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The Impact of Corporate Social Responsibility Disclosure on the Cost of Debt: Evidence from Finland

A Comparative Analysis of Pre and Post Covid Periods

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ABSTRACT:

In recent decades, transparency and responsible corporate behaviour have received greater attention from stakeholders, which has led to the Corporate Social Responsibility Disclosures (CSRD) playing a significant role in today's financial markets. With financial markets adopting the use of non-financial information in decision-making processes, the CSRD has become a critical factor in determining financing costs. Thus, in influencing key financial metrics, especially the Cost of Debt (COD), CSRD plays a significant role. Even though the significance of CSRD is widely recognized, its impact on COD is still debatable in academia, as prior studies have reported mixed findings regarding the association between CSRD and COD.

As one of the top rankers in corporate transparency, stakeholder trust, and sustainability performance, Finland has a corporate environment where CSRD is well developed and highly valued. Thus, this study explores the association between CSRD and COD firms listed on the Helsinki Stock Exchange. By extending the scope, the study investigates whether creditors place greater value on CSRD during the Covid-19 period, as in the context of Finland, exploration of CSRD and COD during times of crises is still limited. The study is relying on key theories of signaling, stakeholder, and legitimacy, which offer different explanations about the impact of CSRD on COD. The study uses a fixed effect regression model in the analysis, and the panel dataset consists of a sample of 77 listed firms covering the period from 2014 to 2023.

The result suggests that CSRD does not significantly affect the firm's cost of borrowing in Finland. Supporting this, the findings reveal that a positive and statistically insignificant association exists between CSRD and COD. Additionally, in terms of the role of Covid- 19, the results reveal that the interaction term was negative but statistically insignificant. This finding emphasizes that the association between CSRD and COD has not been affected by Covid- 19 in a statistically significant way. This study contributes to the existing literature by providing empirical evidence on the association between CSRD and a firm's COD financing in the Finnish context and directs future research toward combining qualitative methods to provide further contextual information on how lenders utilize CSR information in their lending decision-making and risk assessments.

KEYWORDS: (Corporate social responsibility disclosures, cost of debt, Finland, Covid-19, ESG disclosure).

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Abbreviations

AI	Artificial Intelligence
CFP	Corporate Financial Performance
COD	Cost of Debt
COE	Cost of Equity
CSD	Corporate Sustainable Development
CSR	Corporate Social Responsibility
CSRA	Corporate Social Responsibility Assurance
CSRD	Corporate Social Responsibility Disclosures
ESG	Environmental, Social, and Governance
ESRD	European Sustainability Reporting Directive
EU	European Union
GRI	Global Reporting Initiative
ICB	Industry Classification Benchmark
ICR	Interest Coverage Ratio
ISSB	International Sustainability Standards Board
LEV	Leverage
LM	Lagrange Multiplier
MTB	Market to Book Ratio
NFRD	Non-Financial Reporting Directive

OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
REM	Real Earnings Management
ROA	Return on Assets
SASB	Sustainability Accounting Standards Board
SIZE	Firm Size
SMEs	Small and Medium Enterprises
SOEs	State Owned Enterprises
TCFD	Task Force on Climate-related Financial Disclosures
VIF	Variance Inflation Factor

1 Introduction

In recent decades, disclosure of a firm's CSR engagements has drawn a growing recognition as a proactive strategy for both boosting a company's value and reputation and establishing a sustainable and accountable global economy (Gupta & Das, 2024, p.1927). Corporate Stakeholders show growing interest in companies' economic, environmental, and social activities, and to satisfy their expectations, CSRD is used as a key mechanism. Both ethical and strategic reasons are behind companies' engagement in CSRD, as it enhances stakeholder trust by reducing information asymmetry, attracts socially responsible investors, and signals the company's risk management (Hahn & Kühnen, 2013). Reflecting the Corporate Social Responsibility (CSR) practices have an impact on company financials, Nielsen Global Corporate Sustainability survey conducted in 2015 reveals that 66% of consumers are ready to pay more for sustainability goods, and considering the age, Millennials are the most willing to pay more for sustainable offerings.

Empirical findings emphasize that transparency in CSR practices of a company can lead to financial benefits through the reduction of information asymmetry and perceived risk. With the financial markets adopting the use of non-financial information in decision-making processes, the CSRD has become a major factor in the determination of financing costs. Thus, in influencing key financial metrics, especially the COD, CSRD plays a significant role. Even though the significance of CSRD is widely acknowledged, its impact on COD is still debatable in academia. As CSRD lowers the information asymmetry between borrowers and lenders, it leads to a reduction in COD (Eliwa et al., 2021, p.5). On the one hand, some researchers have found a negative relationship between CSRD and COD (Eliwa et al., 2021, pp.10-11; Gracia & Siregar, 2021, p.8; Ariefianto et al., 2024, pp.3037-3038). In contrast, there are research findings that report either a positive or an insignificant relationship between CSRD and COD (Gupta & Das, 2024, p.1940; Boachie & Tetteh, 2021, pp. 476-478). Because the relationship is affected by contextual factors—such as economic conditions, regulations, industries, and regional differences-

the prior literature provides mixed results. These inconsistencies require further research on this topic, especially in Finland which is ranked as one of the world leaders in corporate transparency and sustainability performance.

1.1 Background and Motivation

The European Union (EU) took the lead in CSRD and transparency by introducing several regulations and standards to increase transparency and data comparability, starting with the NFRD to harmonise the CSRD, issued in 2014 (Aureli et al., 2020, p.5). Study of Gjølberg (2009, p.18) investigated on 20 OECD countries' index of CSR performance and emphasized that the highest CSR performance index was from the Scandinavian countries, and Finland ranked second in place. Based on EU directives, an Accounting Act amendment approved on 29 December 2016 requires Finnish large public-interest firms with more than 500 employees and turnover over EUR 40 million or balance sheet over EUR 20 million to report their CSR practices in their management reports (Ministry of Economic Affairs and Employment of Finland). Driven by EU-level regulations, CSRD in Finland has become more formalized and strengthened over the years.

As one of the top rankers in corporate transparency, stakeholder trust, and sustainability performance, Finland has a corporate environment where CSRD is well developed and highly valued. Even though CSR reporting practices have become so well-recognized and formalized in Finland, there is a lack of understanding about how such disclosures impact firms' financial outcomes, especially in relation to the COD financing. Firms use CSRD as a channel to signal creditors about firms' risk profile, ethical practices, and long-term stability. When setting the borrowing costs, lenders usually assess the default risk, information transparency, and governance quality of a firm, and CSRD helps in reducing the information asymmetry and perceived risk (Dhaliwal et al., 2011). Prior literature indicates that companies with better CSR performance and greater disclosures experience lower COD as creditors perceive socially responsible companies to be less likely to be linked with litigation, regulatory sanctions, reputational crisis, and

operational disruptions (Goss & Roberts, 2011, pp.1795-1796; Cheng et al., 2014). Cheng et al. (2014, p.2) emphasized that broadened CSR reporting practices and improved transparency lead to lower capital constraints and increase the firms' ability to access external finance.

In contrast, there are empirical findings that show a weak or even insignificant relationship between CSRD and COD. Menz (2010, p.128) reveals there is only a weakly significant relationship between CSR and credit spreads in Europe, as bond investors value financial indicators such as credit ratings more than the CSR ratings when assessing default risk. These findings suggest that the impact of CSRD on debt financing is very context-specific and varies with factors such as regulatory environments, economic circumstances, industry characteristics, and regional stakeholder expectations. Thus, further research is needed to identify the impact of CSRD on COD financing in the Finnish market, which is known for high transparency, sustainability standards, and a unique institutional setting.

The analysis of this study was further enhanced by comparing the pre Covid-19 period with the post Covid-19 period. Stakeholders placed more emphasis on the social responsibility of the corporation during the Covid-19 period. When uncertainty is heightened, creditors concentrate more on indicators of corporate resilience. Prior literature indicates that CSRD creates a form of risk insurance and plays a value protection role during crisis times or negative events (Lins et al., 2017, p.1788; Zhang et al., 2020, p.159). Thus, Lenders consider firms' CSR engagement as an important metric in their risk assessment checklist (Srivastava et al., 2022, p.2).

Thus, it is vital to explore and see whether the creditors value CSRD more in the Covid-19 period. However, in the context of Finland, exploration on CSRD and COD financing during times of crises is still limited. This study adds evidence to the existing body of literature by exploring the association between CSRD and COD financing under normal and crisis conditions.

1.2 Purpose of the study

The purpose of this study is to investigate how CSRD influences COD financing among listed companies on the Helsinki stock exchange in Finland. As one of the best-performing countries in the world in terms of transparency and sustainability (Gjølberg, 2009), Finland offers a unique empirical context to examine this relationship. Even though Finnish companies operate in a setting where CSR reporting is highly formalized and developed, limited findings exist on whether CSRD leads to financial benefits, regarding COD financing. Therefore, this study aims to fill this gap by assessing the association between CSRD and COD financing.

Furthermore, the study broadens the scope by investigating the relationship between CSRD and COD for the pre Covid-19 period (use company data from 2014-2018) and post period of Covid-19 (use company data from 2019-2023). Prior literature emphasizes that CSR acts as a risk insurance during times of crisis and when the uncertainty is increased, creditors focus more on social responsibility and resilience indicators of firms. Through conducting a comparison between the pre-Covid and post-Covid periods, the study will aim to seek answers to whether CSRD is valued more strongly by creditors during times of crisis than in normal situations.

The main research question of the study is,

- Do CSRD negatively associated with firms' COD in the Finnish context?

By expanding the analysis, the following sub-question is also addressed in the course of study.

- Has the association between CSRD and COD become stronger during the Covid-19 period relative to pre Covid-19 period?

Based on the research questions, the study aims to attain the following objectives.

- To investigate whether CSRD is negatively associated with the COD among listed companies on the Helsinki stock exchange in Finland.
- To evaluate whether the relationship between CSRD and the COD becomes stronger during the Covid-19 period relative to the pre Covid-19 period.

1.3 Organization of the study

The remaining chapters in this study are structured as follows. In the second chapter, the theoretical framework and empirical review that will serve as the foundation of the empirical analysis are developed. Chapter two begins with a theoretical framework, and it includes an overview of CSR reporting and a discussion of CSRD practices in Europe in general and in Finland specifically. To develop a conceptual framework for understanding the motivations of firms to engage in disclosing CSR information and its impact on COD, stakeholder theory, signalling theory, and legitimacy theory are discussed in this chapter. An empirical review provides an extensive review of the relevant literature and develops the research hypotheses for the study. A critical assessment of the literature is provided by presenting the findings from existing literature under the topics of CSRD and COD, and the effect of Covid- 19 on CSRD and COD.

The third chapter of the study will outline the research methodology and data employed in the study. Procedures and methods used to conduct the study are presented in the methodology chapter, and it includes in detail information regarding what data were used in the study, how those data will be obtained, sample selection and distribution, variables, and the measurements. Additionally, this chapter provides descriptive statistics and correlation analysis of the data to demonstrate a foundation for understanding the data employed. At the end of this chapter, details on the selection of regression model, diagnostic tests, and building of regression model to test proposed hypotheses are presented.

The fourth chapter of the study presents the empirical results of the study, and the regression results are discussed under each hypothesis separately. Then this chapter discusses the findings of the study deeply by discussing them in relation to supporting theoretical arguments and empirical evidence from previous studies. The fifth chapter will conclude the thesis by summarizing the key findings of the study, discussing practical implications, and the contribution of the study. In addition, this chapter will also point out the limitations of the study and offer directions for future research at the end.

1.4 AI Declaration

I used Artificial Intelligence (AI) tools as a supplementary aid during the preparation and writing of this thesis. AI tools, including ChatGPT and Gemini, were primarily utilized for brainstorming ideas, grammar correction, language improvement, and structuring the overall organization of the chapters. I also used these AI tools as an assistance in determining suitable subtopics, content structure, and key areas that could be discussed within different sections of the thesis. In the introduction chapter, support of AI was taken to organize the paragraphs and improve the logical flow of the ideas. Particularly, in the background of the study section, AI was used in organizing the flow of writing, starting from broader contextual information to a narrower view on the area being studied. In the literature review, AI tools were employed to find out relevant academic articles, journals, and literature related to the research topic. Even though AI used to assist in finding articles, to ensure the reliability and academic validity of all the articles, I searched those articles using Tritonia-Finna, University of Vaasa, and Google Scholar. All the facts and findings from previous articles included in the literature review were carefully examined and written by me after reviewing the original sources. In the data and testing chapter and the empirical results chapter, I used the assistance of ChatGPT to having step by step tutorial on using Eviews software to run some tests, such as regression analysis, VIFs, LM, and Hausman, as YouTube videos were not clear enough. The research data, analyses, findings, and interpretations of the thesis were not generated using AI tools.

2 Literature Review

2.1 Theoretical and Institutional Framework

2.1.1 Capital Structure Theories

The capital structure theories include theories that describe key factors such as agency costs, taxes, and information asymmetries, which affect the debt and equity financing decisions made by companies. Theories such as trade-off theory, agency theory, and pecking order theory emphasize that the optimal financing decision can depend on the company's unique circumstances and characteristics. Serrasqueiro et al. (2011, p. 382) state that firm characteristics such as profitability, firm size, age, growth opportunities, risk, asset allocation, and non-debt tax shields have an effect on firms' capital structure decisions. Thus, these theories support building a theoretical base for having an understanding of COD determinants. The trade-off theory describes how firms determine their ideal level of debt by balancing its advantages, such as tax benefit which attached to the interest payments, against the disadvantages, such as increased likelihood of bankruptcy or risk of financial distress from having too much debt. Modigliani and Miller (1963) highlighted that interest expense on debt financing has a tax benefit, and firms' capital structure is affected by that. Trade-off theory discusses an optimal capital structure and highlights that beyond the optimal level will lead to a reduction in firm value. Along with the increase in debt levels by firms, the perceived default risk also heightens. In this instance, the role of CSRD is important, as it will reduce lenders' perceived risk and lead to a reduction of distress costs and ultimately a reduction of COD.

On the other hand, the pecking order theory suggests not an optimal level of debt ratio but an optimal funding sequence in raising funds. Pecking order theory emphasizes the fact that when funding, companies prefer internal financing over external financing, and if the required funding level is not achieved through internal funds, then companies look for external financing and prefer debt issuance rather than equity (Serrasqueiro et al.,

2011, p. 382; Myers & Majluf, 1984). Tanin et al. (2024, p.1) state that firms prefer funding internally when the COD is high, and firms with low COD prefer external financing and proceed with debt issuance. Findings by Tanin et al. (2024, p.7) claim that, aligned with the pecking order theory, higher profitable firms prefer internal fundraising and lower debt financing. Moreover, the study found that there is a negative association between firm size and leverage with COD and emphasizes the fact that higher leverage leads to increased risk and, thus, leads to an increase in COD (Tanin et al., 2024, p.8).

2.1.2 CSR Reporting

CSRD or non-financial reporting involves measuring, disclosing, and communicating information about firms' ESG practices, risks, policies, and performance to stakeholders (Christensen et al., 2021, p.1182). Thus, CSR reporting has emerged as a fundamental part of corporate transparency. The GRI indicates that sustainability reporting equips firms to publicly disclose their contributions to the economy, people, and environment. Moreover, it highlights that even though companies' CSR activities financially pay off at the time of reporting, later on, those will become financially significant (GRI 1: Foundation 2021,2021). In this regard, CSR disclosure creates a base to achieve diverse stakeholder expectations, legitimacy, and information asymmetry reduction.

Christensen et al. (2021, p.1182) highlight the core purpose of CSRD as gathering, examining, and reporting information that explains both quantitative and qualitative evidence of social, ethical, and environmental practices of the firm. Further, Prior studies evidence that corporates use CSRD to maintain legitimacy while adhering to social expectations (Cho & Patten, 2007, pp.641-642). CSR reporting has also been playing a vital role in stakeholder accountability, whereby the companies are able to exhibit their responsible behaviour and address the informational requirements of the interested parties, including investors, regulators, employees, and communities. On the other hand, CSRD is also associated with direct and indirect costs. Cormier et al. (2005, pp.8-9) evidence that proprietary costs can occur by disclosing firms' CSR information as third

parties (competitors, pressure groups) could use that detailed information adversely towards the company. Reputational and litigation risks can also be linked with CSRD, as greater transparency will make firms more vulnerable to interested parties.

The CSRD usually consists of ESG data, which is meant to inform the impact of sustainability on the organization, its risks, and management on sustainability. The environmental component usually looks about enviromental subjects, including firms' impact on the environment, resources, biodiversity, and management of waste (Clément et al., 2023). Social factors include labour practices, employee health and safety, diversity and inclusion, human rights policies, supply-chain labour practices, as well as community initiatives and engagement (KPMG, 2022). Further, governance element reports the information about the effectiveness of firms' governance, monitoring of decisions, and presence of mechanisms to uphold ethical, responsible, and sustainable corporate conduct.

In terms of CSR reporting frameworks, GRI consider as one of the most comprehensive and well-recognized frameworks for voluntary reporting of company sustainability performances (Brown et al., 2009). Building stakeholder relationships, avoiding pressure from interested parties, and attracting investors are major reasons that companies adhere to the GRI framework (Abeysekera, 2022). Another significant framework is the SASB Standards, which are currently a part of the ISSB. Unlike GRI, SASB is related to corporate governance and considers financially material sustainability information (Pizzi et al., 2022). Prior studies evidence that SASB would help enhance comparability across firms as it develops industry-specific disclosure standards (Christensen et al., 2021, p.1177). Another key framework is TCFD. Literature evidences that through providing recommendations about Climate-related Financial Disclosures, TCFD helps investors, lenders, and other stakeholders to understand material risks (Webster, 2019).

Formerly, CSR reporting was formed as a voluntary process to demonstrate the legitimacy and satisfy the expectations of stakeholders. However, as the world started to

focus more on climate risk, human rights, and corporate accountability, etc. CSR reporting started to standardize and be mandated. Literature emphasizes that voluntary CSR reporting can be identified as a kind of self-regulation, and it allows firms to control their reputational risks and to indicate ethical behavior (Cho et al., 2012). In contrast, mandatory CSR reporting arose as it enhances transparency and comparability benefits (Christensen et al., 2021, pp.1183-1184). Even though voluntary reporting may lead to enhance legitamacy, there is a possibility of greenwashing where companies report only a few parts, possibly good news to gain public impression instead of improving their actual performance (Cho et al., 2012, p.23).

2.1.3 CSRD in Europe and Finland

At first, companies have been engaged in CSRD as a voluntary practice to meet stakeholder interests and achieve legitimacy (Aboud et al., 2023, p.1307). However, due to the lack of quality and possible misleading behaviours attached to voluntary reporting, regulators began to seek mandatory CSR reporting. In reaction, in 2014, NFRD 2014/95/EU was enabled in Europe, which changed the CSR reporting landscape, transferring a voluntary basis approach towards mandatory and standardized reporting on sustainability. The Directive was implemented in 2017 and requires large EU-listed firms that meet the criteria of over 500 employees and €20 million in balance sheet or €40 million in turnover to report information about firms' CSR-related practices in management reports (Aboud et al., 2023, p.1307). According to the European Commission (2014), companies must prepare a non-financial statement that includes information about environmental issues, social and employee issues, respect of human rights, anti-corruption and bribery issues to increase the comparability and consistency. One of the main purposes of enacting this directive is to enhance the transparency of EU-listed firms' ESG-related information. Cuomo et al. (2022) evidence that EU non-financial firms' CSR transparency and performance increased due to NFRD and also led to a reduction in systematic risk and COE.

Although the NFRD contributed greatly to enhancing the non-financial reporting in Europe, researchers observed that reports made in accordance with the directive were inconsistent, incomparable, and shallow in nature, largely due to the fact that the firms were severely left at their own devices in how and what to report. Further, the requirements for defining the reporting content, especially the application of the materiality principle, were found to be vague and unsatisfactory (Baumüller & Sopp, 2021). As a result, replacing NFRD, the EU Commission established the Corporate Sustainability Reporting Directive (CSR Directive) on April 21, 2021 (Baumüller & Sopp, 2021, p.20). With that, the Double materiality approach is again introduced, which was clarified earlier with the publication of ''guidelines on non-financial reporting: Supplement on reporting climate-related information" in 2019 (Baumüller & Sopp, 2021, p.18). The double materiality approach requires that companies should not merely reveal the impact of sustainability issues on the company itself (financial materiality), but also the impact of the activities (impact materiality) on society and the environment (Christensen et al., 2021, pp.1221-1223). By 2024, 45 percent of European entities will use double materiality assessments in CSR reporting (KPMG, 2024). The new CSR Directive led to enhanced transparency with its mandatory external assurance, widening of the scope of companies, and an effective double-materiality framework.

In Europe, Finland ranks as one of the top performers in CSR and corporate transparency. Finnish companies operate in an institutional context that is marked by high environmental standards, high levels of governance, and extensive stakeholder involvement, which together foster a developed culture of CSR reporting. As per the KPMG survey of sustainability reporting 2022, Finland's overall rate of sustainability reporting was 90% in 2020, and it increased upto 94% in 2022 (KPMG, 2022). Further, among the N100 companies that report on sustainability practices, Finland ranked in the second place, where 97 percent of firms have carbon reduction targets (KPMG, 2024).

In terms of CSR reporting obligation in Finland, based on the EU directive Accounting Act amendment approved on 29 December 2016, requiring large firms to report their CSR

practices, including aspects of environment, employees, social issues, human rights, corruption, and bribery (Ministry of Economic Affairs and Employment of Finland). Even though the act requires firms to report certain information on their CSR matters either as part of their operational report or as a separate report, companies can freely decide on the format of presenting information. With the implementation of ESRD, amendments are proposed for the current act regarding CSR reporting in Finland, and reporting is done along with a new proposal starting from spring 2025 (Ministry of Economic Affairs and Employment of Finland).

In the European context, Finland is considered one of the successful performers in adhering to the EU regulatory framework on CSR reporting. Studies evidence that Finnish firms' early adoption of the GRI, years of disclosure culture, valuing transparency and responsibility, and a culture of adhering to legal provisions enable them to present more comprehensive, consistent, and stakeholder-oriented disclosures in adhering to NFRD (Fifka & Drabble, 2012). At the time where EU introduced the CSR Directive, Finnish firms were considered to be among the most prepared countries within European context. According to the KPMG Survey of Sustainability Reporting 2024, 40 percent of companies in Finland engaged in double-materiality analysis, and 50 percent of firms consider ESG factors into remuneration (KPMG, 2024). The survey implied that ahead of the implementation of the CSR Directive, Finland exhibit their progress in sustainability reporting.

2.2 Key Theories

Prior research investigating the relationship between CSRD and its financial outcomes has used a variety of theoretical perspectives to support its analyses. Literature evidence that CSRD can influence the perceived risk, transparency, and value creation of capital providers, which in turn affects the COD financing (Eliwa et al., 2021). Thus, in examining how CSR reporting impacts companies' debt financing cost both in normal periods and during an economic shock like Covid-19, several theoretical bases can be considered.

Based on the prior literature on CSR and CSR reporting, various theories, most predominantly, stakeholder theory, legitimacy theory and, signaling theory provide good insights into why CSRD can lead to a decrease or an increase in the firms' COD financing. Hence, this study will consider such theoretical views in identifying the relationship between CSRD and COD in the Finnish context and further to reveal differences in this relationship pre and post-Covid periods.

2.2.1 Stakeholder Theory

Stakeholder theory is considered one of the most significant theories that lays a foundation for explaining firms' CSR engagements and their financial consequences. This theory was originally introduced by Freeman in 1984, and the concept emphasizes that companies should generate value not only for their shareholders but also for stakeholders, including employees, suppliers, creditors, customers, government, and community. This theory goes beyond the traditional view where firms' main goal was maximizing shareholder wealth and moving to a stakeholder perspective will enable firms to build stronger and more trusting networks, risk reductions, improve access to external financing, and ultimately pave the way to companies' long-term success. The stakeholder theory suggests that companies deal with diverse stakeholder groups' interests and expectations as they have influence over the company's operations (Freeman, 1984).

Concerning CSRD, it plays a major role in communicating firms' engagements relating to stakeholders. Through the communication of CSR practices transparently via disclosures, companies are able to meet diverse stakeholder expectations. In line with stakeholder theory, CSRD leads to enhancing accountability, trust, firms' reputation, and eventually strong relationships with stakeholders. CSRD helps to satisfy lenders' informational needs through transparent CSR reporting, and they have an understanding of non-financial risk dimensions that can not be taken from the traditional financial statements. According to Attig et al. (2013), strong stakeholder-oriented CSR performances and

sound non-financial information are valued by rating agencies in assessing the firm's credit risk, and as a result, creditors reward firms being socially responsible. Further, in accordance with stakeholder theory, Boachie and Tetteh (2021, p.478) highlight that firms that provide extra financial information through CSRD have more potential in reaching creditors' expectations and in return firms gain favourable benefits from creditors, such as banks having more access to debt financing sources.

Stakeholder theory draws firms' attention on effective stakeholder management as it leads to reductions in firms' reputational, operational, and regulatory risks (Clarkson, 1995). The risk reduction aspect attached to CSRD helps in meeting lenders' expectations as they are highly concerned about borrowers' default risk. Moreover, as stakeholder views lead to building resilient networks, CSRD can be used as a mechanism to achieve that. During times of crisis, especially Covid-19, companies that are more stakeholder-oriented are able to defeat hardships with the continued support from stakeholders performed better (Albuquerque et al., 2020).

In the Finnish context, stakeholder interests on sustainability matters are high, and stakeholder interests are considered as a key concept in stakeholder theory (Marjamaa et al., 2021). Finnish firms operate in an environment where high transparency, trust, social responsibility practices, strict regulatory requirements, and low corruption exist. Providing transparent voluntary and mandatory CSR reporting, firms build stakeholder networks and legitimacy as stakeholders are highly sensitive and concerned about ethical conduct and sustainability in the country.

2.2.2 Signalling Theory

Signalling theory evolves with the situation of a lack of symmetry of information between managers and outside parties, where managers have access to private information regarding the quality and wealth of the company, and outsiders lack full visibility regarding the company. This theory emphasizes that through the signals,

managers address this information asymmetry, and based on the signals, outsiders receive information and make their decisions. CSRD plays a vital role in this context as it is used to signal about firms' CSR-related matters, risks, governance practices, quality, and long-term plans to investors and lenders. As company CSR practices and related issues are not fully visible to outsiders, disclosures help to reach external interested parties' expectations by filling the information needs.

Through the publication of high-quality and comprehensive CSRD, firms are able to exhibit their concerns about long-term sustainability, good governance, moral soundness, and responsiveness to non-financial risks to lenders. These signals might decrease the perceived default risk of firms, and lenders may view the company as a more reliable borrower. At the end, a reduction in uncertainty leads to reduced COD. In line with signaling theory, reducing information asymmetry, Gong et al. (2016) evidence that high-quality CSRD is associated with reducing costs of corporate bonds and highlights that CSRD provides additional and progressive information that is beyond the credit ratings. Moreover, this study emphasizes that voluntary CSRD is stronger than mandatory CSRD as lenders view mandatory disclosures as just for fulfilling the regulatory obligations regarding CSR (Gong et al., 2016).

Finnish firms operate in an institutional environment where stakeholder-oriented governance, social trust, and strict regulatory requirements on reporting and transparency exist. Within this kind of setting, stakeholders, especially creditors, focus and rely on firms' CSRD as it reveals the company's responsible management, long-term direction, and risk awareness and management. Aleknevičienė and Stralkutė (2023, p.586) evidence that in Scandinavian countries, firms with ESG disclosure scores experience lower COD. Further, the study highlights that creditors value and are supportive of socially responsible companies, as those companies provide comprehensive and transparent disclosures. In the Scandinavian context (Sweden, Norway, Finland, and Denmark), ESG disclosure scores provide a positive signal to the debt capital market (Aleknevičienė & Stralkutė, 2023, pp.599-600).

In times of crisis such as the Covid-19, CSRD's signaling effect becomes more prominent. As capital investors, especially creditors, focus more on firms' resilience indicators during the periods of uncertainty, CSRD acts as a mechanism that credibly signals about firms' risk management, sound governance, and firm resilience.

2.2.3 Legitimacy Theory

The legitimacy theory is one of the most frequently applied theoretical perspectives to justify why organizations perform CSR activities as well as disclose information about their CSR engagements. This theory emerged with the viewpoint of the existence of a larger social system in which organizations exist, and, therefore, organizations must act and behave in a way to meet the expectations expressed by society, the norms associated with those expectations, and the values shared among society. Suchman (1995, p.574) offers a definition of legitimacy, saying that "legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions". The study highlights that legitimacy leads to accelerated credibility and transparency of firms' activities (Suchman, 1995, p. 574). Moreover, the study emphasizes that legitimacy not only impacts societal actions but also their perception of the company. In addition to considering a legitimate company as being more deserving, society also views these companies as being more trustworthy and thus, more predictable (Suchman, 1995, p. 575). Consequently, viewing legitimacy from such a theoretical framework implies that organizations are attempting to gain an affirmative response from society in order to have better access to the resources necessary for their long-term existence and success.

Legitimacy theory is fundamental for understanding the relationship between the company and society and has a close link with the concept of the social contract. Businesses receive permission from society to operate and use society's resources, like

infrastructure and human capital, in exchange for providing a positive or at least acceptable ethical, legal, and social contributions to the communities in which they operate. One of the most common and practical ways of manifesting the company's mutual obligation is CSR activities, which always surpass legal requirements to voluntary and ethical actions. When an organisation is unable to provide a positive or acceptable contribution to society and reach societal expectations, they risk losing legitimacy and therefore losing its ability to continue operating (Dowling & Pfeffer, 1975). In corporate settings, legitimacy acts as a key intangible asset that helps the organisation in obtaining stakeholder support and gaining a reputation.

Firms utilize CSRD as a communication tool to show accountability to stakeholders while signalling that they operate in a responsible manner. According to Schiopoiu Burlea & Popa (2013), legitimacy theory serves as a mechanism that helps companies in implementing voluntary social and environmental disclosures to accomplish the social contract, which demonstrates the company's objectives and support for continued survival even during difficult and risky times. Thus, through the reporting of the company's legitimate economical and social actions, while gaining stakeholder trust, companies can enhance the legitimacy of their operations. There can be a situation where a legitimacy gap occurs when a company's activities differ from the expectations of society. In that case, to manage the gap, companies tend to use CSRD, which leads to reduce information asymmetry. Therefore, CSRD acts as a crucial factor of firms' communication strategy, especially in environments where transparency and sustainability are matters.

Firms do not exist nor operate alone; rather, they interact with a variety of stakeholder groups. Stakeholders' interest in the organisation's activities often assesses the firm against social norms and customs. When a company that has been recognized as a socially responsible organisation is more likely to receive assistance or additional management resources from stakeholders. In this case, CSRD plays a vital role in strengthening stakeholder perception and trust towards the company. Boiral (2013)

highlights that companies use CSRD to communicate their sustainability practices to stakeholders which results in generating competitive advantage and social legitimacy. Furthermore, legitimacy theory provides a rationale for the relationship between CSRD and possible financial outcomes. In terms of creditors, information transparency plays a crucial part as they assess a company's risk profile when lending funds. Companies with better CSRD are viewed as more legitimate and socially responsible by creditors and that may lead to receiving financing under advantageous conditions.

2.3 Empirical Review

Over the past decades, CSRD has become one of the most widely discussed and crucial aspects of corporate reporting. As stakeholders' interest in firms' CSR activities increased, with the aim of improving transparency and accountability, companies began disclosing CSR information in their reports. Moreover, external financing is very important for a company's growth and development. Particularly, COD financing is closely associated with firms sustain progress as it impacts the funding structure and financial performance (Guo et al., 2023, p. 17476). As both financial and non-financial information has an impact on COD, investigating the truth of whether CSRD leads to a reduction in COD became a subject of immense interest in academia (Guo et al., 2023, p. 17476). Richardson & Welker (2001) highlighted that CSRD assists in enhancing the financing environment of a company.

There are several past research which investigate the relationship between CSRD and the cost of debt financing. With the integration of ESG data on corporate reporting, creditors began to use CSRD as an additional source of data in assessing firms' risk profiles. While the impact of CSRD on COD is widely researched, mixed results persist. Some research has shown that a negative relationship between CSRD and COD where increased transparency through CSR reports will have a diminutive effect on the lender's perception of credit risk and that lead to lower the cost of borrowing (Ge & Liu, 2015; Oikonomou et al., 2014; Raimo et al., 2021; Bhuiyan & Nguyen, 2019; Amarna et al.,

2024). In contrast, while some other studies' findings have the opposite, where CSRD and COD have found a positive relationship (Magnanelli & Izzo, 2017, p.258), there are studies that found no significant impact of CSRD on COD (Gupta & Das, 2024, p.1938). Therefore, the relationship between CSRD and COD financing remains debatable.

These mixed findings emphasize that the results are context dependent. Methodological heterogeneity in studies, which includes differences in samples, operationalizations of variables, and designs, creates variations in the results. Alternatively, the country's economic conditions and regulatory environment also have an influence on the results of the CSRD and COD relationship. CSRD may be more significant in emerging economies where sustainability reporting is not well regulated, or information asymmetry is higher than in developed countries with high transparency, where firm regulatory frameworks require reporting. Thus, different regulatory environments, stakeholder expectations, and governance systems lead to mixed empirical evidence between countries and regions. Alongside institutional disparities, the Covid-19 set off a health crisis worldwide which have demonstrated to provide further emphasis on the necessity of corporate sustainability and responsible business practices. In such economic turbulence, creditors might utilize non-financial information rather than relying solely upon the traditional financial data for understanding the financial soundness of a firm. Therefore, during an economic crisis, the value of CSRD may become elevated, and it may have an impact on the relationship with COD more than it did prior to the crisis.

Thus, this empirical review aims to synthesize existing research on the relationship between CSRD and COD financing to create a basis for the analysis that will be performed in this study. The review also illustrates the different findings and insights from previous literature on this topic, indicating that additional research is needed within developed institutional environments like Finland. The sub-sections present in this section provides detail information about empirical studies from various methodologies to establish a basis for the hypotheses proposed. The first subsection contains findings of research demonstrating the relationship between CSRD and COD financing, proposing the first

hypothesis. The second subsection includes the findings related to the impact of Covid-19 on the relationship between CSRD and COD and the second hypothesis developed according to the arguments presented.

1.1.1 CSRD and COD

CSR information helps creditors in measuring the risk of lending money to a company. In effect, CSRD can serve as a means of increasing transparency, decreasing the information asymmetry between companies and creditors, and signalling corporates being legitimate. Michaels & Grüning (2017) highlight that there is a negative association between CSRD and information asymmetry. Moreover, the results of the study substantiate the perspective that CSRD not only satisfy the expectations of stakeholders but also provide a license to do business as it leads to reducing the costs of a company (Michaels & Grüning, 2017, p. 269). Much of the available literature has shown that CSRD is negatively associated with COD.

Using 177 sample European companies, Amarna et al. (2024, p.3181) investigate the relationship between CSRD, COD, and COE. The study employed a fixed-effect model of panel data analysis in order to assess the effect of CSRD on a firm's cost of financing. They found that there is a negative significant relationship between CSRD and COD, where creditors value CSR information positively and lead to a reduction in COD. The study draws from legitimacy, signalling, and stakeholder theories to explain this negative association and highlights that COD may be reduced due to the reduction of information asymmetry and improvement in risk assessment allowed by CSRD (Amarna et al.,2024, p.3189). Further, the researchers explore the moderating effect of REM on this relationship. Findings revealed that due to the moderating effect of REM, the impact of CSRD on COD reduced as creditors seem to think companies may use CSRD to mislead them.

Bhuiyan & Nguyen (2019) did a study by investigating the relationship between CSR and COD and COE using a sample of 230 Australian listed firms from 2004 to 2016. COD and COE were used as dependent variables, while CSR disclosure, which was measured by ESG score from Bloomberg, was used as an independent variable in the study. The researchers applied the multivariate regression analysis approach to test the proposed hypotheses. The study found a negative significant relationship exists between CSRD and COD. They pinpoint the underlying cause of the negative relationship as the risk mitigation approach of CSRD. Study highlights that banks may value the CSR information as it reduces the uncertainties and risks occurring through information asymmetries and questionable reputation, and reduces COD (Bhuiyan & Nguyen, 2019, p. 427). Findings from the study of Xu et al. (2021) assist in understanding mandatory CSRDs' role with respect to the debt market. The study conducted to identify the impact of mandatory CSRD on COD financing in China found that companies experienced lower debt financing and eased firms' access to long-term bank credit after adopting mandatory disclosures. Moreover, the study accentuates that companies with longer and informative CSR reports which provide in accordance with GRI guidelines and have higher CSR scores have lower COD (Xu et al., 2021, p. 2203). Guo et al. (2023) also investigated the relationship between CSRD and COD financing using a sample of A-share listed companies in Shanghai and Shenzhen stock markets of China. The study uses a panel data model in the analysis and extends the analysis by examining the impact of both mandatory CSRD and voluntary CSRD on the cost of bond (COB) financing and cost of bank loans separately. Findings emphasize that there is a negative association between CSRD and both COB and the cost of bank loans. Further, empirical results idetified that voluntary CSRD are more advantageous in reducing COD financing in relation to the mandatory CSR reports (Guo et al., 2023, p. 17475).

Recent studies have provided additional support to the hypothesis presented in the current study; for example, Raimo et al. (2021, pp.1415-1417) explored the impact of ESG disclosure on COD using a sample of all companies in the constituent list of S&P 1200 Global Index[1] and analysis conducted using a fixed effects model. Hypotheses of

the study were developed based on the ideas that ESG disclosure acts as an element in communicating information to stakeholders, which reduces information asymmetries and is beneficial for lenders in assessing companies' default risks and creditworthiness (Raimo et al., 2021, p. 1415). Results taken from the analysis showed that a negative relationship exists between ESG disclosure and COD, highlighting that more transparent companies in terms of ESG disclosures will be rewarded with lower COD and easy access to external financing with favorable terms (Raimo et al., 2021, p. 1418). Kordsachia (2021) investigated how the European credit market values CSR using a sample of 778 publicly listed European companies. Findings show that there is a negative association between CSR and COD. Further, the study highlights how the insurance-like effect of CSR moderates the relationship between CSR and COD. The study found that the negative association becomes stronger in companies with financial distress. Moreover, the findings from extended analysis show that CSRA enhances the credibility of CSR reports and reduces information asymmetry, which ultimately lowers the COD (Kordsachia, 2021, p.1637).

Focusing on the EU context, particularly Scandinavian countries where companies operate in environments characterized by high transparency and well-established governance frameworks, there are emperical evidences supporting the argument that CSRD may have a negative relationship with COD financing. Aleknevičienė and Stralkutė (2023) conducted a study exploring the impact of CSR on COD and used a sample from Scandinavian public companies from Sweden, Norway, Finland, and Denmark, and applied a fixed-effects regression model in the analysis. In the analysis, companies were divided into two groups, which were categorized by companies with ESG disclosure scores and companies without ESG disclosure scores. Researchers found that companies with ESG disclosure scores have lower COD than other companies. Study highlights that even though the companies with ESG scores have high financial risks, their COD was lower. It demonstrates that the signalling role of ESG disclosures in filling information gaps exists. Results from the analysis draw attention to the fact that ESG disclosures were

valued by the debt market and creditors tend to use ESG disclosures in assessing firms' creditworthiness (Aleknevičienė & Stralkutė, 2023, p. 600).

While there is substantial evidence to indicate that CSRD is negatively correlated with COD, there are other investigations that have shown that CSRD has a positive relationship with COD, and some studies have found no statistically significant association. By considering COD and COE as dependent variables as proxies for cost of financing, Gupta and Das (2024, pp.1935-1936) employed panel data analysis with random effects to analyze the curvilinear relationship between CSRD and the cost of financing. They found out that there was no significant relationship between CSRD and COD, and they reasoned that this finding was due to low investor protection in emerging economies. Furthermore, Menz (2010) examined the relationship between CSR standards and bond pricing in European companies. The results emphasized that CSR should not be taken into consideration when valuing corporate bonds by bond investors. The argument behind this result is that bondholders may value credit ratings rather than CSR ratings (Menz, 2010, p. 129).

Most of the findings from empirical studies evidence that CSRD helps in reducing information asymmetry, increasing legitimacy and transparency, and reducing perceived risk. Literature review enables to set a conclusion that CSRD tends to lower the COD than increase. Given the robust institutional framework, high level of transparency, and well-established governance practices in Finland, it can be expected that CSRD is valued by creditors and COD will be reduced. Therefore, to test the aforementioned statement and answer the research question, the following hypothesis is presented.

H1: CSRD is negatively associated with firms’ COD in the Finnish context

1.1.2 Effect of Covid- 19 on CSRD and COD

The spread of the Covid- 19 in early months of 2020 produced substantial disruptions and uncertainties in the world economy and in the global financial system. The effects of lockdowns, inadequate supply chain access, and declines in economic productivity have had serious implications for both the operational and financial performances of firms across all sectors and industries around the world. In turn, these factors have resulted in heightened levels of corporate risk and reduced predictability of future cash flows of firms. As a result, investors and creditors are having difficulty in evaluating the company's creditworthiness and long-term viability. In a state of uncertainty like this, transparency and disclosure practices were significantly heightened and valued, as stakeholders were more likely to rely on non-financial information while evaluating the resilience and risk profile of firms. Hamed et al. (2023) investigated the impact of CSD on CFP during the global recession and Covid-19 by applying the fixed effect model for a sample of Chinese manufacturing companies. The variable of CSD used in the analysis is measured and represented by the companies that regularly publish the CSR statement. Findings show that there is a positive and significant effect of CSD on CFP in time of Covid-19 crisis. The study suggests that the influence of CSD on CFP becomes more pronounced during the crisis period, and researchers have indicated explanation for this strengthened relationship as governments and investors have paid more interest and value on sustainability during the Covid-19 (Hamed et al., 2023, p. 12).

About debt markets, the Covid- 19 had a significant impact on debt markets around the world. Due to growing default risk and reduced economic outlook, lenders became more conservative in lending and tightened credit policies. These constrictive policies and assessment procedures place restrictions on many companies seeking debt financing. Also, the COD was a primary factor in determining whether a company survived during the crisis and had the financial flexibility to overcome the challenges presented by the Covid-19. In this instance, firms' CSR engagements and CSRD are emerging as crucial factors impacting firms' perceived risk and financing opportunities. Ferriani (2023) explored the relationship between ESG scores and firms' COD financing during the Covid-

19 and found that companies with better CSR ratings have lower COD. In addition, results demonstrate that proved negative association is stronger for companies operating in developed economies, while in emerging markets, creditors consider more of a firm's financial strength when making lending decisions than CSR (Ferriani, 2023, pp. 11-12). The rationale behind this result highlighted as differences exist across advanced economies and emerging economies in relation to data gaps, firms' voluntary and mandatory disclosures, and sustainability reporting standards (Ferriani, 2023, p. 7).

Several empirical studies have evidenced that CSR initiatives and transparent disclosures have an insurance-like effect in the presence of negative events and market crises (Peloza, 2006; Lins et al., 2017, p.1788; Bouslah et al., 2016). Firms with higher levels of CSR involvement are viewed by stakeholders as reliable and responsible, and therefore, have lower perceived credit risk and information asymmetries. According to Poursoleyman et al. (2023), the insurance-like effect of CSR performance helps socially responsible companies to protect them against the adverse effects of the Covid- 19. Moreover, evidencing CSR as an insurance-like mechanism, Khatri (2025) found that Nordic companies with strong CSR performance face better in reacting to the adverse effects of the pandemic. When CSRD reduces the information gap that exists between a firm and its stakeholders, and demonstrates sound stakeholder relations, good governance, and risk management practices, then during times of crises when traditional financial indicators are not as useful in making lending decisions, it is likely that lenders will pay much greater attention to a firm's CSR activities and CSRD. Srivastava et al. (2022, pp.1-2) investigated the association between a firm's CSR engagement and COD financing during Covid- 19 by employing a panel fixed-effect model in the analysis. The study evidence that companies with strong CSR engagement have better relationships with lenders and other stakeholders and achieved better access to debt financing (Srivastava et al., 2022, p. 10). Findings conclude that during the Covid- 19, firms' responsible behaviour and high reputation lead to a reduction in risk perception of stakeholders.

Based on the literature review, it can be expected that CSRD will have a larger impact on firms' external financing, especially debt financing during times of economic distress. The role of CSRD as an insurance-like mechanism, its contribution to build stakeholder trust, increased reliance on non-financial information by creditors to evaluate firm risk and long-term viability during the Covid-19, may have made CSRD more highly valued during the crisis than in the normal period. Therefore, to test the statement and answer the sub-research question, the following hypothesis is presented.

H2 : The negative association between CSRD and COD is stronger during the Covid-19 period relative to pre Covid-19 period

3 Data and Testing

The procedures and techniques that are employed to carry out the study are specified in this chapter. It will include detailed descriptions of how the topic of study has been processed, how data is gathered, evaluated, and planned in order to establish the validity and reliability of the results of the study. This study aims to investigate the association between CSRD and firms' COD financing and extends the analysis, focusing on identifying whether this association became stronger during the Covid-19 period relative to the pre Covid-19 period. To address the research questions and test the hypotheses presented, the study employed a quantitative research approach. A quantitative approach is suitable because this investigation is to study the association between different sets of financial and non-financial variables. Since the data that would be utilized in this investigation is numerical and measurable, it would allow for the use of statistical techniques to test the hypotheses and make conclusions regarding the association between CSRD and COD.

Comparative research is a method for comparing two or more entities, phenomena, or concepts in order to analyze the similarities or dissimilarities of those in different situations. This study is considered a comparative research because one of the aims of this thesis is to understand the differences in the relationship between CSRD and COD financing in pre and post Covid-19 periods. The research approach of the study was deductive in nature. The hypotheses of this thesis were developed by reviewing the arguments, theories, and results from existing literature. The study applies secondary data in the analysis collected from LSEG and Bloomberg databases. The study years will be 2014–2023, which covers both before and during the Covid-19 periods. The variables used in this research are: COD as the dependent variable, CSRD measured by ESG disclosure score as the independent variable, and a number of control variables commonly used in previous literature, including SIZE, LEV, ROA, and market value to book value.

The remainder of this chapter is structured as follows. The first subsection presents information about the data sources, sample selection, distribution, and time period used for this study. The second subsection includes about dependent, independent, and control variables. The third subsection shows descriptive statistics that summarize the distribution and characteristics of the collected data, forth sub section presents results from correlation analysis, which examines relationships between variables, and the fifth subsection includes information on regression models used to test the hypotheses.

3.1 Data

The study collected data from multiple data sources for the analysis. The initial dataset of companies was taken as all active companies listed on the Nasdaq Helsinki Exchange, as of November 14th, 2025. This data was collected from the LSEG Database, which was previously known as Refinitiv. This data source has been used for several other empirical studies that involve financial information on publicly traded companies (Amarna et al.,2024, p.3185; Ferriani, 2023). This database provides a very comprehensive financial market data and infrastructure, offering a consistent and trusted source for analytics and financial decision-making. Thus, as the initial data set, there were 190 active listed companies on the Helsinki Stock Exchange at the aforementioned date.

To establish a consistent panel dataset for the study period used in the analysis, companies that were listed during the years in the data range (2014 -2023) were excluded from the sample. This exclusion was done to avoid incomplete time-series observations and ensure comparability across companies. At the end, this skimming led to the elimination of 92 companies from the original sample, remains with 98 companies in the sample. Furthermore, the study removed companies with missing ESG disclosure scores. Hence, a total of 21 companies without ESG data were excluded, and this further skimming led to a final sample of 77 companies for the analysis. This study deals with a balanced panel of 770 firm-year observations.

The Financial data, such as interest expense on debt, total debt, total assets, market value to book value, market capitalisation, common shares outstanding, current ratio, and ROA, collected from the LSEG database, will be processed into both dependent and control variables using Excel 2016. The data related to ESG disclosure scores were obtained from the Bloomberg database. This data source has been used for other empirical studies that include ESG scores in the analyses (Aleknevičienė & Stralkutė, 2023, p.592; Gupta & Das, 2024, p.1935). The ESG scores collected from the Bloomberg terminal are based on publicly available company-disclosed data, and the data are financially material and transparent. The Study collects the data for the period of 2014-2023, covering both pre and post- Covid periods. 2014-2018 is considered the pre Covid-19 period, and 2019-2023 is taken as the during or post Covid-19 period.

3.1.1 Sample Distribution

The final sample consists of 77 firms and 770 firm-year observations. ICB was applied to classify the firms and reflect the composition of the final sample. Table 1 reports the sample breakdown according to the industry. The highest number of firms was classified under the industrials, with 24 firms and 240 observations. Standing in the second place, consumer discretionary reports 18 firms with 180 observations. Both industrials and consumer discretionary represent greater than one-half of the total sample, corresponding to 54.55% of all the observations. The technology sector is the third most represented industry with 11 (110) firms (observations). On the other hand, real estate, telecommunications, utilities, and energy sectors present the lowest numbers of firms and observations, with 1 (10) firm from each industry.

Table 1. Sample distribution by industry.

Industry (ICB)	No. of firms	Observations	Share of total %
Basic Materials	6	60	7.79 %
Financials	5	50	6.49 %
Consumer Discretionary	18	180	23.38 %
Consumer Staples	6	60	7.79 %
Industrials	24	240	31.17 %
Health Care	3	30	3.90 %
Technology	11	110	14.29 %
Real Estate	1	10	1.30 %
Telecommunications	1	10	1.30 %
Utilities	1	10	1.30 %
Energy	1	10	1.30 %
Total	**77**	**770**	**100 %**

Appendix 1 presents the full list of firms included in the final sample, along with their ICB industry classification.

3.2 Variables

Based on the prior literature evidence and research problem of the study, which is to examine whether CSRD is negatively associated with firms' COD in the Finnish context, the following conceptual diagram has been developed. Figure 1 shows that the CSRD is the independent Variable and COD is used as the dependent variable. Profitability (ROA), SIZE, LEV, ICR, and MTB are used as the control variables.

It is important to note that the explanatory variables included in this study may not fully capture all the factors which explain variations in the COD. However, the chosen variables are selected from those commonly used by other researchers in their studies.

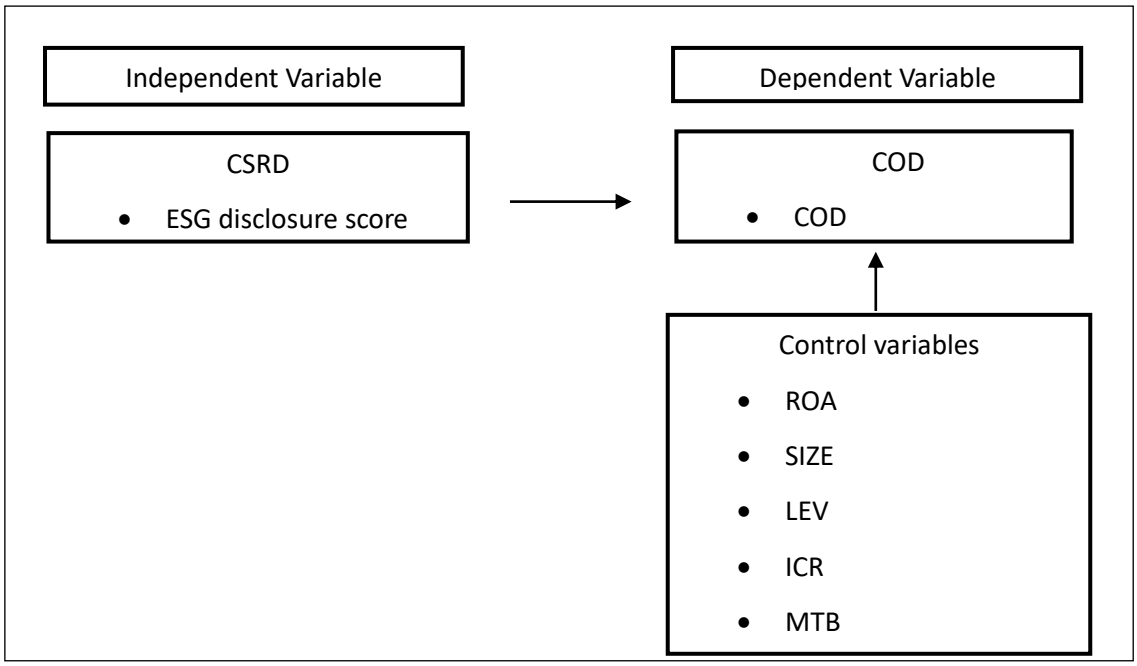

Figure 1. Conceptual Framework.

3.2.1 Dependent Variable

In empirical research, the dependent variable is the factor being tested and will be affected because of changes in one or more independent variables, which describes the primary phenomenon that the study intends to investigate and thus is directly linked to both the research questions and hypotheses. This study seeks to provide empirical evidence on one of the most widely debated topics in corporate finance- whether firms' financing conditions and especially COD financing are influenced by the firms' CSR practices and CSRD. Thus, the dependent variable selected for this study is the COD and will determine whether lenders are providing more favourable borrowing terms, leading to lower COD to transparent and socially responsible companies, through evaluating how COD is impacted by CSRD. The following subsection describes the dependent variable, along with its definition, measurement, data sources, and relevance to the study.

3.2.1.1 COD

The dependent variable employed in this study is COD. In corporate finance literature, COD is commonly described as the effective interest rate that a firm needs to pay for its borrowed funds. From the perspective of lenders, COD is the required rate of return for lending capital to a firm. Lenders seek this return as compensation for the risk associated with providing funds. Thus, COD acts as a key measure of how creditors evaluate the riskiness, financial health, and transparency of a company. Financial data related to calculating COD collected from the LSEG database. The measurement of the COD used for this research has been widely used in empirical research (Amarna et al., 2024, pp.3185-3186; Yeh et al., 2020, p.6; Boachie & Tetteh, 2021, p.474), and it is calculated by dividing the interest expense of the firm by interest-bearing debt outstanding.

Formula for COD:

$$COD_{it} = \frac{\text{Interest expense}_{it}}{\text{Interest-bearing debt outstanding}_{it}} \quad (1)$$

Interest expense on debt consists of the service charge for using the capital before the reduction for interest capitalized (Boachie & Tetteh, 2021, p. 474). Total debt includes all the interest-bearing short-term and long-term debt. This COD measurement provides a true indication of the actual costs incurred by the company to raise funds. Since COD reflects the viewpoints of creditors who have greater sensitivity to information transparency and the risk profile of firms, using it as the outcome variable is consistent with the identified research question in the study.

3.2.2 Independent Variable

An independent variable is the explanatory or predictor variable that is expected to cause changes in the dependent variable. It is independent of other model variables, and its value remains unaffected by other variables. It is crucial to select an appropriate

independent variable for the analysis to ensure that the independent variable accurately defines the theoretical construct being measured, so meaningful statistical testing of the intended hypotheses can occur. The independent variable of the study is CSRD and ESG disclosure score, which is employed as a proxy that serves as an indicator of the degree of transparency in firms' non-financial reporting. Although ESG performance indicators provide measures on actual ESG performance of an entity, ESG disclosure scores reveal the extent to which firms provide information regarding their sustainability policies, risks, and practices.

The study uses the Bloomberg ESG Disclosure Score, which is commonly used in academic research (Aleknevičienė & Stralkutė, 2023, p.592; Raimo et al., 2021, p.1415). Bloomberg ESG scores measure a firm's financially material ESG practices with country-specific rules and regulations adjustments. Moreover, the scores are measured using publicly available and company-disclosed data and are updated in a timely manner when a company releases new data. Over 120 raw data points, which cover a variety of ESG categories, were taken into consideration in measuring the ESG disclosure score (ESG Advising LLC, 2024). The score ranges from 0 to 100. While the score of 0 emphasizes the companies that are not disclosing any ESG-related data, the score of 100 represents companies that provide complete and detailed ESG reporting (Raimo et al., 2021, p.1416). The ESG disclosure score is more appropriate for investigating the impact of CSRD on COD, as this score is used by capital providers in assessing potential risks and opportunities of a firm. For companies, this score allows them to exhibit their commitment to transparency and sustainability and helps to meet stakeholder expectations (ESG Advising LLC, 2024).

From the Bloomberg database, four ESG disclosure scores can be collected: the overall ESG disclosure score, as well as separate ESG disclosure scores. The Environment category contains disclosures about the carbon footprint, use of resources, environmental management practices, and climate-related risks (ESG Advising LLC, 2024). Social category includes disclosures related to social issues such as labor practices,

employee welfare, community involvement, diversity, and product responsibility (ESG Advising LLC, 2024). Furthermore, the governance dimension captures disclosures concerning corporate governance practices, for instance, the structure of the board of directors, executive compensation, shareholder rights, business ethics, and anti-corruption policies (ESG Advising LLC, 2024). Bloomberg gathers all of this ESG-related information to measure the disclosure score from publicly available sources, such as company annual reports, sustainability reports, regulatory filings, press releases, and company websites (Raimo et al., 2021, p.1415).

3.2.3 Control Variables

In quantitative research, control variables are extra explanatory variables added into a statistical model to help control for other factors that might affect or influence the dependent variable. The primary use of a control variable is to isolate the relationship between the independent variable and the dependent variable by reducing the impact of confounding variables. If there are not enough relevant controls applied to the analysis, the relationship estimated between the dependent and independent variables will result from the effects of other external factors, and the study is not able to identify the true relationship between the independent and dependent variables.

In corporate finance studies, firms' cost of financing is based upon numerous financial and operational characteristics of the firm, other than just non-financial reporting practices. When making lending decisions, lenders will assess borrowers' profitability, capital structure, growth potential, and financial stability. Therefore, it is vital to include relevant firm-specific control variables into the model to ensure that the observed relationship between CSRD and COD will not be misinterpreted due to the influence of other determinants. This study has chosen a set of control variables focusing on factors that impact a firm's COD financing. Thus, this study selected and employed five control variables that were supported by empirical evidence: firm size, profitability, leverage,

growth, and interest coverage ratio (Aleknevičienė & Stralkutė ,2023, p.593; Raimo et al., 2021, p.1416; Yeh et al., 2020, p.6; Dhaliwal et al., 2014, pp.67-68).

3.2.3.1 Firm size

One of the common control variables used in corporate finance research is SIZE. While the large firms are considered as more stable and less risky, small firms are perceived as risky and unstable. Since larger firms can engage in diversified operations, more dominant market positions, and accessibility to the capital markets, the probability of default is lower compared to small firms. Therefore, larger-sized firms will usually be offered debt financing at lower rates by lenders. Amarna et al. (2024, p.3186) highlight that there are more regulations for larger-sized businesses than smaller-sized businesses, and that may lower the information asymmetry between large businesses and creditors. Thus, large firms will be rewarded with more favourable terms for their borrowings. Furthermore, Graham et al. (2008) demonstrated that larger entities have easier access to external financing and lower monitoring costs than small entities.

To identify whether SIZE has a significant impact on the COD and on the overall relationship between CSRD and COD, this study incorporates SIZE as a control variable in the model. SIZE is measured by the natural logarithm of total assets and was applied by numerous prior empirical studies (Aleknevičienė & Stralkutė ,2023, p.593; Raimo et al., 2021, p.1416; Gupta & Das,2024, p.1935; Dhaliwal et al., 2014, p.68).

Formula for firm size:

$$SIZE_{it} = \log(\text{Total assets}_{it}) \quad (2)$$

3.2.3.2 ROA

This study uses ROA as the proxy for firm profitability. Profitability serves as an indicator of a company's financial viability and operational efficiency. Prior research has evidenced that companies with a high level of profitability have lower COD because they demonstrate their ability to meet debt obligations and have lower levels of financial risk (Raimo et al., 2021, p. 1416). Thus, this study applies ROA as a control variable to identify whether there is any significant impact of ROA on COD and controls to mitigate possible effects that may have on CSRD and COD association. It allows to identify the true impact of CSRD on COD. ROA is measured by dividing earnings before interest and taxes by total assets.

Formula for firm profitability:

$$ROA_{it} = \frac{\text{Earnings before interest and taxes}_{it}}{\text{Total assets}_{it}} \quad (3)$$

3.2.3.3 Financial leverage

LEV is included as a control variable in the model as it may have an impact on both CSR and COD. High levels of LEV expose businesses to financial risk as companies must make high fixed interest payments and, therefore, are likely to experience financial distress. Due to increased risk of default, lenders often require a higher rate of return from highly leveraged companies. In this study, LEV is calculated by dividing total debts by total assets. This measurement approach has been used in several prior research studies (Amarna et al., 2024, p.3186; Aleknevičienė & Stralkutė ,2023, p.593).

Formula for leverage:

$$LEV_{it} = \frac{\text{Total debt}_{it}}{\text{Total assets}_{it}} \quad (4)$$

3.2.3.4 Interest coverage ratio

The ICR is used to determine a company's ability to meet its interest expense on debt through its operating profitability. While a higher ratio shows financial stability of a firm, a low ratio indicates high default risk. Lenders consider this ratio often when assessing the firms' creditworthiness and making decisions about credit terms. Thus, firms with higher ICR emphasize their ability to meet interest obligations, resulting in lower credit risk and advantaged with lower COD. For this study, ICR is calculated as earnings before interest and taxes to interest expense.

Formula for interest coverage ratio:

$$ICR_{it} = \frac{\text{Earnings before interest and taxes}_{it}}{\text{Interest expense}_{it}} \quad (5)$$

3.2.3.5 Market-to-book ratio

MTB is employed as the proxy for firms' growth and used as a control variable in this study. A high MTB ratio indicates that creditors may expect high future growth for a firm. Hence, lenders may require a lower rate of return from higher growth firms because they expect higher earnings in the future and lower the credit risk. Graham et al. (2008) highlight that firms with high growth opportunities experience low borrowing costs. Furthermore, companies with a high MTB ratio will have lower financing costs because they provide an additional value above their book value and therefore, have a lower level of financial risk (Amarna et al., 2024, p. 3186). MTB ratio is calculated by dividing the market capitalization of a firm by total shareholders' equity.

Formula for market-to-book ratio:

$$MTB_{it} = \frac{\text{Market capitalization}_{it}}{\text{Total shareholders' equity}_{it}} \quad (6)$$

Table 2 summarizes all the variables used, along with how they were measured, proxies, and the literature sources.

Table 2. Operationalization of variables.

Variable		**Proxies**	**Measurements**	**Literature**
Independent variable	CSRD	ESG disclosure score	Bloomberg ESG disclosure score	Aleknevičienė & Stralkutė (2023) Raimo et al., (2021)
Dependent variable	COD	COD	Interest Expense/Interest bearing debt outstanding	Amarna et al., (2024)
Control variables	SIZE		Natural logarithm of total assets of the firm	Aleknevičienė & Stralkutė (2023) Raimo et al., (2021) Gupta & Das (2024)
	Profitability	ROA	Earnings before interest and taxes/ Total assets	Yeh et al., (2020) Aleknevičienė & Stralkutė (2023)
	LEV		Total debt/total assets	Amarna et al., (2024) Aleknevičienė & Stralkutė (2023) Dhaliwal et al., (2014)
	ICR		Earnings before interest and taxes/ Interest Expense	Raimo et al., (2021)
	Growth	MTB	Market capitalization/Total shareholders' equity	Aleknevičienė & Stralkutė (2023) Dhaliwal et al., (2014)

3.3 Descriptive Statistics

Descriptive statistics offer a summary of the main features of the variables used in the study and allow to analyse the distributional characteristics of the sample. Table 3 presents the descriptive statistics for the dependent variable, independent variable, and the control variables utilized in this study. The sample contains 770 firm-year observations. The descriptive statistics presented include mean, median, minimum, maximum, standard deviation, and skewness for each of the variables.

Table 3. Descriptive statistics.

Variable	Mean	Median	Min.	Max.	Std. Dev.	Skewness
COD	0.047	0.030	0.000	2.040	0.119	11.889
ESG disclosure score	42.533	40.560	7.720	85.010	16.475	0.316
ICR	38.596	7.994	-237.172	2844.143	192.138	11.763
LEV	0.254	0.243	0.000	1.122	0.153	0.629
MTB	2.454	1.751	-2.916	19.240	2.361	2.999
ROA	6.283	4.840	-80.220	334.850	17.404	11.669
SIZE	5.723	5.534	4.049	8.169	0.862	0.301

Regarding the dependent variable of the study, which is represented by COD, the mean value shows as 0.047. This reveals that on average, firms in the sample will spend about 4.7% of its total debt on interest expense. Additionally, results indicate COD has a maximum value of 2.040 and minimum of 0.000. This minimum value implies that there were some companies in the sample that did not incur any interest expense on debt in some years. The standard deviation of COD is 0.119, and the skewness value is 11.889. This skewness value reveals that the COD distribution is positively skewed, as the mean value (0.047) is greater than the median value (0.030). This result suggests that the majority of companies in the study have relatively low borrowing costs, while only a small segment of companies have very high COD.

ESG disclosure score is used as the independent variable, and the average value of the score shows as 42.533, indicating firms disclosing moderate level of ESG information.

ESG disclosure scores range from 7.720 as a minimum to 85.010 as a maximum. Thus, this illustrates a large variation in ESG disclosure practices between the organizations in the sample. Some organizations provide the least amount of ESG data, while others provide the greatest amount of transparency and completeness of disclosures regarding their CSR information. The skewness value of 0.316 suggests that the distribution is roughly symmetrical, indicating that the ESG disclosure scores of the sample are fairly evenly distributed around the mean.

There are five control variables applied in the analysis, and regarding the SIZE, the mean value is 5.723, and the values range from a minimum of 4.049 to a maximum of 8.169. These outcomes imply that the sample consists of firms of different sizes. This is supported by the standard deviation of 0.862, featuring a moderate variance in size throughout the sample companies. In terms of profitability, which is represented by the proxy of ROA, the average is 6.283. This indicates that the firms included in the sample normally have positive operating performance. The minimum and maximum values of the ROA ranged from -80.220 to 334.850, which shows that the companies represented in the sample had a large amount of disparities regarding profitability. While a negative ROA implies the presence of companies with operational inefficiencies, high positive returns indicate the presence of profitable companies across the sample.

Further, the average value for LEV is 0.254, and it demonstrates that, on average, firms in the sample have a moderate level of reliance on debt financing. The median value of LEV is 0.243. LEV shows a minimum value of 0 and highest of 1.122, indicating that some companies have no debt, and some companies have greater debt obligations that surpass the total assets. The skewness value of 0.629 means the distribution of LEV levels across the sample is slightly positively skewed (Mean>Median), which suggests there are many companies in the sample that have a moderate level of reliance on debt, while there are a smaller number of companies that have a high LEV ratio. As for ICR, the mean value is 38.596. However, the ICR shows wide dispersion, ranging from a minimum value of -237.172 and up to the highest value of 2844.143. Negative ICR values occur when the

company has operating losses, and this indicates that the company is experiencing financial distress. Extremely high ICRs can occur when companies have small amounts of interest expense compared to their earnings. Regarding MTB value, the mean is 2.454 with a minimum of -2.916 and high of 19.240. The results show 2.999 of skewness for the MTB value, and that is indicative of a positively skewed distribution as mean value is higher than the median value (1.751). In this instance, a small number of firms possess extremely high MTB values, showing high growth potential, and the majority of firms in the sample have low-to-moderate MTB values.

3.4 Correlation Analysis

Correlation analysis, which is also referred to as bivariate analysis, is mainly about understanding the presence of significant connections, patterns, or trends between two or more variables used in a study, as well as how strong and in what direction that relationship is. The Pearson product-moment coefficient is one of the most applied correlation analyses to determine the magnitude of linear relationships between the variables. This statistic ranges from -1 to +1. A value from +0.5 to +1 indicates a strong positive relationship, meaning that both variables are directed at the same time. A value from -0.5 to -1 indicates a strong negative relationship, meaning when one variable increases, the other variable decreases. A value of zero indicates no or little linear relationship between the two variables.

Researchers in finance frequently utilize correlation analysis in their studies as an initial measure for determining the existence of multicollinearity problems between independent or predictor variables that could affect regression estimates. If the correlation coefficients were greater than 0.80 it may indicate potential multicollinearity concerns. Initially, the correlation analysis was conducted based on the entire study period, which includes both normal and Covid-19 crisis periods. Then, to have deeper insights about how the correlations may change between crisis and non-crisis situations, additional correlation analyses were performed for pre and post Covid-19 periods

separately. Correlation results for the whole sample period are found in Table 4, and results of the pre- Covid and post- Covid sample periods are presented in Tables 5 and 6, respectively.

Table 4. Summary of correlation analysis results for total sample period (2014-2023).

Covariance Analysis: Ordinary							
Included observations: 770							
Correlation							
Probability							
	COD	ESG DISC	ICR	LEV	MTB	ROA	SIZE
COD	1.000000						

ESG DISC	-0.056040	1.000000					
	0.1202	-----					
ICR	-0.026002	-0.089763	1.000000				
	0.4712	0.0127	-----				
LEV	-0.153388	-0.094374	-0.235431	1.000000			
	0.0000	0.0088	0.0000	-----			
MTB	-0.021576	0.057940	0.396196	-0.253858	1.000000		
	0.5500	0.0182	0.0000	0.0000	-----		
ROA	0.255603	-0.002672	0.126249	-0.250005	0.208641	1.000000	
	0.0000	0.9410	0.0004	0.0000	0.0000	-----	
SIZE	-0.096921	0.784903	-0.106832	-0.010973	-0.026567	-0.056843	1.000000
	0.0071	0.0000	0.0030	0.7611	0.4617	0.1150	-----

Table 4 presents the correlation coefficients for the variables use in the study, considering the data for the total sample period. According to the table, the correlation between COD and ESG disclosure score is -0.056, and the probability (p) is 0.1202. This indicates there is a negative but insignificant (p> 0.05) relationship between COD and ESG disclosure score. This means even though the firms with complete and transparent CSRD will typically have lower COD, the relationship has no significance or not statistically meaningful. In terms of COD and control variables, LEV and SIZE have a negative and significant relationship with the dependent variable of COD, where correlation values are -0.153 and -0.097, respectively. This result of negative association is consistent with the findings that have been reported by several empirical studies (Boachie & Tetteh, 2021, p.478; Yeh et al., 2020, p.7). Findings imply that larger firms have relatively low COD. Yeh et al. (2020, p.7) presented that SIZE and LEV have negatively and significantly correlated with the COD, where correlation values are -0.211 and -0.359.

Further, the correlation between the COD and ICR is −0.026, and it does not demonstrate a statistically significant association as the probability value is greater than 0.05 level (p=0.4712). There is a positive and statistically significant relationship between ROA and COD, where the correlation value is 0.256, and the probability is 0.00. This suggests that more profitable firms may incur higher levels of borrowing costs.

Regarding the correlation between ESG disclosure score and control variables, the correlation value between ESG disclosure score and SIZE is 0.7849, and the probability is 0.00. Thus, ESG disclosure and SIZE show a statistically significant positive relationship, indicating that larger firms are likely to have much higher levels of ESG Disclosure compared to smaller firms. However, the high correlation value between these two variables indicates that there is a very high level of association between these variables and highlights potential multicollinearity concerns. Though this value is less than the critical threshold of 0.8, it still suggests that additional diagnostic testing needs to be performed. Accordingly, the VIFs test is carried out, and the findings are displayed in

Appendix 2. According to the results from the VIF test, all VIF values for all variables were found to be lower than the typical benchmark of 10. Even though this result appears to be no serious multicollinearity issues in this study, It should also be noted that some of the explanatory variables share common components in their construction. While multicollinearity may exist to some extent, the relatively low VIF values indicate it is not likely to produce problematic levels of issues within the model.

Furthermore, MTB has a positive association with ESG disclosure score (0.0579), and it is insignificant ($p = 0.1082$). ICR has a negative and statistically significant association with ESG disclosure score ($p= 0.01$). This result is in line with research findings by Raimo et al. (2021, p.1417), and they found a negative (-0.040) and significant relationship between ICR and ESG disclosure score. Although the correlation between ROA and ESG disclosure score is negative, it is statistically insignificant ($p>0.05$), suggesting that the CSRD and the firm's operational performance are not generally well correlated.

Table 5. Summary of correlation analysis results in pre- Covid 19 period (2014-2018).

Covariance Analysis: Ordinary							
Included observations: 385							
Correlation							
Probability							
	COD	ESG DISC	ICR	LEV	MTB	ROA	SIZE
COD	1.000000						

ESG DISC	-0.019230	1.000000					
	0.7068	-----					
ICR	-0.047603	-0.114458	1.000000				
	0.3516	0.0247	-----				
LEV	-0.098099	-0.078272	-0.266945	1.000000			
	0.0545	0.1252	0.0000	-----			
MTB	-0.008667	0.037357	0.541911	-0.348344	1.000000		
	0.8654	0.4649	0.0000	0.0000	-----		
ROA	0.376341	-0.007696	0.121162	-0.263848	0.176228	1.000000	
	0.0000	0.8834	0.0174	0.0000	0.0005	-----	
SIZE	-0.085046	0.766070	-0.144490	0.007210	-0.050156	-0.055035	1.000000
	0.0956	0.0000	0.0045	0.8879	0.3263	0.2814	-----

Table 5 shows the correlation coefficients for variables considering the data for the pre-Covid-19 period (2014-2018). According to the results from the analysis, the correlation between COD and ESG disclosure score is -0.019, and the p-value is 0.7068. This indicates there is a negative but insignificant relationship exist between COD and ESG disclosure score in the pre Covid-19 period. Even though the negative sign aligns with the fact that more transparency will lead to lower perceived risk, the existence of no significance suggests that lenders did not weigh heavily on CSRD in taking lending decisions during this period of time.

In terms of COD and control variables, SIZE has a negative but insignificant relationship with COD. This result implies that in Finnish context, firm size does not have a meaningful impact on COD financing. LEV has a negative and statistically significant association with COD, where correlation value shows as -0.098. However, COD and firm profitability have a positive and statistically significant association (0.376). By reviewing the previous research findings, it would typically be expected that profitable firms will have lower COD due to low default risks than those of less profitable firms (Amarna et al., 2024, p. 3186; Graham et al., 2008). However, as highly profitable companies may also have greater earnings volatility or pursue growth strategies that produce greater levels of risk, it may lead to require a high rate of return by lenders. Thus, a positive correlation can result between ROA and COD. Further, both ICR and MTB have a negative but insignificant relationship with COD. About the correlation between ESG disclosure score and control variables, the correlation value between ESG disclosure score and SIZE is 0.756, and it indicates a statistically significant positive relationship (p=0.000). However, as a high correlation value resulted between these two variables, it raises potential multicollinearity issues. Accordingly, VIF values are calculated, and findings are presented in Appendix 2 for the period of 2014-2018. According to the results, all VIF values were found to be lower than the typical benchmark of 10. Even though multicollinearity may exist to some extent, the relatively low VIF values indicate it is not likely to produce problematic levels of issues within the model. Moreover, ICR has a

negative association with ESG disclosure score (-0.114), and it is statistically significant ($p < 0.05$).

Table 6. Summary of correlation analysis results in post-Covid 19 period (2019-2023).

Covariance Analysis: Ordinary							
Included observations: 385							
Correlation							
Probability							
	COD	ESG DISC	ICR	LEV	MTB	ROA	SIZE
COD	1.000000						

ESG DISC	-0.099847	1.000000					
	0.0503	-----					
ICR	0.075161	0.071918	1.000000				
	0.1410	0.1590	-----				
LEV	-0.212790	-0.161099	-0.370891	1.000000			
	0.0000	0.0015	0.0000	-----			
MTB	-0.034657	0.058416	0.372458	-0.182940	1.000000		
	0.4978	0.2529	0.0000	0.0003	-----		
ROA	0.061366	0.033176	0.228233	-0.250957	0.309554	1.000000	
	0.2296	0.5163	0.0000	0.0000	0.0000	-----	
SIZE	-0.111845	0.821623	0.023813	-0.046974	-0.012469	-0.058045	1.000000
	0.0282	0.0000	0.6414	0.3580	0.8073	0.2559	-----

Table 6 shows the correlation coefficients for variables considering the data for the post-Covid-19 period (2019-2023). As per the results from the analysis, the correlation between COD and ESG disclosure score shows as -0.099, and the probability value is 0.0503, which is lower than the 5% threshold. This indicates there is a negative significant relationship exists between COD and ESG disclosure score in the post Covid-19 period. Even though this association is negative and insignificant in pre Covid-19 period, correlation became significant in the post Covid-19 period, emphasizing that creditors tend to consider CSRD more in evaluating firms credit risk during periods of uncertainty than before the Covid-19. This correlation finding is consistent with prior research (Amarna et al., 2024, p.3188 ; Aleknevičienė & Stralkutė, 2023, p.596).

In terms of COD and control variables, both LEV and SIZE have a negative and statistically significant relationship with COD. Correlation values for LEV and SIZE indicate -0.212 and -0.111, respectively. Even though the finding for LEV is consistent with the relationship identified prior to the Covid-19, SIZE became significant in post Covid-19 period in Finnish context. However, in contrast to the pre- Covid period, ROA exhibited no significant relationship with the COD (p=0.2296). Further, MTB has a negative (-0.034) but insignificant relationship with COD.

Concerning the correlation between ESG disclosure score and control variables, the correlation value between ESG disclosure score and SIZE is 0.821, and it indicates a statistically significant positive relationship (p=0.000). However, as the correlation value between these two variables exceeds the 0.8 threshold, it raises potential multicollinearity concerns. Appendix 2 presents the VIF results for the period of 2019-2023 and all VIF values were found to be not exceeding 10. Even though multicollinearity may exist to some extent in this study, the relatively low VIF values suggest that it is not likely to produce serious levels of issues within the model. LEV has a negative association with ESG disclosure score (-0.161), and the relationship is significant ($p < 0.05$). Further, results highlight that ICR and ESG disclosure score have a positive insignificant (0.071, p=0.1590) relationship.

3.5 Regression Models

The regression analysis is a key statistical methodology that is used to study the association between a dependent variable and one or more explanatory variables. This method enables the identification of the character and strength in which the independent variables influence the dependent variable while controlling for the effects of all other control variables. This technique has become an important tool for researchers in the field of corporate finance as it allows to test the hypotheses of the study and provide additional insights into how firm-level characteristics affect the outcomes (Petersen, 2008). For this study, a regression analysis will be done to determine the impact of CSRD on COD. The dependent variable in this regression is COD, and the primary independent variable will be the CSRD. ESG disclosure score, which indicates the level of transparency regarding a firm's ESG reporting used as the proxy for CSRD. A set of control variables will also be added to the regression to account for firm-specific characteristics, which may have an impact on the response variable (COD) of the study.

By conducting panel data regression analysis, the association between CSRD and COD is explored in the study. Panel analysis combines both cross-sectional and time series data. As the dataset of the study consists of multiple companies across time periods from 2014-2023, panel analysis is suitable for testing the hypotheses. With the panel layout of the dataset, it is necessary to select the most fitting panel regression method. The use of Pooled OLS is inappropriate in this study as it considers all observations as homogeneous, and it neglects panel structure and unobserved heterogeneity. Suitability of the panel regression model over OLS is confirmed from the findings of the Breusch-Pagan LM test (see Appendix 3). Test results show that the p-value of the Breusch-Pagan LM statistic is less than 0.05, and it indicates the acceptance of the alternative hypothesis, which emphasizes the existence of panel effects. Thus, the LM test confirms that a panel data regression model is more suitable for the analysis.

In this case, additional analysis needs to be performed to determine if either the fixed-effect or random-effect model was a better fit to test the study hypotheses. The Hausman specification test was conducted to help decide whether to utilize a fixed or random-effects model (see Appendix 4). The findings from the Hausman test show the p-value is less than 0.05, which indicates the coefficients are statistically significant. Hence, we can reject the null hypothesis, which is about the random effects are more appropriate. Thus, it can be concluded that the use of fixed effects is a better choice than random effects in this study. The fixed effects model is suitable as it produces reliable and consistent parameter estimates through the control of unobserved and time-invariant factors. This regression model was applied by previous research in investigating the association between CSRD and COD (Aleknevičienė & Stralkutė, 2023, p.592; Ferriani, 2023; Amarna et al., 2024, p.3187). Even though the fixed effects model is selected for the analysis, to test the robustness of the results and to ensure that the results are not sensitive to the model, random effects model also run as an alternative model in the regression analysis (see Appendix 5). Further, the E-Views 14 software is used in the statistical analysis process.

The main objective of this study is to investigate whether CSRD is negatively associated with the COD among listed companies on the Helsinki stock exchange in Finland. The following model was presented by considering dependent, independent, and control variables to identify the association between CSRD and COD financing.

The baseline regression model of the study:

$$COD_{it} = \beta_0 + \beta_1 ESG\ DISC_{it} + \beta_2 ICR_{it} + \beta_3 LEV_{it} + \beta_4 MTB_{it} + \beta_5 ROA_{it} + \beta_6 SIZE_{it} + \epsilon_{it} \quad (7)$$

In the model presented above, β_0 is the constant, while β_1, β_2, β_3, β_4, β_5, β_6 represent the coefficients of parameter estimates. COD is the dependent variable of the study, and it is denoted by COD. The main independent variable of the study is CSRD, and it is

captured by the ESG disclosure score, which is indicated as ESG DISC in the model. The control variables of the study are denoted by ICR, LEV, MTB, profitability (ROA), and SIZE. ϵ is the error term, which is used to account for all other omitted variables that have an impact on the relationship between the dependent and independent variables. In the model, i represents the cross-sectional unit, which is the firm, and t denotes the longitudinal element, which is the year.

By further expanding the analysis, this course of study evaluates whether the relationship between CSRD and the COD becomes stronger during the Covid-19 period relative to the pre Covid-19 period. Thus, an additional model was created by introducing a dummy variable COVID and an interaction term ESG DISC* COVID into the baseline model. COVID is taken as the dummy variable that equals 1 for years 2019-2023, which represent the post Covid-19 period, and 0 for years 2014-2018, which represent the pre Covid-19 period. Utilizing this model, it can compare how CSRD affects COD in these two separate time periods.

The regression model is specified as follows:

$$COD_{it} = \beta_0 + \beta_1 ESG\ DISC_{it} + \beta_2 COVID_t + \beta_3 ESG\ DISC_{it} * COVID_t + \beta_4 ICR_{it} + \beta_5 LEV_{it} + \beta_6 MTB_{it} + \beta_7 ROA_{it} + \beta_8 SIZE_{it} + \epsilon_{it} \quad (8)$$

4 Empirical Results

This chapter demonstrates the empirical results from the fixed effects panel regression analysis used to examine the association between CSRD and the COD of firms listed on the Nasdaq Helsinki Exchange in Finland. The analysis aims to provide insights and conclusions regarding the effects of firms' non-financial reporting transparency, measured by the proxy of ESG disclosure score, on the borrowing costs in the Finnish context. The study presents two main analyses corresponding to the hypotheses of the study. The first is the overall relationship between CSRD and COD as evaluated by using the baseline fixed effects regression model (H1). The second is an investigation of whether the association between CSRD and COD becomes stronger for the post Covid-19 period compared to the pre Covid-19 period, which will be accomplished by adding a COVID dummy variable and an interaction term to the core regression model (H2). In both regression models, we controlled for a set of firm-specific variables that can impact the association between CSRD and COD. This chapter is structured as follows. The first subsection presents the regression analysis results testing Hypothesis 1. The second subsection includes regression results for Hypothesis 2 by providing a comparative analysis between the pre Covid-19 and post Covid-19 periods. The final subsection synthesizes the results obtained from the regression analysis and discusses the findings.

4.1 Regression results for Hypothesis 1 (H1)

Hypothesis 1 is formulated to address the main research question of this study, whether corporate CSRD is negatively associated with firms' COD in the Finnish context. To investigate this relationship, the analysis was conducted using the baseline regression model specified in equation (7) under section 3.5 of the methodology chapter. Table 7, presented below, includes the summary of regression analysis results for H1. The table shows the data of Coefficient, Standard Error, T-statistic, and Probability value for all independent variables and all controls applied in the model, with COD as the dependent variable. The results are used to interpret the direction and strength of the relationships,

and identify whether the relationships were statistically significant between each of the predictor variables and the COD. Further, the table presents the overall model Diagnostic indicators for R-squared, Adjusted R-squared, and F-statistic, which can provide insights about the overall explanatory power, overall significance, and reliability of the model.

Table 7. Summary of regression analysis results for H 1.

Dependent Variable: COD
Method: Panel Least Squares
Date: 04/28/26 Time: 17:13
Sample: 2014 2023
Periods included: 10
Cross- sections included: 77
Total panel observations: 770

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.2062	0.1603	1.2866	0.1987
ESG DISCLOSURE SCORE	0.0010	0.0008	1.3027	0.1931
ICR	-3.44E-05	2.49E-05	-1.3828	0.1672
LEV	-0.2178	0.0465	-4.6819	0.0000
MTB	0.0009	0.0036	0.2651	0.7910
ROA	0.0017	0.0002	6.6837	0.0000
SIZE	-0.0279	0.0299	-0.9304	0.3525
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.2546	Mean dependent var		0.0471
Adjusted R-squared	0.1656	S.D. dependent var		0.1192
S.E. of regression	0.1089	Akaike info criterion		-1.4960
Sum squared resid	8.1408	Schwarz criterion		-0.9952
Log likelihood	658.9735	Hannan-Quinn criter.		-1.3033
F-statistic	2.8613	Durbin-Watson stat		2.1793
Prob(F-statistic)	0.0000			

Concerning the association between CSRD and COD, the table shows that the coefficient of the ESG disclosure score is positive (0.0010), meaning that an increment of the ESG

disclosure score would lead to an increase in the COD, while controlling for all other variables. However, this was not statistically significant as the probability value is higher than the significance level 0.05 (p = 0.1931). This result suggests that companies with more extensive CSRD did not benefit from lower borrowing costs in the Finnish context. Moreover, this result does not provide support for the fact that increased sustainability reporting transparency leads to reduced information asymmetry and therefore lower perceived credit risk. In this study, hypothesis 1 is predicted as CSRD is negatively associated with firms' COD in the Finnish context. However, as the results from the regression analysis indicate a positive and statistically insignificant coefficient, it can be concluded that H1 is rejected.

One possibility for not having a result of a negative association between CSRD and COD in the Finnish context can be explained, as companies operated in Finland work in a very transparent setting with a highly regulated disclosure environment, creditors may not value higher the companies with more CSRD as they already have access to extensive mandatory CSR-related information. Rather, they may place more weight on traditional indicators of financial risk when they set their required rate of return. The positive and insignificant association between CSRD and COD, which resulted from the analysis of this study, can be clarified through the findings and interpretations by Hamrouni et al. (2019, p.274), who found a positive association between social disclosure and COD and no significance between governance disclosure and COD. Furthermore, findings by AlKhouri and Suwaidan (2022) are also fairly similar to the identified association between CSRD and COD in this study. AlKhouri and Suwaidan (2022, p.468) found no impact of CSRD on firms' weighted average cost of capital (WACC). In addition, Gonçalves et al. (2022, p.13) and Magnanelli and Izzo (2017, p.258) found a positive significant relationship exists between ESG score and COD, which is partially comparable with the CSRD-COD association of this study that resulted as positive but insignificant. Results from the study by Boachie and Tetteh (2021, p.478) were also roughly equivalent to this study as they found a positive and significant association between CSRD and COD financing.

In terms of control variables, Table 7 indicates SIZE has a negative coefficient (-0.0279) and a p-value of 0.3525, which is higher than 0.05 level. This indicates SIZE has a negative insignificant relationship with COD. Prior research studies have emphasized partially similar findings regarding the relationship between SIZE and COD (Aleknevičienė & Stralkutė, 2023, p.597; Boachie & Tetteh, 2021, p.478; Raimo et al., 2021, p.1417). The negative coefficient of SIZE aligns with the fact that larger companies are rewarded with lower borrowing rates due to economies of scale, easy access to external financing, resilience against negative events, and lower information asymmetry (Graham et al., 2008; Raimo et al., 2021, p.1416). However, the negative association is not statistically significant in this study, suggesting that SIZE does not make unique impact on COD after the model includes controls for firm fixed effects and other financial indicators.

The regression coefficient of ROA is 0.0017, and the probability value is 0.0000, indicating that ROA has a significant positive association with firms' COD financing. The existence of a positive association between the profitability of firms and their COD financing in the Finnish context can be explained, as more profitable firms are often growth-oriented and make investments in new opportunities, and they may bear expansion risks. Thus, lenders may consider these risks in pricing the required rate of return. This result highlights that firms may have higher COD despite being profitable. Equivalent results for the relationship between ROA and COD were found by Tanin et al. (2024, p.8), where they emphasized ROA shows positive effects at 25% and above COD quantiles.

LEV shows a negative (-0.2178) and statistically significant (p = 0.0000) coefficient with COD. This indicates that the higher LEV is associated with lower debt costs. This result is in line with findings by Amarna et al. (2024, p.3189), who found a negative impact of LEV on COD financing and highlighted that lenders can offer a lower rate of return for firms regardless of whether firms regularly pay off all of their obligations. One possible explanation for this negative association between LEV and COD could be that firms that have high LEV ratios could also be assisted with large firm advantages, where the firms

have good relationships with lenders, significant amounts of collateral to offer, a high reputation, and access to attractive credit terms. Thus, even though the firms' LEV is high, lenders may offer low borrowing rates.

Regarding MTB, the coefficient shows as 0.0009, and the probability value is higher than the 0.05 threshold. This means there is a positive but statistically insignificant relationship between MTB and COD. This insignificant result implies that the growth expectations of companies do not seem to have a major effect on COD in Finland over the sample of the study. This insignificant result between MTB and COD is in line with the findings by Amarna et al. (2024, p.3189). In terms of ICR, Table 7 shows a negative and statistically insignificant coefficient. This negative association aligns with the point that firms with stronger debt-servicing ability are perceived as less risky and will benefit from lower borrowing costs. However, as the association became insignificant in the study sample implies that the effect of ICR on COD is not material in this model. This result for the association between ICR and COD is partially equivalent to the study by Raimo et al. (2021, p.1417), as they found a negative and significant association exists between ICR and COD.

With regard to the model's overall performance, it can be explained through the metrics of R-squared (R^2) and adjusted R-squared. These values enable to identify how well a regression model fits the data of the study. According to the table, the R^2 value shows as 0.2546, meaning that 25.46% of the variation in the firm's COD can be explained by the independent and control variables included in the regression model. In other words, this result exhibits that the remaining 74.54% is not captured by the model, and variance in COD is related to other variables that are not included in the model used in the study. The adjusted R-squared value is 0.1656, and it indicates that the model can still explain 16.56% of the variation in COD, after penalizing for the addition of irrelevant variables. It is important to note that the variables included in the model were not fully captured all the factors which explain variations in the COD. However, the chosen variables are carefully selected from those commonly used by prior studies. The F-value is 2.8613, and

the probability is shown as 0.0000. This indicates the overall significance of the model. Further, this value highlights that the explanatory variables in the model jointly influence the firms' COD. Furthermore, the table shows the result for the Durbin–Watson statistic, and it is 2.1793. As this value is closer to 2, it means that there is no serious autocorrelation problem in the regression residuals.

4.2 Regression results for Hypothesis 2 (H2)

Hypothesis 2 addresses the sub-research question of this study, whether the association between CSRD and COD becomes stronger during the Covid- 19 period relative to pre Covid-19 years. To explore the existence of this relationship, the analysis was conducted using the regression model specified in equation (8), which was created by introducing a dummy variable COVID and interaction term ESG DISC* COVID into the baseline model. Adding a COVID dummy variable to the model allows for distinguishing between pre and post Covid-19 periods, as well as providing the ability to capture any changes in COD that can be attributed to the Covid- 19. Further, the interaction term applied to the model is crucial for testing H2 as it can be used to identify whether the association between CSRD and COD changes between sample periods because of Covid- 19.

Table 8 displays the summary of regression analysis results for H 2. The table shows the data of Coefficient, Standard Error, T-statistic, and Probability value for all independent variables, dummy variable, interaction term, and all controls applied in the model, with COD. Further, the table presents the overall model Diagnostic indicators for R-squared, Adjusted R-squared, and F-statistic, which can provide insights about the overall explanatory power, overall significance, and reliability of the model.

Table 8. Summary of regression analysis results for H 2.

Dependent Variable: COD
Method: Panel Least Squares
Date: 04/28/26 Time: 17:33
Sample: 2014 2023
Periods included: 10
Cross- sections included: 77
Total panel observations: 770

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.2982	0.1749	1.7043	0.0888
ESG DISCLOSURE SCORE	0.0003	0.0010	0.5069	0.6124
COVID	0.0324	0.0237	1.3648	0.1728
ESG DISC_COVID	-0.0004	0.0005	-0.8367	0.4031
ICR	-3.20E-05	2.50E-05	-1.2804	0.2008
LEV	-0.2216	0.0466	-4.75668	0.0000
MTB	0.0004	0.0036	0.1082	0.9139
ROA	0.0017	0.0002	6.7072	0.0000
SIZE	-0.0409	0.0312	-1.3099	0.1907
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.2573	Mean dependent var		0.0472
Adjusted R-squared	0.1662	S.D. dependent var		0.1192
S.E. of regression	0.1088	Akaike info criterion		-1.4945
Sum squared resid	8.1111	Schwarz criterion		-0.9816
Log likelihood	660.3827	Hannan-Quinn criter.		-1.2971
F-statistic	2.8251	Durbin-Watson stat		2.1714
Prob(F-statistic)	0.0000			

Relating to the association between CSRD and COD, the table shows that the coefficient of ESG disclosure score is positive (0.0003), indicating that an increment of ESG

disclosure score would lead to an increase in the COD, while controlling for all other variables. However, the results show that this positive association is not statistically significant as the probability value is 0.6124 ($p > 0.05$). The coefficient value of the ESG disclosure score reflects the relationship between CSRD and COD in the pre Covid-19 period, as the dummy variable of COVID equals 0 in this instance. Even though a negative association between CSRD and the COD was expected based on prior literature, the results of the analysis do not support this expectation. The differing findings could be due to variations in sample, time period, and methodological differences from previous studies. The insignificant coefficient result for ESG disclosure score suggests that CSRD does not result in any significant variation in firms' COD. More specifically, levels of sustainability disclosure do not appear to impact a firm's cost of borrowing in a statistically significant manner, and as such, there exists no empirical evidence in the sample to support the fact that CSRD has a direct impact on a firm's COD financing. The positive and insignificant association between CSRD and COD in the pre Covid-19 period resulted from the analysis of this study in line with the findings and interpretations by Gupta and Das (2024, p.1937), who found a positive and insignificant (β=0.009) association between CSRD and COD during pre- covid crisis (2011-2019).

In terms of the interaction term ESG DISC*COVID, the table shows a negative (β_3= -0.0004) and statistically insignificant (p=0.4031) coefficient. In the model, the coefficient value of the interaction term captures how the impact of CSRD on a firm's COD changes in the post Covid-19 period relative to the pre Covid-19 period. Even though there is a positive association between CSRD and COD in the pre Covid-19 period, the negative coefficient of the interaction term evident that during the Covid-19 period, high CSRD led to a reduction in COD inlining with the signalling theory. However, this association is not significant, and it implies that during the period of Covid-19, there was no major change to the effect of CSRD on the COD financing, and no evidence to support the moderating role of Covid-19. Though the relation between CSRD and COD reveals a beneficial effect within the Covid-19 period, the sample of this study does not provide robust evidence that this association exists.

In this study, hypothesis 2 is predicted as the negative association between CSRD and COD is stronger during the Covid-19 period relative to the pre Covid-19 period. However, as the results from the regression analysis indicate a negative and statistically insignificant coefficient for the interaction term, it can be concluded that H2 is rejected. Findings from Gupta and Das (2024, p.1937) are partially equivalent to the results of this analysis. Gupta and Das (2024, p.1937) found that there is negative and significant (β=-0.112) association exists between CSRD and COD during the Covid-19 crisis.

Further, Table 8 shows a statistically insignificant (p = 0.1728) positive coefficient (0.0324) for the COVID dummy variable. Even though this positive coefficient may inline with the fact that higher level of uncertainty in the financial markets, increased perception of risks, and cash flow shocks because of the crisis situation led lenders to charge higher interest rates to firms for lending funds, the absence of statistical significance indicates that this effect is not supported within the sample of the study.

In terms of control variables in the model, Table 8 indicates SIZE has a negative coefficient (-0.0409) and a probability of 0.1907, which is higher than the 0.05 threshold. This indicates SIZE has a negative and statistically insignificant relationship with COD. This result suggests that SIZE does not make robust impact on COD after the model includes controls for firm fixed effects and other financial indicators. Further, firm profitability has a significant positive association with COD financing (β=0.0017, p=0.0000).

Regarding the model's overall performance, the statistics of R^2 and adjusted R-squared presented in the table are used to identify how well the regression model fits the data of the study. As per the table, R^2 value shows as 0.2573, meaning that 25.73% of the variation in COD, which is the dependent variable of this study, can be explained by the independent, dummy, and control variables included in the regression model. In other terms, this result exhibits that the remaining 74.27% is not captured by this proposed

model, and variance in COD is related to other variables that are not included in the model used in the study. The adjusted R-squared value is 0.1662, and it indicates that the model can still explain 16.62% of the variation in COD, after adjusting for the addition of irrelevant variables. It is important to note that there are missing variables in the model and not fully capture all the factors which explain variations in the COD. However, the chosen variables are carefully selected from those commonly used by prior studies. The F-value is 2.8251, and the probability of the F-statistic is 0.0000. This indicates the overall significance of the model. Further, this value highlights that the explanatory variables in the model jointly influence the firms' COD. Furthermore, the table presents the result for the Durbin–Watson statistic, and it shows as 2.1714. This emphasizes that there is no serious autocorrelation problem in the regression residuals, as this value is closer to 2. This value for the Durbin–Watson statistic confirms the regression estimates' reliability.

4.3 Findings and discussion

To gain an insight and understanding about how CSRD influences COD financing among listed companies on the Helsinki stock exchange in Finland, the main research question of whether CSRD is negatively associated with firms' COD in the Finnish context is addressed during the study. Further, the study broadens the scope by investigating the relationship between CSRD and COD for the pre period of Covid-19 and the post Covid-19 period to identify the moderating effect of the Covid- 19. Thus, the sub-research question of whether the association between CSRD and COD becomes stronger during the Covid-19 relative to pre Covid-19 period was also addressed in the study. Mainly, two hypotheses were tested using fixed-effect panel regression analysis to address these research questions. According to the results, both hypotheses were rejected.

H1 is expected a negative association between CSRD and firms' COD in the Finnish context. But the findings revealed that a positive and statistically insignificant association exists between CSRD and COD. Thus, this result compels the rejection of H1. To ensure

the robustness of the findings, the study estimated the random effects model as an alternative model and the results were inline with the findings from the fixed effect model as having a positive but statistically insignificant association between ESG disclosure score and the COD (see Appendix 5).This positive association is contradicted with the signaling effect of CSRD, where higher levels of CSRD reduce asymmetric information and increase transparency, which leads to a reduction in COD financing. The finding of no significant relationship indicates that lenders do not systematically consider CSRD in assessing credit risk in the context of Finland. A possible reason for not resulting in a negative association between CSRD and COD is the highly developed institutional framework of Finland. Finland has a robust regulatory environment, solid corporate governance structures, and transparency in its financial and non-financial reporting.

According to the EU directive accounting act amendment, large companies in Finland were obligated to report their CSR practices, and this standardized statutory sustainability disclosure across companies led to a reduction in variation in ESG reporting practices. Thus, creditors may not value higher the companies with more CSRD as they already have access to extensive mandatory CSR-related information. Moreover, Finland ranked among the top performers in CSR and sustainability and is known for their advanced welfare systems (Aleknevičienė & Stralkutė, 2023, p. 587). As CSR reporting and sustainability have become common practices in firms, they will no longer generate advantages for firms. Findings by Ge and Liu (2015, p.617) support these arguments as they emphasized that bondholders tend to include CSR performance of a company in their evaluation of the default risk when the bond issuing firms have weak corporate governance. Further, the study highlights that bondholders value CSR information and use that information in assessing credit risk when the firms operate within a worse information environment.

The positive and insignificant association between CSRD and COD, which resulted from the analysis of this study, can be clarified through the findings and interpretations from several prior literature (Hamrouni et al., 2019, pp.274-275; AlKhouri & Suwaidan, 2022,

pp.468-470; Gonçalves et al., 2022, p.13; Magnanelli & Izzo, 2017, pp.257-258). The positive association suggests that Lenders may see an organization's CSR commitments as a rise in operating costs, instead of immediate credit risk minimization. ESG investments consist of expenditures made on environmental compliance, employee welfare programs, governance structures, and sustainability reporting systems. However, these costs may not provide immediate evidence of the firm's ability to repay or reduce default risk. Thus, lenders may not view CSR engagement as an indicator of having lower credit risk. Magnanelli and Izzo (2017, p.258) found a positive significant relationship exists between CSR score and COD, which is partially comparable with the CSRD-COD association of this study. The study highlighted that banks may view a firm's CSR overinvestments either as wasteful use of company resources or, worse, as an activity that could create further risks for the company (Magnanelli & Izzo, 2017, p.257).

Findings by Gonçalves et al. (2022, p.13) also support the argument of this study, highlighting that lenders might view CSR overinvestments of a company as a waste of the company's resources which leads to generate positive association between CSR scores and COD. Results from the study by Boachie and Tetteh (2021, p.478) were also roughly equivalent to this study, as they found a positive and significant association between CSRD and COD financing. The study emphasizes that, rather than a risk reduction indicator, creditors perceive high CSR engagements of a firm as a waste of resource utilization. The insignificant association between CSRD and COD, resulted from the analysis suggests that differences in the level of CSRD do not have a direct impact on the COD financing for firms listed on the Helsinki stock exchange. This absence of a statistically significant relationship might indicate that lenders in the debt market are prioritizing different factors in deciding their required rate of returns. Lenders may make their credit decisions based on quantitative financial metrics, such as LEV, profitability, and liquidity.

H2 is expected that the negative association between CSRD and COD will become stronger during the Covid-19 period relative to the pre Covid-19 period. But the findings

revealed a negative and statistically insignificant coefficient for the interaction term in the model. Thus, this result compels the rejection of H 2. To ensure the robustness of the findings, the study estimated the random effects model as an alternative approach and the results were inline with the findings having a negative but statistically insignificant coefficient for the interaction term in the model (see Appendix 5). According to the regression analysis results presented in Table 8, in the pre Covid-19 period, there is a positive but insignificant association exists between CSRD and COD in the Finnish context. This result suggests that there is no empirical evidence in the sample to support the fact that CSRD has a direct impact on a firm's COD financing. Gupta and Das (2024, p. 1937) investigated the impact of CSRD on the cost of financing for both the pre covid period and post Covid period. The results for the pre-crisis period highlighted a positive and insignificant association between CSRD and COD. The results from hypothesis 2 testing (Table 8) imply that, in terms of assessing credit risk before the Covid-19, lenders used considerably less consideration of CSRD than other types of traditional financial measures such as profitability and LEV. That explanation is supported by the findings, as results indicate significant impacts of ROA and LEV on COD.

Prior literature emphasizes that CSR acts as a risk insurance during times of crisis and when the uncertainty is increased, creditors focus more on social responsibility and resilience indicators of firms (Lins et al., 2017, p.1788; Zhang et al., 2020, p.177). Based on the findings and arguments made by prior studies, this study expected the negative association between CSRD and COD to be stronger during the Covid-19 period. Even though the interaction term (ESG DISC*COVID) indicates a negative association, implying that CSRD may have had a favorable effect on firm's COD financing where Higher ESG disclosure score leads to reduction in COD during times of crisis, the absence of statistical significance emphasize that the association between CSRD and COD has not been affected by the Covid-19 in a statistically significant way. This result is partially in line with the findings of Gupta and Das (2024, 1937), as they found a negative but statistically significant relationship between CSRD and COD during the Covid-19 period (2020-2021).

One possible argument behind this insignificant association revealed through the analysis of the study is the advanced and standardized CSR reporting practices in the Finnish context. In Finland, CSR data is usually treated as a baseline expectation as it is mandated by the directives, creating no major differentiation among companies. This limits the incremental informational value of ESG data in evaluating a firm's risk profile. Once ESG information has been fully integrated and adopted by a substantial number of companies, the effect of CSRD on financial outcomes will be minimal. Therefore, it can be expected that during the Covid-19, lenders may not have significantly incorporated CSR considerations into their decision-making processes in the context of Finland. Rather, they may focus on immediate financial concerns and traditional financial metrics to predict the firm’s ability to meet debt obligations.

5 Conclusion

This research study explored the association between CSRD and COD and deepened the investigation by examining how this CSRD-COD association would change in times of uncertainty, as was the case during the Covid-19. The study used data of companies listed on the Helsinki stock exchange in Finland to provide a contribution to the ongoing debate regarding the financial implications of sustainability disclosures within a developed market setting where CSR reporting is highly formalized and developed. This chapter will summarize the entire research by revisiting the key elements discussed in this study as a very brief overview. This chapter will begin by providing a summary of the research study. The second subsection provides a discussion of the implications of the findings. This chapter will also discuss the contributions of the study, the limitations, and recommendations for further research under the third sub-section. Hence, this chapter will provide a comprehensive overview of the research by bringing together the key findings and the foundation for future research on this topic.

5.1 Summary of the study

In recent years, transparency and responsible corporate behaviour have received greater attention from stakeholders, and that has led CSRD to play a more significant role in today's financial markets. As stakeholders are becoming more perceptive and concerned about a firm's CSR engagements, companies look forward to reporting on their sustainability efforts transparently and in a consistent manner. In many cases, such disclosures are seen as an approach to improve a company’s reputation and legitimacy, as well as assisting with financial decision-making. For instance, assessments of firms' risk profile now involve incorporating non-financial data into the assessment process, which raises questions regarding the impact of CSRD on financing terms, particularly the COD. Although CSRD's significance is widely acknowledged, there is still no definitive empirical evidence relating the impact of CSRD on borrowing costs, as previous studies

have provided mixed findings based on different levels of institutional and market contexts.

Thus, this study aimed to investigate how CSRD affects the COD among firms listed on the Helsinki stock exchange in Finland and broadened the study by analysing whether the CSRD-COD association is changed in times of economic uncertainty, such as during the Covid-19. The quantitative approach was used in the study, and to achieve the research objectives, data were collected for 77 listed companies covering the period from 2014-2023, where 2014-2018 were considered as pre Covid-19 years and 2019-2023 as the post Covid-19 period. CSRD was measured using a proxy of ESG disclosure scores from the Bloomberg database, and COD was treated as the dependent variable of the study.

The Financial data collected from the LSEG database and processed into both dependent and control variables using Excel 2016. The analysis was conducted using a fixed-effect panel regression model. In addition to the main independent variable, control variables of ROA, LEV, SIZE, ICR, and MTB were added to the regression model. Further, a dummy variable of COVID, as well as an interaction term between the ESG disclosure score and the COVID dummy variable, were added to the core regression model to determine if there was a change in the relationship between CSRD and COD before and after the Covid-19.

The study tested two main hypotheses to answer the research questions of the study. The findings from H1 testing demonstrate that a positive and statistically insignificant association exists between CSRD and COD. Thus, the result rejected the H1. This result suggests that companies with more extensive CSRD did not benefit from reduced COD in the Finnish context. Additionally, the results imply that lenders may not rely heavily on CSR-related information in assessing a firm's credit risk, but rather they consider traditional indicators of financial risk when setting their required rate of return.

In terms of the moderating role of the Covid-19, the results revealed that the interaction term was negative but statistically insignificant. This led to the rejection of H 2. The absence of statistical significance emphasized that the association between CSRD and COD has not been affected by the Covid- 19 in a statistically significant way. The results indicate that CSRD generally has a limited impact on debt financing costs for firms operating in Finland, a highly developed and transparent market, regardless of whether they are in stable or financially uncertain economic conditions. In conclusion, it seems that companies in Finland are not fully utilizing the potential advantages of CSRD.

5.2 Implications

The findings from this study have important practical implications for corporate managers, investors, and policy makers. The findings highlight that firms must be fully aware of other financial factors that may affect their ability to achieve lower COD financing even if they increase their CSR engagements and reporting practices. In developed markets where CSR is highly valued, widely spread, and integrated into core business strategies, the results suggest that increasing CSRD by itself will not generate lower COD. Therefore, managers of firms should place significant emphasis on maintaining strong financial performance, effective risk management, and making sound capital structure decisions to be the most influential factors to determine their borrowing costs and easy access to external financing sources.

Moreover, results emphasized that managers must closely analyse and report both their CSR-related expenditures and their overall efficiency because if there is no clear view displayed regarding the expenses associated with CSR engagements and any expected economic return or benefit, creditors will view them as being excessive in use of company resources. For lenders and investors, the findings suggest that traditional financial metrics still will continue to be the focus when assessing borrowers' risk profile, even in markets where greater interest in sustainability and the inclusion of CSR metrics

in lending decisions. But still, they may use CSR reporting to improve information accuracy in making lending decisions.

5.3 Contribution, limitations, and future research directions

This study contributes to the existing literature by providing empirical evidence on the association between CSRD and a firm's COD financing in Finland. As previous studies were largely conducted within emerging markets, this study examined the CSRD-COD association using the firms operating within a developed economy, where transparency is high, and CSR is highly valued. Thus, this study will contribute uniquely to the literature, emphasizing how institutional contexts may influence the effectiveness of CSRD. Further, this study contributes to the literature by providing evidence on the effect of Covid- 19 on the relationship between CSRD and COD. This research introduced dummy variable and interaction term into the model to analyze the relationship between pre and post Covid-19 periods and provides evidence on whether CSRD may still be important during periods of economic uncertainty. Thus, this thesis is contributing to the emerging body of literature on CSR and crisis.

Besides the contributions, this study has several limitations that provides indication for future research. One of the limitations is the sample of the study. This study only considered listed companies in Helsinki Stock Exchange for the analysis. The sample does not represent all Finnish companies, as many Finnish corporations operate outside the Helsinki stock exchange. SMEs and SOEs were not included in the sample, even though those represent a considerable part of the Finnish business environment.

Moreover, the model specification and variable selection also present further limitations in this study. Even though the regression model included important control variables that have an impact on COD, the results indicate some of the variables are insignificant, and the model fit percentage was below 50%. Thus, there could be missing variables that might affect the variation of COD that were not accounted for in our model. For example,

variables associated with credit rating, specific risk of the firm, or macroeconomic conditions may provide more explanation for the variations in the firm's COD.

Furthermore, the study included Covid dummy variable and an interaction term in the core regression model to identify the effect of Covid- 19 on CSRD-COD association. It is likely that this approach will not appropriately capture the complexity of the pandemic's effect on companies, as firms were impacted by the Covid- 19 in different ways across industries and over time. In addition, the study employed a quantitative approach in answering the research questions of the study. However, it is not enough to gain insight into the lenders' true underlying motivations concerning CSRD practices of firms. Combining qualitative methods, such as interviews or case studies to the analysis will provide further contextual information on how lenders utilize CSR information in their lending decision-making and risk assessments.

Hence, further research can be done combining both quantitative and qualitative methods to have a better understanding of the true impact of CSRD on COD financing. Future research could broaden the scope of this study by including SMEs and SOEs in the sample. This would help to have a better understanding of the Finnish corporate environment in relation to the CSRD-COD relationship. Also, researchers will be able to identify how the impact of CSRD on COD varies by type of company and ownership structures as well. Furthermore, to have deeper insights into the CSRD-COD association, future research can be done exploring the impact of individual ESG disclosure scores on COD separately. Even though the overall ESG disclosure score is insignificant as per the evidence from this study, individual ESG scores may have an influence on the COD.

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Appendices

Appendix 1. Sample of the study

	Company name	ICB industry classification
1	Afarak Group A	Basic Materials
2	Aktia Bank A	Financials
3	Alandsbanken A	Financials
4	Alma Media	Consumer Discretionary
5	Apetit	Consumer Staples
6	Aspo	Industrials
7	Aspocomp Group	Technology
8	Atria A	Consumer Staples
9	Bittium	Technology
10	Boreo	Technology
11	Capman B	Financials
12	Citycon	Real Estate
13	Componenta	Basic Materials
14	Digia	Technology
15	Dovre Group	Industrials
16	Elecster A	Industrials
17	Elisa	Telecommunications
18	Etteplan	Industrials
19	Exel Composites	Industrials
20	Finnair	Consumer Discretionary
21	Fiskars A	Consumer Discretionary
22	Fortum	Utilities
23	Glaston	Industrials
24	Hiab Corporation B	Industrials
25	HKfoods A	Consumer Staples
26	Huhtamaki	Industrials
27	Ilkka	Consumer Discretionary
28	Incap	Industrials
29	Kemira	Basic Materials
30	Keskisuomalainen A	Consumer Discretionary
31	Kesko A	Consumer Staples
32	Kesla A	Industrials
33	Kone B	Industrials
34	Konecranes	Industrials
35	Lindex Group Share B	Consumer Discretionary
36	Marimekko	Consumer Discretionary
37	Martela A	Consumer Discretionary
38	Metsa Board A	Basic Materials

39	Metso Corporation	Industrials
40	Neste	Energy
41	Noho Partners	Consumer Discretionary
42	Nokia	Technology
43	Nokian Renkaat	Consumer Discretionary
44	Olvi A	Consumer Staples
45	Oriola	Health Care
46	Orion A	Health Care
47	Outokumpu 'A'	Basic Materials
48	Panostaja	Financials
49	Ponsse	Industrials
50	Raisio	Consumer Staples
51	Rapala VMC	Consumer Discretionary
52	Raute A	Industrials
53	Rebl Group	Consumer Discretionary
54	Reka Industrial	Industrials
55	Revenio Group	Health Care
56	Saga Furs C	Consumer Discretionary
57	Sampo A	Financials
58	Sanoma	Consumer Discretionary
59	Scanfil	Industrials
60	Siili Solutions	Technology
61	Solteq	Technology
62	SRV Yhtiot	Industrials
63	Stora Enso A	Consumer Discretionary
64	Suominen	Consumer Discretionary
65	Tecnotree	Technology
66	Teleste	Technology
67	Tietoevry	Technology
68	Tulikivi A	Industrials
69	Upm-Kymmene	Basic Materials
70	Vaisala A	Industrials
71	Valmet	Industrials
72	Verkkokauppa Com	Consumer Discretionary
73	Viking Line	Consumer Discretionary
74	Wartsila	Industrials
75	Withsecure	Technology
76	Wulff-Group	Industrials
77	Yit	Industrials

Appendix 2. Variance Inflation Factors (VIFs)

Variance Inflation Factors

Date: 04/27/26 Time: 15:08

Sample: 2014 2023

Included observations: 770

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.001183	70.27843	NA
ESG_DISCLOSUR	1.68E-07	20.72530	2.700716
ICR	5.65E-10	1.287837	1.237825
LEV	0.000833	4.343056	1.159280
MTB	3.83E-06	2.637916	1.267450
ROA	6.10E-08	1.240381	1.097194
SIZE	6.04E-05	120.2378	2.662832

Variance Inflation Factors

Date: 04/27/26 Time: 15:15

Sample: 2014 2018

Included observations: 385

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.002041	64.56435	NA
ESG_DISCLOSUR	3.02E-07	17.00083	2.409107
ICR	6.54E-10	1.541255	1.472309
LEV	0.001683	4.215540	1.219868
MTB	9.69E-06	3.211628	1.540769
ROA	7.25E-08	1.200085	1.087224
SIZE	9.92E-05	102.7269	2.383770

Variance Inflation Factors

Date: 04/27/26 Time: 15:21

Sample: 2019 2023

Included observations: 385

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.002755	79.32500	NA
ESG_DISCLOSUR	4.27E-07	29.27502	3.268430
ICR	2.48E-08	1.582005	1.311128
LEV	0.001844	5.116029	1.242554
MTB	7.10E-06	2.595304	1.242819
ROA	3.14E-07	1.451216	1.172735
SIZE	0.000156	153.5933	3.204792

Appendix 3. Breusch-Pagan Lagrange Multiplier (LM)

Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	17.3343	0.0012	17.3355
	(0.0000)	(0.9720)	(0.0000)
Honda	4.1634	0.0351	2.9688
	(0.0000)	(0.4860)	(0.0015)
King-Wu	4.1634	0.0351	1.3879
	(0.0000)	(0.4860)	(0.0826)
Standardized Honda	4.5856	0.2965	-3.0282
	(0.0000)	(0.3834)	(0.9988)
Standardized King-Wu	4.5856	0.2965	-2.7152
	(0.0000)	(0.3834)	(0.9967)
Gourieroux, et al.	---	---	17.3355
			(0.0001)

Appendix 4. Hausman Test

Correlated Random Effects - Hausman Test (2014-2023)

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.593465	6	0.0345

Appendix 5. Regression Results Using Random Effects Model

Summary of regression analysis results for H 1.

Dependent Variable: COD
Method: Panel EGLS (Cross-section random effects)
Date: 04/30/26 Time: 11:37
Sample: 2014 2023
Periods included: 10
Cross- sections included: 77
Total panel observations: 770

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.1625	0.0427	3.8049	0.0002
ESG DISCLOSURE SCORE	0.0002	0.0005	0.3921	0.6951
ICR	-3.70E-05	2.35E-05	-1.5750	0.1157
LEV	-0.1238	0.0326	-3.8000	0.0002
MTB	-0.0039	0.0022	-1.7275	0.0845
ROA	0.0017	0.0002	6.9829	0.0000
SIZE	-0.0160	0.0095	-1.6879	0.0918

Effects Specification		
	S. D.	Rho
Cross-section random	0.0318	0.0788

Weighted Statistics			
R-squared	0.0993	Mean dependent var	0.0346
Adjusted R-squared	0.0922	S.D. dependent var	0.1148
S.E. of regression	0.1094	Sum squared resid	9.1214
F-statistic	14.0232	Durbin-Watson stat	1.9821
Prob(F-statistic)	0.0000		

Summary of regression analysis results for H 2.

Dependent Variable: COD
Method: Panel EGLS (Cross-section random effects)
Date: 04/30/26 Time: 02:30
Sample: 2014 2023
Periods included: 10
Cross- sections included: 77
Total panel observations: 770

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.1426	0.0426	3.3426	0.0009
ESG DISCLOSURE SCORE	0.0002	0.0006	0.4425	0.6582
COVID	0.0337	0.0226	1.4880	0.1372
ESG DISC_COVID	-0.0005	0.0005	-1.0665	0.2865
ICR	-3.23E-05	2.36E-05	-1.3702	0.1710
LEV	-0.1272	0.0322	-3.9482	0.0001
MTB	-0.0043	0.0022	-1.9550	0.0509
ROA	0.0017	0.0002	7.0333	0.0000
SIZE	-0.0135	0.0093	-1.4497	0.1476
Effects Specification				
			S. D.	Rho
Cross-section random			0.0285	0.0644
Weighted Statistics				
R-squared	0.1019	Mean dependent var		0.0363
Adjusted R-squared	0.0925	S.D. dependent var		0.1153
S.E. of regression	0.1099	Sum squared resid		9.1858
F-statistic	10.8035	Durbin-Watson stat		1.9617
Prob(F-statistic)	0.0000			