The Impact of Corporate Sustainability Reporting Directive (CSRD) on Financial Performance: A Difference-in-Differences Analysis

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Helsinki

2025

SVENSKA HANDELSHÖGSKOLAN

Institution:	**Type:**
Accounting and Commercial Law	Master's Thesis
Author:	**Datum:**
Niklas Tamminen, s155320	17.4.2025

Topic:

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Abstract:

This thesis investigates the financial impact of the European Union's Corporate Sustainability Reporting Directive (CSRD) on publicly listed Nordic companies. The CSRD represents an important regulatory change, mandating standardized ESG disclosures from large public companies, starting 2024. While previous research has established a positive association between ESG performance and financial performance, the effect of mandatory ESG disclosure is less examined, especially in ESG-progressive regions like the Nordic region.

Using a Difference-in-Differences (DiD) analysis, this study estimates the effect of CSRD implementation by comparing changes in financial performance between a treatment group (companies subject to CSRD) and a control group (companies not subject to CSRD). The dataset consists of 149 unique Nordic companies from 2022 to 2024, with financial and ESG data imported from Refinitiv, Orbis and WRDS.

The regression results show no statistically significant short-term impact of CSRD on firm value (Tobin's Q), profitability (ROA) or valuation multiples (EV/EBITDA). Similarly, no significant effects are found on ESG performance metrics. Robustness checks confirm the reliability of the regression model and supports the results of no immediate financial effects.

These findings suggest that while CSRD increases transparency, it might not lead to direct short-term financial benefits, at least in markets where companies already engage in robust sustainability reporting.

Keywords:

CSRD, ESG performance, Sustainability reporting, Financial performance, Difference-in-Differences, Tobin's Q, EV/EBITDA, ROA, Nordic markets

SVENSKA HANDELSHÖGSKOLAN

Institution:	**Arbetets art:**
Redovisning och handelsrätt	Magisteravhandling
Författare:	**Datum:**
Niklas Tamminen, s155320	17.4.2025

Avhandlingens rubrik:

Effekten av EU:s direktiv om företagens hållbarhetsrapportering (CSRD) på finansiell prestation: En Difference-in-Differences analys

Sammandrag:

Syftet med studien är att undersöka den finansiella effekten som EU:s direktiv om företagens hållbarhetsrapportering (CSRD) har på börsnoterade nordiska bolag. CSRD utgör en viktig reglering som kräver standardiserad ESG-rapportering från stora offentliga bolag, från och med år 2024. Tidigare forskning har visat ett positivt samband mellan ESG-prestation och finansiell prestation, men effekten av obligatorisk ESG-rapportering är mindre forskad, särskilt i ESG-progressiva regioner som Norden.

Med hjälp av en Difference-in-Differences analys (DiD) undersöker studien den effekt som CSRD-implementeringen har, genom att jämföra förändringar i finansiell prestation mellan en behandlingsgrupp (företag som påverkas av CSRD) och en kontrollgrupp (företag som inte påverkas). Slutliga samplet består av 149 unika nordiska bolag med data från 2022 till 2024, och datan är hämtad från Refinitiv, Orbis och WRDS.

Resultaten visar att CSRD inte haft en statistiskt signifikant kortsiktig effekt på företagsvärde, lönsamhet eller värderingsmultiplar. Likaså hade CSRD ingen signifikant effekt på ESG-prestationsmåtten. Robusthetstesterna bekräftar modellens tillförlitlighet och stöder resultaten.

Dessa resultat indikerar att även om CSRD ökar transparens, leder det inte nödvändigtvis till direkta kortsiktiga finansiella förmåner, åtminstone inte på marknader där företag redan tillämpar omfattande hållbarhetsrapportering.

Nyckelord: EU:s direktiv om företagens hållbarhetsrapportering (CSRD), ESG performans, hållbarhetsrapportering, finansiell prestation, Difference-in-Differences, Tobin's Q, EV/EBITDA, ROA, Nordiska marknaden

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Description of the use of AI tools

AI Tool	**Description of use**
ChatGPT 4o	ChatGPT was used to improve the grammar and structure of certain sections of the thesis, as well as to clarify important concepts relevant to the thesis topic. Additionally, ChatGPT was used to provide suggestions on wording and phrasing to improve the quality of the text.

1 INTRODUCTION

Sustainability reporting has become a central aspect of corporate accountability in recent years, resulting in new regulatory initiatives such as the European Union's Corporate Sustainability Reporting Directive (CSRD). The CSRD is a legislative measure designed to significantly expand and standardize corporate ESG (Environmental, Social, and Governance) disclosures. It broadens the scope of mandatory sustainability reporting to all large companies and listed companies in the EU, affecting roughly 50 000 companies, a significant increase from the 11 000 or so companies covered by the prior Non-Financial Reporting Directive (NFRD). The first companies subject to the CSRD are required to apply the new reporting rules in the 2024 financial year, with sustainability reports to be published in 2025 (European Commission). By mandating regular disclosure of social and environmental risks and impacts, the CSRD aims to improve the consistency and quality of information available to investors and stakeholders, thereby supporting the EU's Green Deal agenda of moving capital toward sustainable business practices. In short, this new regulation represents a big change in corporate transparency requirements, making it a relevant subject for academic research.

A major question raised by the CSRD is how these enhanced ESG disclosure requirements might influence companies' financial performance. The relationship between ESG practices and financial performance has been the subject of extensive research and debate. Many studies suggest that stronger sustainability performance and disclosure are associated with better financial results for companies. For example, a comprehensive review of over 2 000 empirical studies found that roughly 90% reported a non-negative relationship between ESG criteria and corporate financial performance, with the majority finding a positive impact (Friede, Busch & Bassen, 2015). More recent analyses support this trend: one meta-study of research from 2015–2020 observed that 58% of corporate-level studies showed a positive ESG–financial performance link, versus only 8% that found a negative relationship (Whelan et al., 2021). These findings support the business aspect for corporate sustainability, implying that companies can perform well while being sustainable. At the same time, not all evidence agrees with this. Some studies report mixed or context-dependent results, and others have argued that the costs of extensive ESG reporting could reduce profitability. This ongoing debate highlights the importance of examining the CSRD's impact empirically, to determine whether

mandating higher transparency in sustainability performance ultimately helps, harms, or has no effect on a company's financial performance.

When investigating this issue, the challenge is to distinguish correlation from causation. Companies with robust ESG practices might perform better financially for reasons unrelated to sustainability (for instance, superior management overall), making it difficult to attribute results to ESG disclosure alone. To address this, the study adopts a Difference-in-Differences (DiD) research design, which is well-suited for evaluating the causal impact of policy changes like the CSRD. The DiD approach compares the change in financial performance before versus after the CSRD implementation for companies affected by the new rules (the treatment group) against the corresponding change for a set of comparable companies not subject to the CSRD (the control group). By differencing across both time and groups in this way, we can filter out biases that might arise from permanent differences between the companies or from economy-wide trends. In practice, this methodology helps account for differences between companies and from overall economic trends, providing a more reliable estimate of the CSRD's true effect (Columbia university).

This thesis focuses on companies listed on the Nasdaq OMX Nordic stock exchanges (including markets such as Stockholm, Copenhagen, Oslo and Helsinki) as the empirical setting for analyzing CSRD's impact. The Nordic region offers a particularly relevant context for this study. Nordic countries and their companies are often regarded as leaders in sustainability, consistently ranking at the top of global ESG and Sustainable Development indexes (ESG Investing). At corporate level, Nordic companies tend to have high sustainability ratings and strong disclosure practices, for instance, recent evaluations found that Finland, Sweden, and Denmark rank among the top five countries in corporate sustainability performance, and Nasdaq Helsinki was rated the top stock exchange worldwide for sustainability disclosure quality and timeliness (ESG Investing). Because of this, examining Nordic-listed companies provides an opportunity to see whether a strict new reporting directive like the CSRD leads to financial benefits in a setting where many companies already prioritize ESG issues. Additionally, all Nordic EU member states are subject to the CSRD simultaneously, ensuring a consistent regulatory environment across the sample. This consistency strengthens the analysis by reducing differences in regulatory settings, any significant differences observed in Nordic companies' financial performance before and after 2024 can more easily be attributed to the CSRD rather than country-specific factors. Overall, the OMX Nordic companies offer

a strong and relevant setting for examining the effects of the EU's increased sustainability reporting requirements.

1.1 Purpose of the study

The main goal of this thesis is to determine the causal effect of the CSRD on corporate financial performance. In particular, the study examines whether the introduction of the CSRD in 2024 led to a significant change in the financial performance of affected companies, as compared to companies not subject to the directive. This is essentially a question of causality, did the new sustainability reporting mandate cause companies to perform differently (for example, in terms of profitability, stock valuation, or market performance) than they would have otherwise? To answer this, the research employs a Difference-in-Differences methodology, as mentioned above. This method allows for a robust comparison by accounting for underlying differences and external influences between the treatment group and control group (Columbia University). The DiD design is particularly suitable here because it improves the simpler methods (such as before-and-after comparisons or cross-sectional regressions) that might wrongfully attribute effects to the CSRD when, in reality, they are due to other external factors. By using DiD, the study can more reliably isolate the impact of the CSRD itself, providing stronger evidence on how mandated ESG disclosure influences financial performance.

RQ1: ***What is the impact of CSRD on the financial performance of publicly listed companies in the Nordic region?***

Hypothesis: ***Based on existing literature and the nature of the study, this thesis hypothesizes that CSRD will not lead to a significant short-term change in corporate financial performance.***

1.2 Scope of the study

This study focuses on evaluating the financial impact of the Corporate Sustainability Reporting Directive (CSRD) on publicly listed companies in the Nordic region. Specifically, it investigates how the introduction of CSRD in 2024 influenced key financial performance metrics such as Return On Assets (ROA), Enterprise

Value/Earnings Before Interest, Taxes, Depreciation and Amortization (EV/EBITDA) and Tobin's Q, which is a measured by dividing the total market value of a company with the total asset value of a company. The analysis is based on panel data covering the years 2022 to 2024, allowing for a comparison of performance before and after the directive's implementation.

The geographical scope includes companies listed on the Nasdaq OMX Nordic exchanges, that operate in Sweden, Denmark, Norway and Finland. While Norway is not an EU member state, it is included due to its close alignment with EU regulations and relevance in the Nordic market. The treatment group consists of companies expected to be directly affected by the CSRD, while the control group includes companies less likely to be affected, such as certain financial sector companies or those not subject to the same reporting obligations.

By focusing on this specific regulatory change in a relatively ESG-progressive region, this study aims to provide evidence on whether mandatory sustainability reporting brings measurable short-term financial benefits in a market where many companies already engage in ESG practices voluntarily.

1.3 Structure of the thesis

The thesis is structured as follows. Chapter 2 provides the theoretical background, introducing key concepts such as ESG, sustainability reporting, and the CSRD, along with relevant theories like stakeholder theory, legitimacy theory and agency theory. Chapter 3 presents a review of previous research on the relationship between ESG performance and financial metrics, as well as the effects of mandatory reporting directives. Chapter 4 describes the methodology, explaining the use of the Difference-in-Differences (DiD) model and the robustness checks done to support the reliability of the regression. Chapter 5 describes the data used in this study, explaining the databases used, the data filtering process and the different tests done to make sure the data is sufficient to use. Chapter 6 presents the empirical results, including descriptive statistics, regression results and the results of the robustness checks. Finally, Chapter 7 discusses the results in the context of existing literature and theory, while concluding the study by summarizing the results, reflecting on their implications and suggesting areas for future research.

1.4 Contribution of the thesis

This thesis contributes to the increasing amount of literature on sustainability reporting and its financial implication by offering one of the earliest empirical evaluations of the CSRD's impact on corporate financial performance. While previous studies have explored the general link between ESG and financial performance, there is still limited research on how recent regulatory mandates, like the CSRD, affects companies, especially in the early stages of implementation.

By focusing on listed companies in the Nordics, the study also provides regional insight into a field that has often been dominated by analyses on the larger markets, such as U.S, Germany or China. In addition, given the Nordics' strong sustainability performance, this regional setting also provides a valuable perspective on how stricter reporting mandates affects financial performance in an already ESG-conscious market.

2 THEORETICAL BACKGROUND

This chapter provides the theoretical foundation for understanding how Environmental, Social, and Governance (ESG) factors and the Corporate Sustainability Reporting Directive (CSRD) relate to corporate financial performance. It begins with an overview of ESG factors and their importance, followed by a discussion of the relationship between ESG performance and financial performance. Key theoretical perspectives, such as stakeholder, legitimacy, and agency theory, are then introduced to explain why ESG and transparency might influence corporate financial performance. Finally, the chapter explains the CSRD, its role in corporate sustainability reporting, regulatory implications and relevance, and links this regulatory context to expected impacts on financial performance. This theoretical framework establishes the context and rationale for the thesis, logically building toward the research question on the impact of CSRD on financial performance.

2.1 ESG

Environmental, Social and Governance (ESG) criteria have become a central part of assessing the sustainability and societal impact of companies. These three components represent a framework for evaluating non-financial factors that can influence a company's long-term performance and risk profile. ESG is increasingly being used by investors, regulators and corporate managers to measure organizational resilience, ethical standing and alignment with stakeholder expectations (Aydoğmuş et al., 2022). To put it simply, ESG factors capture how well a company manages its responsibilities toward the environment, society and its own governance processes beyond traditional financial metrics.

The environmental component focuses on a company's interaction with nature and how it manages its ecological impact. It evaluates how companies manage their environmental impact, including metrics such as carbon footprint, resource use, waste management, and efforts to combat climate change. Key metrics in this component include greenhouse gas emissions, energy efficiency, sustainability initiatives and regulatory compliance. A strong environmental performance signals proactive risk management in areas such as regulatory fines, resource scarcity and reputation among environmentally aware stakeholders, as highlighted by Ademi and Klungseth (2022).

Companies that excel in environmental awareness are often seen as better prepared for future climate-related regulations and changes in consumer preferences toward green products.

The social component assesses how a company manages its relationship with employees, customers, suppliers and society. It consists of issues such as diversity, equity and inclusion, also known as DEI, employee welfare and customer safety. Specific metrics of evaluation include labor practices, diversity and inclusion, community engagement and product responsibility. Companies with strong social performance often enjoy higher employee satisfaction, customer loyalty and societal support, which can contribute to long-term profitability and reputation (Tampakoudis et al., 2021).

The governance component focuses on the internal systems, controls and processes that ensure a company's accountability, transparency and ethical behavior. This component is essential for maintaining trust with investors and other stakeholders. Important metrics for this component include board structure and diversity, executive compensation, transparency and reporting and anti-corruption measures. Strong governance indicates a well-managed company that mitigates risks associated with company mismanagement or regulatory non-compliance. Good governance is essential for maintaining trust with investors and other stakeholders, as it aligns management's actions with the interest of stakeholders, as highlighted by Aydoğmuş et al., (2022).

2.2 ESG Performance and Financial Performance

Many studies have examined the relationship between ESG performance and financial performance. Most studies suggest a positive correlation between the two, indicating that companies with established sustainability practices often achieve better financial performance. However, some studies note the relationship can be context-dependent or non-linear, and a minority of findings report neutral or even negative effects in certain situations. This section reviews key findings on how ESG performance relates to firm value, profitability, and risk, providing a foundation for why a regulatory push like the CSRD could impact financial results.

2.2.1 ESG and Firm Value

Multiple studies have demonstrated that strong ESG performance is linked to higher firm valuation. A comprehensive meta-analysis by Whelan et al. (2021), reviewing over 1 000

studies from 2015–2020, found that the majority of studies (roughly 58%) reported a positive relationship between ESG and different measures of financial performance, while only a small fraction (around 8%) reported a negative relationship. This suggests that, in general, companies with good ESG practices tend to be valued more highly by the market, as investors may view them as more stable and better prepared for future challenges. Similarly, a well-known earlier meta-analysis by Friede, Busch and Bassen (2015) aggregated over 2 000 empirical studies and concluded that approximately 90% found at least a non-negative relationship between ESG (or broader Corporate Social Performance) and financial performance, with the large majority being positive. These extensive reviews indicate that integrating ESG into business strategy is often consistent with enhancing shareholder value, rather than reducing it.

In addition to meta-analyses, regional and country-specific studies reinforce the link between ESG and firm value. For example, Velte (2017) examined listed companies in Germany and found that higher ESG scores were positively associated with market valuation (measured by metrics like Tobin's Q). In emerging markets, Yoon *et al.* (2018) reported that companies in Korea with strong ESG ratings enjoyed higher market valuations compared to those with weaker ESG profiles. A similar positive relationship was found in India, where Dalal and Thaker (2019) showed that companies with higher ESG performance tended to have higher market capitalization and valuation multiples. These studies suggest that investors in diverse markets reward companies that commit to sustainability, possibly due to expectations of better long-term performance and lower risk.

One reason ESG performance may translate into higher firm value is that ESG excellence can attract a larger base of investors, including those focused on socially responsible investing and ESG funds. Companies with good ESG reputations might also benefit from inclusion in sustainability indexes, which can further boost demand for their shares and improve liquidity. Moreover, superior ESG performance can signal effective management and foresight, attributes that investors value. Collectively, the evidence to date supports the view that strong ESG performers often trade at a premium, reflecting market recognition of their long-term oriented practices and risk mitigation (Whelan *et al.*, 2021; Velte, 2017; Yoon *et al.*, 2018).

2.2.2 ESG and Profitability

Besides market valuation, ESG performance has been linked to traditional profitability metrics such as return on assets (ROA), return on equity (ROE), and profit margins. A growing number of studies indicate that companies with better ESG scores tend to also exhibit superior accounting performance. For instance, a study by Friede, Busch & Bassen (2015) analyzed over 2 000 empirical studies and found that approximately 90% reported a non-negative relationship between ESG and corporate financial performance, with the majority indicating a positive correlation. This suggests that robust ESG initiatives are associated with higher profitability and improved financial metrics. Notably, the study also observed that the positive effect of ESG on profitability was stronger in companies that were transparent in reporting their sustainability efforts, highlighting that disclosure and communication of ESG activities can improve stakeholder trust and improve financial gains.

The positive ESG-profitability link is not limited to developed markets. Zhao *et al.* (2018) studied energy companies in China and found that companies with strong ESG practices (e.g., better environmental management and social responsibility programs) tended to achieve better financial performance and profitability. Given that the energy sector is often subject to heavy environmental regulation and scrutiny, this finding suggests that proactive management of ESG issues can turn compliance into a competitive advantage, leading to efficiency improvements and cost savings that increase profits. Similarly, a study by Buallay (2019) covering international data reported that integrating sustainability practices correlates with improved operational efficiency and profitability, in part by streamlining processes and encouraging innovation.

However, it is important to acknowledge that some research has found mixed or insignificant effects of ESG on short-term profitability. For example, a recent study on Portuguese companies by Monteiro, Roque & Faria (2024) found no immediate significant difference in financial performance (measured by ROA) between companies that publish sustainability reports and those that do not. They noted that despite regulations like the Non-Financial Reporting Directive and upcoming CSRD, the proportion of companies voluntarily disclosing comprehensive sustainability reports was still low, and any financial benefits of ESG might take longer to materialize or require more consistent integration. This suggests that while the general trend ties ESG to better profitability, results can vary by context, industry, and time frame. Overall, though, the existing evidence leans toward a positive association, especially when ESG is treated as

a strategic priority rather than a symbolic action (Friede, Busch & Bassen, 2015; Zhao *et al.*, 2018; Buallay, 2019).

2.2.3 ESG and Risk Management

Risk management plays an important role in how ESG performance can impact financial performance. Companies with strong ESG practices often experience lower risk levels and greater resilience, which in turn support financial performance stability. Research suggests that incorporating ESG considerations into corporate strategy can reduce different forms of risk, such as regulatory risk, legal risk, reputational risk, and even financial risk, thereby protecting the company from potential losses. For instance, companies with robust sustainability programs are less likely to face environmental fines or workplace accidents, and less prone to scandals or fraud, all of which can be costly. Empirical evidence supports this risk reduction view: companies with higher ESG ratings tend to have lower stock price volatility and lower cost of capital, indicating that investors view them as safer investments (Giese *et al.*, 2019). Giese *et al.* (2019) found that companies with strong ESG performance tended to have more stable stock returns and smaller losses during times of market turmoil, indicating some protection against wider economic shocks.

Further studies reinforce that ESG can serve as a form of protection against certain risks. Cheng, Ioannou and Serafeim (2014) showed that companies excelling in ESG received better terms on bank loans and access to finance, presumably because lenders perceived them as less risky and more transparent. Likewise, Lins, Servaes and Tamayo (2017) documented that during the 2008–2009 financial crisis, companies with high social capital (as measured by ESG-related metrics) had stock returns that were significantly higher than those of low-ESG companies, reflecting greater investor trust during uncertain times. These findings show that strong ESG performance can lead to financial resilience: during crises or downturns, stakeholders are more likely to stick with or even support companies viewed as responsible and well-managed.

Regulatory compliance risk is another aspect. As sustainability becomes a greater priority for regulators worldwide, companies that ignore ESG issues may face increasing regulatory scrutiny, fines, or restrictions. Eccles, Ioannou and Serafeim (2014) noted that governments and regulatory bodies have been introducing stricter ESG reporting requirements, making non-compliance a serious risk factor for companies. Companies with poor ESG practices could be exposed to sudden regulatory changes or public policy

changes, which can introduce costs or require operational changes. In contrast, companies that proactively address ESG are often better positioned to adapt to new regulations and even help shape industry standards. By staying ahead of regulatory trends (such as carbon pricing or mandatory disclosures), these companies minimize the risk of non-compliance penalties and avoid the rush that late adopters might experience.

Additionally, good ESG performance can protect and improve corporate reputation, which is crucial for long-term risk management. Companies known for ethical conduct and social responsibility are less likely to be targets of consumer boycotts, activist campaigns, or damaging media exposés. They tend to enjoy a reserve of goodwill that can mitigate the impact of any single negative event. Amel-Zadeh and Serafeim (2018) discuss how rising concerns about greenwashing (where companies exaggerate or misrepresent their ESG performance) have made investors and the public more skeptical of unproven claims. This suggests that companies truly committed to ESG, who back up their claims with credible performance and transparent reporting, can stand out and maintain stakeholder trust, whereas those who lack genuine commitment risk harming their reputation. In summary, strong ESG performance helps companies manage risks more effectively and build stakeholder loyalty, leading to better balance between risk and return (Buallay, 2019; Amel-Zadeh & Serafeim, 2018; Cheng *et al.*, 2014).

2.3 Theoretical Perspectives on Sustainability and Performance

Several theories in economics and management help explain why ESG performance and transparency might influence financial performance. This section highlights three key perspectives, stakeholder theory, legitimacy theory and agency theory, and compares them with the traditional shareholder-focused view. These theories help explain how sustainability reporting, including CSRD, can influence a company's financial performance.

2.3.1 Stakeholder Theory

Traditionally, the dominant view in economics was that a company's only responsibility is to maximize shareholder wealth. From this perspective, expenditures on social or environmental objectives aside from what is required by law are seen as a misallocation of resources that could harm financial performance. However, this view has been challenged by the stakeholder theory, which argues that a company's success depends on how well it manages relationships with all its stakeholders, not just shareholders.

According to stakeholder theory, stakeholders include not only investors but also employees, customers, suppliers, communities, and regulators, all parties that can affect or are affected by the company's actions. The stakeholder perspective suggests that creating value for stakeholders in a balanced way leads to more sustainable success for the company. In other words, attending to ESG concerns (which directly relate to stakeholder interests) can be important for achieving long-term financial performance (Donaldson & Preston, 1995). Companies that treat employees well, produce safe and useful products, minimize environmental harm, and operate ethically are more likely to earn the trust and loyalty of stakeholders, which translates into financial benefits like higher productivity, customer retention, and brand equity.

Recent empirical research also supports the idea that stakeholder-focused management contributes to financial benefits and long-term firm value. Edmans (2011) found that companies with high employee satisfaction significantly outperformed their peers in stock returns over the long-term, suggesting that prioritizing stakeholders can improve financial performance. This evidence, combined with the evidence presented previously of how ESG performance affects financial performance positively, supports the idea that companies integrating stakeholder concerns into their strategies can gain competitive advantages and financial benefits, such as stronger brand reputation and improved access to capital. With new regulatory reporting directives, like CSRD, pushing more transparent reporting, stakeholder theory becomes even more relevant in explaining how companies can benefit from these new directives both financially and non-financially.

2.3.2 Legitimacy Theory

Legitimacy theory offers a complementary perspective focused on societal expectations. It suggests that companies operate under a "social contract" with society (Shocker & Sethi, 1973), meaning they must act in accordance with societal norms and values to maintain their license to operate, or legitimacy. If a company's actions don't align with what society deems acceptable, it can lose legitimacy, leading to consequences like customer boycotts, investor withdrawal, or regulatory scrutiny. Disclosure of information, including sustainability reporting, is one method that companies use to maintain or improve their legitimacy. By transparently communicating their efforts and performance on environmental and social issues, organizations aim to demonstrate that they are behaving responsibly and according to societal expectations for corporate conduct.

In the context of sustainability reporting, legitimacy theory suggests that companies publish ESG information to justify their activities and impacts to the public, thereby securing continued approval from society. When public concern about issues like climate change, inequality, or corporate ethics is high, companies have strong incentives to show that they are on the "right" side of these issues. Voluntary reporting of sustainability initiatives has often been seen through this perspective, as a way to show alignment with societal values in hopes to secure the company's legitimacy (Deegan, 2002). For example, companies often improve their environmental disclosures following an industrial accident to show that they are addressing the problem responsibly and thereby restore public trust. Legitimacy theory differs slightly from stakeholder theory in that the audience is society at large rather than specific groups, but the two perspectives are related. Fulfilling societal expectations (maintaining legitimacy) often requires meeting the expectations of particular stakeholder groups as well.

Legitimacy theory helps explain CSRD as a way of turning evolving societal expectations into legal requirements for sustainability reporting. As sustainability has become a general concern, regulators (acting on behalf of society) now require companies to be transparent about ESG matters. From the company's point of view, compliance with CSRD is a means to maintain legitimacy. Companies that comply with the new reporting standards show their commitment to transparency and accountability, demonstrating alignment with societal and regulatory expectations. On the other hand, non-compliance could be seen as a breach of society's trust, potentially leading to backlash and sanctions. In short, legitimacy theory highlights why companies are motivated to embrace comprehensive ESG reporting: it helps ensure they remain within the bounds of acceptable corporate behavior as defined by current societal values, thereby protecting their market position.

2.3.3 Agency Theory

Agency theory provides a third perspective, focusing on the relationship between a company's managers (agents) and its owners or shareholders (principals), and how information disclosure can mitigate conflicts of interest between them. From a strict shareholder-value perspective, if managers spend corporate resources on social or environmental projects that do not clearly generate a financial return, they may be pursuing personal agendas or appeasing other stakeholders at the expense of the shareholders, essentially a form of agency cost (Jensen & Meckling, 1976). The

traditional skeptical perspective on CSR viewed such initiatives as self-serving actions by managers to expand their influence, which were only justified if they led to financial gains for the company.

However, agency theory also highlights how mandated ESG disclosures, such as CSRD, might actually reduce agency costs and information asymmetry. One of the core ideas of agency theory is that transparency and monitoring can align the interests of agents with those of the principals. By requiring managers to publicly report on ESG metrics and risks, CSRD increases transparency around how management is addressing, or failing to address, sustainability issues that could be impactful to the company's long-term value. This greater transparency can prevent managers from neglecting important ESG risks or from superficial image-building rather than taking meaningful action. Standardized reporting holds management accountable not just for financial results, but for non-financial performance areas as well. Investors (the principals) gain a more transparent view of the company's ESG practices, which helps them evaluate management's leadership and potentially require changes if performance is lacking. In this way, CSRD can be seen as a governance improvement: it channels managerial efforts toward measurable sustainability targets and makes any shortcomings visible to shareholders, thereby aligning management actions with the long-term interests of the company.

Additionally, by reducing information asymmetry, mandated ESG disclosures can positively impact capital markets in line with agency theory predictions. When all large companies must report comprehensive and standardized ESG data, investors have an easier time comparing companies and pricing their risks, which should lead to a more efficient allocation of capital. Companies with robust sustainability practices will be recognized and potentially rewarded with higher valuations or lower financing costs, while companies with poor practices will face pressure to improve or risk capital costs. For instance, studies have found that when companies voluntarily improve their sustainability disclosures, they often enjoy a reduction in information asymmetry and even a lower cost of capital, supporting these arguments (Dhaliwal et al., 2011). Overall, agency theory suggests that CSRD's mandated transparency can limit managerial opportunism and encourage decisions that improve long-term firm value, by making both financial and non-financial performance more accessible to shareholders.

2.4 Corporate Sustainability Reporting and CSRD

With an understanding of ESG factors and why they matter, it is important to discuss corporate sustainability reporting as a mechanism for transparency and accountability. In recent years, sustainability reporting has evolved from a mostly a voluntary practice to a regulated requirement for many companies, especially in Europe. The Corporate Sustainability Reporting Directive (CSRD) represents a significant milestone in this regulatory progression. This section explains the role of sustainability reporting, the emergence of CSRD and its key requirements, and why CSRD is relevant for companies' strategy and performance.

2.4.1 Evolution of Sustainability Reporting

Historically, companies disclosed social and environmental information mostly on a voluntary basis. Early corporate social responsibility (CSR) reports or sustainability reports were published by only a few companies to showcase their commitment to stakeholders and manage their reputation. Frameworks such as the Global Reporting Initiative (GRI), first released in the late 1990s, provided guidelines for voluntary sustainability reporting and helped standardize what companies reported. Over time, as investor interest in ESG grew and comparability became an issue, there were calls for more standardized and mandatory reporting standards (Eccles *et al.*, 2014). In some countries, regulations began to appear. For example, Denmark and France were among the early adopters of laws requiring certain sustainability disclosures by large companies in the 2000s, and stock exchanges in some markets introduced ESG disclosure requirements for listed companies.

In the European Union, a significant step was the Non-Financial Reporting Directive (NFRD), enacted in 2014 (Directive 2014/95/EU). The NFRD required large public-interest companies (generally those with over 500 employees, such as listed companies, banks, and insurers) to report on environmental, social and employee matters, human rights, anti-corruption, and diversity as of 2018. This directive marked the change of ESG reporting from voluntary to semi-mandatory for thousands of European companies, aiming to increase corporate transparency on non-financial issues. While the NFRD improved reporting practices, it also had limitations: companies had flexibility in how and what to report, leading to inconsistencies and difficulties in comparing reports between companies. Additionally, many medium-sized companies and non-listed

companies were outside its scope, and the reporting requirements were not seen as being detailed enough to meet the information needs of investors and other stakeholders.

Globally, the demand for standardized sustainability reporting has increased. Initiatives such as the Task Force on Climate-related Financial Disclosures (TCFD) and the more recent creation of the International Sustainability Standards Board (ISSB) in 2021 highlight the growing demand to disclose ESG information in a standardized and a comparable manner, similar to financial reporting. Investors and analysts increasingly integrate ESG data into their valuation models, which creates demand for higher quality and more comparable sustainability reporting (Ioannou & Serafeim, 2019). This increased demand led the European Union to significantly improve its sustainability reporting framework, resulting in the Corporate Sustainability Reporting Directive.

2.4.2 CSRD Overview

The Corporate Sustainability Reporting Directive (CSRD) is a comprehensive EU regulation that significantly expands and standardizes sustainability reporting requirements for companies. Passed by the European Parliament and Council in 2022, the CSRD replaces and builds upon the earlier NFRD. Its aim is to improve the consistency, comparability, and quality of sustainability information disclosed by companies, thereby enabling better decision-making by investors, stakeholders, and policymakers (European Commission, 2022). The CSRD is an important part of the European Green Deal's goal to direct capital towards sustainable businesses and manage climate and social risks in the economy.

The CSRD significantly increases the number of companies required to report on sustainability. It expands the reporting obligation to all large companies (whether listed or not) and to listed small- and medium-sized enterprises (SMEs), with some adapting periods and exceptions for small enterprises. In total, an estimated over 50 000 companies in the EU will fall under CSRD's scope, a big increase from about 11 000 under the NFRD (European Commission, 2022). It also applies to EU subsidiaries of non-EU companies and non-EU companies listed on EU exchanges, meaning it impacts companies globally. This wide scope ensures that sustainability reporting becomes a norm for most significant market participants, not just a minority of companies.

A key element of the CSRD is the concept of double materiality, which requires companies to disclose not only how sustainability issues impact their financial

performance but also how their operations affect society and the environment (European Commission, 2022). This perspective expands on traditional corporate reporting by ensuring that companies acknowledge both external ESG risks and their own contributions to environmental and social outcomes. The sustainability report is not an independent report but must be integrated into the company's annual management report, reinforcing the directive's objective that ESG factors are central to corporate performance and decision-making.

To improve the quality and credibility of reported information, the CSRD introduces an assurance requirement, meaning that sustainability data must be externally verified. Initially, companies will be required to obtain limited assurance from independent auditors or certifiers, with a transition towards proper assurance, similar to financial audits, expected in the future (European Commission, 2022). This requirement ensures greater accuracy in ESG reporting and reduces the risk of greenwashing by holding companies accountable for their sustainability claims. Furthermore, the directive mandates that all reported ESG information be published in a digital, machine-readable format, using structured electronic tagging to facilitate accessibility for investors and regulators.

The implementation of the CSRD follows a phased approach, beginning with the largest companies that were already subject to the Non-Financial Reporting Directive (NFRD), which will apply the new rules for the 2024 financial year, with reports published in 2025. Other large companies will be included in the following years, while listed small and medium-sized enterprises (SMEs) will begin reporting later, with an optional transitional period. Financial institutions and insurance companies are also covered under the directive (European Commission, 2022). By gradually expanding the scope of mandatory ESG reporting, the CSRD ensures that companies have time to adapt while progressively moving towards a standardized and transparent sustainability reporting framework.

2.4.3 Regulatory Implications and Corporate Responses

The introduction of the CSRD carries several important implications for companies and their stakeholders. At its core, it marks a major regulatory change, making it clear that sustainability is no longer optional, but a key part of corporate accountability. Companies are expected to treat sustainability with the same seriousness as financial reporting. This has led to many companies improving their sustainability governance, such as

establishing ESG committees at the board level, hiring sustainability officers and integrating ESG risks into risk management.

One implication is increased compliance costs and challenges in the short term. Especially for companies that were not previously reporting extensive ESG data, the need to comply with CSRD can require significant effort. Companies may need to implement new systems to track carbon emissions across operations, gather data from supply chains, or conduct human rights due diligence, among other things. There may also be a need to train staff or hire experts to prepare ESG disclosures in line with the European Sustainability Reporting Standards (ESRS). Consulting companies have noted that many companies could face difficulties in data availability and quality initially, as well as in understanding the technical reporting standards (EY, 2023). However, these initial costs and challenges are generally expected to be outweighed by the benefits of better risk management and potentially improved reputation. Over time, companies that successfully integrate CSRD compliance can streamline their reporting processes and even use their advanced sustainability management as a competitive advantage.

Another implication involves legal and reputational risk. With mandated disclosure, companies that perform poorly on certain ESG aspects will no longer be able to keep that information hidden. This exposure creates a stronger incentive for management to proactively improve ESG performance. If a company ignores a material sustainability issue, it risks public criticism, investor withdrawal, or activist pressure once the issue is revealed in its CSRD report. In addition, failure to report accurately or efforts to misrepresent information can lead to legal penalties under the directive and severe reputational damage if stakeholders view the company as dishonest. In this sense, the CSRD raises the stakes for corporate behavior, companies have to deliver on their sustainability promises, not just engage in greenwashing, because the scrutiny and verification are much more intense (Amel-Zadeh & Serafeim, 2018). Many companies are responding by strengthening their internal controls and monitoring of ESG data to ensure they can withstand audit and public examination.

The CSRD also has implications for investor relations and capital access. Institutional investors, such as asset managers and banks, are also under pressure (from regulations like the Sustainable Finance Disclosure Regulation and from client demands) to incorporate sustainability into their decisions. The standardized data from CSRD reports will feed directly into investors' assessment models. Companies with strong ESG metrics and transparent reporting could benefit from a larger pool of ESG-focused investors and

potentially a lower cost of capital, as they will be seen as lower risk (Cheng et al., 2014). On the other hand, companies that disclose significant ESG risks without an effective risk management strategy might see investors demand a risk premium. Over time, companies seen as leaders in sustainability may see higher valuations and easier access to capital, while those falling behind could face financial consequences from the market. This dynamic makes compliance a strategic advantage, it's not just about avoiding penalties, but also about attracting investment by showcasing leadership in sustainability.

Lastly, from a macroeconomic perspective, the CSRD's implementation may lead to a reallocation of capital and changes in competition. Industries or companies that have been slow to address ESG issues could find themselves at a disadvantage as stakeholders favor more sustainable alternatives. Meanwhile, companies that adopted ESG practices early can gain advantages, as they are already prepared to meet the requirements and can showcase their strong sustainability credentials. There is also an aspect of creating a level playing field: since CSRD applies to all large companies, ensuring that the burden of reporting is shared, rather than only falling on companies that voluntarily chose transparency while others avoided ESG disclosures. Now, sustainability transparency becomes a universal expectation, possibly driving competition in ESG performance as companies know their data will be public and comparable.

2.5 Linking CSRD to Financial Performance

Given the strengthened connection between sustainability practices and corporate financial performance, it is important to consider how the CSRD, by mandating sustainability reporting, might influence financial performance. The relationship is not necessarily straightforward, but theoretical arguments and early evidence from similar situations suggest several ways through which CSRD could impact company financials. Fundamentally, the CSRD can be seen as a driving force that forces companies to integrate sustainability initiatives, thereby potentially affecting their costs, risk, and reputation in ways that eventually affects the bottom line and valuation.

One direct way is through improvements in management and strategy. By requiring companies to measure and disclose ESG data, CSRD forces managers to pay closer attention to these aspects of the business. Research by Ioannou and Serafeim (2019) on the consequences of mandatory sustainability reporting supports this. They found that in countries where regulations mandated sustainability disclosure, companies

responded by increasing their focus on ESG issues. Managers became more aware of social and environmental matters, and companies implemented more ethical practices and better governance structures. In their study, companies operating under such regulations saw improvements in outcomes like reducing corruption and improving employee training, compared to companies in countries without mandatory reporting. This suggests that when companies have to report ESG performance publicly, they are motivated to actually improve that performance to avoid looking bad. Over time, such improvements (e.g., energy efficiency, talent retention, innovation in sustainable products) can reduce costs or open new revenue opportunities, which will have a positive effect on financial performance. Essentially, CSRD could drive a management quality effect, encouraging companies to invest in management and be more future-oriented, which investors ultimately reward with higher valuations (Ioannou & Serafeim, 2019).

Another way is through investor perceptions and information quality. Mandatory standardized reporting reduces information asymmetry between companies and investors regarding ESG. When all companies provide standardized and comparable ESG data, investors can more accurately value risks and opportunities related to sustainability. A study by Grewal, Riedl, and Serafeim (2020) on the market reaction to the earlier EU NFRD found that, on average, investors reacted positively to the increased transparency, especially for companies that previously had lacking disclosure. The improved disclosure can increase investor confidence, potentially leading to stock revaluation for some companies. However, Grewal et al. (2020) also noted that companies with previously poor and undisclosed ESG practices experienced a negative market reaction once they had to reveal this information, highlighting that the market reaction can differ depending on a company's starting point. In the context of CSRD, one might expect a similar pattern. Companies that are prepared and perform strongly on ESG could benefit from improved reputation and investor demand when they showcase their strengths, whereas companies that have neglected ESG may face an adjustment period where their weaknesses are exposed. In the long run, however, the market may become better at pricing sustainability, which rewards companies that prioritize sustainability and penalizes the ones that don't. (Grewal et al., 2020).

CSRD can also indirectly affect financial performance by changing stakeholder behavior and expectations. For example, increased transparency might increase trust with consumers and business partners. A company that openly reports its sustainability initiatives and progress could strengthen its brand loyalty among consumers who value

corporate responsibility, potentially leading to higher sales or the ability to charge premium prices. From a supply chain perspective, customers and business partners are increasingly conducting ESG due diligence, a CSRD-compliant report could become a competitive advantage or even a requirement for doing business in certain industries. Additionally, employees tend to prefer employers with strong sustainability commitments. As a result, CSRD-driven transparency might improve a company's ability to attract and retain talent, which is beneficial for productivity and innovation. These stakeholder effects, while hard to put in numbers immediately, build competitive advantage and resilience that result in better financial performance over time. By aligning corporate practices with stakeholder values, CSRD essentially puts stakeholder theory into practice on a large scale, potentially leading to a more sustainable economy that benefits both companies and society (European Commission, 2022).

It is also worth noting that the impact of CSRD on financial performance may not be equally positive for all companies in the short term. There are costs of compliance and adjustments that can show in the financials, such as investments in new systems or initiatives to address identified ESG shortcomings. Smaller companies or those in high-impact industries might face pressure as they implement required changes. In some cases, companies could decide to withdraw from particularly unsustainable lines of business, which might lead to short-term losses. However, the theoretical expectation is that these moves position companies for better long-term performance, reducing the risk of failures or fines, and aligning operations with emerging market opportunities in the green economy. Over the long term, any initial costs are likely to be offset by gains in efficiency, risk reduction, and brand value, as discussed earlier (Cheng et al., 2014).

In summary, the CSRD can be seen as a powerful driver that reinforces the integration of ESG into core business strategies. Based on the theories and empirical findings reviewed, one would anticipate that, on average, companies responding seriously to CSRD will improve their management practices, reduce information asymmetries with investors, and improve stakeholder relations, all of which are conducive to stronger financial performance.

This thesis is built on the premise that mandatory sustainability reporting (through CSRD) will have a measurable impact on financial performance indicators, and it aims to empirically test this using a difference-in-differences approach. By examining how companies' financial metrics change in response to the CSRD relative to appropriate metrics, we can observe whether the theoretical benefits of ESG transparency materialize

in practice. The theoretical framework presented in this chapter provides the basis for establishing the expected relationships and interpreting the results given the established knowledge and theories. Ultimately, understanding the impact of CSRD on financial performance will contribute to the ongoing debate on the value of sustainability in business and inform both corporate managers and policymakers about the outcomes of this, and possibly any future, major regulatory initiative.

3 REVIEW OF EXISTING RESEARCH

This chapter examines empirical research on the relationship between ESG performance and corporate financial performance, focusing on what previous studies have found regarding the topic. Unlike the previous chapter, this section reviews key empirical findings from different research methodologies. The chapter first explores general evidence on how ESG performance affects firm value, profitability and risk. It then discusses studies on mandatory ESG disclosure, particularly the impact of regulatory interventions, like the CSRD, and how companies respond to increased transparency requirements. Finally, the chapter highlights the gaps in the existing literature, setting the stage for the research question in this thesis.

3.1 ESG Performance and Financial Performance

There exists plenty of previous research investigating whether companies that perform well on ESG criteria also perform well financially. Overall, the evidence shows a positive association between sustainability practices and firm performance. For example, a comprehensive meta-analysis by Friede, Busch & Bassen (2015) aggregated results from over 2 000 empirical studies and found that roughly 90% of those studies reported a non-negative relationship between ESG and financial performance, with the large majority finding a positive impact. Similarly, Whelan et al. (2021) reviewed over 1 000 studies between 2015 and 2020 and reported that 58% of these studies showed a positive relationship between ESG and financial performance, while only 8% found a negative relationship. These reviews suggest that integrating ESG into business strategies is often beneficial to financial results.

Many individual empirical studies in different regions support this positive relationship. Quantitative analyses using firm-level data frequently find that ESG ratings correlate with higher market valuation and profitability. Velte (2017) examined German listed companies and found that those with better ESG scores had significantly higher market valuation. In a study of Korean companies, Yoon, Lee & Byun (2018) similarly reported that strong ESG performance was associated with enhanced firm value. Dalal & Thaker (2019) conducted a panel study on Indian corporations and observed a positive relationship between ESG scores and both market capitalization and accounting performance. In the U.S, recent research by Ademi & Klungseth (2022) show that

companies delivering superior ESG performance tend to enjoy better financial results, reinforcing the business aspect for sustainability. These findings support the assumption that investors reward companies committed to ESG actions, possibly due to expectations of better long-term growth and risk management.

Aside from stock market value, ESG performance has also been linked to accounting measures of profitability. Numerous studies document that companies with higher ESG or sustainability have higher Return on Assets (ROA) and Return on Equity (ROE) metrics and profit margins. For example, Aydoğmuş et al. (2022) found a positive impact of ESG performance on both firm value and profitability in emerging markets. Buallay (2019), focusing on the European banking sector, reported that banks with sustainability reporting had higher operational efficiency and profitability, suggesting that ESG initiatives can streamline processes and foster innovation even in the financial sector. This evidence implies that good ESG practices can contribute to internal advantages, which translate to better financial performance.

ESG performance has also been associated with lower financial risk and cost of capital, which indirectly benefits performance. For example, Cheng, Ioannou & Serafeim (2014) showed that companies with strong ESG performance enjoyed better access to financing, receiving favorable terms on bank loans, most likely due to lenders seeing these companies as less risky and more transparent. Similarly, El Ghoul et al. (2011) found that companies with higher CSR ratings had a lower cost of equity capital, indicating that investors demand lower risk premiums. Lins, Servaes & Tamayo (2017) provided evidence that during the financial crisis of 2008, companies with higher social capital had significantly higher stock returns. These studies suggest that effective management of ESG issues can be seen as a risk mitigation tool, protecting companies against volatility and unexpected costs, which supports financial stability and performance. Supporting this, Dhaliwal et al. (2011) found that companies initiating voluntary sustainability disclosures later experienced a reduction in information asymmetry and a lower cost of equity, further supporting the link between transparency on ESG initiatives and improved financial performance.

3.2 Mixed Findings and Negative Evidence

While there is a general consensus in previous research that there is a positive relationship between ESG performance and financial performance, it is important to acknowledge studies that report either neutral or negative effects. Not all empirical

research found clear benefits from ESG initiatives. Some studies suggest that the relationship between ESG performance and financial performance can be very dependent on the circumstances, such as industry, region or time period. For instance, a recent study on Portuguese companies by Monteiro, Roque & Faria (2024) found no immediate significant difference in ROA between companies that publish sustainability reports and those that do not. They noted that despite regulations pushing more companies to report on ESG initiatives, simply producing a sustainability report did not automatically lead to financial benefit. This result might suggest that ESG efforts take time to materialize or depends on how much effort companies truly put into sustainability initiatives.

Similarly, an analysis by Nampoothiri et al., (2024) examined the EU's 2017 mandate for sustainability disclosure (NFRD) and reported that mandatory ESG disclosure had no statistically significant effect on firm value on average. The authors did observe some minor differences between industries, implying thar certain industries might benefit or suffer from ESG disclosures. Some studies have also found a negative relationship in specific scenarios, such as in cases when ESG initiatives could decrease profits if the costs outweigh the benefits, or if the ESG initiatives are not valued by investors. In the meta-study by Whelan et al. (2021), roughly 8% of studies did report a negative relationship between ESG performance and financial performance. These outliers often attribute the reasons to increased operational costs, inefficient use of resources or situations where ESG activities are more symbolic than concrete (for example greenwashing). If ESG efforts are poorly managed or not supported by strategy, they might lead to expenses rather than financial returns.

These mixed findings ensure a balanced view of the topic. Companies with strong ESG performance might perform better financially, but it is not a guarantee. Factors such as industry characteristics, regulatory environments and the time period play an important part in the outcome. Another factor that plays a key role in studies is the time frame of an analysis. Sustainability benefits can take time to show any financial benefits, and due to this, studies on short-term effects might show negative results. The mixed evidence also supports the need for additional research, as it is still quite unclear when and how ESG creates value.

3.3 Impact of Mandatory ESG Disclosures on Firm Performance

With the increase of regulatory intervention in sustainability reporting during the last decade, there has also been a growing interest in literature on mandatory ESG disclosure directives. Historically, ESG disclosures have been voluntary, but recent regulations are making these disclosures mandatory, forcing companies to be more transparent in their sustainability efforts. Following this, there has been research about how different reporting directives has affected different financial metrics of companies affected by these directives.

A study by Ioannou & Serafeim (2019) looked at the introduction of sustainability reporting mandates in several countries. Using a DiD approach, they found that companies required to disclose sustainability information significantly increased their disclosure levels compared to similar companies without the mandate. The required increase in transparency was accompanied by an increase in firm value (reflected in a higher Tobin's Q value). The authors' analysis suggested that the jump in sustainability disclosure caused by regulations was a factor in these gains. The study supports the idea of disclosure mandates leading to companies improving their practices, which are then rewarded by investors with higher valuations.

Another study by Grewal, Riedl & Serafeim (2018) examined the market reaction to the EU's earlier reporting directive, NFRD. This 2014 directive mandated large EU companies to disclose non-financial information, starting in 2018. The authors' found that, on average, investors reacted positively to the announcement of mandatory ESG disclosure requirements. In particular, companies with poor previous disclosures saw a stronger increase in share price, suggesting that the market valued the new transparency following this directive. The findings of this study indicates that mandatory reporting can reduce information asymmetry between companies and investors, potentially lowering uncertainty and risk. Also worth noting is that for companies that were already providing transparent sustainability reporting, the market reaction was stale, implying that the transparency in sustainability reporting was already reflected in the share price.

Also noteworthy is that not all findings are positive, and the research on the relationship between financial performance and mandatory sustainability reporting is still relatively scarce. As mentioned earlier, Monteiro, roque & Faria (2024) did not find an immediate performance increase following sustainability reporting in Portuguese companies, subject to the NFRD. Other researchers have raised the issue that with new reporting

mandates come increased costs which could temporarily impact financial performance negatively. For example, if a company must invest in new systems and initiatives to meet CSRD requirements, its short-term profits may decrease due to these increased costs, where the benefits might be more long-term. The study by Nampoothiri et al. (2024) supports this view, showing no significant immediate effect in the first years of NFRD implementation. The findings of these studies may indicate that the benefits of sustainability reporting directives can take time to materialize, as companies adapt to new disclosure requirements and integrate the new required sustainability practices into their operations.

3.4 Literature Gaps and Research Justification

Despite the extensive research on ESG and its impact on financial performance, there are still gaps that remain in the literature, especially regarding reporting directives. Many previous studies have found a correlation between ESG performance and financial performance, but it is challenging to determine causation. Companies with strong ESG performance might perform well financially due to other factors, such as superior management or industry conditions. There is a need for more studies from different perspectives to try and find the causal effect of ESG performance on financial performance. This gap is critical because without the causal evidence, it is hard to establish that improving ESG performance will cause better financial performance.

The introduction of CSRD presents a new and unstudied area, due to it being such a recent directive. While there are studies that have been conducted on mandates like the NFRD, the literature on mandatory ESG reporting and firm performance is still scarce. There is a lack of comprehensive evidence on how a reporting mandate affects profitability, stock performance or even other financial metrics considered important metrics in measurement of financial performance. With CSRD, there is a new opportunity to study these effects. Another gap is the mixed results and contextual factors that have been addressed in previous studies. Many factors' importance in these types of studies are still relatively unknown, such as how much industry-specific dynamics affect the financial results of ESG reporting, or the difference between short-term and long-term outcomes of these mandates. The geographic scope of this study also provides a new perspective, as the Nordics already have high sustainability standards, and the Nordic market has not been subject to many previous ESG-financial performance related studies.

4 METHODOLOGY

This chapter explains the research design and empirical strategy used to identify the causal impact of the Corporate Sustainability Reporting Directive (CSRD) on company financial performance. The study adopts a Difference-in-Differences (DiD) approach, a quasi-experimental method well-suited for policy impact analysis in observational data. In the following sections, the theoretical foundation of the DiD methodology is explained along with its key assumptions and why it is appropriate for this research. The identification strategy is then detailed, including the definition of treatment and control groups and the crucial role of the parallel trends assumption. Finally, we describe a series of robustness checks to validate the findings, including tests for parallel trends, placebo experiments, alternative control specifications, an event study analysis, examination of heterogeneous effects, and methods to address heteroskedasticity, serial correlation, and common support. Throughout, we emphasize the importance of using proper statistical models and clustered standard errors to ensure unbiased and reliable estimates.

4.1 Difference-in-Differences Approach

The Difference-in-Differences (DiD) approach is a widely used econometric method for estimating causal effects in cases where randomized experiments are not reliable. Originally developed in economics, it builds on the idea of before-and-after comparisons (Columbia University). The key idea behind DiD is that by comparing the change in outcomes over time for a group affected by a policy to the change observed in a group that remains unaffected, it is possible to isolate the policy's effect from other factors that may be influencing both groups. This makes DiD a useful tool for analyzing regulatory changes like the CSRD.

One of the core strengths of DiD is that it accounts for fixed differences between companies that stay the same over time, such as industry characteristics. Since the method does not rely on assuming that treated and control companies are identical in all aspects, it is suitable for real-world policy analysis, where perfect comparability is often impossible. Instead of simply comparing companies before and after the CSRD, which could be misleading due to other macroeconomics factors, DiD identifies how financial performance changed over time for companies subject to CSRD and compares this to the change observed in companies who are not subject to CSRD.

A major assumption with a DiD regression is the parallel assumptions trend. This assumption means that in the absence of treatment, the treatment and the control group would have followed similar trends. If this assumption holds, then any deviation from the expected path in the treatment group after CSRD implementation can be attributed to the directive itself rather than to pre-existing differences between companies. However, if the treatment and control groups have different trends, even before CSRD, then the results of the analysis might be biased. For this reason, a parallel trends test is a crucial step in ensuring the reliability of the analysis (Bertrand, Duflo & Mullainathan, 2004).

DiD is considered to be a highly reliable method for evaluating policy effects, especially in cases where a regulation is implemented at a specific time, and applies to only some companies (Abadie, 2005). The CSRD implementation creates a natural before-and-after scenario, making DiD an appropriate choice for estimating its financial impact. A simple post-treatment comparison between companies would fail to account for macroeconomic trends. By using a comparison group of companies from the financial sector, the DiD approach helps address these concerns and provides a more robust result on how CSRD influences corporate financial performance.

Using DiD in this study is not only methodologically reliable but also fits the best practices in policy impact evaluation. Previous studies on corporate regulations and financial performance have successfully applied similar methodologies to assess the consequences of regulatory changes, including ESG disclosure mandates (Autor, Dorn & Hanson, 2013).

4.1.1 DiD Regression in SPSS

Although SPSS does not offer a function for the DiD regression, the method can still be implemented using a standard linear regression model, by manually constructing the required variables. To apply the DiD method in SPSS, three key variables are used. A binary Treatment variable, identifying the treatment group and the control group, a binary Post variable, identifying the treatment year (1 for 2024, 0 for 2023 and 2022) and an interaction variable (TreatPost), created by multiplying the Treatment and Post variables. This interaction variable captures the DiD estimator and represents the average treatment effect on the treatment group. The DiD model is then estimated using SPSS's linear regression function, with TreatPost as the main independent variable.

The regression will then be run for each dependent variable, including Tobin's Q, EV/EBITDA, ROA, ESG Score and then the subsequent E, S, G Scores. Given the relatively short time span of the dataset and the focus on group-level treatment effects, this method is deemed appropriate for estimating the impact of CSRD on the selected financial performance metrics.

4.2 Robustness Checks

To ensure the reliability of the DiD estimates, it is essential to validate the key assumptions and rule out the possibility that the results are being affected by other factors than CSRD. This study applies several robustness checks to strengthen the credibility of the findings. These include testing the parallel trends assumption to confirm that treated and control companies followed similar financial performance trajectories before CSRD, conducting a placebo test to check for misleading treatment effects in pre-treatment periods, performing a sensitivity analysis to assess how excluding certain years affects the results, and using alternative financial performance metrics to ensure that the results are not dependent on any specific variable. Each of these tests is explained in detail in this section, along with their role in reinforcing the validity of the analysis.

4.2.1 Parallel Trends

In a DiD analysis, there is a fundamental assumption called the parallel trends assumption. It suggests that, in the absence of treatment, the average results of both the treatment group and the control group would have followed "parallel paths" over time. This assumption is very important because it allows us to attribute any differences after the treatment to the treatment itself, rather than to differences that may have already existed between groups before.

To check whether the parallel trends assumption holds, researchers usually compare the patterns of the outcome variable in both groups before the treatment. Visual inspection involves plotting these patterns to identify whether they show similar patterns before the treatment. Additionally, statistical methods, such as equivalence tests, can be used to test for differences in pre-treatment trends, providing a more robust evaluation of this assumption (Bilinski & Hatfield, 2018).

Ensuring that the parallel trends assumption holds is essential for the internal validitry of DiD analyses. If this assumption is violated, the estimated treatment effects may be biased, leading to incorrect conclusions about the impact of the intervention (Roth, 2018).

To evaluate whether this assumption is valid in this study, the pre-treatment development of the variables will be examined for both the treatment group and the control group. This will be done in two ways, by visual inspection and by a statistical test. Visual inspection will be done by plotting the average values of the variables for both groups across time. If the trends appear roughly parallel before the CSRD implementation, the assumption is supported. The statistical test will be conducted through a simplified DiD model, using only the pre-treatment period (years 2022 and 2023), with an interaction term between group and time. If this interaction is statistically insignificant, it suggests that there were no differences in trends before treatment, providing further support for the assumption.

4.2.2 Placebo test

The primary goal of a placebo test in DiD is to verify that no treatment effect is detected during a period when the treatment has not yet occurred. By assigning a fake treatment date to the pre-treatment period and re-estimating the DiD model, we can observe whether the model incorrectly detects an effect. A non-significant result in this placebo result suggests that the observed results in the actual post-treatment period are attributable to the treatment itself, rather than to pre-existing trends or model biases.

To conduct the placebo test, we will use the same DiD model as used in the main analysis, but this time with a fake treatment date set in the pre-treatment period (before 2024). The idea is to simulate a scenario where the treatment is assumed to have taken place before it actually did. If the model finds a statistically significant effect with this fake date, it suggests that the results from the main model are influenced by unrelated factors than the actual treatment itself. Once the model is estimated, the interaction term between treatment and the fake post-treatment period is examined. If this term is not statistically significant, it supports the idea that the original model is sufficient enough to detect treatment effects. However, if a significant effect appears where no actual policy change occurs, it would raise concerns about the validity of the results (Clarke & Tapia-Schythe, 2021).

5 DATA

This chapter presents the dataset utilized in this study, detailing the sources from which the data was obtained and the rationale behind the selection of specific financial metrics. It also explains the filtering process applied to the initial sample to ensure its relevance and reliability for the analysis.

5.1 Data Collection

The dataset used in this study has been collected from three primary sources to ensure comprehensive coverage of both ESG performance and financial performance. ESG data was obtained from the London Stock Exchange Group (LSEG) database, or Refinitiv, which provides standardized and detailed ESG disclosures for publicly traded companies. To ensure data consistency, the initial dataset was restricted to companies listed in Finland, Sweden, Norway and Denmark, due to the study's focus on the Nordic market. Since sustainability reporting practices differ between companies, an initial filtering step was applied to exclude companies with insufficient ESG data, ensuring that only companies with reliable and consistent disclosures remained for analysis.

Following this filtering process, the International Securities Identification Numbers (ISINs) of the remaining companies were used to retrieve financial data from Wharton Research Data Services (WRDS) and Orbis databases. WRDS and Orbis combines financial information from multiple sources, providing robust and widely used financial metrics essential for assessing corporate performance. This two-step approach ensures that the final dataset consists of companies which both ESG and financial data are available, minimizing biases from incomplete or inconsistent reporting.

The study covers the period 2022-2024, a timeframe chosen to capture both pre- and post-implementation effects of CSRD. The reasoning behind not including years prior to 2022 is that 2021 can be considered a COVID-19 pandemic year, which was another major event, which had financial implications. The exclusion of years prior to 2022 is important, as the study can then better identify the effects only related to the regulatory changes.

5.1.1 Rationale Behind LSEG's ESG Ratings

The London Stock Exchange Group (LSEG) is a globally recognized provider of financial data and analytics. The Group owns Refinitiv, a major financial data platform, which supplies ESG ratings to investors, analyst and companies. These ratings are designed to offer a standardized measure of how well companies manage ESG risks relative to their industry peers.

LSEG's ESG rating methodology is entirely data-driven and relies on publicly available information rather than subjective assessments. The ratings are built on an extensive framework that evaluates companies across three core factors: environmental, social and governance. Data is collected from multiple sources, including annual reports, sustainability disclosures, company websites and reputable news media. With over 630 ESG measures tracked, LSEG applies a standardization process to ensure that the data is comparable across industries and regions.

Once the data is collected, companies receive an ESG score that reflects their performance in each of the three ESG categories. The three different categories consider different category-related factors, and every category is given a score ranging from 0 to 100, with a higher score indicating stronger ESG performance. Additionally, LSEG uses an industry-relative weighting system to ensure that ESG risks are evaluated in the context of each company's sector. For instance, carbon emissions carry more weight for energy companies than for financial institutions, etc.

After calculating individual category scores, LSEG assigns each company an overall ESG rating, which is expressed both as a numerical score and a letter-based ranking. These ratings allow for easy comparison between companies, providing investors with a quick assessment of a company's ESG standing. A notable feature of LSEG's methodology is that it penalizes companies with limited ESG disclosures by assessing them lower scores, as a lack of transparency is considered a sustainability risk itself.

5.2 Data Filtering Process

The initial dataset consisted of a wide selection of Nordic companies with available ESG Scores. These scores served as a starting point for building the final sample, as ESG performance is a core component of the study, and the least consistently reported. After identifying that a company had available ESG data, the next step was to match each company with financial information, retrieved from the Orbis and WRDS databases.

To ensure the reliability and consistency of the analysis, only companies with comprehensive data, i.e. companies with both ESG scores and all required financial metrics available for all three years, were included in the final dataset. If a company had missing or incomplete data for any of the years covered in the study, it was completely excluded from the sample.

The data was then collected and organized in a panel data format, enabling the use of regression models. This filtering process was necessary to ensure balanced panel data and allow for a reliable comparison across companies and over time. The final dataset includes companies from Sweden, Denmark, Norway and Finland, with a distribution of companies per country shown in Table 1 below. Table 2 also shows the firm-year observations in the treatment group and the control group.

Table 1 Sample by Country

Country	Before Data Filtering	After Data Filtering
Sweden	310	82
Denmark	64	28
Norway	87	15
Finland	73	24
Total	**534**	**149**

Table 2 Sample distribution into Treatment and Control Groups

Country	Treatment Group	Control Group
Sweden	69	177
Denmark	3	81
Norway	6	39
Finland	9	63
Total	**87**	**360**

5.3 Data Testing

Before conducting the DiD regression analysis, it is essential to examine the characteristics of the data to ensure robustness and reliability of the results. This study performed a correlation and normality testing to identify potential issues that could compromise the reliability of the models.

Correlation testing was conducted to assess the degree of linear association between the variables, with particular attention to potential multicollinearity between the independent variables. Normality testing was also conducted to evaluate the distribution of the key variables. Although linear regression does not require independent variables to be normally distributed, the assumption of normally distributed residuals is important because it ensures that the conclusions we draw from the regression are trustworthy. Testing for normality also supports decisions to transform or winsorize variables, helping the mitigation of skewed distributions and outliers.

5.3.1 Correlation

To assess the relationships between the variables in the dataset, a Pearson correlation matrix was generated. This analysis helped identify the strength and direction of linear associations between both the dependent and independent variables. The correlation matrix also served as an initial check for potential multicollinearity, which could distort regression estimates.

The results of the Pearson correlation matrix revealed that none of the correlations between independent variables exceeded the commonly used threshold of 0.8, suggesting that multicollinearity is not a concern in the dataset. Table 4 presents the correlation matrix, which is discussed further in chapter 6.1.

5.3.2 Normality testing

Before conducting the regression analysis, the distribution of the dependent variables was examined to assess whether it follows a normal distribution. Testing for normality is an important step, as non-normal distributions can affect the reliability of the regression results. While linear regression does not require the dependent variable to be perfectly normally distributed, extreme skewness can influence residual behavior and affect hypothesis testing.

To evaluate the distribution of the variables, a combination of methods was used: descriptive statistics (skewness and kurtosis), visual inspections (histograms and Q-Q plots) and formal statistical tests, including the Kolmogorov-Smirnov and Shapiro-Wilk tests. These tests allowed for a more complete assessment by capturing both visual and numerical indications of non-normality.

Several variables showed notable skewness or outliers. As a response, natural logarithm transformations were applied to Tobin's Q and Total Assets, both of which showed positive skew. The log transformation helped to normalize these variables and reduce the influence of extreme values. Additionally, EV/EBITDA and ROA were winsorized at the 1st and 99th percentiles. Winsorization was chosen for these variables because it kept the variables' scale intact, while limiting the impact of a few extreme values.

These adjustments were implemented to meet the assumptions essential to OLS regressions and to improve the robustness of the DiD estimation. After transformation and winsorization, the variables displayed improved symmetry and reduced kurtosis, supporting their use in the final regression models.

6 RESULTS

This chapter presents the empirical findings of the study. It begins with descriptive statistics to summarize the characteristics of the sample, followed by a correlation matrix to explore initial relationships between variables. The core results from the DiD regressions are then presented and interpreted. To ensure the reliability of the estimations, regression residuals are evaluated. Finally, robustness checks are conducted and presented to validate the consistency of the results.

6.1 Descriptive Statistics and Correlation Matrix

Table 3 presents the descriptive statistics for the main variables used in the analysis. The average value of Tobin's Q (log-transformed) is 0.75, with values ranging from 0 to 3.31. The EV/EBITDA and ROA variables, which were winsorized to reduce the influence of extreme outliers, show considerable variation, with means of 14.32 and 4.84, respectively.

Firm size, which was measured using the natural logarithm of total assets, has a mean of 7.03, while the average Debt-to-Assets ratio is 25.3%. The average ESG Score in the sample is 54.83, with Environmental, Social and Governance scores averaging 50.38, 56.45 and 55.22, respectively. CAPEX Grade, used as a proxy for capital expenditures, has a mean of 2.40, on a 1-5 scale. Overall, the statistics indicate a diverse sample of companies in terms of both financial performance and sustainability characteristics.

Table 4 presents the Pearson correlation coefficients between the key variables used in the analysis. As expected, the ESG Score is highly correlated with its three sub-scores: Environmental (r: 0.830), Social (r: 0.901) and Governance (r: 0.707), all significant at the 1% level. This confirms that the ESG score effectively captures information from its components.

From the financial variables, Tobin's Q shows a moderate positive correlation with ROA (r:0.348**) and EV/EBITDA (r: 0.273**), suggesting that companies with higher market valuation tend to be more profitable and efficient. Total assets are negatively correlated with Tobin's Q (r: -0.228**) and positively associated with ESG performance (r: 0.666**), indicating that larger companies tend to score higher on sustainability metrics.

Importantly, no signs of multicollinearity were observed between the main independent variables, as none of the correlations exceeded 0.8 (Hanberry, 2024). This supports the reliability of the dataset for the DiD regression analysis.

Table 3 Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max	N
Tobin's Q [1]	0.7483	0.5215	0.00	3.31	447
EV/EBITDA [2]	14.3214	16.6729	-7.49	126.98	447
ROA [2]	4.8362	8.7274	-37.89	28.50	447
Total Assets [1]	7.0314	1.8511	2.14	11.38	447
Debt/Assets	0.2530	0.1567	0.00	0.922	447
CAPEX Grade	2.40	1.3320	1.00	5.00	447
ESG Score	54.83	18.5662	4.87	92.23	447
E Score	50.38	23.9988	0.00	93.90	447
S Score	56.45	21.8188	1.89	92.90	447
G Score	55.22	21.1774	2.59	96.42	447

[1] Indicates that the variable was transformed using the natural logarithm

[2] Indicates that the variable was winsorized at the 1st and 99th percentiles

Table 4 Correlation Matrix

	Tobin's Q	EV/EBITDA	ROA	Total Assets	Debt/Assets	CAPEX Grade	ESG Score	S Score	G Score	E Score
Tobin's Q	1									
EV/EBITDA	0.273**	1								
ROA	0.348**	0.005	1							
Total Assets	-0.228**	-0.006	0.125**	1						
Debt/Assets	-0.355**	-0.102*	-0.181**	0.159**	1					
CAPEX Grade	-0.124*	-0.024	0.102*	0.711**	0.068	1				
ESG Score	-0.131**	0.074	0.018	0.666**	0.014	0.463**	1			
S Score	-0.103*	0.102*	0.049	0.654**	0.449**	0.449**	0.901**	1		
G Score	-0.075	0.037	-0.037	0.329**	0.198**	0.198**	0.707**	0.445**	1	
E Score	-0.168**	0.039	0.035	0.657**	0.470**	0.470**	0.830**	0.708**	0.371**	1

6.2 DiD Regression Results

Table 5 presents the results from the DiD regressions, focusing on the interaction term (TreatPost), which captures the estimated effect of CSRD on the dependent variables. Across all seven models, the TreatPost coefficient is statistically insignificant, suggesting that no measurable effect was observed.

For the financial performance metrics, the coefficient for Tobin's Q is -0.031 (p: 0.796), while EV/EBITDA and ROA show slightly positive coefficients of 0.348 and 0.488, respectively, though none are statistically significant. These results indicate that companies that are subject to CSRD did not show significantly different financial performance compared to the control group during the treatment period.

Similarly, the results for ESG performance do not indicate a significant treatment effect. The coefficient for ESG Score is close to zero (0.029) with a p-value of 0.993. The E, S and G sub-scores also remain insignificant, with the Social Score showing the largest (though still insignificant) negative estimate (-1.963, p: 0.639), and the Governance Score the highest positive estimate (1.409, p: 0.782).

Adjusted R^2 values range from very low (0.024 for EV/EBITDA) to moderate levels (0.447 for ESG Score), suggesting that some models explain the results better, depending on the dependent variable. Overall, while no statistically significant effects were found, the direction of the coefficients and model fit will be further interpreted in the discussion chapter.

Table 5 Regression Results

Dependent Variable	TreatPost Coefficient	Std. Error	p-value	Significant?	Adjusted R^2
LN_TobinsQ	-0.031	0.119	0.796	No	0.192
EVEBITDA_Winsor	0.348	4.209	0.934	No	0.024
ROA_Winsor	0.488	2.137	0.819	No	0.069
ESG Score	0.029	3.505	0.993	No	0.447
E Score	-0.346	4.593	0.940	No	0.431
S Score	-1.964	4.183	0.639	No	0.429
G Score	1.409	5.096	0.782	No	0.101

6.3 Evaluation of Regression Residuals

Before interpreting the regression results, an evaluation of the residuals was conducted to assess whether the key assumptions of the Ordinary Least Squares (OLS) models were reasonably met. In particular, the distribution of standardized residuals was examined for all seven regression models using histograms, skewness and kurtosis values, and the Shapiro-Wilk normality test.

As is common with firm-level financial data, several models showed signs of non-normality in their residuals. The residuals for the EV/EBITDA model were notably right-skewed (skewness: 4.04 and kurtosis: 21.85), while the ROA model showed left-skewness (skewness: -1.50). These deviations from normality are not unexpected, as financial variables often have heavy tails and outliers due to industry-specific dynamics or other extreme behavior.

Importantly, the residuals for the ESG Score -model were approximately normally distributed, with skewness and kurtosis values close to zero and a non-significant Shapiro-Wilk test result (p-value: 0.176). This suggests that, at least for this model, the assumption of normality holds well.

While some models deviate from perfect normality, the overall sample size provides robustness to the estimation results. According to the central limit theorem, OLS estimates remain consistent and unbiased even when residuals are non-normally distributed, particularly in large samples. Additionally, common practices such as log-transformations and winsorization were applied to help mitigate skewness and reduce the influence of extreme values before the estimation. On this basis, the use of OLS is considered valid, and the models are interpreted with that in mind.

6.4 Robustness Checks

To ensure the reliability of the DiD regressions, two robustness checks were conducted. First, a parallel trends test was conducted to assess whether the treatment group and control group followed similar outcomes prior to the treatment, which is an important assumption for the reliability of the DiD regression. Second, a placebo test was conducted to check whether any effects occurred prior to the treatment. These tests help support the reliability of the DiD regression's results.

6.4.1 Parallel Trends Test

To validate the key assumption of the DiD regression, a series of regressions were run to test for parallel pre-treatment trends for the treatment group and the control group. Specifically, interaction terms between the treatment group indicator and a dummy variable for the pre-treatment period were included for each dependent variable.

The results of these regressions are summarized in Table 6 below. Across all the dependent variables, the coefficient for the interaction term (Treat_TimePre) was not statistically significant in any model. All p-values were above the commonly used threshold, ranging from 0.372 to 0.995. This indicates that prior to the implementation of CSRD, there were no significant differences in the trends of the variables between the treatment group and the control group. Although the models had low explanatory power (Adjusted R^2 values ranged from -0.010 to 0.012), this is not unexpected as the tests are designed to only examine pre-treatment trend differences, rather than evaluating the reliability of the model.

Overall, these results provide strong support for the parallel trends assumption, suggesting that the DiD estimates are not biased by differences in trends before the treatment period.

Table 6 Parallel trends test results

Dependent Variable	Treat_TimePre Coefficient	Std. Error	p-value	Significant?	Adjusted R^2
LN_TobinsQ	-0.009	0.155	0.955	No	-0.003
EV/EBITDA_Winsor	-2.062	5.242	0.694	No	-0.005
ROA_Winsor	2.365	2.646	0.372	No	0.003
ESG Score	1.416	5.548	0.799	No	-0.001
E Score	3.825	7.097	0.590	No	0.001
S Score	0.213	6.522	0.974	No	0.012
G Score	-0.036	6.198	0.995	No	-0.010

6.4.2 Placebo test

To evaluate the robustness of the DiD regression, and to make sure the treatment effects were not random, a placebo test was conducted by assigning a false treatment date in the pre-treatment period. The goal was to ensure that the DiD model does not detect a significant treatment effect when no actual treatment was applied.

An interaction term for the placebo period was created, which was statistically insignificant in all regressions, as shown in Table 7 below. For example, the placebo coefficient for Tobin's Q was -0.009 (p: 0.955), while EV/EBITDA had a coefficient of -2.062 (p: 0.694), and ROA showed a coefficient of 2.365 (p: 0.372). Similarly, the ESG scores also showed non-significant placebo effects with p-values above commonly used thresholds. These results suggest that the treatment effects in the original model were not driven by underlying trends or other factors in the data.

The placebo test supports the reliability of the DiD results. By demonstrating that the model does not falsely detect effects in a period where no real treatment was applied, the analysis supports the assumption that the original treatment effects are not due to chance or model errors.

Table 7 Placebo test results

Dependent Variable	Treat_Post_Placebo Coefficient	Std. Error	p-value	Significant?	Adjusted R^2
LN_TobinsQ	-0.009	0.155	0.955	No	-0.003
EV/EBITDA_Winsor	-2.062	5.242	0.694	No	0.005
ROA_Winsor	2.365	2.646	0.372	No	0.003
ESG Score	1.416	5.548	0.799	No	-0.001
E Score	3.825	7.097	0.590	No	0.001
S Score	0.213	6.522	0.974	No	0.012
G Score	-0.036	6.198	0.995	No	-0.010

7 CONCLUSIONS AND DISCUSSION

This chapter discusses the empirical results in relation to the theoretical framework and previous research presented earlier in the study. It also reflects on the implications of the findings for companies, policymakers and academic research, while highlighting limitations and suggestions for future studies.

7.1 Summary of the Main Findings

The Difference-in-Differences regressions showed no significant treatment effect of the CSRD on Tobin's Q, EV/EBITDA or ROA. Similarly, there was no significant change in ESG scores, or the subsequent Environmental, Social and Governance sub-scores. In other words, companies subject to the CSRD did not show statistically different financial or ESG performance compared to the control group during the first year or the directive's implementation.

While these results might initially seem disappointing, they are not necessarily surprising. Previous studies have frequently emphasized that the benefits of ESG-related initiatives, particularly those that are driven by regulation, often take time to show any significant effects. Given that the data captures only the first year of CSRD enforcement, it is likely that companies were still in the early stages of adapting to the new requirements. Additionally, the lack of statistically significant findings does not necessarily imply that the CSRD had no effect, it simply means that any such effects were not detectable within the scope and timeframe of the study.

Also worth noting is that even in the absence of measurable financial impact, the consistency in ESG scores suggests that the reporting requirements may have contributed to standardizing disclosure practices. Although this may not immediately reflect in profitability or valuation, standardization of this kind is often an important first step toward a wider market transparency. The results of all three dependent variables, Tobin's Q, EV/EBITD and ROA, suggests that the early stage of CSRD implementation was more about laying the groundwork for future developments than generating immediate financial changes. With this in mind, the results support the previous literature indicating that ESG mandates tend to have a gradual, rather than immediate, effects on corporate financial performance.

7.2 Interpreting the Results

The absence of significant short-term effects from the CSRD can be understood through multiple mutually dependent dynamics. One possible explanation is that companies in the Nordic region already showed relatively advanced ESG practices prior to the implementation of CSRD. These companies may have voluntarily adopted sustainability frameworks and engaged in transparent reporting before CSRD took effect. This would mean that CSRD would only have a small impact, as the directive might not have required significant changes to already existing practices.

The short timeframe of the study is another key factor. Notably, the analysis begins in 2022 to avoid including earlier years that were heavily affected by the COVID-19 pandemic, which could have had significant effects on the data, which made it more difficult to isolate the effects of the CSRSD. In addition to this, regulatory interventions often take time to be integrated into the day-to-day operations and influence long-term decision-making. The first year of CSRD implementation may have primarily involved the development of internal systems and training of personnel, both of which represent transitional efforts rather than immediate value-generating activities. In this early phase, the financial costs of regulatory compliance might have even outweighed the expected benefits, particularly if companies faced increased administrative costs when meeting the requirements of the new reporting standard.

Another important factor to consider is market perception. Even if companies improve their ESG disclosure in response to the CSRD, investors might not instantly react to this change. The integration of non-financial information into investment decisions, and valuation in general, is still evolving, and markets may require additional time before adjusting their valuation models to include new disclosures. In addition to this, the credibility of ESG reporting can also be a questioned, as without consistent assurance and verification, stakeholders may remain cautious in seeing these reports as financially meaningful.

Another way to interpret the results is that of efficient market hypothesis. This would mean that if investors had already anticipated the CSRD and adjusted their expectations accordingly, then any actual implementation would have had very limited impact on financial performance or market valuation. In this case, it is possible that the market had already anticipated CSRD and adjusted valuations accordingly, meaning that by the time

the directive took effect, its expected impact was already reflected in stock prices and performance metrics.

Finally, the regulatory environment may have played a role in making it harder to detect clear difference. Since the CSRD is being phased in and its technical standards continue to evolve, companies may have faced uncertainty on how to comply with the requirements. This uncertainty could have led to uneven implementations between companies, further reducing any measurable effects. As the regulatory framework continues to evolve and expectations become clearer, future research may find stronger impacts of CSRD.

7.3 Comparison with Previous Research

The findings of this study are consistent with other short-term analyses of ESG reporting mandates. For example, Monteiro, Roque & Faria (2024) found no immediate impact on ROA following the NFRD in Portugal, and Nampoothiri et al. (2024) reported similar non-significant results in the early years of NFRD across EU companies. These studies, like this one, suggest that the financial impact of ESG regulations often requires a longer time frame to show financial benefits.

However, other studies, such as Ioannou & Serafeim (2019) observed positive effects of mandatory sustainability reporting on firm value, though often over a longer period or in contexts where companies previously had low levels of disclosure. Grewal et al. (2020) also found that investor reactions depended heavily on companies' previous transparency levels. In comparison, the Nordic companies in this study already had relatively advance ESG practices, which may help explain why the short-term effects of CSRD appear limited.

7.4 Implications on Practice and Policy

The findings from this study have several implications for different stakeholders. For companies, the lack of significant short-term financial effects suggests that compliance with the CSRD should be viewed more as a strategic investment than a means of achieving immediate financial gain. Especially in markets like the Nordics, where sustainability practices are already well established, companies are likely to experience benefits gradually over time. These benefits may come in the form of increased

stakeholder trust, better internal risk management and improved reputation, all of which can contribute to long-term value creation.

For policymakers, the results can be seen as a reminder to manage expectations when it comes to regulatory interventions. The impact of policies like the CSRD may take years to be fully realized. Therefore, it is important to maintain consistent support and provide clear guidance during the early stages of implementation. Clearer enforcement practices and supportive educational efforts could also play a role in ensuring that companies understand both the requirements and the potential long-term value of robust ESG reporting.

From an investor perspective, the absence of immediate financial changes does not necessarily mean the regulation is ineffective. Instead, investors may need to look at other metrics than just short-term performance metrics and consider how companies are positioning themselves for long-term sustainability and regulatory readiness. The quality and consistency of ESG disclosures might become even more important over time, especially as markets increasingly integrate non-financial data into investment decisions. The lack of short-term financial effects does not necessarily mean ineffectiveness. Instead, investors may need to focus on qualitative ESG improvements and long-term positioning when evaluating companies' sustainability efforts in response to CSRD.

7.5 Limitations of the Study

Several limitations should be acknowledged. First, the study's short time frame (2022-2024) restricts the ability to capture long-term effects that may arise gradually as companies adapt to the CSRD. Given the nature of sustainability reporting and the evolving expectations of stakeholders, meaningful financial changes might only become visible over several reporting periods. The limited time frame also reduces the possibility of examining trend changes or long-term market responses.

Second, while efforts were made to ensure data quality, ESG scores can differ based on the methodologies used to grade ESG efforts. This lack of standardization across ESG metrics might affect the reliability and comparability of the results. In addition, financial performance indicators such as ROA or EV/EBITDA, while useful, do not fully capture intangible factors such as improved stakeholder trust, risk mitigation or long-term brand value, which are often associated with ESG activities.

Third, the control group may present possible limitations. Although the study aimed to isolate companies less affected by the CSRD, it is possible that these companies were still influenced by CSRD in some ways. As a result, the contrast between the treatment group and the control group can be less clear than expected, reducing the likelihood of detecting meaningful differences.

In addition, differences between companies in terms of size, industry and ESG efforts might influence how they react to regulation. Larger companies tend to have more resources to comply effectively, while smaller companies face larger compliance costs. Industry-specific factors could also affect the relationship between CSRD compliance and financial performance, making it harder to draw conclusions about the market as a whole.

Finally, the geographical scope of the study may limit how the results can be generalized. The analysis focuses exclusively on listed Nordic companies, which have typically been early adopters of ESG practices and already operate under high standards of corporate governance and transparency. Due to this, the results may not be representative of companies in other EU regions, particularly those where sustainability reporting is less developed. To better understand whether these results apply elsewhere than just the Nordic markets, future research could benefit from cross-country comparisons. This would help identify whether there are similar trends in regions with different regulatory and reporting standards.

7.6 Suggestions for Future Research

With the results and limitations of this study in mind, there are several potential aspects to look more into in future research. First, extending the time frame past 2024 is crucial for capturing any delayed effects of CSRD implementation. As sustainability reporting becomes more integrated into corporate strategy and operations, its potential influence on financial performance could become more apparent. Studies that look at corporate financial performance across several years following the implementation of CSRD could provide a more comprehensive understanding of the following effects.

Additionally, future research could benefit from examining more financial and non-financial metrics. While this thesis focused on Tobin's Q, ROA and EV/EBITDA, other indicators such as cost of capital, credit rating or market volatility could provide more insight into how CSRD affects company valuation and risk. In addition, more intangible

metrics, such as reputation, could also provide more qualitative insights on how CSRD impacts companies, that do not directly show in financial metrics.

It would also be valuable to conduct industry-specific analyses. Different sectors most likely experience and respond to ESG mandates in different ways, depending on their exposure to ESG risks, their already existing disclosure practices and investor scrutiny. Similarly, metrics such as firm size, ESG practices and international exposure could significantly shape how companies are impacted by these types of directives. Conducting this analysis with this perspective might reveal effects that are not visible in a sample with companies from many different industries.

Besides quantitative analyses, qualitative studies could also provide insight on how companies themselves internally perceive, implement and react to the demands of CSRD and other mandates. Interviews with sustainability managers, corporate leaders or board members could offer a deeper understanding of their perspectives on internal challenges and strategic considerations involved in complying with these directives. These types of studies could provide insight that could complement statistical results and offer a better understanding of how companies interpret and respond to regulatory changes in their operations.

Lastly, cross-country studies could improve the understanding of how different regulatory environments affect the implementation and effects of reporting mandates like CSRD. Studies that include a more diverse set of EU countries, for example, could help conclude whether the patterns found in the Nordic region hold elsewhere also, or whether country-specific or industry-specific factors shape the regulation's impact.

8 SUMMARY

The goal of this thesis was to evaluate the short-term financial impact of Corporate Sustainability Reporting Directive (CSRD) on listen companies in the Nordic region, using a Difference-in-Differences methodology. The study focused on three financial performance metrics, Tobin's Q, EV/EBITDA and ROA, with a sample of companies affected by the CSRD and a control group of companies presumably not affected by the directive. The analysis was based on panel data from the years 2022 to 2024, providing early insight into how companies responded financially to the introduction of a new reporting mandate.

The empirical results indicated no statistically significant treatment effect of the CSRD on any of the three financial performance metrics, or on ESG scores or its sub-scores. These results suggest that, at least in the short term, the CSRD did not lead to notable differences in financial performance or ESG-related performance between the treatment group and the control group. While the results might appear inconclusive, they agree with earlier research pointing out the delayed nature of regulatory impacts, particularly when regarding sustainability disclosures.

The discussion placed the results of the study into a wider perspective, by considering the relatively high level of ESG disclosures in the Nordic region, the limited time frame following CSRD implementation, and possible delays in how investors respond to regulatory change. These insights, along with comparisons to earlier studies on the NFRD and mandatory ESG reporting, help explain why short-term financial benefits may be difficult to detect at this stage.

Overall, this thesis contributes to the increasing amount of literature on ESG regulation and financial performance by offering an early empirical look at one of the most impactful EU sustainability directives to date. While the short-term effects of CSRD appear limited, its influence on corporate transparency, governance and long-term value creation is still an important topic for future research. While the empirical results did not show any significant treatment effects, they contribute to the early understanding of how mandatory ESG reporting is experienced and implemented within companies. The results suggest that the value of sustainability reporting mandates like CSRD might not be in direct financial benefits and more in long-term transparency and engagement with stakeholders.

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