FY23	FY24	FY22	FY23	FY24
10 days CAR	0.325	0.159	0.195	0.143	0.000	0.858
15 days CAR	0.005	0.203	0.930	0.055	0.016	0.005
20 days CAR	0.008	0.308	0.175	0.003	0.239	0.021
30 days CAR	0.002	0.433	0.598	0.007	0.714	0.014

Table 6.5: Shows the t-test results for Denmark and UK, where the green squares represent significant results, below 0.05 (Author's own creation).

There is no reaction in the Denmark test for the financial report 2024, which indicate that the investors are not interested or the result in the annual report is exactly as expected and not worth reacting to.

However, there is a reaction in the United Kingdom test for the financial report 2024, which indicate that there might be other events occurring than CSRD. The results for UK also show significant reaction to the 2 previous reporting periods, indicating that the reaction might be normal for the annual report publication.

DK	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.027	- 0.183	0.093
FY23	0.000	0.018	- 0.050	0.086
FY24	0.000	0.027	- 0.165	0.124

UK	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.015	- 0.087	0.052
FY23	0.000	0.016	- 0.077	0.088
FY24	- 0.002	0.017	- 0.077	0.061

Table 6.6: Statistics for Denmark and the UK (Author's own creation).

By looking at the standard deviation in table 6.6 of the 3 reporting periods for Danish and UK securities, the first difference is the level of the standard deviation, which is almost half the size for UK as for FY22 and FY24 for Denmark, indicating a general lower volatility of the securities in UK. The statistics for all 3 reporting periods for UK are similar to those for danish securities for FY23, indicating that the results for FY22 and FY24 for Danish securities might be abnormal years for the annual report publication, even though there are no significant reaction.

6.6.1 Conclusion of Analysis 2

The tests results show that CSRD reporting have no positive influence on the stock return for Danish companies, when isolating other possible events through UK as a control group, meaning that the hypothesis cannot be rejected.

The lack of reaction for Danish companies, might be related to the Danish economy size, or that some Danish companies already published sustainability report, which contains some of the required CSRD information, which then would not provide the investors with new information. To test the economy size theory, the following analysis will test the reaction with the 3 biggest economies in the EU, who is required to report on CSRD.

6.7 Analysis 3 - Difference between 4 different European countries

This analysis investigates the investors' reaction to CSRD in Denmark and 3 additional European countries, compared with the United Kingdom, as presented in section 4.2.1. The results of analysis 2, section 6.6, might be because of the size of the Danish economy, which here will be tested together with France, Germany and Italy. This analysis is testing the hypothesis:

***H2**: CSRD reporting has a positive influence on the associated stock return when investigating different European countries.*

To test this hypothesis, the analysis investigates the investors reaction to 8 companies in Denmark, France, Germany and Italy with the results from the control group of United Kingdom, for the past 3 reporting periods.

The analysis focuses on the European G7 countries, as presented in section 4.2.1, to analyze the reaction across the strongest economies in the EU, which is also contains the biggest industries in the EU. The 3 reporting periods have been made into two categories, prior to CSRD, which contains the results for the publication of the annual report from 2022 and 2023, and with CSRD, which contains the publication of the 2024 annual report.

To test the hypothesis a cumulative abnormal return has been calculated across all the securities aggregated by country, as shown in table 6.7 below.

	DK				France				Germany				Italy				UK			
	Prior to CSRD		With CSRD		Prior to CSRD		With CSRD		Prior to CSRD		With CSRD		Prior to CSRD		With CSRD		Prior to CSRD		With CSRD	
		CAR 30		CAR 30		CAR 30		CAR 30		CAR 30		CAR 30		CAR 30		CAR 30		CAR 30		CAR 30
Event day	Ɛ	days	Ɛ	days	Ɛ	days	Ɛ	days	Ɛ	days	Ɛ	days	Ɛ	days	Ɛ	days	Ɛ	days	Ɛ	days
-5	-0.033	-0.033	0.033	0.033	-0.002	-0.002	0.011	0.011	-0.028	-0.028	0.001	0.001	-0.006	-0.006	0.015	0.015	-0.021	-0.021	0.077	0.077
-4	0.000	-0.033	0.113	0.146	0.080	0.078	0.060	0.071	-0.012	-0.039	0.070	0.071	0.038	0.031	0.022	0.037	0.079	0.058	0.005	0.082
-3	-0.012	-0.045	-0.007	0.139	0.003	0.080	0.015	0.086	-0.056	-0.095	0.022	0.093	0.010	0.041	-0.038	-0.001	-0.002	0.056	-0.070	0.012
-2	0.032	-0.013	-0.025	0.114	0.034	0.114	0.027	0.113	-0.030	-0.125	-0.053	0.040	0.026	0.067	-0.062	-0.062	0.079	0.135	-0.056	-0.044
-1	-0.190	-0.202	0.085	0.198	0.001	0.115	-0.057	0.056	-0.034	-0.159	0.113	0.153	0.058	0.125	-0.086	-0.148	-0.051	0.084	-0.038	-0.082
0	0.113	-0.090	0.005	0.203	0.019	0.133	0.039	0.094	-0.127	-0.286	-0.007	0.146	0.031	0.156	-0.069	-0.217	0.006	0.090	0.095	0.013
1	0.260	0.170	0.051	0.254	-0.010	0.124	-0.027	0.067	0.056	-0.230	0.014	0.160	-0.009	0.147	-0.021	-0.238	0.055	0.145	0.035	0.048
2	-0.040	0.130	-0.155	0.100	0.063	0.187	0.020	0.088	-0.063	-0.293	0.020	0.180	-0.307	-0.160	-0.093	-0.331	0.001	0.146	0.016	0.064
3	0.028	0.159	-0.013	0.087	0.003	0.190	-0.013	0.074	0.032	-0.260	-0.021	0.159	0.088	-0.072	-0.105	-0.436	-0.036	0.110	-0.003	0.061
4	0.012	0.171	-0.024	0.064	0.061	0.251	-0.062	0.012	-0.016	-0.276	-0.010	0.148	-0.003	-0.075	-0.083	-0.519	0.064	0.174	-0.028	0.034
5	0.006	0.176	0.023	0.087	0.079	0.330	0.014	0.025	0.076	-0.200	0.012	0.161	0.066	-0.009	0.035	-0.485	-0.033	0.141	-0.043	-0.009
6	0.065	0.242	0.026	0.112	0.027	0.357	-0.040	-0.015	-0.055	-0.255	-0.073	0.088	-0.005	-0.014	0.023	-0.462	0.071	0.213	-0.068	-0.077
7	-0.060	0.182	-0.012	0.100	-0.021	0.336	0.018	0.003	-0.078	-0.333	-0.032	0.056	-0.015	-0.029	0.057	-0.405	-0.015	0.197	0.039	-0.038
8	-0.039	0.143	-0.058	0.042	-0.003	0.333	0.090	0.093	0.007	-0.326	0.020	0.076	-0.036	-0.065	-0.054	-0.459	-0.092	0.105	0.011	-0.028
9	-0.145	-0.002	-0.010	0.032	0.097	0.431	-0.033	0.060	-0.062	-0.387	0.043	0.119	-0.098	-0.163	-0.042	-0.501	-0.003	0.103	-0.056	-0.083
10	-0.047	-0.049	-0.038	-0.006	-0.082	0.348	0.079	0.139	0.071	-0.316	-0.018	0.101	-0.028	-0.191	-0.011	-0.511	-0.039	0.063	-0.146	-0.230
11	0.002	-0.047	-0.003	-0.009	-0.006	0.343	-0.048	0.091	-0.121	-0.437	-0.037	0.064	0.034	-0.157	0.040	-0.471	-0.061	0.003	-0.055	-0.284
12	-0.091	-0.138	-0.003	-0.012	0.010	0.352	0.073	0.165	0.003	-0.434	-0.022	0.042	-0.096	-0.253	0.019	-0.452	-0.069	-0.066	-0.112	-0.396
13	-0.039	-0.177	-0.037	-0.049	0.044	0.396	-0.073	0.092	-0.048	-0.482	0.015	0.057	0.028	-0.225	0.017	-0.434	0.005	-0.061	0.023	-0.373
14	0.089	-0.088	-0.018	-0.067	0.023	0.419	-0.096	-0.005	-0.011	-0.493	-0.018	0.040	0.020	-0.204	-0.041	-0.476	-0.013	-0.074	-0.013	-0.386
15	-0.073	-0.161	-0.061	-0.128	-0.012	0.407	-0.011	-0.015	-0.001	-0.494	-0.013	0.026	0.015	-0.189	-0.001	-0.477	-0.038	-0.112	-0.010	-0.396
16	0.164	0.004	-0.001	-0.129	0.005	0.412	-0.003	-0.018	-0.066	-0.561	-0.014	0.012	0.020	-0.169	0.043	-0.434	0.061	-0.051	-0.035	-0.431
17	0.034	0.038	0.037	-0.092	-0.116	0.296	0.060	0.042	-0.094	-0.655	0.039	0.051	-0.088	-0.257	-0.004	-0.438	-0.070	-0.121	-0.007	-0.437
18	-0.037	0.000	-0.091	-0.184	-0.003	0.293	-0.009	0.033	0.013	-0.641	0.024	0.076	0.044	-0.212	0.019	-0.420	-0.022	-0.143	0.028	-0.409
19	-0.016	-0.016	-0.041	-0.225	0.093	0.386	-0.105	-0.072	0.027	-0.615	0.072	0.148	0.023	-0.189	0.031	-0.389	-0.056	-0.199	0.001	-0.409
20	0.032	0.016	-0.017	-0.241	-0.069	0.317	0.014	-0.058	-0.089	-0.704	-0.054	0.093	-0.034	-0.223	-0.064	-0.452	0.032	-0.166	-0.045	-0.454
21	-0.029	-0.013	0.070	-0.171	-0.017	0.300	0.004	-0.054	0.031	-0.673	0.011	0.105	0.052	-0.171	0.012	-0.440	-0.090	-0.256	-0.043	-0.496
22	-0.113	-0.126	0.139	-0.033	-0.027	0.273	0.068	0.014	-0.052	-0.725	-0.041	0.064	-0.037	-0.208	-0.027	-0.467	0.073	-0.183	-0.007	-0.504
23	-0.035	-0.161	-0.047	-0.080	-0.018	0.255	-0.056	-0.042	-0.005	-0.730	0.064	0.128	-0.124	-0.332	-0.058	-0.526	-0.032	-0.214	-0.010	-0.514
24	-0.012	-0.172	0.132	0.052	0.006	0.261	0.001	-0.041	0.087	-0.643	-0.020	0.108	-0.036	-0.367	0.006	-0.520	-0.111	-0.325	-0.003	-0.517
25	-0.062	-0.234	0.015	0.067	0.021	0.282	0.028	-0.012	-0.055	-0.698	0.015	0.123	-0.035	-0.403	0.017	-0.503	-0.007	-0.332	-0.042	-0.559

Table 6.7: Shows the abnormal return for the Denmark, France, Germany, Italy and the United Kingdom for the 3 reporting periods and the 30-days CAR (Author's own creation).

The 30 days CARs are also illustrated in figure 6.8, to give a more visual understanding of the cumulative abnormal return.

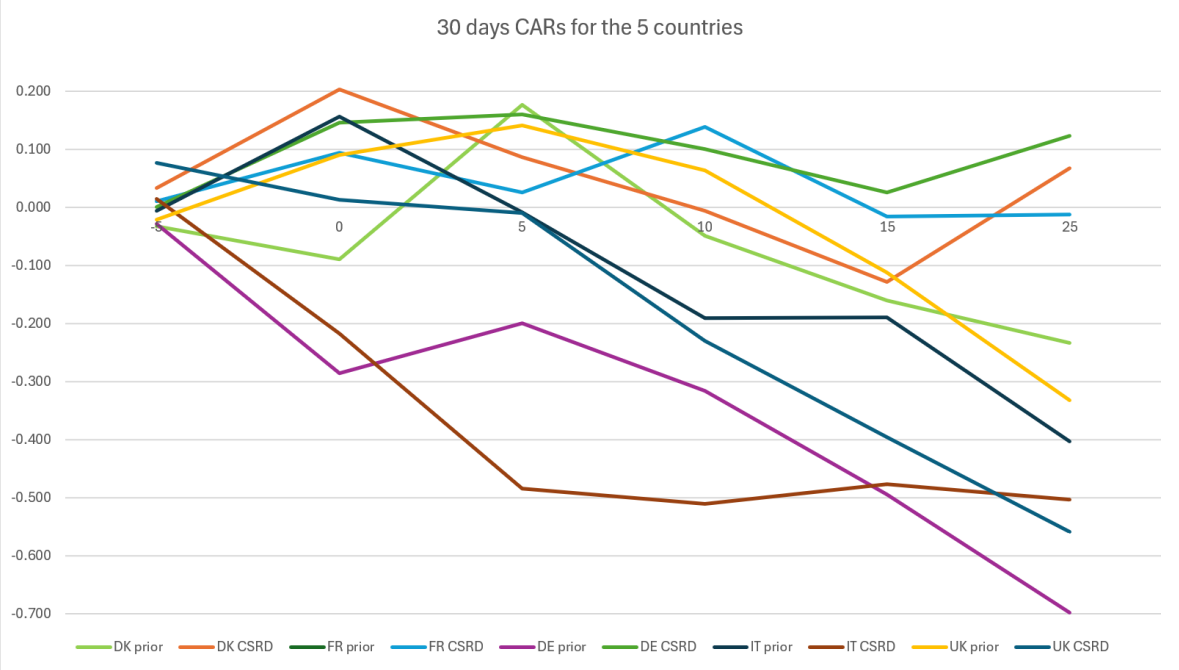

Figure 6.8: Presents the 30-days CAR for the Denmark, France, Germany, Italy and the United Kingdom for the 3 reporting periods to visualize the flow (Author's own creation).

The results again wary in both positive and negative direction for the annual report publications, where some countries have a mixed direction with both positive and negative.

The table 6.8 below shows the t-test results for the different countries, compared with the results from UK, with no CSRD. The results from Denmark and UK have been presented earlier, and will not be presented in details here, only in terms of comparison with the other EU countries.

	DK		France		Germany		Italy		UK	
	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	FY24
10 days CAR	0.177	0.195	0.000	0.457	0.041	0.001	0.930	0.018	0.012	0.858
15 days CAR	0.704	0.930	0.007	0.001	0.003	0.030	0.074	0.015	0.283	0.005
20 days CAR	0.244	0.175	0.003	0.760	0.000	0.973	0.133	0.020	0.232	0.021
30 days CAR	0.073	0.598	0.016	0.738	0.001	0.358	0.006	0.002	0.034	0.014

Table 6.8: Presents the t-test results for all the countries (Author's own creation).

In France there are normally a significant reaction to the annual report publication prior to CSRD, evident from the rejection of the H0 for all the calculated CARs, which was not the case for the publication in 2024 with CSRD, where there is only one significant reaction on the 15 days CAR.

In Germany the results are similar to those of France, where there normally, prior to CSRD, are a significant reaction for the publication but again in the publication with CSRD, there can only be proven a significant reaction on the 10 and 15 days CAR.

In Italy the results are almost opposite of France and Germany, with normally only a significant reaction on the 30 days CAR prior to CSRD and a reaction on almost all the calculated CARs for the publication with CSRD.

The results from Italy look similar to those of UK, meaning that there might also be other events affecting the results for the publication with CSRD. Unlike Denmark, all the European G7 countries show a significant reaction to the general annual report publication, both prior to and with CSRD.

DK	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.000	0.023	- 0.183	0.093
With CSRD	0.000	0.027	- 0.165	0.124

UK	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.001	0.015	- 0.087	0.088
FY24	- 0.002	0.017	- 0.077	0.061

FR	Mean	Std. Dev.	Min	Max
Prior to CSRD	0.001	0.013	- 0.061	0.056
With CSRD	- 0.000	0.016	- 0.095	0.047

DE	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.001	0.013	- 0.058	0.056
With CSRD	- 0.000	0.016	- 0.064	0.049

IT	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.001	0.017	- 0.239	0.049
With CSRD	- 0.002	0.022	- 0.140	0.176

Table 6.9: Presents the statistics for all the countries (Author's own creation).

When analyzing the standard deviation, table 6.9, of the different companies for the 2 periods, is shows that Denmark have the absolute highest standard deviation, followed by Italy where UK, France and Germany have a more stable standard deviation for the 2 periods between 1.3% and 1.7%. This indicate a difference in the volatility of the companies in the different countries indicating that Denmark and Italy have more volatile companies, and France, Germany and UK have a more stable volatility with less extreme outliers.

When looking at the standard deviation for the individual countries there is a small change from prior to CSRD to with CSRD, resulting in more volatility in the abnormal return for the newest publication.

6.7.1 Conclusion of analysis 3

The test results of this analysis show that CSRD have a small positive influence on the stock return for French, German and Italian companies, but not for Danish, meaning that the hypothesis of no reaction is rejected and the alternative hypothesis H2 is correct. The significant reactions from France, Germany and Italy, and the missing significant reaction from Denmark, can be explained by many different factors, like country and economy size, sector, industrial production and the scope of the implementation of the CSRD legislation into the individual national laws. The next analysis will test the reaction based on sectors, to try to identify a possible pattern for the significant reaction to CSRD.

6.8 Analysis 4 - Difference between 4 different sectors

This analysis investigates the investors' reaction to CSRD in the included European countries aggregated by 4 different sectors, compared with the United Kingdom, as presented in section 3.3. The results of analysis 3, section 6.7, might be explained by different reactions depending on the sector the securities operate in. This analysis is testing the hypothesis:

***H3**: CSRD reporting has a positive influence on the associated stock return when investigating different sectors.*

To test this hypothesis, the analysis investigates the investors reaction to CSRD based on 4 sectors: Energy, Consumer cyclicals, Financial and Technology for the 4 countries: DK, France, Germany and Italy, for the before used prior to CSRD and with CSRD reporting periods. The results from the securities reporting on CSRD, will then be compared to the same sector companies from the UK, to compare the possible reaction and to try to eliminate other events. The sector specific tests is performed based on the same methodology as the previous analysis, but aggregated based on different sectors, presented in section 3.3.

6.8.1 Energy sector

The first sector analyzed is the Energy sector, which contains companies operating with non-renewable and renewable energy sources, like fuel and electricity (Chen, 2022).

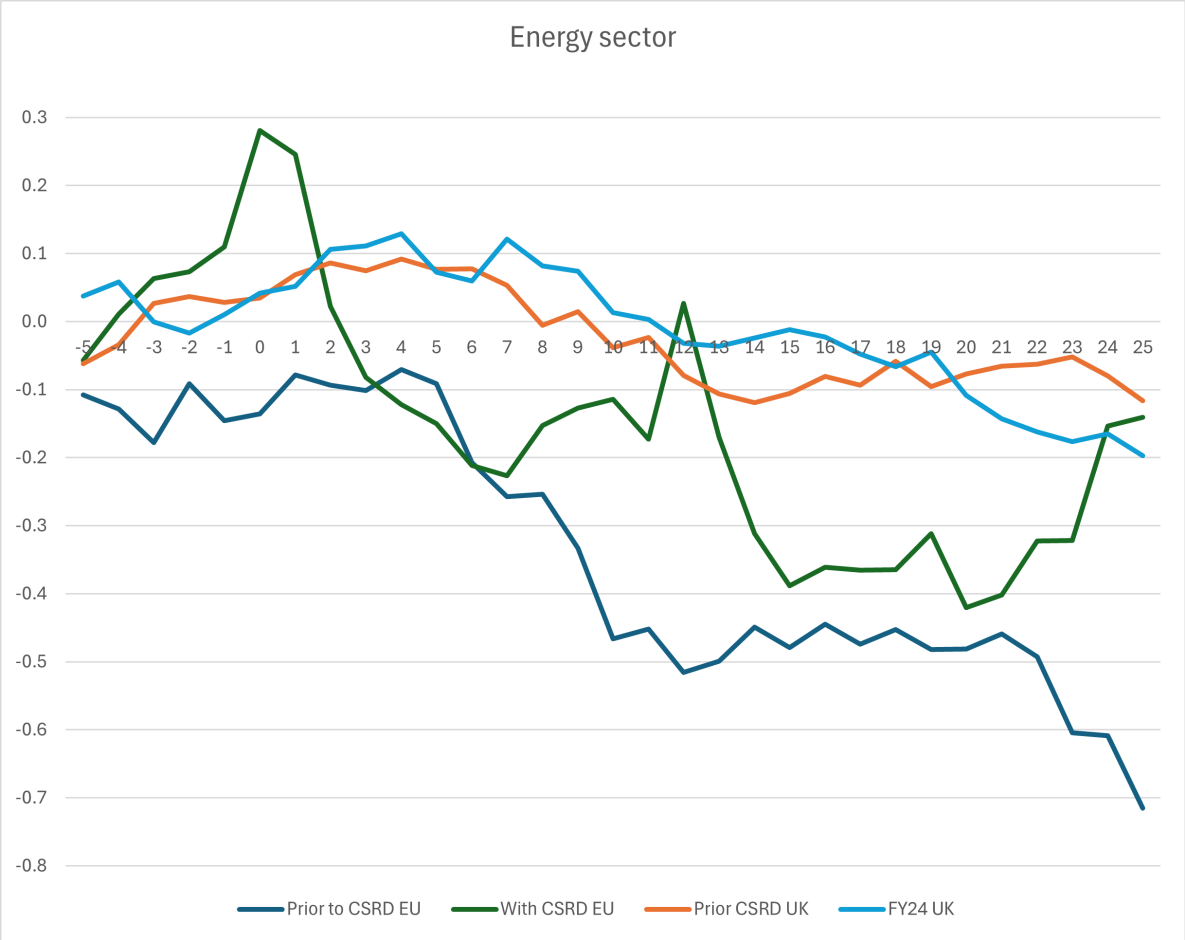

Figure 6.9: Presents the 30-days CAR for the to reporting periods for the EU countries and the UK, for the Energy sector (Author's own creation).

The figure 6.9 above presents the 30 days cumulative abnormal return across the Energy securities prior to CSRD and with CSRD, both for the EU countries required to report on CSRD (EU) and the UK. The graph shows that the EU countries in general have more fluctuations in the cumulative abnormal return, that the UK companies, both prior to CSRD and with CSRD. All the CARs fluctuate between positive and negative cumulative abnormal return, except for prior ti CSRD for EU, which is only negative.

Energy				
	EU		UK	
	Prior to	With	Prior to	FY24
10 days CAR	0.005	0.282	0.120	0.125
15 days CAR	0.000	0.452	0.426	0.764
20 days CAR	0.004	0.021	0.124	0.819
30 days CAR	0.000	0.454	0.094	0.031

Table 6.10: Presents the t-test results for the energy sector (Author's own creation).

The results as shown above in table 6.10, shows a significant reaction prior to CSRD for the EU countries, where there is only one significant result, the 20 days CAR, for the publication with CSRD, indicating less reaction to CSRD than in previous reporting. The results for the UK companies in the same sector however does not show any significant reaction to the report publications prior to CSRD, and only one significant reaction on the 30-day CAR for the publication FY24.

EU	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.003	0.023	- 0.125	0.060
With CSRD	- 0.001	0.028	- 0.140	0.176

UK	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.002	0.023	- 0.066	0.060
FY24	- 0.003	0.024	- 0.077	0.061

Table 6.11: Presents the statistics for the energy sector for the EU countries and the UK (Author's own creation).

When looking at the standard deviation in table 6.11, there is a small increase from prior to CSRD to with CSRD, for both the EU and UK, indicating that the abnormal returns are more spread than for previous publications, however the increase is biggest for the EU companies.

The conclusion of the energy sector in relation to the hypothesis is that there is no significant proof that CSRD has a positive impact on the stock return, resulting in no rejection of the hypothesis.

6.8.2 Consumer cyclicals sector

The next sector to test is the Consumer cyclicals sector, which contains companies operating with retail stores, restaurants and the entertainment industry, just to name a few (Yahoo!Finance, 2025).

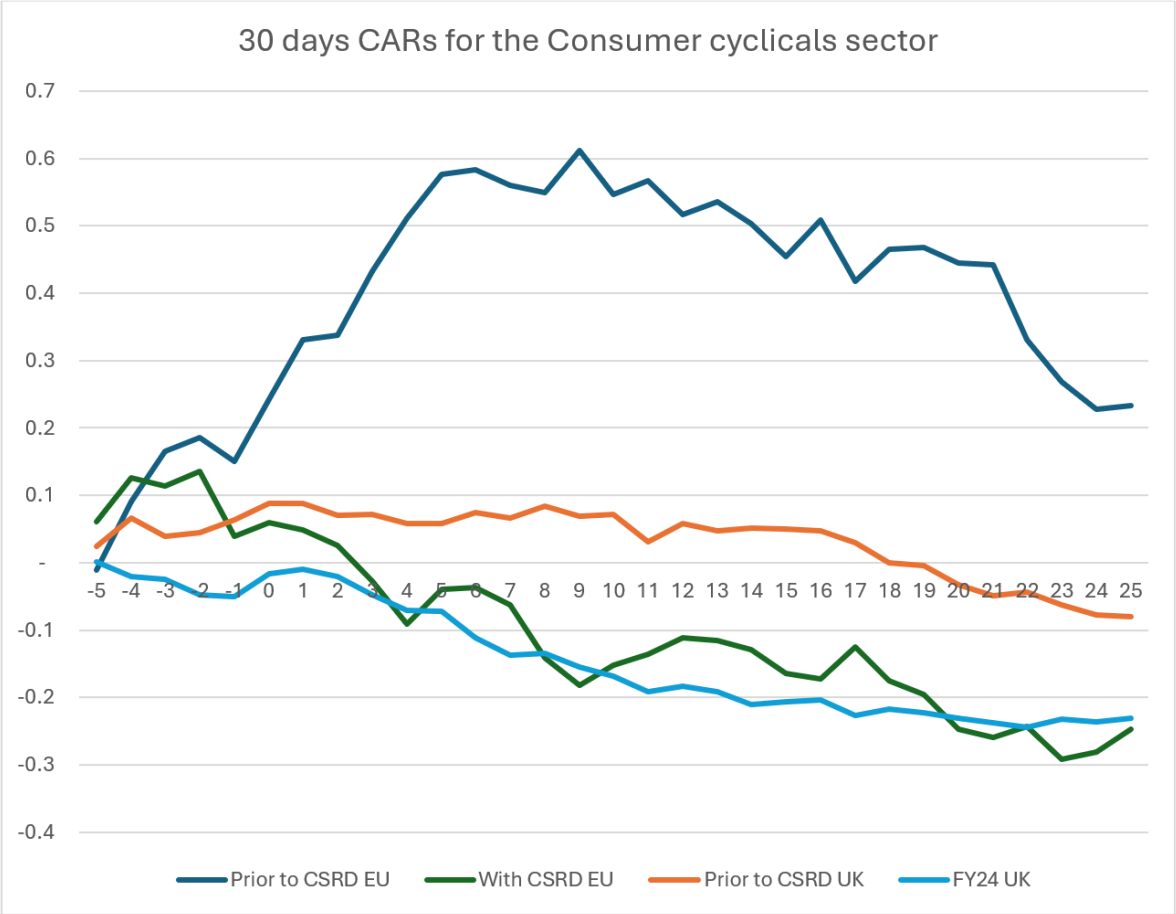

Figure 6.10: Presents the 30-days CAR for the to reporting periods for the EU countries and the UK, for the Consumer cyclicals sector (Author's own creation).

The figure 6.10 above presents the cumulative abnormal return across the Consumer cyclicals securities prior to CSRD and with CSRD, both for the EU countries required to report on CSRD (EU) and the UK. The graph shows similar patterns for the EU reporting with CSRD, UK prior to CSRD and UK FY24, but the reporting prior to CSRD for EU shows a positive flow.

Consumer cyclicals				
	EU		UK	
	Prior to	With	Prior to	FY24
10 days CAR	0.002	0.586	0.003	0.003
15 days CAR	0.008	0.130	0.000	0.003
20 days CAR	0.017	0.108	0.004	0.006
30 days CAR	0.161	0.049	0.113	0.008

Table 6.12: Presents the t-test results for the consumer cyclicals sector (Author's own creation).

The results as shown above in table 6.12, shows a significant reaction prior to CSRD for the

EU countries, where there is only one significant result, the 30 days CAR, for the publication with CSRD, indicating less reaction to CSRD than in previous reporting. The results for the UK companies in the same sector shows the same significance for the publication prior to CSRD, but shows significant results for all the calculated CARs for the publication for FY24.

EU	Mean	Std. Dev.	Min	Max
Prior to CSRD	0.001	0.018	- 0.058	0.079
With CSRD	- 0.001	0.017	- 0.067	0.072

UK	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.001	0.014	- 0.030	0.041
FY24	- 0.004	0.011	- 0.032	0.019

Table 6.13: Presents the statistics for the consumer cyclicals sector for the EU countries and the UK (Author's own creation).

When looking at the standard deviation in table 6.13, there is a small decrease from prior to CSRD to with CSRD, for both the EU and UK, indicating that the abnormal returns are less spread than for previous publications, however the decrease is biggest for the UK companies. The standard deviation is quite small for both the EU and UK companies prior to CSRD and with CSRD/ FY24.

The conclusion of the Consumer cyclicals sector in relation to the hypothesis is that there is no significant proof that CSRD has a positive impact on the stock return, resulting in no rejection of the hypothesis.

6.8.3 Financial sector

The next sector to test is the Financial sector, which contains companies operating with financial services, like banks, insurance companies and real estate, just to name a few (Kenton, 2024).

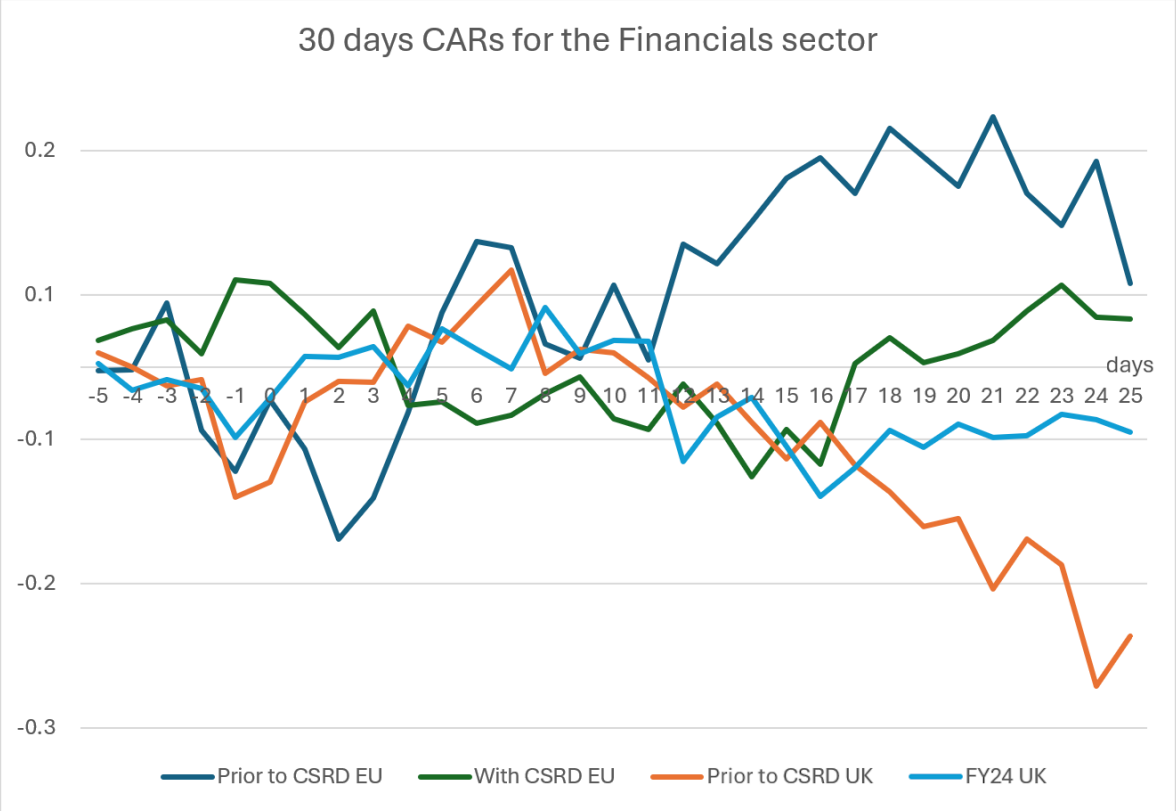

Figure 6.11: Presents the 30-days CAR for the to reporting periods for the EU countries and the UK, for the Financial sector (Author's own creation).

The figure 6.11 above presents the cumulative abnormal return across the Financial securities prior to CSRD and with CSRD, both for the EU countries required to report on CSRD (EU) and the UK. The graph shows similar negative patterns around the event for the EU reporting prior to CSRD, UK prior to CSRD and UK FY24, where the EU with CSRD are positive, and then around the 5th event day, the flows become more different in directions.

Financials				
	EU		UK	
	Prior to	With	Prior to	FY24
10 days CAR	0.458	0.391	0.644	0.193
15 days CAR	0.347	0.284	0.804	0.380
20 days CAR	0.053	0.249	0.087	0.046
30 days CAR	0.472	0.373	0.007	0.162

Table 6.14: Presents the t-test results for the financial sector (Author's own creation).

The results as shown above in table 6.14, shows no significant reaction prior to CSRD or with CSRD for the EU countries, indicating no reaction to CSRD reporting. The results for the UK

companies in the same sector shows only one significant result on the 30 days CAR prior to CSRD and only on significant result on the 20 days CAR for the FY24 report.

EU	Mean	Std. Dev.	Min	Max
Prior to CSRD	0.000	0.016	- 0.055	0.049
With CSRD	0.000	0.014	- 0.071	0.078

UK	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.003	0.022	- 0.072	0.056
FY24	- 0.001	0.018	- 0.042	0.037

Table 6.15: Presents the statistics for the financial sector for the EU countries and the UK (Author's own creation).

When looking at the standard deviation in table 6.15, there is a small decrease from prior to CSRD to with CSRD, for both the EU and UK, indicating that the abnormal returns are less spread than for previous publications, however the decrease is biggest for the UK companies. The standard deviation is quite small for both the EU and UK companies prior to CSRD and with CSRD/ FY24, but here the standard devistion for UK is the highest.

The conclusion of the Consumer cyclicals sector in relation to the hypothesis is that there is no significant proof that CSRD has a positive impact on the stock return, resulting in no rejection of the hypothesis.

6.8.4 Technology sector

The next sector to test is the Technology sector, which contains companies operating with creation of software, computers and products related to technology (The Investopedia Team, 2022).

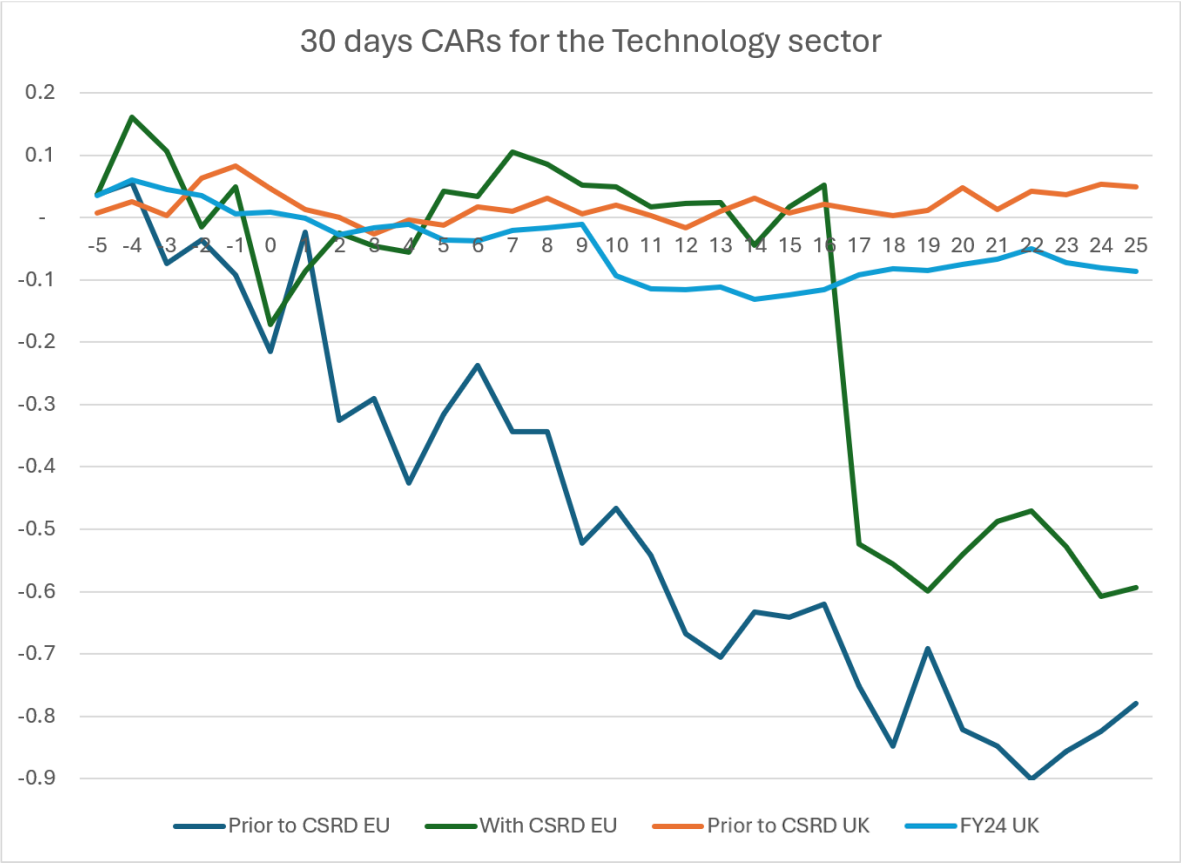

Figure 6.12: Presents the 30-days CAR for the to reporting periods for the EU countries and the UK, for the Technology sector (Author's own creation).

The figure 6.12 above presents the cumulative abnormal return across the Technology securities prior to CSRD and with CSRD, both for the EU countries required to report on CSRD (EU) and the UK. The graph shows a more stable flow for the UK both prior to CSRD and FY24, where the flow for the EU fluctuates more and ends with a negative result, far from the mean.

Technology				
	EU		UK	
	Prior to	With	Prior to	FY24
10 days CAR	0.056	0.660	0.728	0.255
15 days CAR	0.011	0.568	0.476	0.013
20 days CAR	0.008	0.843	0.777	0.038
30 days CAR	0.010	0.144	0.040	0.115

Figure 6.13: Presents the t-test results for the technology sector (Author's own creation).

The results as shown above in table 6.13, shows significant reaction prior to CSRD and no reaction with CSRD for the EU countries. The results for the UK companies in the same sector shows only

one significant result on the 30 days CAR prior to CSRD and only two significant result on the 15 days and 20 days CAR for the FY24 report.

EU	Mean	Std. Dev.	Min	Max
Prior to CSRD	- 0.003	0.031	- 0.254	0.135
With CSRD	- 0.000	0.022	- 0.165	0.081

UK	Mean	Std. Dev.	Min	Max
Prior to CSRD	0.001	0.018	- 0.042	0.049
FY24	- 0.001	0.014	- 0.062	0.037

Table 6.16: Presents the statistics for the technology sector for the EU countries and the UK (Author's own creation).

When looking at the standard deviation in table 6.16, there is a decrease from prior to CSRD to with CSRD, for both the EU and UK, indicating that the abnormal returns are less spread than for previous publications, however the decrease is biggest for the EU companies. The standard deviation is quite small for UK, but bigger for the EU companies.

The conclusion of the Technology sector in relation to the hypothesis is that there is no significant proof that CSRD has a positive impact on the stock return, resulting in no rejection of the hypothesis.

6.8.5 Conclusion of analysis 4

The conclusion of the tests presented through this section is that there is no to little evidence of a positive influence of CSRD when examining the stock returns, resulting in a no reject of the hypothesis H3. An overview of all the results of analysis 4 can be seen in table 6.17 below.

	Energy				Consumer cyclicals				Financials				Technology			
	EU prior	EU with	UK prior	UK FY24	EU prior	EU with	UK prior	UK FY24	EU prior	EU with	UK prior	UK FY24	EU prior	EU with	UK prior	UK FY24
10 days CAR	0.005	0.282	0.120	0.125	0.002	0.586	0.003	0.003	0.458	0.391	0.644	0.193	0.056	0.660	0.728	0.255
15 days CAR	0.000	0.452	0.426	0.764	0.008	0.130	0.000	0.003	0.347	0.284	0.804	0.380	0.011	0.568	0.476	0.013
20 days CAR	0.004	0.021	0.124	0.819	0.017	0.108	0.004	0.006	0.053	0.249	0.087	0.046	0.008	0.843	0.777	0.038
30 days CAR	0.000	0.454	0.094	0.031	0.161	0.049	0.113	0.008	0.472	0.373	0.007	0.162	0.010	0.144	0.040	0.115

Table 6.17: Presents the results across all the sectors, to identify a possible patters for the reactions (Author's own creation).

The table shows that in some cases there is a significant reaction to previous publications and few to no significant reaction to the publication with CSRD. This means that the result of analysis 3 with significant reaction to the reporting with CSRD cannot be assigned to any specific sector. However, the results might once again be affected by the opposite directed reactions, where a positive and negative reaction might equal each other out, even though both might indicate a significant reaction. This means that the hypothesis of a sector specific positive influence of CSRD is not possible to prove.

The test also shows that most of the sectors have less reaction to the report with CSRD than with their normal annual report publication. When looking at the results for UK, across the different sectors, the results show that for all the sectors the significant results are similar both for the prior to CSRD and the publication of FY24.

There might be something in the way the expected return is calculated with the market model, that have influenced the results, where another model for the expected return might reach a different conclusion. This leads to the last analysis, where the Fama & French 3 factor model have been used to calculate the expected return.

6.9 Analysis 5 - Fama French 3 factor model

This analysis investigates the investors' reaction to CSRD when the expected return is calculated with the Fama & French 3 factor model as presented in section 3.4. The Fama & French 3 factor model is performed on all the other analysis, to test the robustness of the previous reached results. The Fama & French 3 factor model adds the factors of size and value to the calculation of the expected return, which adjust for out performance tendencies. This analysis is testing the hypothesis:

H4: CSRD reporting has a positive influence on the associated stock return when calculated with the Fama & French 3 factor model.

Before the different analyses are conducted, the difference between the market model and Fama & French 3 factor model for the calculation of expected return, will be presented. Figure 6.14 below, presents the cumulative abnormal return for Denmark, based on the market model and Fama & French model, to show the shift in the results from the market model to the Fama & French model, which generally shows better results.

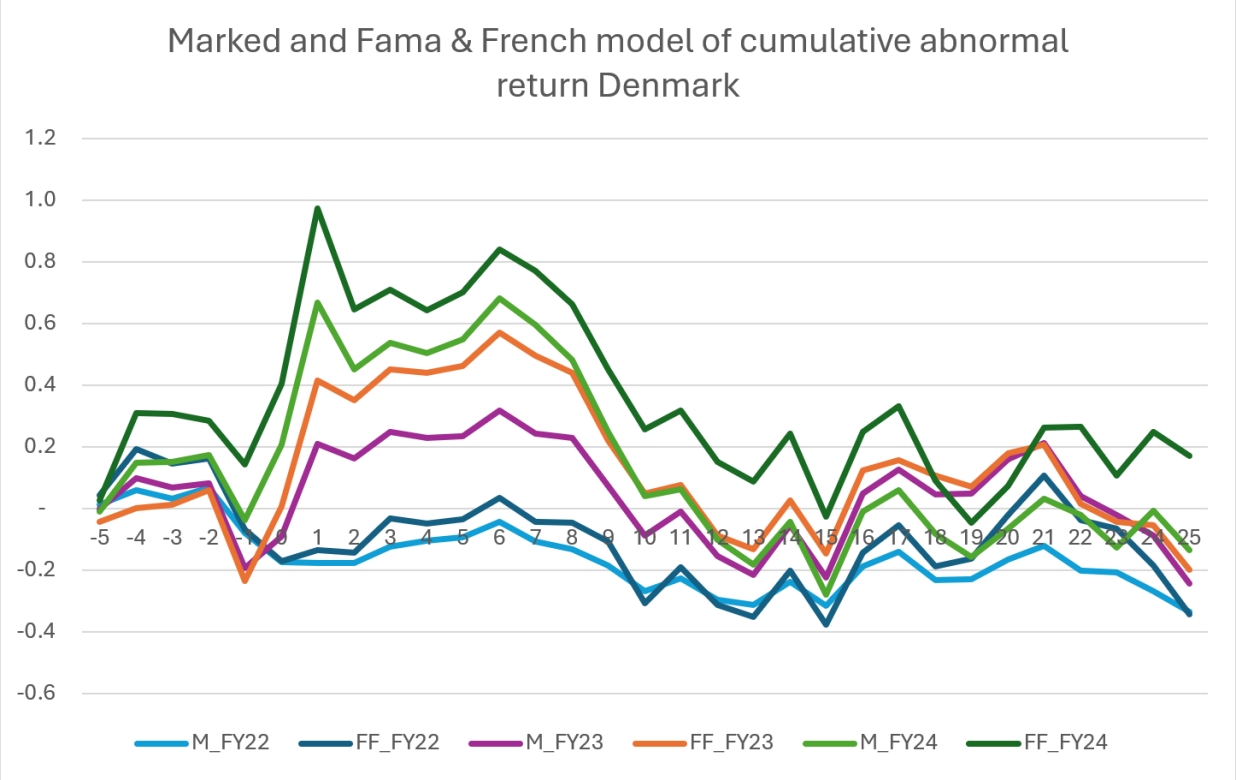

Figure 6.14: Shows the 30-days CAR calculated based on the market model and the Fama & French model (Author's own creation).

This shift occurs because the Fama & French model adjusts for firm size and value, and thereby removes out performance tendencies of small firms and value stock companies, who have been proven to outperform big and growth stock companies.

Since the following analyses are based on the previous analyses, the purpose and methodology are the same, except for the model for expected return, which is now calculated with the Fama & French 3 factor model. The individual analyses below will therefor only contain the results, discussion and conclusion of the new tests and a comparison with the results reached through the market model. At the end of the section an overall conclusion will be presented across all the new analyses with Fama & French.

6.9.1 Analysis 1 - Fama & French Danish companies

The results for the first analysis is shown in figure 6.15, to identify the significant reaction for the individual firms and across all securities. The figure shows that the amount of significant reactions are different across the different firms, and shows that the results across all the securities have a significant reaction to the FY24.

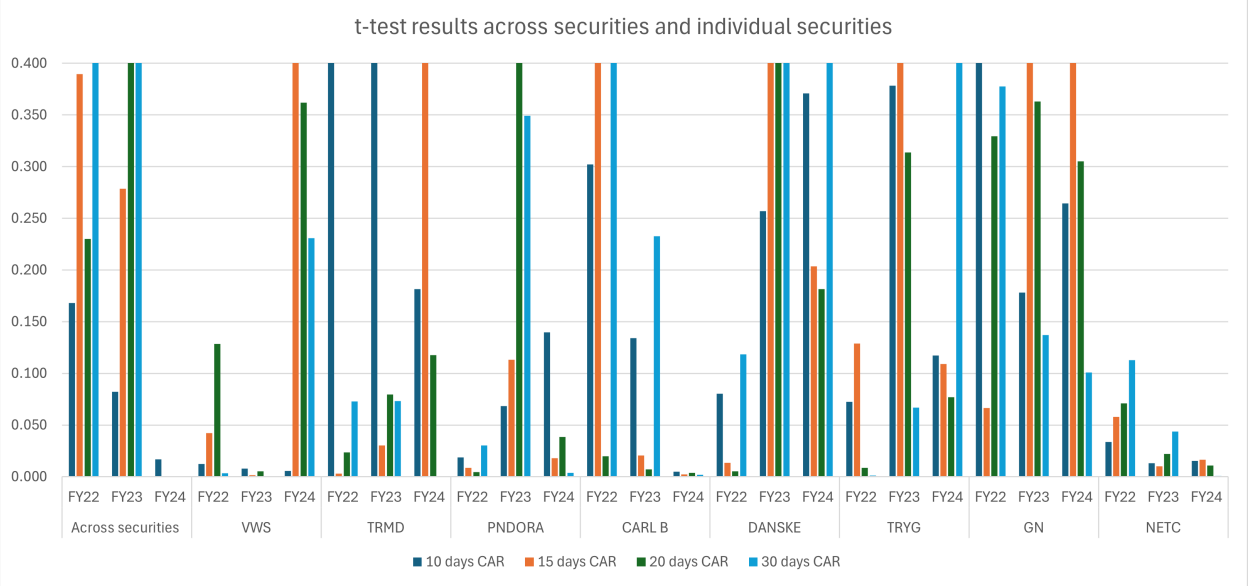

Figure 6.15: Presents the t-test results for all the calculated CARs, for the individual securities and across all the securities, to identify the significant results, whish must be below 0.05 (Author's own creation).

The results in tabel 6.18 shows that there are a few of the individual firms with only a few or no significant reaction to any of the publications, and a few that reacts to the CSRD publication, resulting across all securities in a significant reaction to the CSRD publication, and no reaction to the prior report publications.

		Across all securities	VWS	TRMD	PNDORA	CARL B	DANSKE	TRYG	GN	NETC
FY22	10 days CAR	0.168	0.012	0.601	0.019	0.302	0.080	0.072	0.446	0.034
	15 days CAR	0.390	0.042	0.003	0.009	0.776	0.014	0.129	0.067	0.058
	20 days CAR	0.230	0.129	0.024	0.004	0.020	0.005	0.009	0.330	0.071
	30 days CAR	0.886	0.003	0.073	0.030	0.626	0.118	0.001	0.378	0.113
FY23	10 days CAR	0.082	0.008	0.702	0.068	0.134	0.257	0.378	0.178	0.013
	15 days CAR	0.279	0.002	0.030	0.113	0.021	0.510	0.934	0.968	0.010
	20 days CAR	0.489	0.005	0.079	0.494	0.007	0.731	0.314	0.363	0.022
	30 days CAR	0.650	0.000	0.073	0.349	0.233	0.567	0.067	0.137	0.044
FY24	10 days CAR	0.017	0.006	0.182	0.140	0.005	0.371	0.117	0.264	0.015
	15 days CAR	0.000	0.495	0.433	0.018	0.002	0.204	0.109	0.885	0.016
	20 days CAR	0.000	0.362	0.118	0.038	0.004	0.181	0.077	0.305	0.011
	30 days CAR	0.000	0.231		0.004	0.002	0.724	0.822	0.101	0.001

Table 6.18: Presents the t-test results, where the ones marked green are significant results and the white are not significant, and the orange indicate missing data (Author's own creation).

Fama & French and the market model

The difference between the results from the market model and the Fama & French model is that the market model identified a significant reaction only to the FY22 publication and the Fama & French model only identify a significant reaction on the FY24 publication, which contains CSRD. The difference in the results indicate that the size and value factors might be significant for the stock return.

Market model				
DK	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.027	- 0.183	0.093
FY23	0.000	0.018	- 0.050	0.086
FY24	0.000	0.027	- 0.165	0.124

Fama & French				
DK	Mean	Std. Dev.	Min	Max
FY22	- 0.000	0.027	- 0.159	0.105
FY23	0.000	0.014	- 0.043	0.082
FY24	0.001	0.027	- 0.170	0.114

Table 6.19: Shows the statistics based on for the market model and the Fama & French model (Author's own creation).

By look at the standard deviation for both the market model and Fama & French, it is notable that the standard deviation for both models are the same for FY22 and FY24, however the minimum and maximum have shifted a bit. The standard deviation for FY23 is smaller for the Fama & French than for the market model, indicating less volatility in the data.

6.9.2 Analysis 2 - Fama & French Danish and United Kingdom companies

The Fama & French methodology is used to test the hypothesis from analysis 2, to test the robustness of the previous results, and is based on the Fama & French methodology for the expected return, as presented in section 3.4.

The results show that there is a significant reaction for the CSRD publication in the 2024 annual report in Denmark, across all the CARs, where the result for the United Kingdom is a bit mixed. The is a significant to all the published annual reports, but with different CARs, as seen on table 6.20 below.

	Fama & French Denmark			Fama & French UK		
	FY22	FY23	FY24	FY22	FY23	FY24
10 days CAR	0.168	0.082	0.017	0.106	0.002	0.052
15 days CAR	0.390	0.279	0.000	0.003	0.018	0.008
20 days CAR	0.230	0.489	0.000	0.004	0.871	0.002
30 days CAR	0.886	0.650	0.000	0.010	0.359	0.010

Table 6.20: Shows the t-test results for Denmark and UK, where the green squares represent significant results, below 0.05 (Author's own creation).

With these results it indicates that there in Denmark is a reaction to the annual report with CSRD, because of the only significant reaction in Denmark, and a normal reaction to all the publication in UK, and not only for the 2024 annual report.

Fama & French and the market model

The results of the Fama & French support the results for UK, but the results for Denmark are the opposite of the market model results, where only the publication for 2022 shows a significant result, indicating that there might be more factors affecting the expected return resulting in different abnormal returns depending on the model for the calculation of the expected return.

	Fama & French Denmark			Fama & French UK		
	FY22	FY23	FY24	FY22	FY23	FY24
10 days CAR						
15 days CAR						
20 days CAR						
30 days CAR						

Table 6.21: Shows the difference in the results based on the market model and the Fama & French model, where the green squares represents the significant results where both models agree, the blue is significant results based on Fama & French and the yellow are based on the market model (Author's own creation).

In the table 6.21 above, the green results are the proven significant results by both the market and Fama & French model, where the yellow and blue are the significant results for the market model and the Fama & French model respectively.

Market model				
DK	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.027	- 0.183	0.093
FY23	0.000	0.018	- 0.050	0.086
FY24	0.000	0.027	- 0.165	0.124

Fama & French				
DK	Mean	Std. Dev.	Min	Max
FY22	- 0.000	0.027	- 0.159	0.105
FY23	0.000	0.014	- 0.043	0.082
FY24	0.001	0.027	- 0.170	0.114

Market model				
UK	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.015	- 0.087	0.052
FY23	0.000	0.016	- 0.077	0.088
FY24	- 0.002	0.017	- 0.077	0.061

Fama & French				
UK	Mean	Std. Dev.	Min	Max
FY22	- 0.002	0.016	- 0.078	0.043
FY23	0.000	0.016	- 0.087	0.082
FY24	- 0.002	0.015	- 0.062	0.039

Table 6.22: Shows the statistics based on for the market model and the Fama & French model (Author's own creation).

By looking at the standard deviation for both models in table 6.22, it is clear that the standard deviation have not changed that much between the models, however the minimum and maximum have changed slightly.

6.9.3 Analysis 3 - Countries

The Fama & French methodology is used to test the hypothesis from analysis 3, to test the robustness of the previous results, and is based on the Fama & French methodology for the expected return.

The results show that there for all the countries is a significant reaction to the annual report publication with CSRD for 2024, but there is also a significant reaction to the previous annual report publications, as seen on table 6.23 below, indicating that the CSRD might not be cause of the reaction.

	Denmark		France		Germany		Italy		United Kingdom	
	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	FY24
10 days CAR	0.022	0.017	0.033	0.133	0.020	0.078	0.331	0.015	0.265	0.052
15 days CAR	0.434	0.000	0.119	0.000	0.001	0.013	0.007	0.002	0.065	0.008
20 days CAR	0.906	0.000	0.035	0.270	0.001	0.004	0.011	0.004	0.027	0.002
30 days CAR	0.723	0.000	0.520		0.001	0.008	0.006	0.005	0.030	0.010

Table 6.23: Figure text: represents the results of the significance across all the countries, where the green squares indicate that the result is significant and that the H0 can be rejected, which is not the case for the white squares. The orange square indicate a lack of data for the test.

By looking at the standard deviations of the reports, it becomes clear that the volatility is lower with annual report containing CSRD, which is the case across all the countries, presented in figure 6.16 below. The lower volatility after CSRD indicate that the additional information provided by CSRD lowers the information asymmetry between the companies and the investors.

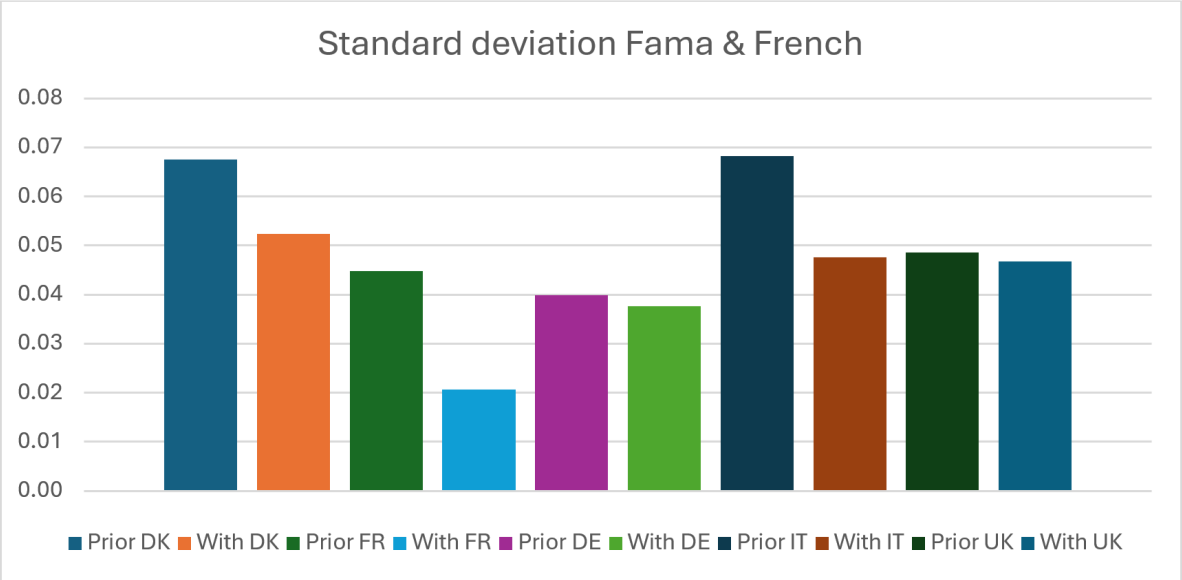

Figure 6.16: Shows the standard deviation difference between the two reporting periods aggregated by country (Author's own creation).

The standard deviation across all the countries fall on average 0.013 from the annual reports prior to CSRD to the annual report including CSRD.

Fama & French and the market model

The Fama & French results show more significant results than the market model, indicating that the Fama & French results can prove more significant result of a reaction to the publications.

	Denmark		France		Germany		Italy		UK	
	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	With CSRD	Before CSRD	With CSRD
10 days CAR	FF	FF	Both		Both	MM		Both	MM	
15 days CAR		FF	MM	Both	Both	Both	FF	Both		Both
20 days CAR		FF	Both		Both	FF	FF	Both	FF	Both
30 days CAR		FF	MM		Both	FF	Both	Both	Both	Both

Table 6.24: Shows the difference in the results based on the market model and the Fama & French model, where the green squares represents the significant results where both models agree, the blue is significant results based on Fama & French and the yellow are based on the market model (Author's own creation).

In the table 6.24 above, the green results are the proven significant results by both the market and Fama & French model, where the yellow and blue are the significant results for the market model and the Fama & French model respectively. The table above indicate that the two models yield different results, but that the Fama & French model results in 7 additional significant results compared with the market model.

Market model				
DK	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.027	- 0.183	0.093
FY23	0.000	0.018	- 0.050	0.086
FY24	0.000	0.027	- 0.165	0.124

Fama & French				
DK	Mean	Std. Dev.	Min	Max
FY22	- 0.000	0.027	- 0.159	0.105
FY23	0.000	0.014	- 0.043	0.082
FY24	0.001	0.027	- 0.170	0.114

Market model				
UK	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.015	- 0.087	0.052
FY23	0.000	0.016	- 0.077	0.088
FY24	- 0.002	0.017	- 0.077	0.061

Fama & French				
UK	Mean	Std. Dev.	Min	Max
FY22	- 0.002	0.016	- 0.078	0.043
FY23	0.000	0.016	- 0.087	0.082
FY24	- 0.002	0.015	- 0.062	0.039

Market model				
FR	Mean	Std. Dev.	Min	Max
FY22	0.000	0.015	- 0.061	0.056
FY23	0.001	0.011	- 0.035	0.045
FY24	- 0.000	0.016	- 0.095	0.047

Fama & French				
FR	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.012	- 0.053	0.042
FY23	0.001	0.011	- 0.032	0.029
FY24	0.000	0.007	- 0.037	0.025

Market model				
DE	Mean	Std. Dev.	Min	Max
FY22	- 0.002	0.013	- 0.054	0.038
FY23	- 0.001	0.013	- 0.058	0.056
FY24	- 0.000	0.016	- 0.064	0.049

Fama & French				
DE	Mean	Std. Dev.	Min	Max
FY22	- 0.003	0.013	- 0.056	0.042
FY23	- 0.000	0.013	- 0.061	0.055
FY24	- 0.002	0.011	- 0.047	0.040

Market model				
IT	Mean	Std. Dev.	Min	Max
FY22	- 0.001	0.014	- 0.044	0.039
FY23	- 0.001	0.020	- 0.239	0.049
FY24	- 0.002	0.022	- 0.140	0.176

Fama & French				
IT	Mean	Std. Dev.	Min	Max
FY22	- 0.002	0.014	- 0.066	0.037
FY23	- 0.002	0.020	- 0.241	0.044
FY24	- 0.002	0.015	- 0.087	0.047

Table 6.25: Shows the statistics based on for the market model and the Fama & French model (Author's own creation).

By looking at the standard deviation across the different countries and the two models, most om them are the same for both models, however it is notable that that for most of the countries, except Denmark, there have been a decrease in the standard deviation for FY24, when using the Fama & French, indicating a more clustered abnormal return around the mean.

6.9.4 Analysis 4 - Sectors

The Fama & French methodology is used to test the hypothesis from analysis 3, to test the robustness of the previous results, and is based on the Fama & French methodology for the expected return.

Energy sector

The results for the energy sector show significant results for both prior and with CSRD for the EU countries and only significant results for the 2024 annual report for UK, table 6.26 below.

Energy	Fama & French EU		Fama & French UK	
	Prior to CSRD	With CSRD	Prior to FY24	FY24
10 days CAR	0.184	0.077	0.133	0.053
15 days CAR	0.012	0.012	0.496	0.002
20 days CAR	0.046	0.027	0.214	0.009
30 days CAR	0.002	0	0.204	0.013

Table 6.26: Presents the t-test results for the energy sector (Author's own creation).

By analyzing the results, it becomes unclear if the significant reaction for 2024 EU is caused by CSRD or if it is just a normal reaction to the annual report publication. By calculating the standard deviation, the volatility of the data might present a more nuanced picture. The standard deviation for the EU countries prior to CSRD is 0.057 and with CSRD is 0.053, indicating a lower volatility in the period surrounding the annual report publication for 2024 with CSRD. The standard deviation for UK prior to 2024 is 0.032 and for FY24 is 0.023, which also is a drop in volatility.

Consumer cyclicals sector

The results for the consumer cyclicals sector show significant results for both prior and with CSRD for the EU countries and only significant results for the 2024 annual report for UK, table 6.27 below.

Consumer cyclicals	Fama & French EU		Fama & French UK	
	Prior to CSRD	With CSRD	Prior to CSRD	FY24
10 days	0.001	0.152	0.478	0.005
15 days	0.012	0.031	0.052	0.003
20 days	0.048	0.043	0.296	0.009
30 days	0.526	0.008	0.077	0.004

Table 6.27: Presents the t-test results for the consumer cyclicals sector (Author's own creation).

By analyzing the results, it becomes unclear if the significant reaction for 2024 EU is caused by CSRD or if it is just a normal reaction to the annual report publication. By calculating the standard deviation, the volatility of the data might present a more nuanced picture. The standard deviation for the EU countries prior to CSRD is 0.062 and with CSRD is 0.039, indicating a lower volatility in the period surrounding the annual report publication for 2024 with CSRD. The standard deviation for UK prior to 2024 is 0.024 and for FY24 is 0.017, which also is a drop in volatility.

Financials sector

The results for the Financials sector show significant results one significant result prior to CSRD and 3 significant results with CSRD for the EU countries and significant results for both prior to

FY24 and the 2024 annual report for UK, table 6.28 below.

Financial	Fama & French EU		Fama & French UK	
	Prior to CSRD	With CSRD	Prior to CSRD	FY24
10 days	0.011	0.088	0.539	0.011
15 days	0.216	0.003	0.004	0.002
20 days	0.092	0.004	0.001	0
30 days	0.722	0.041	0.004	0.009

Table 6.28: Presents the t-test results for the financial sector (Author's own creation).

By analyzing the results, is clear that there is more significant results for the publication with CSRD for the EU countries, but also the results from UK, indicate that the reaction might just be a normal reaction to the annual report. By calculating the standard deviation, the volatility of the data might present a more nuanced picture. The standard deviation for the EU countries prior to CSRD is 0.042 and with CSRD is 0.029, indicating a lower volatility in the period surrounding the annual report publication for 2024 with CSRD. The standard deviation for UK prior to 2024 is 0.032 and for FY24 is 0.030, which also is a drop in volatility.

Technology's sector

The results for the Technology's sector show significant results for both prior and with CSRD for the EU countries and only one significant result prior to FY24 and for the 2024 annual report for UK, table 6.29 below.

Technology	Fama & French EU		Fama & French UK	
	Prior to CSRD	With CSRD	Prior to CSRD	FY24
10 days	0.006	0.050	0.908	0.092
15 days	0.002	0.036	0.345	0.015
20 days	0.002	0.025	0.032	0.057
30 days	0.002	0.003	0.565	0.450

Table 6.29: Presents the t-test results for the technology sector (Author's own creation).

By analyzing the results, it becomes unclear if the significant reaction for 2024 EU is caused by CSRD or if it is just a normal reaction to the annual report publication. By calculating the standard deviation, the volatility of the data might present a more nuanced picture. The standard deviation for the EU countries prior to CSRD is 0.086 and with CSRD is 0.058, indicating a lower volatility in the period surrounding the annual report publication for 2024 with CSRD. The standard deviation for UK prior to 2024 is 0.025 and for FY24 is 0.022, which also is a drop in volatility.

Overall results

In all the tests across the different sectors there is significant reactions to the annual report with CSRD, and most sectors also have a significant reaction to the annual reports prior to CSRD. The significant reaction to the annual report publications in UK shows a significant reaction to the FY24 publication and only a few significant reaction to the previous publications.

Standard deviation	Energy		Consumer cyclicals		Financial		Technology	
	EU	UK	EU	UK	EU	UK	EU	UK
Prior to CSRD	0.057	0.032	0.062	0.024	0.042	0.032	0.086	0.025
With CSRD	0.053	0.023	0.039	0.017	0.029	0.030	0.058	0.022
Drop in std.	0.004	0.009	0.023	0.006	0.013	0.002	0.028	0.003

Table 6.30: Presents the results across all the sectors, to identify a possible patters for the reactions (Author's own creation).

The table 6.30 above shows the standard deviations for all the sectors for both the EU countries and the UK, together with the drop in volatility from previous annual reports to the annual report with CSRD. The only sector where the standard deviation is lower for the EU countries compared to the UK is in the Energy sector, where in the other 3 sectors the volatility for the EU countries drops more than the UK. It is however worth noticing that the volatility for the EU countries across all the sectors starts with a lot higher standard deviation compared to the UK, indicating that the companies in the EU are facing more volatility in general than the UK companies.

Fama & French and the market model

When comparing the results from the Market model and the Fama & French, across the sectors, it is clear that the two models gives different results. In some of the cases the two models agree on the results and in other cases the two models give opposite results.

In the Energy sector, shown in table 6.31, it is clear that the to models reaches different results. Both models agree that there is a significant reaction to the publication prior to CSRD, however most of the other results they does not agree. The Fama & French show significant results for most of the CARs for the publication with CSRD, which is not the case for the market model.

Energy	Fama & French EU		Fama & French UK	
	Prior to CSRD	With CSRD	Prior to FY24	FY24
10 days CAR	MM			
15 days CAR	Both	FF		FF
20 days CAR	Both	Both		FF
30 days CAR	Both	FF		Both

Table 6.31: Shows the difference in the results based on the market model and the Fama & French model, where the green squares represents the significant results where both models agree, the blue is significant results based on Fama & French and the yellow are based on the market model (Author's own creation).

In the Consumer cyclicals sector, shown in table 6.32, the two models does not agree on the significant results either, the Fama & French show significant results for the publication with CSRD for the EU countries, where the market model only show significant results for the 30 days CAR with CSRD. The market model shows significant results for prior to CSRD for UK, which is not the case for the Fama & French.

Consumer cyclicals	Fama & French EU		Fama & French UK	
	Prior to CSRD	With CSRD	Prior to CSRD	FY24
10 days CAR	Both		MM	Both
15 days CAR	Both	FF	MM	Both
20 days CAR	Both	FF	MM	Both
30 days CAR		Both		Both

Table 6.32: Shows the difference in the results based on the market model and the Fama & French model, where the green squares represents the significant results where both models agree, the blue is significant results based on Fama & French and the yellow are based on the market model (Author's own creation).

In the Financial sector, shown in table 6.33, the Fama & French have identified several additional significant results than the market model, indicating that there might be some factors like size and value that are important when analyzing the abnormal return for the financial sector.

Financial	Fama & French EU		Fama & French UK	
	Prior to CSRD	With CSRD	Prior to CSRD	FY24
10 days CAR	FF			FF
15 days CAR		FF	FF	FF
20 days CAR		FF	FF	Both
30 days CAR		FF	Both	FF

Table 6.33: Shows the difference in the results based on the market model and the Fama & French model, where the green squares represents the significant results where both models agree, the blue is significant results based on Fama & French (Author's own creation).

In the Technology sector, shown in table 6.34, there are also additional significant results provided both by the market model and the Fama & French, which is not in agreement with the other model.

Technology	Fama & French EU		Fama & French UK	
	Prior to CSRD	With CSRD	Prior to CSRD	FY24
10 days CAR	FF			
15 days CAR	Both	FF		Both
20 days CAR	Both	FF	FF	MM
30 days CAR	Both	FF	MM	

Table 6.34: Shows the difference in the results based on the market model and the Fama & French model, where the green squares represents the significant results where both models agree, the blue is significant results based on Fama & French and the yellow are based on the market model (Author's own creation).

All this indicate a difference between the market model and the Fama & French 3 factor model for the different sectors, which indicate that the different sectors might be explained by different factors, such as size and value and other only by the market portfolio return.

6.9.5 Conclusion of analysis 5

The overall conclusion of the Fama & French test of the previously identified results is that the models focus on different factors for the expected return, resulting in different results. In general the Fama & French have reached the same significant results as the market model, and in some cases found additional significant reaction to the annual report publication, across the different countries. When looking at the different sectors, the Fama & French have have in most cases found additional significant results both prior to CSRD and with CSRD for both the EU countries and the UK.

With regard to the hypothesis H4 tested through this section, it is possible to reject the hypothesis of no reaction and accept the H4, that CSRD has a positive influence on stock returns when using the Fama & French 3 factor model, for all the countries, except France and across all the sectors.

7| Discussion

In this chapter the findings presented in the previous chapters will be revisited and combined in order to discuss them against the aim of the Research Question of this report. First some limitation of this study will be presented and explored, then the various focus areas and results of the previous chapters will be discussed.

7.1 Limitations of this study

Through this study there have been identified several limitations, in this section the 5 main limitation will be presented and discussed, these will then be referred back to in the rest of the Discussion and Conclusion chapters where relevant. The consequences of the limitations will be discussed, and the mitigating steps which have been identified will be presented.

Limitation 1: One year of CSRD only
Annual reports including CSRD information were first published during the first quarters of 2025, during the same time frame as the writing of this study. The benefit of this is that this study is as cutting edge as is it possible to be, the downside is that no one have worked with CSRD before. This leads to several limitation:

1. Not much literature about the Corporate Sustainability Reporting Directive has been written yet. The literature used and presented within this study is based upon either the expectation of CSRD or the implementation of other kinds of non-financial information, either though voluntary action or much less extensive legislation. The consequence of this being that their conclusions might not be applicable or turn out correct with regard to the effects of implementation CSRD.

   To neutralize this limitation extra care must be taken when applying the output of the current literature. Furthermore as with all other research, the validity of the findings of this study must then later be judged against future literature.

2. The is the first time investors have been presented with CSRD information and therefore the first time they are reacting to it. This means that the markets reaction to the information of CSRD enhanced annual reports has not yet been tuned by experience and the preparedness of investors might be very different thereby muddying price trends.

   The consequence of this limitation is more far reaching as it means that what has in truth been studied in this work is not "reaction to CSRD vs. normal reaction" it instead looks at how investors react to new and unfamiliar CSRD information while handling all the uncertainties in the market. To test the hypotheses of this study it would have been preferable

to compare the second and third years of CSRD reactions to the 2 last years of reactions to annual reports prior to CSRD. However given that CSRD is at risk of being watered down due to Omnibus, and the extension of the implementation time frame - this more preferable scenario might never occur or might not occur in several years. Given that the effects of the CSRD are relevant to its review it is important that a study of CSRD is made during this time.

3. There is not even half a years data available for analysis and even then as has been previously stated during the last half year the market has had many other bits of news to react to. This means that the robustness of the analysis performed in this study may be questioned as it relies on only 2025 data points for its evaluation of the effects of CSRD. This limitation is however thought into the understanding of the results of the analyses performed during this study, and this potential consequences of this shortcoming will be adjusted for were necessary.

Despite the above 3 limitations, the current situation might turn out to be the best and only chance to study the market implications of CSRD in its complete form as the legislation is currently being revisited by the European Commission during the Omnibus, and what might exist after - will be a slower implemented watered down version with the further implementation of this being more gradual. So despite the recentness of the implementation of CSRD being a limitation, this might be the best chance to study it.

Limitation 2: To short baseline?

The baseline in this report is composed of the reaction to the annual report publication for the financial years 2022 and 2023, however one of these years might have been an extreme year in some way, resulting in a different view of the normal annual report publication reaction. It would have been preferable to have a long stabile baseline period to benchmark against, however looking back before 2022 stabile periods become hard to find in the eurozone or EFTA area. Going backwards event like: The start of Ukraine war, The Covid-19 pandemic, Brexit, the European migrant crisis and the Banking- and Eurozone crises makes it hard to get a decent baseline of more than a few years - though it might be argued that in the eurozone the baseline is crises.

This study would have been enhanced by comparing the behavior found in FY24 to a longer baseline period as more years would mean more data points and a more robust baseline. The optimal study of this hypothesis would be both deep (many years) and wide (many companies, countries, sectors etc.). In the planning of this study the choice was made to look only at a 2-year baseline period and instead prioritize resources on making a wide study – more robust to differences between countries and sectors.

Limitation 3: Methodology

Through this study the event methodology have been used, with the market model for the expected return, robustness tested with the Fama & French 3 factor model, however there are several other models that could have been used for the expected return, like the constant mean model, the CAPM or the Fama & French 5 factor model, just to name a few. All the different models might have revealed a different result than reached in this study. The used lengths of the CARs could

also have been different, possibly resulting in different results. To mitigate this limitation the lengths of the CARs were tested to identify the best fitting CARs for this study and the different models for the expected return, have been tested through several academic studies identifying the market model as the most fundamental model to use, and then compare with other models, the consulted studies can be found in chapter 2 Literature review.

Limitation 4: Isolating the effects of CSRD from US noise

During the first half year of 2025 the developments of the stock market have been peppered by reaction to daily posts on social media made by President of the United States Donald Trump. Posts regarding tariffs, legislation pertinent to business or foreign relations have had the market in a rollercoaster as e.g. tariffs have been raised, doubled, removed on an almost hourly basis at some points. This consequence to this report is, that such messages coming out either during event windows or just before a publishing might effect the stock price more than either the CSRD information or even the financial results of the company. There is an added effect between the results of the analyses of the stocks of companies within the EU and the UK, as their respective markets have been effected in different directions by the same White House statement.

It is difficult to nullify this limitation, as even if the companies used in this study had been chosen based on having the same publishing date for the publishing of their annual report, some company or companies from certain countries might be differently exposed to US noise.

Limitation 5: Biases

It is beyond discussion that the environmental crises which humanity has created are already happening to the harm of both humans and animals and will only get worse as time goes - unless serious change happens. In a capitalist system the market drives progress and private industry forms the future, it is important that the market work toward a sustainable future - if a future is to be had. This environmental focus may be seen as a bias toward the positive sides of CSRD and could result in a bias toward results which points toward CSRD being a success.

The mitigation for this limitation is to strive for high academic discipline when making choices which may be influenced by the author's bias. Another mitigating step is to reveal the bias to the reader, so that they may judge the study with this in mind.

7.2 Should CSRD influence stock prices?

According to the efficient market hypothesis all publicly available information should be represented in the stock price (semi-strong-form), indicating that the CSRD information also should be included on the same level as the previous financial information. With the CSRD requirements the previously known level of publicly available information in the semi-strong form of efficiency have shifted, to include a lot more and varied information.

With the additional information from CSRD, how should the different information be incorporated in the stock price, should it be on equal terms between the financial and environmental information, or do financial information count for more? All this is up to the investors, who are

the ones trading the stocks. Several of the studies presented in the literature review recommend a mandatory reporting legislation, to force investors to be interested in sustainability information and companies to provide the information, other articles find that the investors are asking for more sustainability information, to easier invest in more sustainable companies. When investing according to ESG scores, it might be hard for the investor to completely understand what the basis for the score is, this could lead to an effect where stocks from companies with high ESG scores are preferred to the benefit of the price of the stock, despite the company in reality being less sustainable than its peers.

This leads back to limitation 1 which is also a limitation for investors, and the fact that no empirically based studies and guides for reacting to CSRD reports could be published until real data exist. For this same reason individual investor does not yet know how the market will react to different values within the CSRD report which may stop them reacting themselves. This may especially be the case if they are not familiar with data for environmental and sustainable metrics.

With the CSRD reporting, the level of transparency between the company and the investors have never been bigger, however this means nothing if the understanding is not the same for the company and the investors. The new information requires more from the investors to understand and invest based on, because most of the information have nothing to do with financial performance, and require investors to learn what the new factors are, like GHG emission, what is high and low, what is good or bad, what are the differences between the sectors and so on. The investors must also find a strategy to base their investments on, because to try to incorporate 1080 data points in their assessment of a company, seems like to much. With the omnibus poised to cut down on the number of data points thereby simplifying it, and with experience of how the market reacted to CSRD reports for the financial year 2024; investors should be in a better position to make use of the CSRD report for the financial year 2025.

7.3 Has CSRD influenced stock prices?

According to the results from the different analyses, the answer to this question is both yes and no, with the market model, it was only possible to show significant results for France, Germany and Italy, however the results might be caused by other events. The test based on sectors revealed few to no significant results for any of the sectors, for any of the publications. The test of whether the change was down to CSRD or another factor have been inconclusive, because the results for the countries reporting on CSRD have been similar to the results for UK, indicating that the reaction might be caused by the publication in itself or other events. Given how these analyses all depend on comparing a baseline of 2 years (limitation 2) with one year only (limitation 1.3), the results may also be down to the years in question and the number of events with global effect which have happened in the same period.

When using the Fama & French 3 factor model (analysis 5), the results looked different, here it is possible to show that there is a significant reaction in companies from Denmark, France, Germany and Italy, and across all the sectors. The tests does however also reveal a reaction for

the UK companies, indicating that the publication in itself might have caused a wide reaction. Another explanation for the results of analysis 5 could be that there are other events affecting the stock simultaneously to the annual report publication. If this is the case, then the analysis may show that the study have been successful in the choice of control group as the UK companies does indeed act in a manner similar to the EU companies, while showcasing the difficulty with isolating the effects of CSRD from the US noise (Limitation 4).

7.4 Why the discrepancy between should and has?

The European Commissions aim with the CSRD, to force companies to change in a more sustainable direction, might then not be working, at least not for the financial year 2024, based on the reactions analyzed in this study, using the market model. But whether this lack is down to there being other factors affecting the investors more than sustainability cannot be determined from the analyses performed for this study.

When using the Fama & French 3 factor model, it is possible to show reaction across all the countries and sectors, indicating that there might be a reaction to the CSRD information, and that the factors of size and value do have an influence on the securities. These results supports the Research Question, that CSRD does have an affect on the European stock market, however the reactions identified might as presented earlier be cause by other events occurring at the same time.

The literature predicted that there should be a reaction to CSRD, because the investors request more non-financial information to base their investments on. However, the results does not completely support that prediction, possibly caused by a fast changing world with news that affect the stock market resulting in a blurred picture of the reaction to CSRD.

This could be explanation based on the noise from the US having greater influence over investors than the information contained in the annual report containing CSRD information. Should the EU Commission wish for this to change, it requires a change in the investors behavior to focus more on factual information rather that the investors emotions, which can be done through the current CSRD legislation, forcing a behavior change for companies and investors. The results of the analyses also indicate that the market might not be rational, indicating that the market hypothesis might not be representative for the fast changing world with one poly-crises after the other.

When looking at the individual CARs for the different countries and sectors, it becomes clear that the result prior to CSRD and with CSRD are not always the same, for both the market model and the Fama & French model, indicating that on the individual CAR level it might be possible to prove a reaction to the annual report with CSRD. When looking at the Fama & French results for Denmark, there is on the 15-, 20- and 30-days CAR a significant reaction to the publication with CSRD and no reaction prior to CSRD, which is the same for Italy using the market model. This indicates that further examination of the individual CARs might reveal a more detailed picture of the reaction.

8| Conclusion

Several economists have through time called for more sustainable information to base their investments on, and to push companies in a more sustainable direction. This have now happened through the CSRD legislation mandating listed companies in the EU to report on non-financial information in their annual reports. The CSRD requires companies to assess the company's effect on the environment and the environments effect on the company, to identify all the risks surrounding the company. With the CSRD reporting, additional information will be published about the company, affecting the stock price, in accordance with the efficient market hypothesis, stating that the security price fully reflect all available information in the semi-strong-form of efficiency. The additional information provided through CSRD requires investors to change their understanding and learn new metrics to understand the new published information about the companies. The first annual reports containing CSRD have peen published in a fast changing world, with Trump, war in Ukraine etc. making it harder to examine the reaction compared to a baseline. However this study examines the effect of the CSRD reporting to determine its success, which will be done to answering this Research Question and sub-question:

Has CSRD reporting affected the European stock market? And how does the reaction vary between countries and sectors?

1. What does the theory and literature indicate on whether CSRD affects the stock market?
2. Can the CSRD reporting be found to have had different effects on stock returns in different EU countries?
3. Can the CSRD reporting be found to have had different effects on stock returns in different sectors within Europe?
4. Do the size and value of companies affect whether CSRD reporting can be found to have had an effect on its stock return? Does this effect vary between countries and sectors?

In order to answer the research question, the sub-questions must first be answered:

1. What does the theory and literature indicate on whether CSRD affects the stock market?
The studies from the literature review finds that sustainability information do affect the stock prices, which is also in accordance with the efficient market hypothesis presented in the theory, that investors react to the new information and through their reaction changes the stock price, to reflect the new information. However, all the articles in the literature review focuses on non-financial reporting or the expectations for CSRD, to force a change in the current reporting and investment behavior.

Several studies presented in the literature review find that previously when investors were presented with sustainability information they reacted on it, reflecting the reaction in the stock price. Several factors have been found to have an influence on the reaction, where social media plays a big role in spreading the information, resulting in an enhancement of the reaction to the news. The literature in general finds that sustainability information does affect the stock market, and have the same expectation for the CSRD information.

The current literature focuses on the expectation for CSRD or other legislation, presented a less comprehensive report for the investors to react to, as presented in limitation 7.1, this is the first reporting of CSRD, requiring investors to read and understand a lot more and more complex information than previously. This makes it harder than ever to react, if all the information should be reflected in the stock price.

2. Can the CSRD reporting be found to have had different effects on stock returns in different EU countries?

The short answer is yes, in Denmark it have not been possible to identify any significant reactions to CSRD, where for France and Germany it was possible to identify a reaction in one or two of the calculated CARs, indicating a reaction to the publication and in Italy all the calculated CARs are significant for the annual report with CSRD. However for France and Germany the calculated CARs prior to CSRD are also all significant, indicating that the reaction for FY24 are less significant that previous reportings, where the results prior to CSRD for Italy only show one significant CAR, indicating that the reaction in Italy is caused by CSRD. When comparing the results for the European countries with the UK, the reaction identified might be caused of the normal annual report publication or other events, because there are both significant results prior to CSRD and for FY24.

This again support the limitation 7.1, that this is the first reporting, and limitation 7.1, that the effect might be hard to isolate from other events such as general noise from Trump.

3. Can the CSRD reporting be found to have had different effects on stock returns in different sectors within Europe?

No, because the results indicate a small or no significant results for the EU countries with CSRD, where across most of the sectors there is a significant reaction prior to CSRD. The results for the UK across most of the sectors also reveal little to no reaction to either publications, indicating that the CSRD reaction identified for the individual countries cannot be tied to one specific sector, but is more company specific.

The missing significant results aggregated by sectors might also be explained by limitation 7.1, where the investors focusing on different sector might not understand the new metrics provided by CSRD, and therefor only focuses on the known metrics, resulting in no reaction.

4. Do the size and value of companies affect whether CSRD reporting can be found to have had an effect on its stock return? does this effect vary between countries and sectors?

Yes size and value does effect the results, where the previous results for Denmark was that there

are no significant reactions for any of the publications, where using the Fama & French, result in a significant reaction to the annual report with CSRD. The results for UK are the same as previously calculated, indicating that the size and value factors have only affected the Danish stock returns.

Across the different European countries, the results have also changed to find more significant results with the Fama & French model, now indicating that there is a reaction to CSRD for Denmark, Germany and Italy, but the results prior to CSRD have for Italy also changed, to find a significant reaction prior to CSRD. The shift in the results indicate that the added factors might have adjusted the stocks in relation to outperfornamce caused by excessive risks.

The shifting results continues for the sectors as well, where there now can be identifyed significant reaction to the CSRD reporting in the energy sector for the EU countries, however there are also significant reaction to the FY24 report for UK. For the consumer cyclicals sector the are also significant results for the reporting with CSRD for the EU countries, which is also the case prior to CSRD and the FY24 publication for UK, indicating that the reaction might be caused by the CSRD or just a normal reaction to the annual report publication. In the financial sector there are identified a lot more significant results for the European countries both prior to CSRD and with, this is also the case for UK. The technology sector have also found additional significant results for the reporting with CSRD for the European countries.

In general across all the analyses, the use of Fama & French have found more CARs significant, indicating that the factors of size and value do affect the stock return for the used securities, across the different countries and sectors.

Conclusion to Research Question

Has CSRD reporting affected the European stock market? And how does the reaction vary between countries and sectors?

Given that the analyses based on the market model could find few significant reactions to the CSRD publication for France, Germany and Italy, but no reaction for Denmark. When using the Fama & French it is found that there are significant reaction across several CARS for all the countries. Based on this it can be concluded that the CSRD reporting does affect the European stock marked, for different lengths.

Whereas for the results of the aggregation based on sectors there are only a few significant CARs for the Energy and Consumer cyclicals sectors, and no reaction for the Financial and Technology sectors. When using the Fama & French it is found that there are significant results for all the sectors. Based on this it can be concluded that the CSRD reporting does affect the European stock marked, and that the reaction vary depending on the sector.

This thesis can then conclude that CSRD has had an effect on the European stock market, and that the reaction does vary between countries and sectors.

8.1 Perspective

Through this section, several other aspects for the analyses and methodology will be presented, to encourage further studies in this area.

Change in the tests and parameters:
Through this report several decisions have been made for the used methodology and tests, however there are several other possibilities, that might have resulted in a different result. Firstly the companies could have been aggregated differently than countries or sectors, they could have been aggregated based on ESG score or one of the metrics from the CSRD reporting such as GHG emission. By aggregating the securities differently it might have been possible to reach a better understanding of what drives the investors reactions in relation to CSRD.

By using the Fama & French model, the robustness of the results were tested, but if the cross-sectional regression had been used, it could have resulted in a better understanding of which factors affect the calculated CARs across the securities. The tests could also be made based on log-returns, in stead of simple returns, which would have included the compounding effect of the returns, over time.

Further studies
To research further additional countries or sectors can be examined to test the reaction on a broader range, possibly resulting in a PhD in an attempt to examine and understand the investors behavior in relation to sustainability information, with focus on the CSRD reporting, across several years with reporting, to possibly get a better baseline with the US noise.

A study examining the annual reports with CSRD information more in dept could provide an explanation of the reaction of the stock return for the individual firm, because the lack of reaction to CSRD might be explained by positive news in one part of the annual report and negative news in another part, equaling the stock price reaction. A study of the hypothesis that the individual securities might have a significant reaction, but in different directions, muddying the results across several securities, could be conducted to test the event study methodology across several securities, or if the methodology might need a change.

Lastly a Difference-in-difference model could be used to calculate the actual differences between the reporting reaction for the EU countries and the UK, focusing on the mandatory reporting versus voluntary reporting.

All these ideas for further studies can lead to more information and understanding of the CSRD reportings influence in investors and their behavior.

Further development in the financial fields Through out this report, it have been mentioned several times that with the CSRD reporting it requires investors to change their knowledge about the information published by the firms, however as this is a thesis, the author would like to underline that through her education there have been no courses about sustainability or sustainable reporting, only a high focus on money. There for it might be time that the financial fields change focus both doing education and when investing, the earth should have equal importance

as money.

As presented in the report the investors currently are also affected by emotions, like threads from Trump, more than actual facts, which might be caused by herding behavior, but is it rational, should the efficient market hypothesis be changed to include emotions and not just all publicly available information?

A| Appendix

Firm	Ticker	Country	Sector
Vestas Wind systems	VWS	Denmark	Energy
TORM plc	TRMD A	Denmark	Energy
Pandora	PNDORA	Denmark	Consumer cyclicals
Carlsberg class B	CARL B	Denmark	Consumer cyclicals
Danske bank	DANSKE	Denmark	Financials
Tryg	TRYG	Denmark	Financials
GN store Nord	GN	Denmark	Technology
Net company Group	NETC	Denmark	Technology
BP Plc	BP	United Kingdom	Energy
Harbour Energy PLC	HBR	United Kingdom	Energy
Compass Group	CPG	United Kingdom	Consumer cyclicals
Intercontinental Hotels group PLC	IHG	United Kingdom	Consumer cyclicals
HSBC holdings PLC	HSBC	United Kingdom	Financials
Barclays PLC	BARC	United Kingdom	Financials
Relx PLC	REL	United Kingdom	Technology
Vodafine group PLC	VOD	United Kingdom	Technology
TOTALENERGIES SE	TTE-FR	France	Energy
TECHNIP ENERGIES N.V.	TE-FR	France	Energy
HERMÈS INTERNATIONAL	RMS	France	Consumer cyclicals
CHRISTIAN DIOR SE	CDI-FR	France	Consumer cyclicals
AXA	CS	France	Financials
BNP PARIBAS	BNP	France	Financials
DASSAULT SYSTÈMES SE	DSY	France	Technology
ORANGE	ORA	France	Technology
PNE AG	PNE3	Germany	Energy
ABO Energy GmbH	AB9	Germany	Energy
Mercedes-Benz group AG	MBG	Germany	Consumer cyclicals
Volkswagens AG	VOW3	Germany	Consumer cyclicals
Allianze SE	ALV	Germany	Financials
Munich RE	MUV2	Germany	Financials
Deutsche Telekom AG	DTE-DE	Germany	Technology
SAP SE	SAP-DE	Germany	Technology
ENI S.P.A	ENI-IT	Italy	Energy
TENARIS S.A.	TEN-IT	Italy	Energy
Ferrari N.V.	RACE-IT	Italy	Consumer cyclicals
STELLANTIS N.V.	STLAM-IT	Italy	Consumer cyclicals
INTESA SANPAOLO S.P.A.	ISP-IT	Italy	Financials
UNICREDIT S.P.A.	UCG-IT	Italy	Financials
TELECOM ITALIA S.P.A.	TIT	Italy	Technology
REPLY S.P.A.	REY	Italy	Technology

Figure A.1: Contains an overview of all the used securities across the different countries and sectors (Author's own creation).

Bibliography

ABDC, U.D. . ABDC. https://abdc.edu.au/abdc-journal-quality-list/, *ABDC Journal Quality List - Australian Business Deans Council*.

Agoraki et al., march 2023. Maria-Eleni K. Agoraki, Maria Giaka, Dimitrios Konstantios and Victoria Patsika. *Firms' sustainability, financial performance, and regulatory dynamics: Evidence from European firms*. Journal of International Money and Finance, 131, https://doi.org/10.1016/j.jimonfin.2022.102785, 2023.

Akyildirim et al., 4 may 2024. Erdinc Akyildirim, Thomas Conlon, Shaen Corbet and Les Oxley. *'Take Back Control': The implications of Brexit uncertainty on investor perception of ESG reputational events*. European fiancial management, https://doi.org/10.1111/eufm.12490, 2024.

Arif et al., 26 may 2022. Muhammad Arif, Christohper Gan and Muhammad Nadeem. *Regulating non-financial reporting: evidence from European firms' environmental, social and governance disclosures and earnings risk*. Meditari Accountancy Research, https://www.emerald.com/insight/content/doi/10.1108/medar-11-2020-1086/full/html?casa_token=_9dMLCf7E2EAAAAA%3AbrKIGzFLoIeGPVRl0cS8jAdmhB0zQsgVaTEPmJUGxGD7zQZZLzBMYFiSX0PxRxdRefI-Q66Meh0q2Vw 2022.

Bannier et al., 8 march 2022. Christina E. Bannier, Yannik Bofinger and Björn Rock. *Doing Safe by Doing Good: Non-Financial Reporting and the Risk Effects of Corporate Social Responsibility*. European Accounting Review, 32(4), 903–933, https://doi.org/10.1080/09638180.2022.2042349, 2022.

Bhandari, -01-18 2023. Pritha Bhandari. *How to Calculate Variance | Calculator, Analysis Examples*, https://www.scribbr.com/statistics/variance/, 2023.

Boungou and Dufau, -06-01 2025. Whelsy Boungou and Bastien Dufau. *Shareholder wealth effects of corporate sustainability reporting regulations*. Finance Research Letters, 80, 107404, https://www.sciencedirect.com/science/article/pii/S1544612325006646, 2025.

Brown and Warner, -03-01 1985. Stephen J. Brown and Jerold B. Warner. *Using daily stock returns: The case of event studies*. Journal of Financial Economics, 14(1), 3–31, https://www.sciencedirect.com/science/article/pii/0304405X8590042X, 1985.

Business insider, December 2010. Business insider. *Here's What Warren Buffet Thinks About The Efficient Market Hypothesis*, https://www.businessinsider.com/warren-buffett-on-efficient-market-hypothesis-2010-12, 2010.

Campbell et al., december 1996. John Y. Campbell, Andrew W. Lo and A. Craig MacKinlay. *The Econometrics of Financial Markets*. Princeton university press, 1996.

Carlsberg Group, **February 2025a**. Carlsberg Group. *Carlsberg Group sees solid ESG progress in first combined annual report « Carlsberg Group*, https://www.carlsberggroup.com/newsroom/carlsberg-group-sees-solid-esg-progress-in-first-combined-annual-report/, 2025.

Carlsberg Group, **February 2025b**. Carlsberg Group. *FY 2024 Financial Statement « Carlsberg Group*, https://www.carlsberggroup.com/newsroom/fy-2024-financial-statement/, 2025.

CFI Team, **U.D.** . CFI Team. https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/efficient-markets-hypothesis/, *Efficient Markets Hypothesis*.

Chen, **-06-06 2017**. Chao Chen. *Limitations to Event Studies and How They Apply*, SSRN, https://papers.ssrn.com/abstract=2982219, -06-06 2017.

Chen, **October 2022**. James Chen. *Energy Sector: Understanding Which Types of Companies Comprise It*, https://www.investopedia.com/terms/e/energy_sector.asp, 2022.

Clarke, **-05-29 2025**. Jennifer Clarke. *What is Doge and why is Musk leaving?*, https://www.bbc.com/news/articles/c23vkd57471o, 2025.

Crux, **-02-05 2025**. James Crux. *Pandora succumbs to profit-taking as slowdown alert fails to charm investors*, https://www.sharesmagazine.co.uk/news/shares/pandora-succumbs-to-profit-taking-as-slowdown-alert-fails-to-charm-investors, 2025.

CSRD software, **march 2025**. CSRD software. *Is It OK to Publish a Sustainability Statement Without a Governance Chapter? Pandora's 2024 Report Sparks Debate*, https://csrdsoftware.com/post/is-it-ok-to-publish-a-sustainability-statement-without-a-governance-chapter-pandoras-2024-report-sparks 2025.

Cuomo et al., **26 september 2022**. Francesca Cuomo, Silvia Gaia, Claudia Girardone and Stefano Pisera. *The effects of the EU non-financial reporting directive on corporate social responsibility*. The European Journal of Finance, pages 726–752, https://doi.org/10.1080/1351847X.2022.2113812, 2022.

Daugaard et al., **17 july 2023**. Dan Daugaard, Jing Jia and Zhongtian Li. *Implementing corporate sustainability information in socially responsible investing: a systematic review of empirical research*. Journal of Accounting Literature, https://www.emerald.com/insight/content/doi/10.1108/jal-12-2022-0127/full/html?casa_token=FZGzYVbVNuQAAAAA%3A8g6e8ZIWiXbMEEDelkVB-3zExzzTUkxU3U8bA_cGE7pAu69Csh0IhUu1O6YmXUkrnEVSG_inK0SajAAv125UQODflCNIov1GvbFE0mUZq2DOkhYgSRs, 2023.

Davis, **July 2022**. Marc Davis. *The 8 Most Volatile Sectors*, https://www.investopedia.com/financial-edge/0712/the-8-most-volatile-sectors.aspx, 2022.

del Toro et al., **6th january 2022**. Alberto Barroso del Toro, Xavier Tort-Martorell and Miguel Angel Canela. *How shareholders react to sustainable narratives about leading European energy companies? An event study using sentiment data from the global database for events,*

language and tone (GDELT). Applied Economics, pages 3482–3494, https://doi-org.zorac.aub.aau.dk/10.1080/00036846.2021.2009759, 2022.

Dinh et al., **30 december 2022**. Tami Dinh, Anna Husmann and Gaia Melloni. *Corporate Sustainability Reporting in Europe: A Scoping Review.* Accounting in Europe, 20(1), 1–29, https://doi.org/10.1080/17449480.2022.2149345, 2022.

Directorate-General for Financial Stability and Financial Services and Capital Markets Union, **february 2025**. Directorate-General for Financial Stability and Financial Services and Capital Markets Union. *Commission simplifies rules on sustainability and EU investments, delivering over €6 billion in administrative relief - European Commission*, https://finance.ec.europa.eu/publications/commission-simplifies-rules-sustainability-and-eu-investments-delivering-over-eu6-billion_en, 2025.

Downey, **October 2024**. Lucas Downey. *Efficient Market Hypothesis (EMH): Definition and Critique*, https://www.investopedia.com/terms/e/efficientmarkethypothesis.asp, 2024.

Draghi, **September 2024**. Mario Draghi. *The future of European competitiveness*, European Commission, https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c-f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20_%20A%20competitiveness%20strategy%20for%20Europe.pdf, September 2024.

Duong et al., **26 march 2021**. Linh N. K. Duong, Jason X. Wang, Lincoln C. Wood, Torsten Reiners and Mona Koushan. *The value of incremental environmental sustainability innovation in the construction industry: an event study.* Construction Management and Economics, 39(5), 398–418, https://doi.org/10.1080/01446193.2021.1901950, 2021.

EFRAG, **November 2022**. EFRAG. *DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS.* https://www.efrag.org/sites/default/files/sites/webpublishing/SiteAssets/05%20EFRAGs%20Cover%20Letter%20on%20the%20Cost-benefit%20analysis.pdf, 2022.

Elton et al., **2014**. Edwin J. Elton, Martin J. Gruber, Stephen J. Brown and William N. Goetzmann. *Modern portfolio theory and investment analysis.* Wiley, ninth edition edition, 2014.

Euronext Corporate Solutions, **16 november 2023**. Euronext Corporate Solutions. *Green light for the application of the CSRD and ESRS at the EU level*, https://www.corporatesolutions.euronext.com/blog/governance/greenlight-csrd-esrs, 2023.

Europe Sustainable Development Report 2025, **2025**. Europe Sustainable Development Report 2025. *Rankings: The overall performance of European countries*, https://eu-dashboards.sdgindex.org/, 2025.

European Commission, **July 2023**. European Commission. *COMMISSION DELEGATED*

REGULATION (EU) 2023/2772 of 31 July 2023, Official Journal of the European Union, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202302772, July 2023.

evofenedex, **No date**. evofenedex. *Corporate Sustainability Reporting Directive (CSRD)*, https://www.evofenedex.nl/kennis/internationaal-ondernemen/imvo/csrd, No date.

Fama and French, **March 2025**. Eugene F. Fama and Kenneth R. French. *Current Research Returns*, https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html, 2025.

Fama et al., **1969**. Eugene F. Fama, Lawrence Fisher, Michael C. Jensen and Richard Roll. *The Adjustment of Stock Prices to New Information.* International Economic Review, 10(1), 1–21, https://www.jstor.org/stable/2525569, 1969.

Federal Register, **may 2025**. Federal Register. *2025 Donald J. Trump Executive Orders*, https://www.federalregister.gov/presidential-documents/executive-orders/donald-trump/2025, 2025.

Fiechter et al., **19 february 2022**. Peter Fiechter, Jörg-Markus Hitz and Nico Lehmann. *Real Effects of a Widespread CSR Reporting Mandate: Evidence from the European Union's CSR Directive.* Journal of Accounting Research, 60(4), 1499–1549, https://doi.org/10.1111/1475-679X.12424, 2022.

FTSE Russell, **-05-19 2025**. FTSE Russell. *FTSE UK Index Series*, https://www.lseg.com/en/ftse-russell/indices/uk, 2025.

G7G20 documents database, **2025**. G7G20 documents database. *About G7*, https://g7g20-documents.org/about-the-database/about-g7, 2025.

Harari, **01/06/ 15:00:54 2025**. Daniel Harari. *GDP international comparisons: Economic indicators*, House of commons Library, https://commonslibrary.parliament.uk/research-briefings/sn02784/, 01/06/ 15:00:54 2025.

Havelock, **-02-13 2025**. Laurie Havelock. *A pared-back CSRD might sound good, but ESG-minded investors won't be happy*, https://www.ir-impact.com/2025/02/a-pared-back-csrd-might-sound-good-but-esg-minded-investors-wont-be-happy/, 2025.

Hayes, **August 2024**. Adam Hayes. *Fama and French Three Factor Model Definition: Formula and Interpretation*, https://www.investopedia.com/terms/f/famaandfrenchthreefactormodel.asp, 2024.

Hummel and Jobst, **9 february 2024**. Katrin Hummel and Dominik Jobst. *An Overview of Corporate Sustainability Reporting Legislation in the European Union.* Accounting in Europe, 21(3), 320–355, https://doi.org/10.1080/17449480.2024.2312145, 2024.

Indexes.nasdaqomx, **may 2025**. Indexes.nasdaqomx. *OMX Copenhagen 25 Index*, https://indexes.nasdaqomx.com/Index/Overview/OMXC25, 2025.

Janknecht, **-01-24 2025**. Hannah Janknecht. *Breaking News: France Urges EU to Postpone CSDDD Indefinitely and CSRD by Another Two Years*,

https://www.complianceandrisks.com/blog/
breaking-news-france-urges-eu-to-postpone-csddd-indefinitely-and-csrd-by-another-two-years/, 2025.

Kenton, **September 2024**. Will Kenton. *Financial Sector: Definition, Examples, Importance to Economy*, https://www.investopedia.com/terms/f/financial_sector.asp, 2024.

Koranyi and Navaratnam, **march 2025**. Balazs Koranyi and Shri Navaratnam. *Trump's trade war is 'wake-up call' for Europe, Lagarde says*,
https://uk.finance.yahoo.com/news/trumps-trade-war-wake-call-070025362.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAEr1WKamJrkyz76QhqTb8gmzjlJT5ER91CKzTij7iYjFUbAEeYDAXc-m4gvjcqXkdVswMutYGzo7D-5u9pCrB8KPxZ7bv8QS7tQ2I38zL8bkVTUVHKW0mF4CzuOyKaf4GSxRJoF6W4-4j, 2025.

Lampinen and Uusikylä, **1998**. Risto Lampinen and Petri Uusikylä. *Implementation Deficit - Why Member States do not Comply with EU directives?* Scandinavian Political Studies, 3, https://tidsskrift.dk/scandinavian_political_studies/article/download/32932/31313?inline=1, 1998.

Lelong and Humphreys, **-05-27 2025**. Christian Lelong and Nadia Humphreys. *How investors can navigate the sustainable data disclosure gap | Insights*,
https://www.bloomberg.com/professional/insights/sustainable-finance/how-investors-can-navigate-the-sustainable-data-disclosure-gap/, 2025.

Linton, **2019**. Oliver Linton. *Financial Econometrics - Models and Methods*. Cambridge University Press, 2019.

Littenberg and Rotter, **November 2024**. Michael R. Littenberg and Marc Rotter. *An Update on EU CSRD Transposition – Where Do Things Stand?*, https://www.ropesgray.com/en/insights/viewpoints/102jple/an-update-on-eu-csrd-transposition-where-do-things-stand, 2024.

McNally, **-04-10 2025**. Fiona McNally. *How data quality in CSRD reports is splitting EU investors*, https://www.responsible-investor.com/how-data-quality-in-csrd-reports-is-splitting-eu-investors/, 2025.

Nicolas et al., **january 2024**. Maxime L. D. Nicolas, Adrien Desroziers, Fabio Caccioli and Tomaso Aste. *ESG reputation risk matters: An event study based on social media data*. Finance Research letters, 59, https://doi.org/10.1016/j.frl.2023.104712, 2024.

PwC, **2025**. PwC. *Corporate Sustainability Reporting Directive (CSRD) is now approved!*,
https://www.pwc.com/mt/en/publications/sustainability/corporate-sustainability-reporting-directive-is-now-approved.html, 2025.

Rahbek, **-04-16 2025**. Christina Rahbek. *Sustainability Reporting: "Stop-the-Clock" Directive (Omnibus) finally adopted*, https://gorrissenfederspiel.com/en/sustainability-reporting-stop-the-clock-directive-omnibus-finally-adopted/, 2025.

Ray, **-01-13 2024**. Abeer Ray. *Chasing Financial Success: Daniel Kahneman's 'Thinking, Fast and*

Slow' teaches 4 valuable investing lessons, https://www.livemint.com/money/personal-finance/lessons-in-investing-daniel-kahnemans-thinking-fast-and-slow-teaches-4-valuable-lessons-for-financial-su html, 2024.

Skovgaard, **february 2024**. Sharlotte Skovgaard. *Esg-scoren er kejserens nye, sorte klæder*, https://merkur.dk/privat/artikler-investering-og-pension/esg-scoren-er-kejserens-nye-sorte-klaeder/, 2024.

Stern, **30 October 2006**. Nicholas Stern. *The Economics of Climate Change: The Stern Review*. Cambridge University Press, https://www.lse.ac.uk/granthaminstitute/publication/the-economics-of-climate-change-the-stern-review/, 2006.

Strand, **-05-01 2024**. Robert Strand. *Global Sustainability Frontrunners: Lessons from the Nordics*. California Management Review, 66(3), 5–26, https://doi.org/10.1177/00081256241234709, 2024.

Teti et al., **may 2024**. Emanuele Teti, Leonardo L. Etro and Lorenzo Pausini. *Does greenwashing affect Company's stock Price? Evidence from Europe*. International Review of Financial Analysis, 93, https://doi.org/10.1016/j.irfa.2024.103195, 2024.

Thallinger, **25 march 2025**. Günther Thallinger. *Climate, Risk, Insurance: The Future of Capitalism*, https://www.linkedin.com/pulse/climate-risk-insurance-future-capitalism-g%C3%BCnther-thallinger-smw5f/?trackingId=dwBDFIQWlJOHgxRUvtr%2FVw%3D%3D, 2025.

The Investopedia Team, **January 2022**. The Investopedia Team. *Technology Sector: Definition, 4 Major Sectors, Investing in Tech*, https://www.investopedia.com/terms/t/technology_sector.asp, 2022.

Tommaso and Mazzuca, **september 2023**. Caterina DI Tommaso and Maria Mazzuca. *The stock price of European insurance companies: What is the role of ESG factors?* Finance Research Letters, 56, https://doi.org/10.1016/j.frl.2023.104071, 2023.

Towfighi et al., **April 2025**. John Towfighi, Eleanor Stubbs, Soph Warnes, Marco Chacón and Sarah-Grace Mankarious. *100 days: The US stock market's rollercoaster ride since Trump took office*, https://www.cnn.com/interactive/2025/04/business/stock-market-trump-100-days/index.html, 2025.

Trading economics, **May 2025a**. Trading economics. *France Stock Market Index (FR40)*, https://tradingeconomics.com/france/stock-market, 2025.

Trading economics, **May 2025b**. Trading economics. *Germany Stock Market Index (DE40)*, https://tradingeconomics.com/germany/stock-market, 2025.

Trading economics, **May 2025c**. Trading economics. *Italy Stock Market Index (IT40)*, https://tradingeconomics.com/italy/stock-market, 2025.

Trust et al., **january 2025**. Sandy Trust, Luca Saye, Oliver Bettis, Georgina Bedenham, Oliver Hampshire, Timothy M. Lenton and Jesse F. Abrams. *Planetary Solvency – finding our balance*

with nature Global risk management for human prosperity, University of Exeter, https://actuaries.org.uk/news-and-media-releases/news-articles/2025/jan/16-jan-25-planetary-solvency-finding-our-balance-with-nature/, january 2025.

U.S. Department of the treasury. U.S. Department of the treasury. https://home.treasury.gov/policy-issues/international/g-7-and-g-20, *G-7 and G-20*.

Wang et al., **May 2023**. Jiazhen Wang, Xiaolu Hu and Angel Zhong. *Stock market reaction to mandatory ESG disclosure*. Finance Research Letters, 53, https://doi.org/10.1016/j.frl.2022.103402, 2023.

Weidacher, **-05-16 2025**. Reinhild Weidacher. *EU Omnibus Update: Parliament Hearing Shines Light on Process Deficiencies*, https://www.iss-corporate.com/library/eu-omnibus-update-parliament-hearing-shines-light-on-process-deficiencies/, 2025.

Yahoo!Finance, **May 2025**. Yahoo!Finance. *Consumer Cyclical*, https://finance.yahoo.com/sectors/consumer-cyclical/, 2025.