THE IMPACT OF THE SUSTAINABILITY INDEX LISTING ON THE CORPORATE FINANCIAL PERFORMANCE

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Vastuullisuus indeksille listautumisen vaikutukset yritysten taloudelliseen suoriutumiseen

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Yritysten vastuullisuustoiminnasta on tullut yhä tärkeämpi aihe 2000-luvulla ilmastonmuutoksen, ilmaston lämpenemisen sekä lisääntyneiden paikallisten ja globaalien säädösten vuoksi. Yrityksillä ollessa yhä tärkeämpi rooli ilmastonmuutoksen hillitsemisessä, ovat ne myös halukkaita ilmaisemaan edelläkävijyytensä sidosryhmilleen. Yksi näkyvä keino onkin pyrkiä saavuttamaan listautuminen vastuullisuusindeksille. Vielä on kuitenkin vain vähän tieteellisiä todisteita siitä, kuinka indeksille listautuminen vaikuttaa yrityksen taloudelliseen suoriutumiseen sekä vastuullisuus ja taloudellisen suoriutumisen yhteyteen.

Tämän tutkimuksen tavoitteena oli selvittää, mitä vaikutuksia STOXX Global ESG Leaders-indeksiin listautumisella on yritysten taloudelliseen suoriutumiseen vuosina 2016-2021 eurooppalaisissa teollisuusyrityksissä. Kyseisillä rajauksilla vastattiin tutkimusaukkoon, sillä kyseistä kestävyysindeksiä ei ole tutkittu tässä yhteydessä. Myös sijainti- ja toimialakohtaista tutkimusta on vain vähän. Yritysten vastuullisuussuoriutumista mitattiin ESG Combined Score:lla sekä listautumisella vastuullisuusindeksille. ROA:lla, ROE:lla, liikevoitto-marginaalilla ja markkina-arvolla puolestaan mitattiin taloudellista suoriutumista, kun taas kontrollimuuttujina käytettiin liikevaihtoa sekä velkaantuneisuutta.

Tutkimuksessa havaittiin, että vastuullisuusindeksille listautumisen ja taloudellisen suoriutumisen välillä on tilastollisesti merkitsevä yhteys tietyillä muuttujilla, kun taas ESG Combined Score ei vaikuta taloudelliseen tulokseen. Tutkimuksen perusteella havaittiin myös, että vastuullisuus- ja taloudellisen suoriutumisen välinen yhteys ei muutu indeksille listautumisen myötä. Nämä tulokset osoittavat, että listautuminen STOXX Global ESG Leaders -indeksiin voi vaikuttaa positiivisesti taloudelliseen suoriutumiseen.

ABSTRACT

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The impact of the sustainability index listing on the corporate financial performance

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Corporate sustainability performance has become more and more vital topic during 21st century due to climate change, global warming and increased local and global regulations. Because of the companies' vital role in curbing climate change they are also willing to express their leadership to their stakeholders. One visible mean is trying to achieve membership of recognized sustainability index. However there is still little evidence of how these memberships affect the corporate financial performance (CFP) and does it moderate the relationship between corporate sustainability (CSP) and financial performance.

The purpose of this study was to investigate what impacts does listing on the STOXX Global ESG Leaders Index have on corporate financial performance during 2016-2021 among European industrial goods companies. The extent of this thesis was chosen to address a research gap since there is no studies investigating this certain sustainability index in this context. Also there is only a little location- and industry-specific research. Corporate sustainability performance was measured using ESG Combined Score and index membership. Corporate financial performance in turn was measured with ROA, ROE, operating profit margin and market value whereas used control variables were revenue and total debt of total capital.

This thesis found that there is statistically significant relationship between sustainability index listing and corporate financial performance with certain variables whereas ESG Combined Score does not affect on the financial performance. It was also found that index membership does not moderate the CSP-CFP relationship. These results indicate that listing in STOXX Global ESG Leaders Index can positively affect on the financial performance.

LIST OF ABBREVIATIONS

CSP	Corporate sustainability performance
CFP	Corporate financial performance
CSR	Corporate social responsibility
TBL	Triple bottom line
DJSI	Dow Jones Sustainability Index
ROA	Return on Assets
ROE	Return on Equity
ESG	Environmental, Social and Governance

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1 Introduction

Before better profitability was achieved by selling more, increasing prices, or decreasing costs, but this is not anymore sufficient. Nowadays to grow profitability and create long-term value companies need to search for new business models, develop new approaches to reduce carbon emissions and contribute positively to local communities (Robinson, Kleffner & Bertels, 2011; López et al., 2007; Yilmaz, Aksoy & Tatoglu, 2020). This is because the public no longer cares only about the development of companies' operational performance but is more concerned about social and environmental effects of the operations (Wang & Chen, 2017; Arribas, Espinós-Vañó, García & Morales-Bañuelos, 2019; Robinson et al., 2011). This is why corporate social responsibility (CSR) and corporates sustainability performance (CSP) have been increasing as crucial topic in nowadays business world. Increasing global awareness of sustainability requires companies and organizations to take sustainability principles and sustainable development into account into the business strategies and everyday actions. (Wang & Chen, 2017; Pätäri, Jantunen, Kyläheiko & Sandström, 2012) Companies, investors and governments are no longer concentrating only on economic growth but to sustainable development which takes into account environmental, social, and governmental aspects beside economic development (Robinson et al., 2011; Arribas et al., 2019; Yilmaz et al., 2020; López et al., 2007).

Even though sustainability practices are increasingly being integrated into core business practices and strategy, this has not only happened for social and environmental reasons, but also for the competitive advantage created by socially responsible behaviour (Robinson et al., 2011; López et al., 2007; Hang, Geyer- Klingeberg, & Rathgeber, 2019). The complex global business environment has led to the situation where companies are looking for different ways to secure a competitive advantage to enable long-term value creation (López et al., 2007). By the growing importance of transparency and extensive reporting, has also business managements became more interested in this topic. The relationship between CSP activities and companies' financial performance (CFP) is one key aspect that companies are monitoring, as failing in sustainability related activities can lead to loss of business opportunities and competitive advantage. Therefore, companies are more interested to know how CSP activities are affecting on their financial performance and market value in

long-term. Companies in particular are interested in understanding more deeply how profitable it is for them to invest in sustainable operations in relation to the return that responsible investments produce. (Robinson et al., 2011; López et al., 2007; Yilmaz et al., 2020; Pätäri et al., 2012)

When growing numbers of companies and organizations are producing CSP reporting, how can then the leadership in sustainability area be signalled. Because of the novelty value of the topic and not yet globally standardized CSP reporting and measurement practices, companies are forced to seek other ways to demonstrate their progressiveness and leadership in CSP. One mechanism is to seek listing on a distinguished sustainability index, for example to the STOXX Global ESG Leaders Index, which is one of the most recognized sustainability index in the global markets alongside the Dow Jones Sustainability Indices and the FTSE4Good Index (Robinson et al., 2011; López et al., 2007; Yilmaz et al., 2020). Listing on distinguished sustainability indices can serve companies by enhancing their reputation which can signal to shareholders and other stakeholders about the sustainability leadership of the company (Robinson et al., 2011; Robinson, Kleffner & Bertels, 2011). It can then also affect positively to the firm value in long time (Robinson et al., 2011; Artiach, Nelson & Walker, 2010; Robinson et al., 2011) and distinguish sustainable companies from conventional ones (Yilmaz et al., 2020).

As said one of the main objectives for companies nowadays is to understand how profitable it is to invest to sustainable activities in relation to the financial income it will profit. (Robinson et al., 2011; López et al., 2007; Yilmaz et al., 2020; Pätäri et al., 2012) Many companies are attempting to improve and develop their sustainability related activities in the hope of refining of their reputation among stakeholders, and also many companies are seeking opportunities to be listed to some recognized sustainability index to be able to indicate their leadership in sustainability (Robinson et al., 2011; Robinson, Kleffner & Bertels, 2011). But how many of the companies have investigated that how this membership of sustainability index affects them financially? How much does this membership financially improve their accounting-based metrics to make seeking the index membership profitable? Or could it be more financially profitable to invest to the sustainability related activities without an attempt to be listed in sustainability index? This topic has not yet been deeply

investigated and therefore in this study the purpose is to investigate how listing in sustainability index affects on the financial performance of the companies.

1.1 Background of the study

The growth of sustainable and economic development has increased the interest to the topic that how CSP activities affect on the companies' financial performance (Robinson et al., 2011; López et al., 2007; Yilmaz et al., 2020). In recent decades, the relationship between CSP and CFP has been comprehensively researched (Artiach et al., 2011; Pätäri et al., 2012; Trumpp & Guenther, 2017; Lee, Cin & Lee, 2016; Moneva & Ortas, 2010; Secinaro, Brescia, Calandra & Saiti, 2020; Bergmann, Rotzk, Wetzel & Guenther, 2017). However, the empirical results have been mixed. In some research sustainability strategies have been seen as a competitive advantage to be able to enhance financial performance (Robinson et al., 2011; López et al., 2007; Pätäri et al., 2012), whereas in others there has not been found link between corporate sustainability and financial performance (Artiach et al., 2010). In some research in turn, they have found negative association between CSP and financial performance (Artiach et al. 2010; López et al. 2007).

Interest towards sustainability and sustainable investments has also increased the amount of the studies investigating the connection between corporate sustainability, reputation, and firm value. Most of these research have been interested whether the inclusion in sustainability index creates long-term market value for the company (Robinson et al., 2011; Artiach et al., 2011; Robinson et al., 2011) and whether there are differences between market performance in sustainable and conventional companies (Yilmaz et al., 2020). Despite of the increasing volume of these studies, still the findings have been mixed. (Yilmaz et al., 2020) Joshi, Pandey and Ross (2017) for example found negative market reaction to both inclusion and exclusion to sustainability index. They have stated that the reason for these results is that the market evaluates only the cost side of these imposes. Inclusion to the index requires a lot of costs because of the investments in sustainability whereas exclusion in turn is indicating failure to maintain chosen sustainability strategy. (Yilmaz et al., 2020) Hayward (2018) in turn got slightly differing results by showing positive market reaction to inclusion to the

index. Hawn et al. (2014) instead showed quite similar results than Joshi et al. (2017) but with the addition that the results are differing depending on companies' performance. For instance, companies with weaker performance are are paying higher penalties from exclusions than companies with higher market performance. (Hawn, Chatterji & Mitchell, 2014)

Only a few studies have investigated whether the membership of sustainability index affects on the relationship between CSP and CFP when CFP is measured with on the accounting-based indicators. Also, these studies have concentrated on different sustainability indices such as DJSI, FTSE4Good or local SRI Indices such as European SRI or Brazilian SRI and therefore there aren't solid outcomes of how the sustainability index listing affects on the CSP-CFP relationship. For example, Pätäri, S. et al. (2012) were the first ones to investigate the association between corporate sustainability activities and companies' financial performance in energy industry between companies who have been listed to DJSI and who haven't been listed. Their findings are distinctly indicating that companies listed to DJSI have been performing better in comparison to non-listed companies in long term and thus are agreeing with other studies. The researchers have also found out in their study that companies not listed to DJSI have improved their financial performance more than companies which are in DJSI. They have argued that the potential reason for this might have been the ability of non-listed companies to concentrate more to improve their firm's performance where the listed companies have succeeded more in value creation by sustainability. (Pätäri et al., 2012) Castro Sobrosa Neto, Lima, Bazil, Oliveira Veras and Andrade Guerra (2020) in turn investigated the effect of the listing on the Brazilian Corporate Sustainability Index (ISE) on the financial performance of companies. Their findings in turn indicate that the CSP-CFP relationship is neutral. (Castro Sobrosa Neto, Lima, Bazil, Oliveira Veras, Andrade Guerra 2020) Mohammad (2020) in turn investigated the CSP-CFP relationship in the context of FTSE4Good Bursa Malaysia and found out that the results are dependent on the selected CFP variables (Mohammad 2020).

As introduced before the previous results regarding the relationship between CSP and CFP have been volatile even though there is plenty of research related to this topic. Researchers have not been comprehensively able to answer to the question whether it is profitable to concentrate on sustainability activities, even though many of the results have been positive.

(Yilmaz et al., 2020) Many reasons for these differences can be argued. One of the main reason is the broad range of metrics, in which CFP includes both accounting and market-based metrics (Xie, Nozawa, Yagi, Fujii & Managi, 2018). Another reason can be the geographical location. According to several studies, company's location country is one of the control variable, as the operating country plays a vital role in companies' CSP actions (Liang & Renneboog, 2017; Cai, Pan & Statman, 2016). Previous studies have been made for example using data from Europe, United States, Korea, or China. Because of these mixed results of previous studies more studies with certain locations are needed.

Previous studies have also been concentrating on listed companies for example in certain geographical area rather than specified certain industries in certain areas. One of the only industry-specific studies is the study from Pätäri et al. (2012) who investigated relationship between CSR and CFP in energy sector. They have concluded that there are differences in the results between industries and that's why more industry specified research is needed. From these arguments it can be seen that how context related topic CSP-CFP relationship can be. There are no studies in this certain topic that has been investigating CSP-CFP relationship in the industrial goods industry. Most of the studies have also investigated the effect of the relationship between CSP and financial performance on the market value of companies and its changes between companies listed and non-listed on the sustainability index. These studies have not taken into account the changes in accounting-based metrics rather concentrated in market-based metrics (Oberndorfer, Schmidt, Wagner & Ziegler 2013). CFP can be explained with market-based measures, but accounting-based measures are considered be more reliable. Market-based indicators are future oriented but their risks are investors' subjective estimates and changes in opinions. (Wang & Chen 2017) Accounting-based measures in turn are more reliable and their credibility is higher thanks to audited financial data. Also, these parameters are not impacted by the market reactions. (Wasara & Ganda 2019)

Not any study has concentrated on the effect of listing on the STOXX Global ESG Leaders Index on the financial performance and investigated whether the CSP-CFP relationship differ between index listed and non-listed companies. In its entirety sustainability index related studies have concentrated only on the effect of listing in sustainability index on the corporates' financial performance rather than examined also other metrics as proxies for CSP

between sustainability index listed and non-listed companies. Only Pätäri et al. (2012) have investigated the CSP-CFP relationship by grouping companies whether they are included into sustainability index or not, but they have used only the inclusion of sustainability index as proxy for CSP. Also, in the previous literature researchers have concentrated to produce results more on the stakeholders' point of view whereas not many studies have tried to get results on companies' point of view. This can be argued for example with the usage of market-based indicators. Of course, companies are also interested in those indicators but in managerial decision-making accounting-based measurements are scrutinized. These are reasons why more studies are needed to explore this relationship.

1.2 The purpose and research questions of the thesis

The main purpose of this thesis is to examine what impacts does listing on the STOXX Global ESG Leaders Index have on corporate financial performance among industrial goods industry companies in Europe. The purpose is also to investigate how the inclusion in the STOXX Global ESG Leaders Index affects on the CSP-CFP relationship as presented in Figure 1. These are examined by investigating whether sustainability index listing has stronger effect on CFP than ESG Score and also whether the index listing moderate the effect of ESG on CFP. Also the impact of the index listing on the ESG Combined Score's changes will be examined to be able to understand better whether ESG Combined Score's increasement changes after sustainability index listing. Also the relationship between ESG Combined Score and STOXX Global ESG Leaders Index is examined. It can be argued that there is positive relationship because listing on the sustainability index requires high ESG Scores to only include the most sustainable companies to the index. However this relation is still scrutinized. In this study companies can have been in the index long-time period, have been listed to STOXX Global ESG Leaders Index or have been removed from the index inside of the researched time frame. In this study CSP is measured with ESG Combined Score and sustainability index membership.

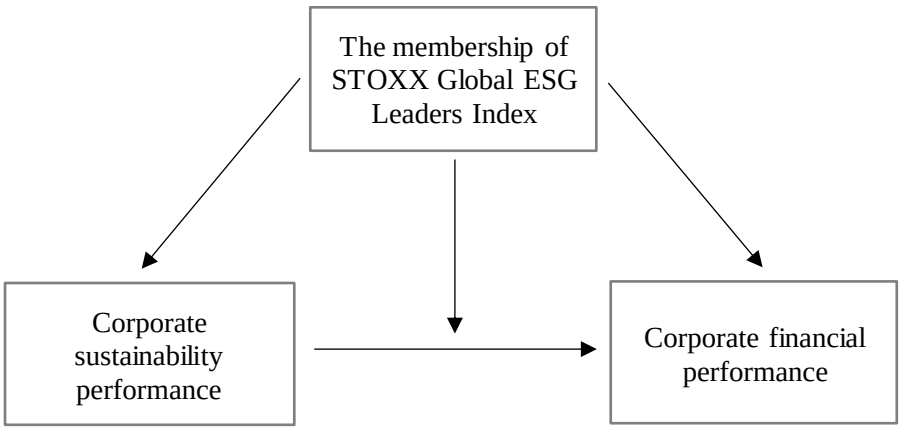

Figure 1. The effect on the STOXX Global ESG Leaders Index membership on the CSP-CFP relationship.

Because the relationship between CSP and CFP has been proved numerous times, in this is thesis concentration is paid on how listing on the STOXX Global ESG Leaders Index affect on CFP and whether CSP-CFP relationship differ between listed and non-listed companies. In previous research scholars have also been mainly concentrating to the market value as a metric of financial performance whereas in this study focus is on accounting-based metrics. It needs also to be remembered that to be able to be listed in the index, companies ESG scores are normally higher than in other companies. That is why the idea is to also explore the fact that how much better these index listed companies are performing from the financial point of view and does the higher ESG scores or the inclusion in the sustainability index explain this. The core idea is to be able answer to the question that it is financially profitable for companies to add more responsible activities to their business operations, in the light of the fact that they would get on the responsibility index, STOXX Global ESG Leaders. Or could companies invest in responsibility without aiming for the index, and would this be even more profitable financially?

This study covers European listed companies operating in the industrial goods industry in years 2016-2021. Most of the previous studies have not specified certain industry, and therefore this study aims to address that research gap. Not many studies have either focused on European companies with certain industry. Also, the terminology of corporate sustainability has varied between previous researches. In this thesis term corporate

sustainability performance (CSP) is examined. Concentration is not only paid to the social aspect of sustainability but to the environmental and governmental aspects as well through the Combined ESG Score used as a proxy for CSP. This study is also among the first ones to examine inclusion to STOXX Global ESG Leaders Index and how it affects on the CSP-CFP relationship. With the definition of the objectives of the research, the main research question was formed:

What impacts does listing on the STOXX Global ESG Leaders Index have on corporate financial performance?

Incorporated to the main aim, the master's thesis assesses whether STOXX Global ESG Leaders Index companies perform substantially financially better than non-listed companies that is profitable from financial point of view to increase company's ESG scores to achieve listing in the sustainability index. The main research question is supported by sub-questions that provide more detailed information about the relationship between CSP and CFP. The main research question can be answered through the sub-questions. The sub-questions are following:

What are the relative effect sizes of ESG scores and sustainability index listing on CFP?

How does sustainability index listing moderate the effect of ESG on CFP?

In this master's thesis the relationship changes between ESG scores and corporate financial performance are observed through related key figures in quantitative study. This study is executed with regression analysis. Both ESG and CFP related data is gathered from Refinitiv Eikon database. Information of STOXX Global ESG Leaders Index inclusion in turn is gathered from index provider Qontigo's websites. CFP is measured with accounting-based figures, to be able to investigate this topic in companies' point of view. These have also been considered to return better reflection of companies' profitability in terms of efficiency and organisational capabilities (Wasara & Ganda 2019). Used figures for representing CFP are

return on equity (ROE), return on assets (ROA) and operating profit margin, which are one of the most used variables in CSP-CFP relationship examinations (Wasara & Ganda 2019; Taliento et al. 2019; Ye et al. 2022). However due to lack of sufficient amount of theoretical evidence also one market-based measure, market value, is used.

CSP in turn is measured with ESG Combined Score of the companies and the inclusion in STOXX Global ESG Leaders Index. The information of STOXX Global ESG Leaders Index inclusion in turn was measured with dummy variable. It was presented as whether companies are included in this index or not. In the study, companies could have been included in the STOXX Global ESG Leaders Index for different periods of time. Because there are no studies that have investigated how the CSP-CFP relationship differs between sustainability index listed and non-listed companies when sustainability performance is measured with both individual ESG scores and with the membership of sustainability index, in this thesis' the theoretical background consist of both studies, studies using inclusion in sustainability index as proxy for CSP and studies where CSP is measured with ESG scores. Then the results of this study are examined in the light of all these results.

1.3 Structure of the thesis

The research structure of the master's thesis is as follows. The theoretical background of the study is divided into five subsections. First the definition and measurement of corporate sustainability performance (CSP) is observed. Then ESG scores and STOXX Global ESG Leaders Index are briefly presented. These two subsections create the theoretical background of companies' sustainability which is one of the main topics of this study. After that the theoretical relationship between CSP and corporate financial performance (CFP) is explained through different theories in the third subchapter. Also, an analysis of previous studies is carried through. In this section most used measures in previous research are introduced as well as the key results of earlier studies. Also, these results are combined with the inclusion in certain sustainability index. In the fifth subsection also the hypotheses of this research are constituted. The third chapter presents the research methods of the thesis as well as how the empirical data was collected. In chapter 4 the main findings and results are

presented. This section also includes the descriptive statistics of the data sample. In the last chapter the conclusion of the results is drawn, and the research questions answered detailedly. Also, in the last chapter this study's limitations are addressed as well as proposals for future studies are introduced.

2 Theoretical background

The theoretical background of this study is based on the previous literature which considers corporate sustainability performance, ESG Scores, STOXX Global ESG Leaders Index and the relationship between corporate sustainability performance (CSP) and corporate financial performance (CFP). First, in this chapter the corporate sustainability performance, its dimensions and companies' motivations for sustainable actions will be reviewed. After that ESG topic and STOXX Global ESG Leaders Index will be introduced. And in the end of this chapter the theoretical relationship between CSP and CFP will combine the first chapters to deepen understanding of the relation of these topics and to form a comprehensive basis for the empirical research part of this study. Also, in the end of this chapter the impacts of inclusion in sustainability index on CFP are presented.

2.1 Corporate Sustainability Performance (CSP)

Corporate sustainability performance in its entirety has become a vitally important topic in the modern business world as well as in different research areas. There are multiple reasons for increased interest towards sustainability topic. Among scholars this topic has increased its popularity particularly after the 2007-2009 global economic crises. These crises caused for example societal problems as well as environmental catastrophes which were associated with poor risk management practices of the companies (Alsayegh, Abdul Rahman & Homayoun 2020). To avoid this kind of crise to take place again, companies have been paying more attention to their sustainability actions and corporate sustainability is resulted from that. The factors behind corporate sustainability are economic growth, promotion of social equity and verifying environmental legislations (Christofi, Christofi & Sisaye 2012). Where equity is proposed to be the principle of sustainability (Elliot 2005), have companies around the world understood that to be able to act and retain natural "equity" also in the future, they need to concentrate on sustainable growth in their business (Alsayegh et al. 2020). The World Commission on Environment and Development has described sustainability development to be related to the exploiting of current natural resources in the

manner, that it ensures resources to suffice also to the generations in the future (World Commission on Environment and Development 1987).

2.1.1 Definition of CSP

The increased interest on corporate sustainability topic among scholars and businesses has raised the topic on conversation that how the "corporate sustainability" should be defined. It can be stated that there are multiple different terms and explanations which makes it harder to standardize this topic among discussions. Also these terms can be used mixed even when speaking from the same content of sustainability. In this thesis corporate sustainability is investigated through corporate sustainability performance (CSP) term. According to Montiel and Delgado-Ceballos (2014) corporate sustainability performance includes both social and environmental dimensions of corporate sustainability. It comprises also on how companies could incorporate sustainability performance in to their strategies deeper and not only focus on society point of view. Also companies' continually growing interest in good corporate governance and environmentally friendly business practices favor to use term corporate sustainability performance. Sustainability can also be a synonym for corporate social responsibility (CSR) (Jha & Rangarajan 2020). The main aspect for CSR is the society and companies' contributions towards different groups in society. Corporate social performance in turn refers to actions companies can make towards society. CSR is often divided to four categories: environmental impacts, ethical responsibility, philanthropic endeavors and financial responsibilities. (Gimenez, Sierra & Rodon 2012)

Even though corporate sustainability does not have a universal definition, it can be defined as process of companies to incorporate their economic, environmental and social factors into their operations and strategies to meet the expectations of company's stakeholders (Artiach et al. 2010; Ali & Jadoon 2022; Jha & Rangarajan 2020; Lee et al. 2016). These three factors are also considered as the three pillars of sustainability development (Wagner 2010). For instance International Institute for Sustainable development has described these as follows; "adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining, and enhancing the human and natural resources that will be needed in the future" (IISD 1992). CSP also comprises those effects

that companies' value chain activities cause to environment, society, and economy (Ali & Jadoon 2022).

Nowadays companies need to acknowledge other aspects beside economic needs in their business activities and concentrate also to different non-financial dimensions and sustainable growth (Jha & Rangarajan 2020; Artiach et al. 2010; Asiaei, Bontis, Barani & Jusoh 2021). Sustainable growth can be seen comprising shareholders' value creation, societal values and reduce of pollution and environmental impacts (Ali & Jadoon 2022). Therefore, one of the main drivers of CSP is related to companies' responsiveness towards different stakeholder groups and to the ability to fulfil their needs (Jha & Rangarajan 2020; Artiach et al. 2010; Matuszewska-Pierzynka 2021). To be able to meet these demands, companies need to suffice all previously presented sustainability dimensions. Good corporate governance can be associated as a pre-condition for all of these and that is why it is nowadays considered as fourth corporate sustainability performance dimension (Matuszewska-Pierzynka 2021).

2.1.2 Triple Bottom Line

Over the years concept of corporate sustainability performance has been evolving and the attention has been converting from total environmental concentration more towards combination of environmental, social, and economical areas which are stated as the three-dimensional performance of business (Ali & Jadoon 2022; Matuszewska-Pierzynka 2021). Companies can achieve corporate sustainability by combining these three components which together lead to enhanced efficiency, shareholder value and sustainable growth (Ali & Jadoon 2022). Therefore, corporate sustainability is often described and measured as "Triple bottom line" (TBL) as presented in Figure 2 (Elkington 1998). It can also be illustrated with the "3Ps" which represents profits, people, and planet (Wilson 2015). Environmental part of CSP concentrates on the use of energy and other resources as well as to the companies' footprint they are causing through their operations. Social part in turn focuses more on the different stakeholders of the companies, and to enhancing their health conditions and human rights. (Gimenez et al. 2012). Through positive actions in these two parts of TBL, the economic part can be enhanced (Jha & Rangarajan 2020; Gimenez et al.

2012). To be able to truly act sustainable and meet sustainable goals, companies need to balance between all these three factors (Jha & Rangarajan 2020).

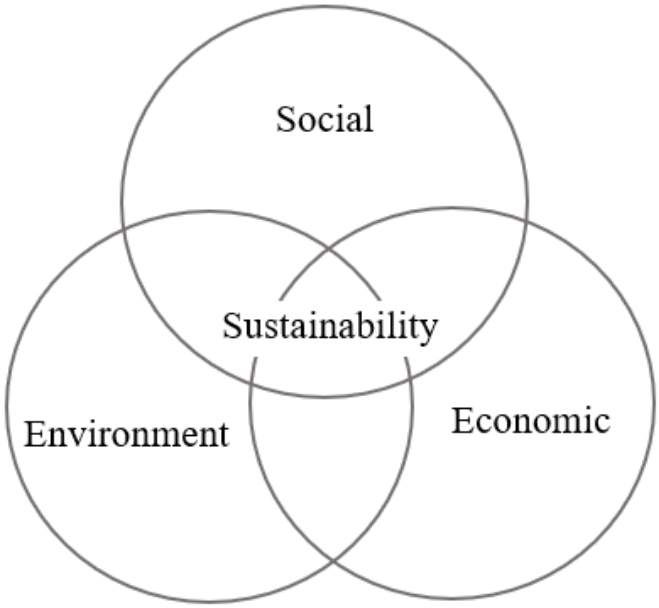

Figure 2. Triple bottom line according to Purvis, Mao & Robinson (2019).

Environmental sustainability often refers for example to waste reduction, energy efficiency and reduction of emissions and pollution. This environmental sustainability is often integrated to corporate culture and operations, instead of scrutinizing it as an individual topic. Environmental consideration can be integrated for example to the design of the products, manufacturing, and transportation. It is also stated that companies cannot only consider sustainability in their own factories but take into account entire production and value chain of their products. (Gimenez et al. 2012) However concentration from pollution prevention has already been changing more towards comprehensive consideration of the usage of natural resources and minimizing negative impact on environment. Companies are sifting their aspects from the history more towards future. Not only are those existing environmental challenges in consideration but more that how companies can prevent these happen in the future. (Cowan, Dopart, Ferracini, Shamle, Merryman, Gaffney & Paustenbach 2010) One reason for companies to act environmentally sustainable is value

maximization. This has thus been criticized to be more profit driven agenda than real willingness to protect nature. (Jha & Rangarajan 2020).

Social sustainability is focusing more to the benefits towards society and concentrating to the welfare of individual (Shim, Moon, Lee & Chung 2021). Elkington (1998) describes social sustainability to include different actions organizations can made towards stakeholders and communities. (Elkington 1998) These includes different stakeholders of the companies, which can be both internal stakeholders such as employees and external stakeholders such as society (Gimenez et al. 2012). These can be for example providing equitable opportunities, encouraging diversity, ensuring life quality to everyone and engage governance structures (Ballet, Bazin & Mahieu 2020). Also in the workplace social sustainability appear in different actions towards internal stakeholders such as employees. These actions can be, for example, welfare promotion or discrimination mitigation. (Shim et al. 2021) Shim et al. (2021) have also been stating that the importance of social sustainability has been increasing in last decades due to diversification of the society. To be able to achieve sustainability embracing difference and supporting employees is crucial. Increasingly complicated society requires inclusion of more diverse individual talents and skills. (Shim et al. 2021)

Economic sustainability refers to businesses' responsibility to maintain healthy economic performance and through that improve social welfare. To achieve this, companies need to focus on different topics that can enhance their financial conditions internally and create long-term value and competitiveness. (Wilson 2015) Economic sustainability also includes companies' economical actions towards societies, for example by sharing accumulated wealth to them. For instance dedicating resources to community can be stated as one example. Also paying taxes, have competitive wages and paying dividends have been seen as economically sustainable actions. (Shim et al. 2021)

2.2 Measuring CSP

Corporate sustainability performance can be considered to be quite complex and multidimensional, and therefore the main problem of measuring sustainable development is that there is no generally accepted method for measuring it. (Searcy & Elkhawas 2012; Escrig-Olmedo et al. 2017; Ali & Jadoon 2022; Jha & Rangarajan 2020). Hauser and Katz's (1998) statements that "you cannot manage what you cannot measure" and that "you are what you measure" are nowadays generally accepted ways of thinking when concerning sustainability and corporates' sustainability performance. Companies need to have suitable performance measurement systems in place to verify their sustainability actions, therefore sustainability measurement is now seen as an integral part of core business practices (Escrig-Olmedo, Muñoz-Torres, Fernández-Izquierdo & Rivera-Lirio 2017). Measuring sustainability performance of the companies has been stated to be a process where with different indicators sustainability related information is collected and analysed by the company (Asiaei et al. 2021). Measured sustainability performance includes all factors related to sustainability, that are environmental, social, economic and governance (Searcy & Elkhawas 2012). This information is communicated both internally and externally, so that internally it can facilitate management's decision-making related to the responsibility, while externally promote interaction with society and the environment. (Searcy & Elkhawas 2012; Asiaei et al. 2021) Sustainability information is also closely used for example in controlling and planning environmental and social related future actions as well as in information consolidation. (Asiaei et al. 2021)

Some previous researches have concentrated on the social aspect of sustainability when measuring CSP, whereas some have taken into account all three dimensions of sustainability, which are environmental, social and economic. As mentioned before these three components forms the prevalent description of sustainability through triple bottom line. However due to the mixed explanation of sustainability there is still difficulties to measure and quantify companies' sustainability performances straightforwardly from their sustainability reports. Therefore in many of the previous research sustainability has been measured by using different proxies such as rankings, ratings, indices and other possible alternatives. (Purvis, Mao & Robinson 2019; Ali & Jadoon 2022; Taliento et al. 2019)

Ali and Jadoon (2022) have divided used proxies into three categories. The first one, which is also examined in this study, consist of indices, ratings and rankings. These are constituted by different agencies in order to develop unbiased and independent ways to measure CSP. The first category includes for instance ESG scores for example from Bloomberg or Thomson Reuters, indices such as the KLD's Global Sustainability indices, Dow Jones Sustainability Index (DJSI), FTSE4Good indices, STOXX Global ESG indices and rankings like Sustainability Asset Management (SAM) ranking et cetera. (Ali & Jadoon 2022; Taliento et al. 2019; Jha & Rangarajan 2020; Searcy & Elkhawas 2012) For example, ESG scores are often used as a measure of CSP. ESG is referring to environmental, social and governance dimensions' measurement and is commonly used for evaluating companies' non-financial performance. ESG is commonly used among asset managers, institutional investors and other stakeholders to be able to scrutinize companies' non-financial information that is not presented in their financial reports. (Jha & Rangarajan 2020; Taliento et al. 2019)

Sustainability indices, such as FTSE4Good Index, Dow Jones Sustainability World Index, MSCI KLD 400 Social Index and STOXX Global ESG Leaders Index , in turn refers to the inclusion of companies' equity to in certain stock indices. (Taliento, Favino & Netti 2019; Mikolajek-Gocejna 2018) Currently worldwide there is over 50 listed sustainability indices. The most well-known globally are Dow Jones Sustainability Indices and FTSE4Good Index. Sustainability indices reflects the sustainability performance of companies by including only the most sustainable companies to their constituent lists throught certain reviews, grading scales and analysis processes. Environmental, social and governance scores are often used in those reviews as a proxies for CSP. These reflect the level of maturity of the companies. Companies in sustainability indices are taking environmental, social and governance issues into account in their operative activities and are setting standards to all companies in the aspect of sustainability performance. Index listed companies are often also continuously improving their sustainability performance in order to stay in the indices because this reflects the leadership in this area. (Mikolajek-Gocejna 2018)

The second category consist of surveys and interviews conducted by scholars and researchers. In this category CSP is defined by individual surveys and measurements. In the third category in turn is based on content analysis and disclosure index. This refers to a

process where scholars recognize certain sustainability indicators from the CSP and then verify these from companies' sustainability reports and estimates them with consistent scoring system. (Ali & Jadoon 2022) In this thesis the corporate social performance is determined by the ESG scores of each company as well as the membership of the STOXX Global ESG Leaders Index. The basics of ESG will be introduced in subchapter 2.2.1 and the basics of STOXX Global ESG Leaders Index will be briefly covered in subchapter 2.2.2.

There have been many ways in which, for example, researchers have measured the sustainability of companies. The most frequently used proxies for CSP have been different ratings, rankings, and indices (Ali & Jadoon 2022) However there are certain problems and deficiencies with these proxies. For example, these tend to follow inconsistent measurement criteria and are based on disloyal data. When the data is collected by different surveys, is self-reported by companies, lacks consensus and standardization, contains trade-offs, and focuses on a single line of sustainability, it is difficult to compare corporate sustainability measurements. (Ali & Jadoon 2022; Jha & Rangarajan 2020) There is also many individual companies who have developed their own sustainability indicators and reporting these in their sustainability reports. These indicators made it very difficult to compare companies' sustainability levels because there is no consistent way of reporting such indicators. (Searcy & Elkhawas 2012)

It has also been noted that different indices have their own manners of how to measure sustainability of the companies by having own weighting systems and data collection methods. This also causes divergences between indices. (Searcy & Elkhawas 2012; Escrig-Olmedo et al. 2017) Sustainability indices also include often multiple areas that they measure. This can cause lower scoring indicators to hide under higher scoring indicators. This, in turn, can make the company appear very sustainable, but some distinct areas of irresponsibility are then overlooked. As stated earlier, the inclusion of different stakeholders in decision-making processes is seen as one important part of sustainable development. Sustainability indices often also do not take into account the perspectives of different stakeholders, which has also been seen as one crucial problem in measuring sustainability. (Escrig-Olmedo et al. 2017)

2.2.1 Environmental, Social & Governance (ESG)

When companies have begun to pay more attention to their sustainability performance, information related to ESG has increased (Alsayegh et al. 2020). ESG is considered to be one of the most known framework for evaluating companies' commitment to sustainability areas. Especially investors are using ESG scores to evaluate companies' behaviours and determine companies' financial performance in the future in order to estimate possible investment targets. (Jha & Rangarajan 2020; Ting, Azizan, Bhaskaran & Sukumaran 2019; Ye, Song & Liang 2022; Baran, Kuźniarska, Makiela, Slawik & Stuss 2022) ESG is commonly used as a measure of CSP. ESG provides non-financial information of companies' practices to make companies performance more transparent and reliable. With ESG scores it is possible for example to investors to gain insights from companies' sustainability issues, management quality and firm future performance. (Ting et al. 2019; Ye et al. 2022) Reporting from ESG scores can be seen as a tool for companies to communicate from their intentions not to gear business towards pure profit pursuing at the expense of its stakeholders, environment, and society but to actually take actions towards cleaner and sustainable future (Abdul Rahman & Alsayegh 2021).

ESG stands for Environmental, Social and Governance topics of sustainability as presented in Figure 3. Environmental part refers to topics such as environmental management and climate change, which can be determined for example by pollution of CO2 emissions or waste intensity. Social part is associated with relations with stakeholders such as employees and society. This includes companies' actions towards employee's engagement and societal welfare. The governance dimension, on the other hand, represents the practices and policies that can be used to measure the output of companies to state structures. Executive compensation, auditing procedures and ethical principles are examples of that. (Ting et al. 2019; Ye et al. 2022)

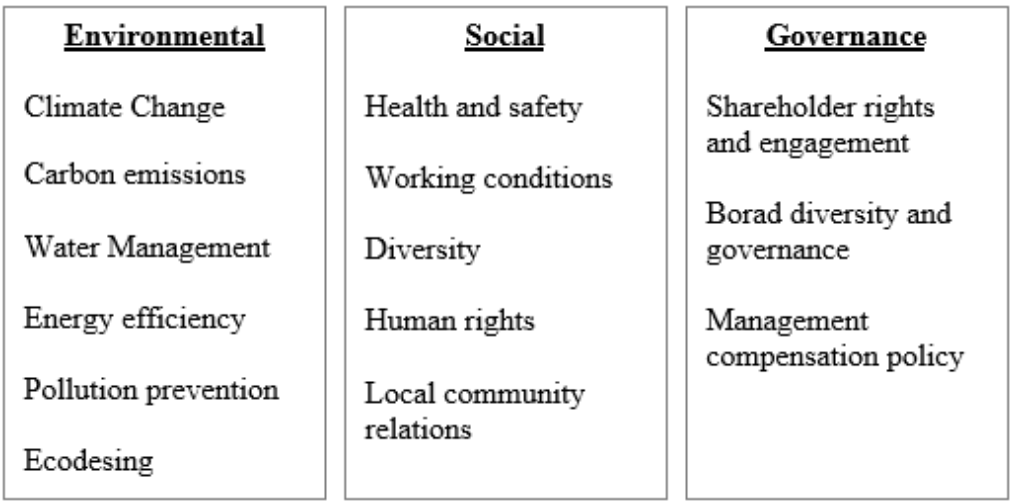

Figure 3. Modified examples of ESG dimensions after Baran et al. (2022).

Analysis of ESG scores are often based on publicly available data which companies have reported (Ting et al. 2019; Taliento et al. 2019). These can include, for example, annual reports and media sources. This causes same comparability problem as with other sustainability metrics presented before, because scores given by different agencies can vary even considerably. ESG is often used in different contexts and there is no solid definition for it or for its measurement. Different rating agencies have their own measurement methods and ESG scores from different agencies can include different values. (Taliento et al. 2019)

The core purpose of ESG is to give insights to companies' environmental, social and governance practices. These practices are believed to bring long-term value to the companies in terms of stock returns as well as to the shareholders. (Ye et al. 2022) Releasing ESG related information to all stakeholders can also create competitive advantage to the company and improve its sustainability performance as well as operation efficiency. It can also create shared value with the society which is associated with economic value creation through societal benefits and affect on customer satisfaction and market acceptance. (Alsayegh et al. 2020; Ye et al. 2022) Ye et al. (2022) have found that companies with better ESG scores are executing better in governance, are protecting nature and also have better access to low-cost funding possibilities (Ye et al. 2022). ESG scores are used combined and individually determining companies' sustainability activities to be able to investigate how the relationship between CSP and CFP is changing between two groups of companies. This relationship between CSP and CFP is explored more in chapter 2.3.

2.2.2 STOXX Global ESG Leaders Index

Another proxy for companies' sustainability performance is STOXX Global ESG Leaders Index. It was established in 2011 and is created and provided by Qontigo which is part of Deutsche Börse Group. It can be seen as a partial result, which originates from the interest of companies and investors in the triple bottom line, which consist of environmental, economic, and social sustainability. STOXX Global ESG indices consists of four indices, one main index and three specialized indices. The main index which is also broader index is STOXX Global ESG Leaders Index. It is tracking companies' comprehensive sustainability performance globally and including only the most sustainable companies into their indices. Three other indices are are the STOXX Global ESG Environmental Leaders, the STOXX Global ESG Social Leaders, and the STOXX Global ESG Governance Leaders. These specialized indices in turn consists of the companies that are leaders either in environmental, social or governance topics. The STOXX Global ESG Leaders Index also contain some industry-specific indices which are called Blue-Chip indices. (Qontigo 2023b; Mikołajek-Gocejna 2018)

The STOXX Global ESG Leaders Index monitors hundreds of publicly traded companies and their subcollections around the world and releases yearly in September a listing of the index constituents. Only the very top of highest-scoring companies in sustainability dimensions are included to the index. Companies in the index are selected through quantitative selection, based on their ESG performance. Companies' sustainability related data is provided by Sustainalytics, and the method used in the selection is a bottom-up approach. Their scoring methodology investigates all companies as individuals and differentiates different types of companies. After that sustainability performance of the companies is determined. The system gives 0 to 100 points for each environmental, social and governance categories and with the help of these points companies can be compared category by category. To be listed in one of the indices such as the STOXX Global ESG Environmental index, the company must rank in the top 25 percent in that environmental category and get over average score (50th percentile) in two other categories. The STOXX Global ESG Leaders Index in turn consists of the constituents of these three specialized indices. (Qontigo 2023b) The ratings, scoring and selection methodology is published yearly in STOXX websites which makes the selection transparent to everyone (Qontigo 2023c)

2.3 The theoretical relationship between CSP and CFP

As introduced before the relationship between CSP and CFP has been widely investigated. However, the results have been quite mixed and there is no consensus of the outcomes (Artiach et al. 2010; Jha & Rangarajan 2020; Matuszewska-Pierzynka 2021). Some of the studies think that there is positive relationship between CSP and CFP (Matuszewska-Pierzynka 2021; Robinson et al. 2011; Wang & Chen 2017), whereas others consider this relationship to be negative (Taliento et al. 2019; Alsayegh et al. 2020). These positive and negative relationships can also be divided to direct, bidirectional, or curvilinear relationship between CSP and CFP (Robinson et al. 2011; Preston & O'Bannon 1997). Also, insignificant, and U-shaped results have been founded (Artiach et al. 2010; Jha & Rangarajan 2020). Preston's and O'Bannon (1997) founded that the relationship is causal, and it is either positive, negative, or neutral. Their research has been the first to explain the causal and directional relationship through hypotheses. They assembled six hypotheses for explaining this causal relationship between CSP and CFP. These hypotheses are slack resources, social impact, trade-off, managerial opportunism hypothesis and negative and positive synergy. Additionally, they find that the relationship could be bidirectional, but in this study only directional relationship between CSP and CFP is examined, where CSP has an impact on CFP. (Preston's & O'Bannon 1997)

Most of the studies indicate the CSP-CFP relationship to be positive, but there are still variations in the results considering the strength of the connection. Some researchers have revealed that result is depending on the independent divisions of sustainability. (Jha & Rangarajan 2020) According to Artiach et al. (2010), reason for mixed results are variating methods used in studies, which also makes it hard to compare the results. Also, one of the main reasons for the varying results is the variation in the measurement of CSP and CFP. (Artiach et al. 2010) These mixed results are reason why in this section different studies related to CSP-CFP relationship and their results are examined. When examining the relationship, the concentration is paid to studies in which the ESG score has been used as proxy for sustainability and accounting-based indicators for CFP. The examination of the previous results of CSP-CFP relationship related studies is combined with the hypotheses founded by Preston and O'Bannon (1997), because these hypotheses have been widely used as a theoretical basis for later studies concerning CSP and CFP relationship. However there

has not been founded any dominating theory that is explaining the CSP-CFP relationship, rather many different theories are explaining the relationship. (Jung, Nam, Yang & Kim 2018; Ting et al. 2019; Abdul Rahman & Alsayegh 2021)

2.3.1 Positive relationship

Most of the prior studies have found positive relationship between CSP and CFP (Robinson et al. 2011; Wang & Chen 2017) and these researchers also think that investing in CSP will produce more financial benefits than what it occurs costs (Artiach et al. 2010). For example Orlizky et al. (2003) already in the beginning of 21st century examined over 30 years' worth of studies related to CSP-CFP relationship with meta-analysis and found out that CSP is positively correlated with CFP (Orlizky, Schmidt & Rynes 2003). Friede et al. (2015) have replicated this study by using data and results from over 2200 individual studies. They have concluded that ESG indicators have positive impact on CFP. (Friede, Busch & Bassen 2015) Positive CSP-CFP relationship can stem from long-term obligation to CSP activities and visibility of the actions (Schmutz et al. 2020). CSP activities can also include investments towards pollution and energy consumption reduction (Ting et al. 2019). According to Wang et al. (2017) CSP activities can not only improve CFP of companies but also benefit society.

Artiach et al. (2010) have in turn found that companies incorporating different CSP activities have stronger growth and higher ROE in comparison to companies who are not including CSP activities to their business (Artiach et al. 2010). It is also stated that good performance in sustainability topic can affect positively on CFP through enhanced good will, better employee moral and improved accesses to capital (Artiach et al. 2010). In many studies, researchers have stated that good CSP can lead to better market value which in turn can enhance companies CFP (Pätäri et al. 2012; Ting et al. 2019). Positive actions in CSP also have another financial benefits than firm value increase or enhanced reputation. These can include for instance balanced future cash flows and volatility prevention as well as balanced business activities and reduced surprising twists, especially in relation to stakeholders (Robinson et al. 2011).

Guler and Kucukbay (2022) have in turn stated that CSP – CFP relationship depends on how companies interact with their stakeholders. They have also noticed that communication with stakeholders is crucial if company is willing to continue sustainability related actions. When stakeholders are relying more on companies, the costs of companies will reduce which in turn can lead to better financial performance. (Guler & Kucukbay 2022) Also Taliento et al. (2019) have stated that engagement with CSP can reduce operation costs of the companies as well as lower financial risks (Taliento et al. 2019). According to Hang et al. (2019) companies performing well in CSP can have more low expense claims from especially major stakeholders, like customers, shareholders, and employees, which can lead to higher CFP. Along with Ferrero-Ferrero et al. (2016) cooperating with stakeholders can also lead to better competitive advantage, minimized corporate costs as well as improved economic and financial performance. Therefore, stakeholder theory and social impacts theory can be seen to provide justifiable aspects of how companies should manage the relationships with their stakeholders in the terms of sustainable business development (Ferrero-Ferrero, Fernandez-Izquierdo & Munoz-Torres 2016). It has been founded that CSP can be enhanced, long-term sustainability value created and companies' financial performance bettered by improving the relationships with all corporates' stakeholders that can have impact on company's performance (Alsayegh et al. 2020; Oberndorfer et al. 2013).

The stakeholder theory can be seen as one crucial theories explaining the positive connection between CSP and CFP besides social impact hypothesis (Asiaei et al. 2021; Jung et al. 2018). The core in stakeholder theory is related to different stakeholders of the companies and their influence on the company. In the end stakeholders are the ones that masters the companies' access to resources, whether it is money, raw material, or labor force. For this reason, companies must ultimately satisfy the needs of stakeholders in order to be able to use these resources in the future as well. (Jung et al. 2018; Artiach et al. 2010) This, in turn, is due to the fact that there is an imbalance between the stakeholders in the ability to influence the activities of companies. Stakeholders have different amount of information concerning for example business operations of the companies compared to employees and management. Therefore, companies need to act in accordance with the expectations of stakeholders and managements of the companies must satisfy the needs and wishes of the groups that are interested in the companies' actions and can influence on the outcome. Companies need to take into account these interests of stakeholders in strategic management planning as well as

in everyday actions to be able to operate in long-term and create value. (Wasara & Ganda 2019; Oberndorfer et al. 2013; Yilmaz et al. 2020; Asiaei et al. 2021).

Also, social impact hypothesis developed by Preston and O'Bannon (1997) is explaining positive relationship between CSP and CFP. Social impact hypothesis in turn comprises that when various stakeholders' needs and hopes are fulfilled, can it also increase CFP. (Ting et al. 2019) Social impact hypothesis is related to stakeholder theory with a difference that the latter concentrates on the resources gained from stakeholders whereas the social impact theory comprises more on the reputation perspective among stakeholders (Jung et al. 2018; Ting et al. 2019; Preston & O'Bannon 1997). According to Wang et al. (2017) engaging with CSP activities can improve companies' reputation in the eyes of stakeholders and through that increase competitiveness (Wang & Chen 2017; Jung et al. 2018; Taliento et al. 2019). Different stakeholders' interests and needs are seen very crucial tool for companies in their actions to promote socially responsible practices of the company (Asiaei et al. 2021; Artiach et al. 2010). It has been thought that companies who are investing more on CSP and stakeholder relationship management will have better competitive position in the markets in comparison to their competitors who are not investing to these topics (Yilmaz et al. 2020; Artiach et al. 2010).

According to social impact hypothesis, if companies are not able to fulfil the expectations of stakeholders, it may increase risks and fears companies face in the markets. This can also lead to additional costs and extra agreements. These agreements can include for example more reporting requirements from governments, because companies are not able to otherwise prove their sustainability actions. Hang et al. (2019) have stated that social impact hypothesis has effects on long-term. This stems from the fact that the trust with stakeholders cannot be created in short time rather it can take up time. That is why they assume that financial effects of the relationships with stakeholders can be seen in the medium to long run. (Hang et al. 2019)

The positive synergy hypothesis developed by Preston and O'Bannon (1997) assume that CSP and CFP are synergetic. Or that at least that with the available data it is not possible to detect the the time-pattern of this interaction. (Preston & O'Bannon 1997) The positive synergy is considered to be connection between the slack resources and social impact

hypotheses. In positive synergy hypothesis it is considered that CSP activities will profit financial resources for company, which then in turn create possibilities for companies to reinvest their extra funds for example to CSP activities to fulfil stakeholders' expectations. (Makni, Francoeur & Bellavance 2009) In positive synergy situation the relationship between CSP and CFP is positive and may also be simultaneous, which forms a virtuous circle between CSP and CFP (Waddock & Graves 1997). Also, in this thesis positive synergy hypothesis is crucial to take into account when examining the relationship between CSP and CFP because according to this theory the company size is used as a control variable. More company has available funds, in other words bigger the company is, more it has slack resources to invest more in CSP activities.

2.3.2 Negative relationship

In addition to positive relationship, some researchers have found negative relationship between CSP and CFP. The reason for the negative connection is thought to be the increase in costs that the implementation and realization of responsibility activities require. The increase in costs, on the other hand, weakens companies' returns, profitability and competitiveness. (Artiach et al. 2010; Taliento et al. 2019; Alsayegh et al. 2020; Ting et al. 2019; Trumpp & Guenther 2017) According to Artiach et al. (2010) these costs occur, along with sustainability practices implementation costs, for example from enhanced employee conditions, donations and also opportunity costs that companies need to take into account when they are relinquishing their irresponsible practices and investments and are substituting those with responsible ones. These investments in environmental activities are tying up the companies' money but aren't profiting sufficient financial returns. For this reason, CSP is seen to have a negative impact on the CSP-CFP relationship and to compete with CFP, as the companies' primary goal is to improve CFP performance. (Hang et al. 2019)

The trade-off hypothesis, formed by Preston and O'Bannon (1997), explains this negative relationship between CSP and CFP. They have concluded that lower CSP performance results in a higher CFP result (Preston and O'Bannon 1997). However, this is not in line with the general goal of the companies' which is to create value to its shareholders and stakeholders (Hang et al. 2019). In fact investment in CSP can be seen as contrary to

investors' interests because it is relocating scanty resources towards other stakeholders. (Artiach et al. 2010) This in turn can then affect investors' investment decision making and through impaired reputation led to worse CFP. (Artiach et al. 2010; Alsayegh et al. 2020) When value maximization can be achieved through maximizing profits and minimizing costs, investing in CSP is then not in line with this ideology according to trade-off hypothesis (Trumpp & Guenther 2017). Trumpp and Guenther (2017) have stated that improving CSP with different sustainability related actions may transfer companies' attention and recourses from core business to environmentally friendly actions. This may cause proportional disadvantages to the companies in comparison with their competitors who may concentrate more only on their core business activities. This is why CSP related investments are seen as a trade-off between achieving better CSP or getting superior CFP. (Trumpp & Guenther 2017)

Also, managerial opportunism hypothesis by Preston and O'Bannon (1997) assumes the CSP-CFP relationship to be negative. The hypothesis indicates that company managers are trying to achieve their own personal objectives in the expense of stakeholders rather than fulfil stakeholders' expectations or company's goals. Often these objectives can be related to compensations schemes, like short-term profits and stock price changes, which most managers are financially benefitting from. (Weidenbaum & Sheldon 1987) The negative effect on the relationship between CSP and CFP originates from the idea that when company is acting financially strong, managers have more temptation to collect money by reducing social and environmental expenses and investments. By growing finance resources managers are trying to increase their private short-term payoffs. When in turn the financial position of the company is not that lucrative, managers may increase social spending and CSP in order to hide bad CFP. These effects originate especially from the situation where managements' salaries are based on the short-term CFP of the companies. When managements' salaries are dependent on the company's financial performance, managers have more endeavours to manipulate CFP in order to gain more salary and benefits to themselves. This could be solved by making salaries dependent on CSP for example. (Preston and O'Bannon 1997; Hang et al. 2019)

The negative synergy hypothesis developed by Preston and O'Bannon (1997) assumes that CSP and CFP are synergetic. Or, as well as in the positive synergy, that at least with the

available data it is not possible to detect the the time-pattern of this interaction. (Preston & O'Bannon 1997) Negative synergy hypothesis assumes that high level CSP activities decreases CFP which in turn diminishes financial possibilities to invest sustainability activities in the future. That is why negative synergy hypothesis is explaining the negative relationship between CSP and CFP. (Makni et al. 2009)

2.3.3 Other results

Some researchers have also stated that there is no direct relationship between CSP and CFP. For example Ullmann (1985) has stated that there are numerous interjacent influences on the relationship between CSP and CFP and this is the reason why there is insufficient theoretical support to expect any direct relationship between these topics. (Ullmann 1985) Also Iwata and Okada (2011) have found that in short time period, there isn't any significant correlation between CSP and CFP (Iwata & Okada 2011). There is also studies indicating that the CSP-CFP relationship can be seen as mixed and that there is no straightforward results (Wasara & Ganda 2019). Furthermore for example Taliento et al. (2019) and Trumpp and Guenther (2017) have found U-shaped relation between CSP and CFP. This includes positive relationship in long term whereas short term relationship is considered to be negative. The relationship could also be inverse curvilinear which is opposite for U-shaped relationship. This includes positive impacts in short term and negative impacts on long term. (Taliento et al. 2019; Trumpp & Guenther 2017)

Slack resources theory in turn supports the ideology that CFP has positive impact on CSP, and their relationship can be seen to be causal. In general companies are trying to follow commonly accepted normative rules of how good corporate citizenship works and are also pursuing to favour needs and expectations of different stakeholders. However, it is not always possible for companies to invest for example to sustainable development activities in order to satisfy stakeholders wishes, but they are only able to focus on their core business. This originates from the slack of resources, or in other words, available funds. Also, managers' goals and values can affect on this slack of resources, by managers to be willing to allocate available funds to some other projects and activities. (Preston & O'Bannon 1997; Hang et al. 2019) Companies have only limited resource that they can use to their other

activities along with core business activities. Therefore, financially good year in terms of results can increase company's capacities to invest in CSP activities. That is a reason why along slack resources CFP can have positive impact on CSP. (Chahuán-Jiménez 2020; Jha & Rangarajan 2020; Brooks & Oikonomou 2018; Hang et al. 2019) However in this master thesis only the relationship from CSP affecting CFP is examined.

2.4 Effect of listing in sustainability index on corporate financial performance

In some studies, sustainability indices have been used as proxies for CSP. Also, some researchers have focused on the effects of inclusions and deletion from the sustainability indices. However, the results of the effects on CSP-CFP relationship have been mixed (Schmutz et al. 2020). Also, most of the studies related to sustainability indices have concentrated on the market-based measures of CFP whereas the concentration in this thesis is paid to accounting-based measures. In this subsection the effect of listing in sustainability index on the financial performance of the companies and the relationship between CSP and CFP will be reviewed. Because there are no studies investigating the effect of listing on STOXX Global ESG Leaders Index on the CSP-CFP relationship, studies based on other sustainability indices are presented in this subsection. It can be considered that all sustainability indices have constructed in suchlike manners even though these consists of different components. For example, not sustainable oil or tobacco companies are not often considered to be included in any sustainability indices which are based on high ESG scores. First some factors differentiating companies listed on sustainability indices from others will be explained. These factors need to be considered also as control variables in the empirical analysis part of this thesis.

For example, Artiach et al. (2010) found that companies including to sustainability index differ remarkably from companies not listed to DJSI. DJSI listed companies differ from others based on their size, profitability, and growth options levels. However, they found out that companies with higher ROE are also having higher CSP. In their study more crucial element of CFP was ROE not ROA. Their conclusion indicates that only certain types of companies are willing to invest on CSP because it will sustain companies' competitive

position. (Artiach et al. 2010) Charlo, Moya & Muñoz (2015) in turn have investigated the effect of listing in Spanish FTSE4Good IBEX index on CFP. They have stated that more responsible companies differ from other companies in terms of size being larger and having larger ROE. Spanish FTSE4Good IBEX index listed companies have also higher profit and these companies can have better access to external financing. However sustainable companies' shares are more sensitive to variations in market return. (Charlo, Moya & Muñoz 2015)

Pätäri et al. (2012) in turn have investigated whether inclusion in DJSI can nurture value creation and be a tool for competitive advantage. They focused on differences in financial performance between worldwide energy sector companies listed and non-listed on DJSI and the membership of DJSI was also used as a proxy for CSP. Their main findings were that DJSI listed companies, who can be considered to be more sustainable, have been performing distinctly better in terms of CFP than not listed companies in terms of profit generation and cost controlling. However according to Pätäri et al. (2012) it is hard to conclude whether sustainability related focus in business activities have led to better CFP or whether financially more successful companies are more interested in investing on CSP activities. Although they have concluded that leading CSP companies in energy sector are also performing better in terms of CFP. Researchers have also investigated how CFP measures have changed over the research period. According to their results, companies not listed in DJSI have improved financial performance in other measures more than DJSI listed companies. Reasons for this might be that companies not listed on DJSI have had more capacities to improve their CFP more. (Pätäri et al. 2012)

López et al. (2007) have also investigated how CSP activities are affecting on CFP, when CSP is measured with inclusion to DJSI. Their results also indicate differences between companies listed and not listed in DJSI in the terms of accounting-based indicators. However, they have found negative relationship between CSP and CFP. They have concluded that in the first year when companies are listed to DJSI the effect of the listing is negative in financial performance point of view. Companies have not yet made budget provisions for CSP related assets. Reasons for negative relationship are also increased costs due to CSP actions which can cause them disadvantages in CFP compared to competitors. Also, the researchers have concluded that it will take up time companies to fully integrate

CSP activities in their business, and that is why longer time period is needed to examine this relationship. (López et al. 2007)

Santis, Albuquerque and Lizarelli (2016) in turn haven't found any relationship between CSP and CFP. They have investigated this through the Brazilian ISE (Corporate Sustainability Index) with ROA, ROE, ROI and rapid-, current-, quick- and general liquidities. They have stated that sustainability index listed companies which can be considered to be more sustainable, in reality do not have better financial performance than non-listed companies. According to them, there are no incentives for companies to absorb superior sustainable strategies and practices and pursue the membership of sustainability indices in the light of better financial outcomes. Only notable finding they have made is that in the index listed companies have higher general liquidity ratios between long-term assets and long-term liabilities than non-listed companies. They have concluded as an argument that more sustainable companies have more long-term perspectives to their business strategies which may affect to the capital structure too. One notice they have made is also that when analysing profitability and liquidity, other firm characteristics like sectorial classification have bigger impact on the CFP than CSP has. (Santis, Albuquerque & Lizarelli 2016)

Chahuán-Jiménez (2020) in turn has found positive relationship between CSP and CFP for some measures but negative for some CFP measures when CSP is measured with inclusion to DJSI Chile. They have investigated the effect of inclusion in DJSI Chile to selected measures for CFP which are market value, ROE, ROA, earnings, and leverage. As a result of the study Chahuán-Jiménez has concluded that inclusion in DJSI Chile has positive impact on the market values of the companies. However they have stated that market value-based results are inconclusive because these are not based on the sustainability actions of the companies. For earnings the inclusion in DJSI Chile has in turn slight positive correlation. For other CFP measures, ROA, ROE and leverage, they have not found any positive connection. (Chahuán-Jiménez 2020)

Castro Sobrosa Neto et al. (2020) have investigated the CSP-CFP relationship through inclusion in the Brazilian Corporate Sustainability Index (ISE) in years 2014-2018. CFP has been measured with accounting-based metrics ROA, ROE and ROIC. They have found

neutral relationship between CSP and CFP. Lassala, Apetrei and Sapena (2017) in turn have investigated the CSP-CFP relationship through FTSE4Good IBEX index and CFP metrics ROA and ROE. Their results indicate that there isn't any clear relationship but the results are not discordant with studies that indicate positive relationship. Researchers have indicated that a positive relationship requires the companies' ROA to be at a certain level as a necessary condition. When ROA is at certain level, companies are able to, with the help of their sustainability profiles, reduce debts' costs and thereby increase ROE. (Lassala, Apetrei & Sapena 2017)

There are also several studies that have examined the effect of listing in sustainability index on the market value of the companies. For example, Robinson et al. (2011) have found positive relationship between CSP and CFP when CSP is measured with DJSI inclusion and CFP with market value. They have stated that companies' share price increased after DJSI inclusion and that is why it is beneficial for companies to pursue DJSI inclusion even though it occurs costs. It can signal investors of the sustainability related business strategies as well as attract new investors. Researchers also concluded that after company is removed from DJSI, for the first ten days the market value of the company decreased temporarily for the next ten trading days. They have also particularized that this increase in share prices is not dependent on whether the company is listed on major national stock market index or not. This indicates that the reaction is reputational effect not a listing effect. Increase in firm value is seen to be a result from traditional investors' a gradual reassessment of the company value. (Robinson et al. 2011)

Also Cheung (2011) has investigated CSP-CFP relationship in the terms of inclusion in Dow Jones Sustainability World Index (DJSWI) which is part of DJSI family incorporating most sustainable companies globally. In their study there cannot be announced any strong relationship between DJSWI inclusion and stock returns and risks. However they have found that in DJSWI inclusion day or couple days after, stock prices of companies will increase significantly but only temporarily and in exclusion dates stock returns will decrease. They have also stated that liquidity will weaken after announcement day but will return afterwards. These results are argued with price pressure hypothesis. According to this hypothesis event announcements don't include any crucial information and that is why changes in stock prices and liquidity are considered to be temporary. (Cheung 2011)

Curran and Moran (2007) have received similar results with Cheung (2011). They investigated the effect of listing on the FTSE4Good UK Index on the market values of the companies. They have found that share prices of companies will show positive movements after listing announcements and negative movements after exclusion announcements. However only the positive movements got a slightly significant results whereas all the other results were not statistically significant. All in all, they have concluded that companies' presence on the sustainability index does not bring any significant financial return and therefore doesn't affect on the CFP. (Curran and Moran 2007) Oberndorfer et al. (2013) in turn have found negative or no significant relationship between CSP and CFP when comparing companies listed in DJSI STOXX index and DJSWI along German companies. Companies listed in DJSI STOXX index does not have any significant relationship between CSP and CFP when measuring CFP with stock prices. Listing in DJSWI, which is more visible and known sustainability index, have strong negative effect on the stock prices of companies. (Oberndorfer et al. 2013)

To clarify for the mixed results of previous research executed on the CSP-CFP relationship when considering sustainability index inclusion as proxy for CSP, Table 1 was formed. These studies were chosen to clarify that there there is still no consensus on how listing on sustainability index will affect on CSP-CFP relationship and therefore it need to be examined more in the future. Also, these studies have concentrated on the same aspects as will be studied in this master thesis.

Table 1. Overview of the relevant current studies.

Authors	*Year*	*Measure of CSP*	*Measure of CFP*	*Findings*
Artiach et al.	2010	DJSI	Total assets, ROA, ROE, Leverage, Price to book, free cash flow	Positive relationship
Castro Sobrosa Neto et al.	2020	Brazilian ISE	ROA, ROE and ROIC	Neutral relationship
Chahuán-Jiménez	2020	DJSI Chile	ROE, ROA, market value, earnings, leverage	No clear relationship. Market value and earnings have slight positive relationship whereas ROE, ROA and leverage are not positively correlating with DJSI Chile.
Charlo et al.	2015	FTSE4Good IBEX	ROE, leverage, volatility, alpha, beta, EPS	No clear relationship. Positive association with ROE and profits. Better access to financing. More sensitive to market return variations.
Cheung	2011	DJSWI	Stock return, risk, liquidity	No clear relationship. Only temporary changes in stock prices after announcements.
Curran & Moran	2007	FTSE4Good UK Index	Market value	No significant relationship. Only positive reactions after listing has significant results.
Lassala et al.	2017	FTSE4Good IBEX	ROA, ROE	No clear relationship. May have positive relationship with ROE, but ROA need to be in certain level
López et al.	2007	DJSI	Profit before taxes, growth of revenue, assets, capital, profit margin, ROE, ROA, cost of capital	Negative relationship
Oberndorfer et al.	2013	DJSI STOXX & DJSWI	Market value	No relationship with DJSI STOXX. Strong negative relationship with DJSWI.
Pätäri et al.	2012	DJSI	Net sales growth, personnel increase, operating profit margin, ROA, ROIC	Positive relationship. Cost control and profit generation were better in DJSI companies.
Robinson et al.	2011	DJSI	Market value	Positive relationship
Santis et al.	2016	Brazilian ISE	ROA, ROE, ROI and rapid-, current-, quick- and general liquidities	No relationship

2.5 Research hypotheses

In this chapter the research hypotheses are introduced. Research hypotheses of this study are based on earlier studies as well as on academic literature concerning the topic. The majority of previous studies have found that there is relationship between CSP and CFP and that CSP has an effect on CFP, however the results have varied whether it is positive or negative. Therefore in this study it is assumed that there is a relationship between CSP and CFP but it cannot be stated beforehand whether it is positive or negative.

H_1: ESG Combined Score has an effect on corporate financial performance.

In studies where sustainability index membership has been used as a proxy for CSP, have also gotten very mixed results. These studies have been executed with similar methodologies than utilized in this thesis. Therefore it is assumed that the STOXX Global ESG Leaders Index listing has an impact on the CFP. It is also assumed that listing on the sustainability index affects the CFP more than ESG Score. This can be argued by the fact that index listed companies need to be more sustainable economically to be able to be listed on the index.

H_2: Listing on the STOXX Global ESG Leaders Index has an effect on corporate financial performance.

H_3: Listing on The STOXX Global ESG Leaders Index has higher relative effect sizes than ESG Combined Score on CFP.

The inclusion in the sustainability index is often dependent of the companies' ESG Scores and as previously mentioned, there is often a relationship between companies' sustainability and financial performance. Therefore, it can be assumed that inclusion in the STOXX Global ESG Leaders Index has moderating effect on the CSP-CFP relationship.

H_4: Listing on The STOXX Global ESG Leaders Index has a moderating effect on the CSP-CFP relationship.

These four hypothesis act as a basis for this study's empirical part and all of these hypothesis are tested in the following chapter.

3 Data and methodology

In this chapter the methodology and used data are introduced. First, the data description is presented, and the data collection methods introduced shortly. After this the research methodology is explained and rationalized why this certain methodology has been used in this study.

3.1 Data description

This study has been made using panel data from a sample of European public companies in the industrial goods line of business. These companies produce industrial goods, such as industrial machinery, heavy machinery and vehicles, industrial machinery and equipment, electrical components or aerospace and defence equipment. The time frame for the panel data is from 2016 to 2021. Panel data has been used in this study because it has multiple benefits in comparison to time series and cross-sectional data (Baltagi 2021). Panel data consist of both time series and cross-sectional dimensions, where during the whole time period all cross-section units are observed. Panel data also includes more data than cross-sectional and time series samples, which allows more accurate estimation model and degrees of freedom. In panel data variables are also changing over time and across entities which considers individual heterogeneity. Using panel data also collinearity between variables diminishes. This is due to cross-sections which add variability. (Baltagi 2021) European companies were selected because there aren't studies about the effect of listing in the STOXX Global ESG Leaders Index on the CSP-CFP relationship in European context. These studies have mainly been examining the relationship in U.S. companies. Also there is no industry specified studies regarding industrial goods' industry among European companies. Also examining companies in certain geographical area it can be assumed that the data is comparable and more consistent. Also in Europe sustainability reporting standards determined by European Union can be considered to be stricter than for instance in U.S.

3.1.1 Data collection and variables

The sample consist of total 68 European companies from industrial goods sector in years 2016-2021. This certain sample was chosen due to interest in industrial goods sectors and their CSP-CFP relationship and the effect of listing in STOXX Global ESG Leaders Index on the financial performance of the companies. The sample has been chosen based on the availability of the STOXX Global ESG Leaders Index's constituent information. Information of the index constituents has been gathered from the STOXX Global ESG Leaders Index provider Qontigo's website (Qontigo 2023) and other data related to CSP and CFP has been gathered from the Refinitiv workspace. The data collected is year-end for both the CSP and the financial data. Companies not in the index have been chosen to be close to index listed companies based on the yearly revenues to be able to ensure consistent sample and comparable results. In this study, in total 31 companies have been listed into STOXX Global ESG Leaders Index in one or more years whereas 37 companies have not been listed into this index none of the years. All companies in the sample have a revenue of over one billion euros in 2021. The size of the companies varies greatly as the biggest company has a revenue of 28.9 billion euro whereas the smallest has 1.08 billion euro in year 2021.

In this study the CSP has been examined through ESG metrics. These metrics have been collected and constituted by Refinitiv. CSP has been investigated with ESG Combined Score. Refinitiv collects environmental, social and governance pillars related information from the public domain, where companies have reported information themselves. Refinitiv exploits over 630 data points, analytics, and ratios to form their ESG metrics. From these metrics 186 comparable measures are used to form ESG Scores to all categories. In ESG Score companies are rated on a scale of 0 to 100. All three categories from which ESG Score consists of are the weighted average relative ratings based on the reported environmental, social and governance information. The first category, Environment, consists of three subcategories, resource use, emissions, and innovations. Social category in turn consists of workforce, human rights, community, product responsibility and the third category, governance, consists of management, shareholders, and corporate social responsibility (CSR) strategy. (Refinitiv 2023)

Firm size and total debt of total capital have been used as control variables. Stanwick and Stanwick (1998) have suggested that firm size should be used as a control variable due to CSP's dependence on the economical, social, and legal context in which the companies operate (Stanwick & Stanwick 1998). Also, firm size can affect on the companies' capabilities to invest in socially responsible actions in a way that bigger companies can have more possibilities to concentrate on their sustainability performance than smaller companies (Preston's & O'Bannon 1997). In this study firm size has been expressed with revenue of the company, because in this study the concentration is based on the accounting-based indicators and that is why for example market capitalization has not been used as control variable.

In most prior studies accounting-based indicators have been used as proxies for CFP (Oberndorfer et al. 2013). Accounting-based indicators describe historical development and are therefore susceptible to earnings manipulation and managerial accounting. Market-based indicators in turn are more forward looking but their risks are investors' subjective estimates and changes in opinions. (Wang & Chen 2017) That is why for example Wasara and Ganda (2019) have used accounting-based indicators in their study. They have stated that accounting-based indicators are more reliable, and their credibility is higher thanks to audited financial data. Also, these parameters are not impacted by the market reactions. (Wasara & Ganda 2019) Also in this thesis mostly accounting-based indicators are used because they are looking CFP on the companies and management point of view. Corporate financial performance has been examined with ROA, ROE and operating profit margin. Also one market-based indicator, market value, has been used in this study to reflect market performance of the companies.

3.2 Analysis methods

In this section quantitative method of this study, panel data regression, is presented. This method has been used to examine the previously introduced data sample. It was selected because panel data regression allows observation of individual-specific differences between units compared to the simple linear regression model (Baltagi 2021). According to Wagner (2010) regression analyses are the most used methods in studies which are examining the CSP-CFP relationship. Studies executed with regression models form developed multivariate statistical analyses. These statistical analyses are able to estimate how influential individual variables are, when its interaction with other control variables have been taken into account. (Wagner 2010)

3.2.1 Panel regression

As stated before, panel data set consists of both time series and cross-sectional dimensions. These cross-sectional unit are examined during the entire examination period. These observation are recognized as repeated measures in each time point which allows higher estimation accuracy due to larger sample size. In comparison to pooling cross-sections, panel data models are more efficient because there are more observations of different individuals in different time points than only one individual in one period. To be able to find the most suitable estimation method, the heterogeneity and correlations of individuals need to be estimated. If the sample doesn't include heterogeneity, Pooled Ordinary Least Squares (Pooled OLS) model is able to be used with one or several explanatory variables. (Baltagi 2021) Baltagi (2021) has presented the Pooled OLS model in the following way:

$$y_{it} = \alpha + \beta X_{it} + u_{it} \quad (1)$$

where

y_{it} is the dependent variable (i= entity, t=time)

α is the constant term

β is the coefficient of an independent variable

X_{it} is the itth observation on each independent variable

u_{it} is the error term

In panel data applications the error term is usually constituted from two components:

$$u_{it} = \mu_i + \varepsilon_t \quad (2)$$

where

μ_i is the unobservable heterogeneity

ε_t is the remainder disturbance

This unobservable heterogeneity μ_i is constant over time and explains individual specific effects that are not included in the regression model. Remainder disturbance ε_t in turn varies between time and individuals. However, if the regression model includes heterogeneity, more sophisticated estimation methods need to be used. These are fixed effects and random effects methods. The principal difference in these methods is that in fixed effect model only the units included in the study sample are considered, while in random effects model the units are presumed to be randomly selected from a larger population. The fixed effect model is used when there is endogeneity problem present in the model. This means that the error term, which is individual-specific effect and not included into the regression, correlates with the independent variable. (Baltagi 2021; Hill, Griffits & Lim 2012) The equation of the fixed effects model is presented in the following:

$$y_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \quad (3)$$

where

y_{it} is the dependent variable (i= entity, t=time)

α is the constant term

β is the coefficient of an independent variable

X_{it} is the itth observation on each independent variable

ε_{it} is the remainder disturbance

With the fixed effects model, an independent variables can not be constant variables. However, in the random effect model, the dependent variable is affected by the differences between individuals. In this model the variation across entities μ is random and uncorrelated with the independent or predictor variables of the model (Baltagi 2021; Hill et al. 2012). The random effects model can be presented as follows:

$$y_{it} = \alpha + \beta X_{it} + \mu_i + \varepsilon_{it} \quad (4)$$

There are certain benefits when using the random effect model compared to the fixed effects model. In the random effect model, individual variations' the error terms are independent, having an average of zero and constant standard deviation. The random model can be used when variables stay constant over time and the heterogeneity is present with individual units. It also considers both the variation between individual units and the individual variation of the independent variables, while the fixed effects model only takes into account the latter one. To be able to test which one of these tests to use, a Hausman test can be exploited. This test tests the endogeneity of the model having the null hypothesis that coefficients in the random effects and fixed effects models aren't different. If this null hypothesis is not rejected, the random effects model can be used. In the situations where the null hypothesis in turn is rejected, the fixed effects model should be used. (Hill et al. 2012)

3.2.2 Resgression model of this study

To be able to investigate the effect of listing in STOXX Global ESG Leaders Index on the CSP-CFP relationship as well as index listing's effect on the financial performance, the statistical regression model of this study is constructed based on the represented models in the previous subsection. In the model, financial performance measures are used as a dependent variable, whereas ESG Combined Score and index listing as independent variables and company's size and total debt of total capital as control variables. This model is repeated for all the four selected CFP variables with all independent CSP variables and control variables both staying constant.

$$CFP_{it} = \alpha + \beta_1 CSP_{it-1} + \beta_2 INDEX_{it} + \beta_3 SIZE_{it} + \beta_4 DEBT_{it} + u_{it} \quad (5)$$

where

CFP_{it} is the dependent variable ROA, ROE, operating profit margin or market value

α is the intercept

CSP_{it-1} is the independent CSP variable ESG Combined Score, lagged by one year

$INDEX_{it}$ is the independent dummy variable representing sustainability index membership

$SIZE_{it}$ is the control variable revenue

$DEBT_{it}$ is the control variable total debt of total capital

u_{it} is the error term

To be able to investigate the moderation effect of the STOXX Global ESG Leaders Index listing on the CSP-CFP relationship, the interaction term is also presented. Interaction term in the following model (6) represents the interaction between independent variables ESG Combined Score and sustainability index membership (Index). The interaction term is the lagged ESG Combined Score multiplied by the Index variable.

$$CFP_{it} = \alpha + \beta_1 CSP_{it-1} + \beta_2 INDEX_{it} + \beta_3 SIZE_{it} + \beta_4 DEBT_{it} + \beta_5 INT + u_{it} \quad (6)$$

where

INT is the interaction term (CSP_{it-1} * $INDEX_{it}$)

The model used in this thesis is based on the Pooled OLS but also random effect model is tested. However the results of the random effect model need to be considered with caution because there is a risk that the results are not consistent. Fixed effect model cannot be used in this study because Index variable representing the STOXX Global ESG Leaders Index membership is time invariant. This is due to the fact that the inclusion in the sustainability index can have changed during the years and index listed companies have not stayed there the total 2016-2021 period.

4 Results

The target of this thesis was to investigate how does listing in the STOXX Global ESG Leaders Index affect on the CFP and whether it affects on the CSP-CFP relationship when CSP is measured with Combined ESG Score. This chapter presents the results of the empirical analysis of this study. First, in the descriptive analysis sub-section used data is presented deeper and data variations are demonstrated. Based on the results of the Breusch-Pagan test, both Pooled OLS model and random effect model are used in this thesis.

4.1 Descriptive statistics

This subsection provides statistical and graphical insights of the variables and data used in this study. The aim is to provide deeper comprehensions of the used data sample. The data sample is gathered between years 2016 and 2021 from the year-end values. In this section all variables are presented in two observation groups by whether they are listed to STOXX Global ESG Leaders Index or not, and they are included only in one group. For example, if company has included to index only in one year, in this section it is presented in index listed group in order to efficiently describe the differences and similarities between STOXX Global ESG Leaders Index listed and non-listed companies. However, in the regression analysis, if company has included in the index for example in only one year, it has act as non-listed company in other years. In this study 31 companies have been listed into STOXX Global ESG Leaders Index in one or more years. These listed companies have been listed to the index averagely in 3.6 years out of 6 years time frame. 8 of these 31 companies have been involved in the index in all 6 years whereas 5 of the companies have been in the index only in one year. 7 companies out of 31 have dropped out of the index after 2016 but were re-listed in the index before 2021.

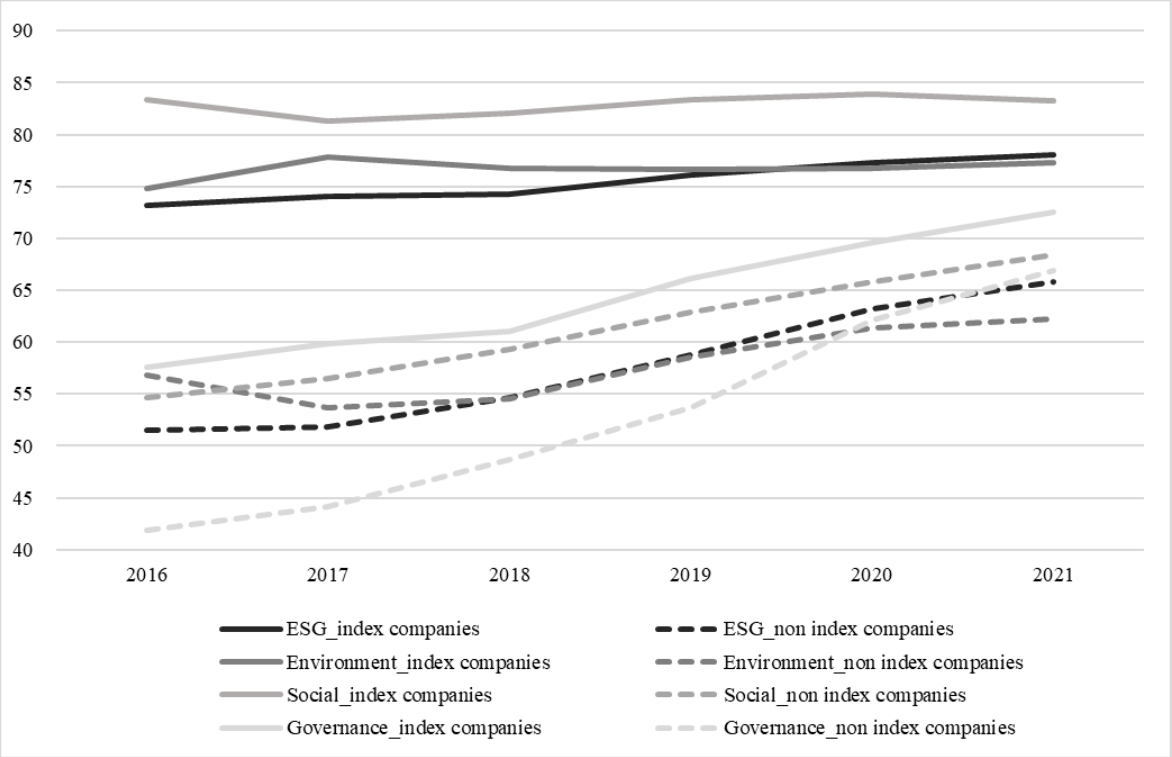

Figure 4. The evolution of the ESG Combined Scores and its categories.

Figure 4 describes the evolution of the CSP dimensions as the average of all the companies studied per year. The individual categories of ESG Score are demonstrating the differences between STOXX Global ESG Leaders Index listed and non-listed companies, because ESG Combined Score is based on the individual dimensions of sustainability even though these are not used in the regression analysis. It can be stated that all the CSP variables have varied during the time frame and change has been more significant among non-listed companies. The starting points in 2016 to CSP dimensions have varied between 58-83 among index listed companies and between 42-57 among non-listed companies. In the end of the time period in 2021, the corresponding scores seem to vary between 72-83 among listed companies and between 62 to 68 among non-listed companies. Thus, the variance of the CSP variables has converged in the time frame between both groups. In both groups the Governance Pillar Score has changed the most. Index listed companies' Governance Pillar Score has developed from 58 to 72 points in the six observations years whereas among non-listed companies the change has been even ten points higher from 42 to 67. In both groups Governance Pillar Score has gotten the lowest values in 2016 and among the listed companies the situation has remained the same. However, among non-listed companies

Governance Pillar Score is scoring the second highest points in 2021 when compared to other categories.

Social Pillar Score in turn has not changed among listed companies whereas among non-listed companies it has increased 14 points, from 55 to 68. In both groups Social Pillar Score is having the highest scores in 2021. The Environmental Pillar Score has changed only slightly among index listed companies, from 75 to 77 and among non-listed companies, from 57 to 62. These results indicate that the increase of ESG categories has been notably bigger among companies not listed to STOXX Global ESG Leaders Index. It may reflect the fact that listed companies do not have such a pressure to prove their sustainability actions to the stakeholders by increasing their scores as non-listed companies may have because they already have been listed to sustainability index which itself reflects the leadership in sustainability. However, it needs to be taken into account that index listed companies already have notably higher scores and it is not possible to increase these as much as non-listed companies can.

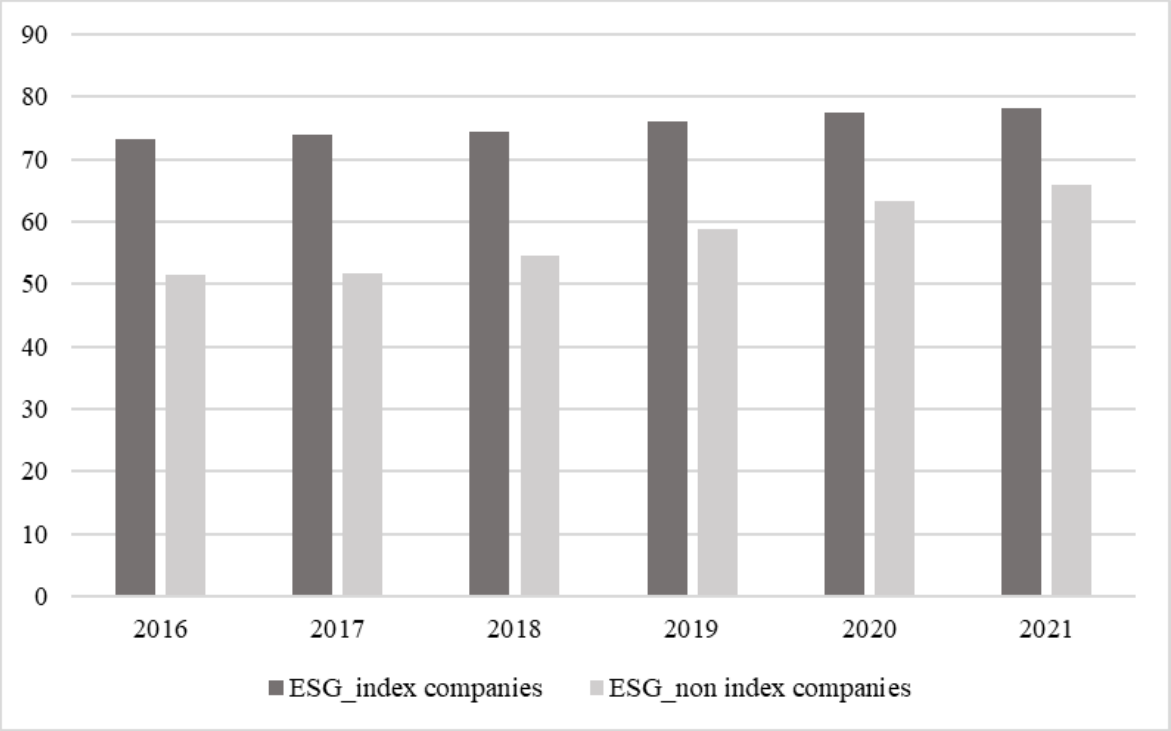

Figure 5. Comparison of ESG Combined Score between index listed and non-listed companies.

Figure 5 represents the ESG Combined Scores of both listed and non-listed companies in the years 2016-2021. From the figure it can be seen that in the beginning the ESG Combined Score has been almost 22 points higher in the STOXX Global ESG Leaders Index listed companies in comparison to non-listed companies, being 73 in the former and 52 in the latter. However, in the 2021 the difference has been only 12 points. This means that the non-listed companies have improved relatively more their sustainability performance in the name of ESG Combined Score than index listed companies. The ESG score of listed companies has increased 5 points and non-listed companies' 14 points.

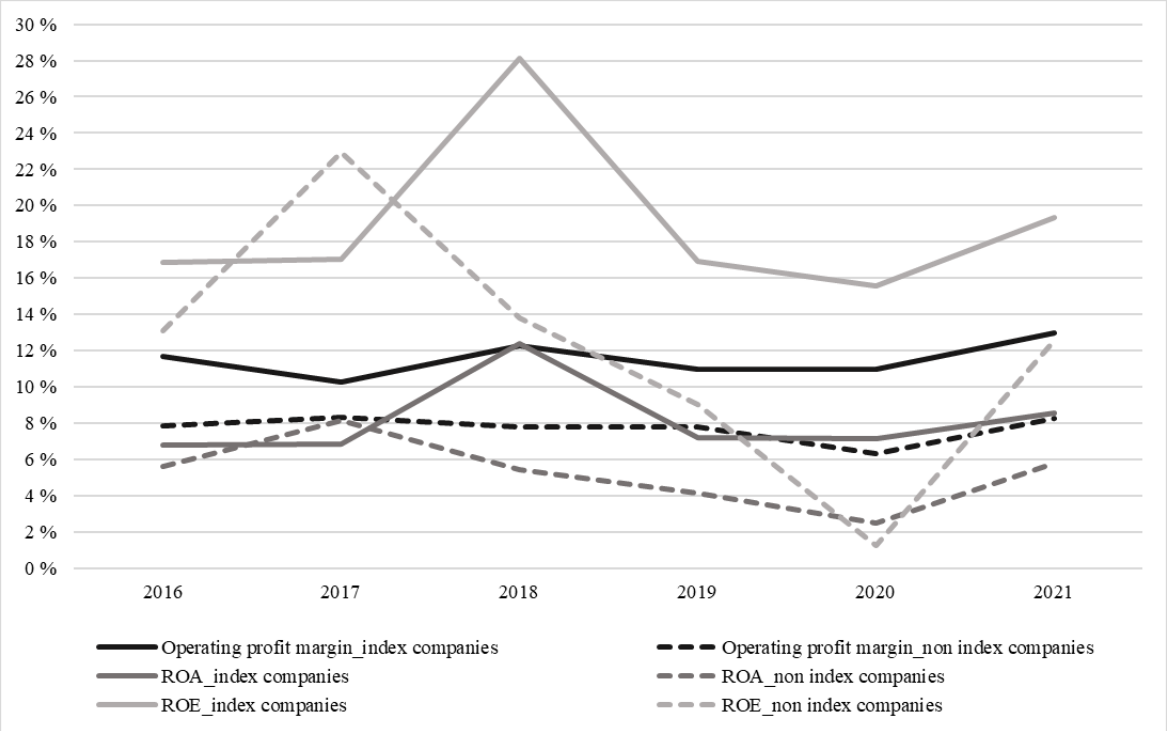

Figure 6. The evolution of accounting-based dependent variables of index listed and non-listed companies.

Figure 6 reflects this study's accounting-based dependent variables and their progression. Presented values are averages of all of the companies. Starting value of ROE was about 17 % and in the end of the period, value was a bit over 19 %, whereas ROA's corresponding values increased from below 7 % to almost 9 %, respectively among index listed companies. Both of the variables have grown about two percentage points between years 2016-2021. Among index non-listed companies in the beginning ROE was also about 13 % and ending value was a bit under 13 % so ROE has slightly decreased during years 2016-2021. ROA in

turn has changed only 0.2 percentage points. Changes in the operating profit margin among index listed companies have been very scarce and the variables has changed only one percent point from 12 % to 13 % whereas among non-listed companies it has remained quite stable by changing from a bit under 8 % to a bit over 8 %.

When comparing both STOXX Global ESG Leaders Index listed and non-listed companies accounting-based variables, it is noticed that the changes have been quite similar. However, 2020 all variables have had at least a small bend downwards. The biggest reason is probably the Covid-19 pandemic which hit the markets in 2020. Operating profit margins of both groups have been quite constant with only little increase in 2021 compared to previous years. Operating profit margin of listed companies did not change between 2019 and 2020 so at least in short period Covid-19 did not affect negatively on this metric. Among non-listed companies the change of operating profit margin between 2019 and 2020 was -1.5 percentage points. However, in both groups the change between 2020 and 2021 has been equal and these have been increased back to the level before pandemic hit. ROE in turn has has the most fluctuation in both groups. Even though there was a slight decrease on ROE among index listed companies in 2020 has it in 2021 increased 3.8 percentage points to even higher level than in 2016 with total growth of 2.5 percentage points. Among non-listed companies in turn has totally decreased 0.5 percentage points from its 2016 level but the increase between 2020 and 2021 has been 11.3 percentage points. When examining ROA, the change between 2020 and 2021 has been higher among non-listed companies. All in all, it can be then concluded that non-listed companies have suffered more from Covid-19 but have healed fast to even better level than before 2020. Index listed companies in turn have not suffered from Covid-19 that much but have also increased their metrics on even higher level than before 2020.

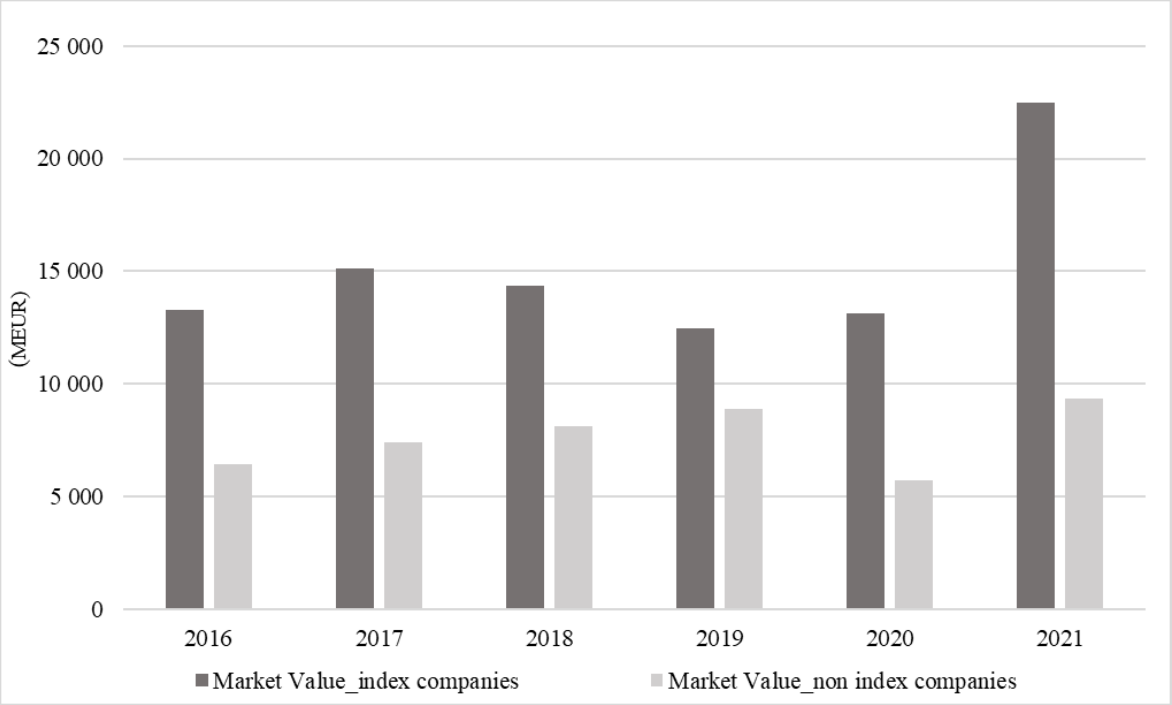

Figure 7. Market values of STOXX Global ESG Leaders Index listed and non-listed companies.

This study's only market-based variable is market value and its progress in years 2016-2021 is illustrated in Figure 7. It has also been measured as an average of all companies. As can be seen, market values have varied notably during the time frame. Market value of index listed companies has been over 13 billion euros in 2016 whereas non-listed companies' market value has been over 6 billion euros, so the listed companies have been over double sized compared to non-listed companies. Index listed companies' market value has decreased from year 2017 to 2019 and increased a bit in 2020. How ever in 2021 it has increased enormously and having the highest score of over 22 billion euros. Market value of non-listed companies in turn has increased from 2016 to 2019 and decreased over 3 billion to 2020. It has also increased in 2021 but only under 4 billion to back its 2019 level. It can also be stated that in 2020 when Covid-19 hit the markets, index listed companies' market values have increased whereas non-listed companies' market values have decreased when comparing on the year end 2019. Overall market value of index listed companies had increased over 9 billion euros whereas non-listed companies' market value has totally increased a bit under 3 billion.

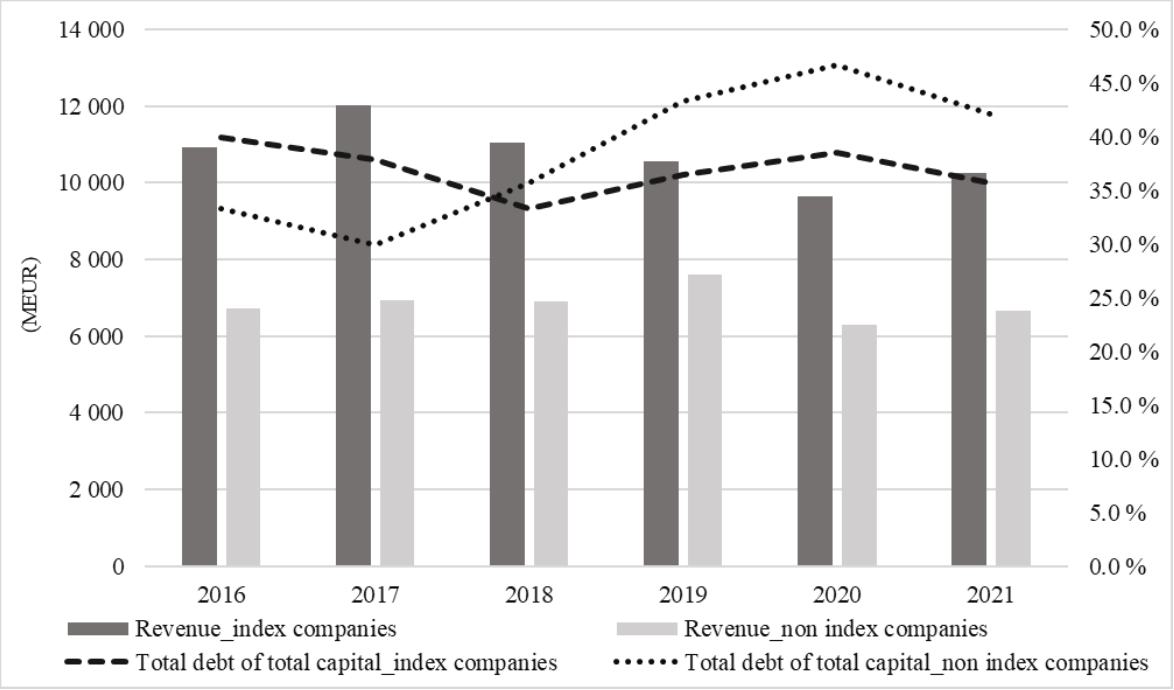

Figure 8. Control variables of index listed and non-listed companies.

Figure 8 illustrates the development of control variables in both STOXX Global ESG Leaders Index listed and non-listed companies. Revenue of the listed companies has decreased from almost 11 billion euros to a bit over 10 billion euros. Also, non-listed companies' average revenue has decreased with 77 million euros. So, the size of companies, when measured with revenue, has decreased between 2016 and 2021. Total debt of total capital in index listed companies has also decreased with 4 percent points from 40 % to 36 %. In non-listed companies this variable in turn has increased with 9 percent points from 33 % to 42 %. In other words, index non-listed companies have got more liabilities compared to their capital in this study's time period.

Table 2 summarizes this study's variables' the descriptive statistics. In lines where Index is in parentheses are representing values of the STOXX Global ESG Leaders Index listed companies. In this study the independent variable ESG Combined Score has been lagged by one year, whereas dependent variables have not been lagged. Using lagged variables can diminish possible endogeneity problem which reverse causality can cause (Bellemare, Masaki & Pepinsky 2017). Lagged CSP variable has been used in this study to be capable of explaining the causality between CSP and CFP. Also, the STOXX Global ESG Leaders Index membership has been used as dummy independent variable in this study.

Table 2. Descriptive statistics.

	N	Mean	Median	Std Dev	Min	Max
ESG Combined score, lagged (index)	*113*	*75.56*	*76.29*	*9.80*	*46.33*	*94.58*
ESG Combined score, lagged	211	57.87	57.11	14.49	15.04	88.52
Operating profit margin (%) (index)	*113*	*11.34*	*11.03*	*5.63*	*-2.12*	*23.72*
Operating profit margin (%)	222	7.72	7.65	4.88	-9.53	17.54
Market value (MEUR) (index)	*113*	*14 953*	*8 564*	*13 502*	*608*	*72 719*
Market value (MEUR)	219	7 664	3 057	12 437	175	88 972
ROA (%) (index)	*113*	*7.67*	*6.60*	*9.53*	*-9.47*	*97.06*
ROA (%)	222	5.25	5.35	6.36	-26.64	53.04
ROE (%) (index)	*113*	*17.31*	*15.67*	*20.55*	*-20.47*	*206.26*
ROE (%)	218	12.17	13.66	23.98	-134.73	105.80
Revenue (MEUR) (index)	*113*	*10 753*	*8 072*	*9 149*	*1 058*	*41 183*
Revenue (MEUR)	222	6 858	3 501	10 590	696	70 478
Total debt of total capital (%) (index)	*113*	*36.86*	*33.23*	*14.24*	*6.43*	*79.81*
Total debt of total capital (%)	222	38.49	36.37	32.73	0.00	298.57

There have been about 113 observations in the index listed companies. The equal amount in both CSP and CFP categories is due to the inclusion in the index. In practice if company has included into the index only in some years, in other years it has been considered to the non-listed company. However, in the Table 2 number of observations are based on the two groups, whether company company has been listed to the STOXX Global ESG Leaders Index at least in one year or if the company has never been listed to the index to be able to better describe the differences between the companies never listed to the index and companies listed at least in one year. This is division has been made because it can be considered that if company drops out from the index for example in one year, its metrics will not change that quickly to the same level as those of non-listed companies. For example ESG Combined Score's mean is notably higher in index listed than non-listed companies. Also, the standard deviation is higher among non-listed companies.

When analysing the study's company sizes presented as revenues among index listed companies, are these between about 1 billion to 41 billion euros during 2016-2021. The

corresponding values of non-listed companies are between 70 billion and 700 million euros. Index listed companies' average size of revenue is about 11 billion euros and their standard deviation is about 8 billion. Non-listed companies in turn have average revenue of 7 billion euros and 11 billion standard deviation. This indicates that the STOXX Global ESG Leaders Index listed companies are on average bigger and more consistent with each other than non-listed companies by having smaller standard deviation. The standard deviation of total debt of total capital is also very high with 14.24 % and it varies from 6.43 % to 79.81 % among index listed companies. Respectively the standard deviation of total debt of total capital standard among non-listed companies is even higher with 32.73 % and it varies from 0.0 % to 298.57 %. However non-listed companies have only 1.64 percent points higher mean in total debt of total capital which means that there is no major difference between these groups in their leverages.

When comparing ROA's and ROE standard deviation, is there notable differences. ROA's standard deviation among index listed companies is 9.53 % and it is much lower than ROE's 20.55 %. ROA's values vary from -9.47 % to 97.06 % whereas minimum and maximum range of ROE is notably wider from -20.47 % to 206.26 %. Among non-listed companies the standard deviation of ROE is 23.98 % which is also notably higher than the corresponding of ROA, 6.36 %. ROE's values vary from -134.73 % to 105.8 % whereas ROA's minimum and maximum range is not as wide varying from -26.64 % to 53.04 %. These results mean that ROA's and ROE's standard deviations are quite similar between STOXX Global ESG Leaders Index listed and non-listed companies. However, index listed companies are in average having 2.41 percentage points higher ROAs and 5.14 percent higher ROEs. These indicates that index listed companies are performing financially better during 2016-2021 than non-listed companies. The only market-based variable, market value, ranges also broadly, having minimum value of 0.6 billion euros and maximum value of almost 73 billion euros. The standard deviation of market value is 13.5 billion euros among index listed companies. Among non-listed companies market value varies between 175 million and almost 89 billion euros and having standard deviation of 12.4 billion euros. Based on the market value, index listed companies are on average double as big as non-listed companies.

Inclusion in the STOXX Global ESG Leaders Index is used as independent variable in this study. It is considered as a dummy variable, getting value 1 when company is including to the index and value 0 when not including. Totally there have been 408 observations from which 296 has gotten value 0 and 112 value 1. Approximately 72.55 percent of the observations haven't then included to the index whereas about 27.45 percent have included. Here in those years when company has included to the index has it gotten value 1 and if it is not included to the index every year, in those years when not included, has it gotten value 0. Also, year is used as a dummy variable in this study, and it has been considered as a control variable. Year has been used to be able to investigate whether certain years are affecting on the results.

4.2 Correlation analysis

This subsection presents correlations of all the variables used in this study. In the regression analysis, correlation between independent and dependent variable is the foundation of the regression models. However, if the correlation among independent variables arises on too high level, may it cause damage to the regression analysis. (Daoud 2017) In the situation where the Pearson's correlation coefficients of the variables arise to be over 0.8, multicollinearity may be present in the model (Shrestha 2020). If this happened, the correlation of the independent variables can affect on some variables and make them to be statistically significant in the situations where their in fact should be insignificant. This in turn can affect on the independent and dependent variables' relationship and misleading interpretations of this relationship. (Daoud 2017)

The Pearson's correlation coefficients of this study are presented in the Table 3. As can be observed from the Table 3, totally 11 coefficients exceeding the limit 0.2. However, four of these are between dependent variables predicting financial performance of the companies. For example, the correlation between ROA and ROE is 0.8643 which is logical, because ROA and ROE are both determining the profit generation of the companies. Between control variables and dependent variables totally three correlations exceed the limit of 0.2. One of these are the correlation between revenue and market value with correlation coefficient of

0.8238. Again, this correlation can be stated to be logical because the investors are strongly observing results of the companies. If company makes good results, its market value is more likely to increase than with negative results. However, the multicollinearity problem may arise between independent variables. As seen from the Table 3, non of the correlations between independent variables exceed the limit 0.8. Also, only one of the correlations exceed limit 0.2. This is ESG Combined Score with index listing, which have correlation of 0.4325. This is also logical because the listing on the STOXX Global ESG Leaders Index is based on the ESG values of the companies. However, when examining the results of the regressions it needs to be considered that the correlation between these two independent variables is higher than with other independent and control variables which may affect the results. Still there is no multicollinearity problem between these independent variables.

Table 3. Correlation Matrix.

	ESG Combined Score	Index	Year	Revenue	Total debt of total capital	Company	ROA	ROE	Operating profit margin	Market value
ESG Combined Score	1.0000									
Index	0.4325***	1.0000								
Year	0.2290***	0.0225	1.0000							
Revenue	0.1227	0.1559***	-0.0041	1.0000						
Total debt of total capital	0.1227	-0.0268	0.1002**	0.2454***	1.0000					
Company	0.0231	0.0284	-0.0060	-0.1188**	-0.0440	1.0000				
ROA	-0.0324	0.1466***	-0.0801	-0.0844*	-0.2955***	0.1626***	1.0000			
ROE	0.0001	0.1006**	-0.1046**	0.0533	-0.2381***	0.1193**	0.8643***	1.0000		
Operating profit margin	0.0980	0.2777***	0.0125	-0.0333	-0.3281***	0.2882***	0.5614***	0.4285***	1.0000	
Market value	0.1739***	0.2490***	0.0802	0.8238***	0.0624	-0.0633	0.1183**	0.1764***	0.2727***	1.0000

*, **, *** statistically significant at 10%, 5%, 1% respectively.

The correlation coefficients are statistically significant with certain variables and with different significance levels. Index has statistically significant correlation with all dependent variables whereas year with ROE only with 5 percent significance level. Majority of the correlation coefficients are positive but 14 of those are negative. For example, market value has a positive correlation with all but one variable, whereas most of the correlations with ROA are negative. However, majority of the correlations are quite close to zero being under 0.3, which indicates that there are no strong linear correlations or at least only weak correlation between the variables (Ratner 2009). This indicates that there should not be probability of multicollinearity issues in this study and therefore, the data appear to be suitable for regression analysis.

4.3 Regression analysis

In this subsection, the results of how ESG Combined Score and listing on the STOXX Global ESG Leaders Index affect on the different CFP variables are presented. Based on the Breusch Pagan test results, both Pooled OLS and Random effect models will be used in this study. If there is contradiction between the results of these models, are the results of operating profit margin and market value based on the Pooled OLS model and the results of ROA and ROE to the random effect model. However, the results of the random effect model need to be observed with caution due to possible inconsistency of the results. The regression models were run for each dependent variable with the independent variables and control variables being constant in all of the regression models. Both regression models were ran four times.

As mentioned previously, the independent CSP variable, ESG Combined Score, is lagged by one year in all of the models. Also, the year variable was added to the models to be able to understand if there are any time-related effects that are not already in the model as well as to control the aggregate fluctuations. To be able to investigate the moderating effect of the STOXX Global ESG Leaders Index membership, the models were run again with interaction term. This interaction term was formed by multiplying the index dummy variable with the CSP variable, lagged ESG Combined Scores. First the results of the Pooled OLS model and random effect model are presented and after that the interaction term results will be observed. In the end of this subchapter also the development of the ESG Combined Score is presented. It was tested with Pooled OLS model whether the index listing affect on the ESG Combined Score development.

Table 4. Pooled OLS results between CSP and CFP.

	ROA	ROE	Operating profit margin	Market value
ESG Combined Score (lagged)	-0.0280	-0.0095	0.0089	18.2924
	(-1.27)	(-0.14)	(0.44)	(0.67)
	(0.0221)	*(0.0680)*	*(0.0204)*	*(27.1062)*
Index	3.1283***	5.0156**	3.1188***	2709.6580**
	(3.12)	(2.09)	(4.18)	(2.38)
	(1.0011)	*(2.4042)*	*(0.7470)*	*(1138.1870)*
Revenue	0.0000	0.0000**	0.0000	0.0011***
	(-1.10)	(2.17)	(0.40)	(15.01)
	(0.0000)	*(0.0000)*	*(0.0000)*	*(0.0001)*
Total debt of total capital	-0.0677***	-0.3529***	-0.0670***	-67.3670***
	(-4.38)	(-2.70)	(-5.87)	(-3.46)
	(0.0155)	*(0.1307)*	*(0.0114)*	*(19.4768)*
N	327	323	327	325
R^2	0.1387	0.1354	0.2062	0.7381
F	8.96	4.11	9.26	31.41
Significance F	0.0000	0.0000	0.0000	0.0000

*, **, *** statistically significant at 10%, 5%, 1% respectively. t Value in brackets. Robust std. Error in italic brackets.

Results of the Pooled OLS models are presented in Table 4. Even though the control variable, total debt of total capital, is statistically significant in every model with 1 % significance level has it very slight negative relationship with CFP variables. Control variable revenue in turn has statistically significant relationship only with ROE and market value but having coefficients at zero. In all models, the value of R-squares shows that the independent and control variables together account for only a very small part of the variance of the dependent variable ROA, ROE and operating profit margin. Only with market value the coefficient of determination is higher, indicating that about 74 % of the variations in market value can be explained with the independent and control variables. Index has statistically significant relationship with all the dependent CFP variables at least with 5 % significance level. The relationship is positive with all the CFP variables which indicate that listing on the STOXX Global ESG Leaders Index positively affect on the financial performance of the companies in our models. These results also support the second hypothesis. However, it should be remembered that the coefficient of determination is quite low for ROA, ROE and operating

profit margin, which suggests that only a small part of the changes in the CFP variables can be explained by the independent variables.

ESG Combined Score (lagged) in turn does not have statistically significant relationship with any of the CFP variables. This is in contradict with the first hypothesis which assumed that there would be statistically significant relationship between ESG Combined Score and CFP. Also the year dummy was included in this regression to indicate whether certain years have effect on the results. Year dummy was statistically significant with market value only in 2021, with ROE in 2019 and 2020 and with ROA in 2020. These results can be stated to be quite logical. After the stock markets' depression in 2020 due to Covid-19, it is logical that in 2021, when the markets increased, the year variable is significant. With ROE and ROA significant year variable in 2020 is also in line with the effects that Covid-19 had on the markets and companies' financial performance. However from this Pooled OLS model the overall results can be stated to be more reliable on operating profit margin and market value.

Table 5. Random effects results between CSP and CFP.

	ROA	**ROE**	**Operating profit margin**	**Market value**
ESG Combined Score (lagged)	-0.0249	-0.0512	-0.0065	-44.7968*
	(-0.73)	(-0.50)	(-0.42)	(-1.68)
Index	2.6034**	4.4975	0.3205	647.4887
	(2.33)	(1.35)	(0.67)	(0.77)
Revenue	-0.0000	0.0000*	0.0000	0.0011***
	(-0.44)	(1.95)	(0.69)	(15.67)
Total debt of total capital	-0.0705***	-0.4598***	-0.0483***	-20.0930
	(-3.97)	(-4.62)	(-5.69)	(-1.38)
N	327	323	327	325
R^2 (overall)	0.1378	0.1313	0.1440	0.7146
Wald chi2	44.84	51.39	68.37	327.01
Significance chi2	0.0000	0.0000	0.0000	0.0000

*, **, *** statistically significant at 10%, 5%, 1% respectively. z Value in brackets.

Table 5 presents the results of the random effect models. Even though the control variable total debt of total capital is statistically significant with ROA, ROE and operating profit margin with 1 % significance level has it very slight negative relationship with CFP

variables. Control variable revenue in turn has statistically significant relationship only with ROE and market value but having coefficients at zero. With random effect model independent variable index has statistically significant relationship only with ROA with 5 % significance level. ESG Combined Score (lagged) in turn does have statistically significant relationship only with market value, but with 10 % significance level. These results indicates that increase in ESG Combined Score would decrease market value. However based on the Breusch-Pagan test results, random effect model could be trusted more with ROA and ROE. Therefore in this model only significant relationship can be stated to be between index and ROA. These results are partly in contradict with the first hypothesis which assumed that there would be statistically significant relationship between ESG Combined Score and CFP. Also in random effect models the year dummy was included to indicate whether certain years have effect on the results. Year dummy was statistically significant with market value only in 2021, with ROE and ROA in 2019 and 2020 and with operating profit margin in 2020 and 2021. These results differ a bit from those of Pooled OLS model but can still be stated to be quite logical with same arguments as mentioned earlier.

The results between Pooled OLS model and random effect model differ remarkably what comes to index variable. Pooled OLS model assumed that index has statistically significant relationship with all of the CFP variables whereas random effect model found significant relationship only between index and ROA. However when examining the results of ROA and ROE from random effect model and the results of operating profit margin and market value from Pooled OLS model, are the results partly in line with the second hypothesis. It need to be considered that the coefficients of determination is very low with operating profit margin which affects on the results. Therefore it can only be stated that there is a slight relationship between index listing and operating profit margin. However, because with market value the coefficients of determination is 74 %, it can be stated that listing on the index has strong positive effect on the market value. All in all it can be stated that listing on the STOXX Global ESG Leaders Index does have an effect on the corporate financial performance and the relationship is positive and therefore supporting the second hypothesis. With ESG Combined Score (lagged) it can be stated that it does not have statistically significant relationship with corporate financial performance, which also indicates that ESG Score does not have any effect on the CFP. Therefore the first hypothesis is not supported by this study.

When examining the relative effect sizes of the ESG Combined Score and the STOXX Global ESG Leaders Index listing, can there be seen differences. Here the relative effect sizes of ROA and ROE are based on the random effect model whereas corresponding values of operating profit margin and market value are based on the Pooled OLS model. From Table 4 and Table 5 it can be seen that index listing has higher relative effect sizes for each CFP variable. When examining operating operating profit margin, the relative effect size is over three point higher in index than ESG Score. With market value the difference is even bigger, ESG Combined Score having almost 2 700 points smaller effect on market value than index. However the ESG Combined Score results are statistically insignificant. With ROA, index has 2.6 point higher effect than ESG whereas with ROE the corresponding value is almost 4.5 points. Also the relationships' direction differ, index having positive relationship with CFP and ESG having negative. However, again the ESG Combined Score result are insignificant and now also the relationship between index listing and ROE is insignificant. Nevertheless the third hypothesis is supported by these results, by having higher relative effect sizes on CFP among index listing than ESG Combined Score.

Table 6. Pooled OLS results between CSP and CFP with interaction term.

	ROA	**ROE**	**Operating profit margin**	**Market value**
ESG Combined Score (lagged)	-0.0319 (-0.91)	-0.0067 (-0.07)	-0.0065 (-0.42)	-7.4589 (-0.22)
Index	2.0735 (0.44)	5.7419 (0.42)	0.3205 (0.67)	-4173.9550 (-0.92)
Revenue	-0.0000 (-0.57)	0.0000** (1.95)	0.0000 (0.69)	0.0011** (15.67)
Total debt of total capital	-0.0675*** (-4.41)	-0.3530*** (-4.61)	-0.0483*** (-5.69)	-20.0930 (-1.38)
Interaction term	0.0156 (0.23)	-0.0107 (-0.05)	-0.0292 (-0.62)	101.7613 (1.55)
N	327	323	327	325
R^2	0.1389	0.1354	0.2062	0.7400
F	5.68	5.44	9.21	99.64
Significance F	0.0000	0.0000	0.0000	0.0000

*, **, *** statistically significant at 10%, 5%, 1% respectively. t Value in brackets.

Table 7. Random effect model results between CSP and CFP with interaction term.

	ROA	ROE	Operating profit margin	Market value
ESG Combined Score (lagged)	-0.0289	-0.0727	-0.0129	-50.3712*
	(-0.74)	(-0.62)	(-0.74)	(-1.65)
Index	1.5328	-0.6378	-1.0917	-665.1426
	(2.33)	(-0.04)	(-0.57)	(-0.19)
Revenue	-0.0000	0.0000*	0.0000	0.0011***
	(-0.44)	(1.94)	(0.69)	-15.72
Total debt of total capital	-0.0704***	-0.4614***	-0.0479***	-19.9468
	(-3.94)	(-4.61)	(-5.64)	(-1.37)
Interaction term (Random Effect)	0.0157	0.0760	0.0208	19.4728
	(0.22)	(0.36)	(0.76)	(0.40)
N	327	323	327	325
R^2 (overall)	0.1379	0.1307	0.1394	0.7153
Wald chi2	44.66	51.44	68.95	328.13
Significance chi2	0.0000	0.0000	0.0000	0.0000

*, **, *** statistically significant at 10%, 5%, 1% respectively. z Value in brackets.

Table 6 presents the results of Pooled OLS model with interaction terms whereas Table 7 presents similar results of the random effect models. The interaction term represents the variable where lagged Combined ESG Score is multiplied by the index variable. With the interaction term the moderating effect of the STOXX Global ESG Leaders Index membership can be examined in both regression models. However, when the interaction term is not statistically significant, there is no moderating effect on the model and the Combined ESG Score is not affecting on CFP differently between index listed and non-listed companies. As can be seen from Table 6, all interaction terms are statistically insignificant which indicates that there is no moderating effect present in this study in either of the models. These results are in contradict with the fourth hypothesis which assumed that listing on the STOXX Global ESG Leaders Index has moderating effect on the CSP-CFP relationship.

Table 8. Pooled OLS results between ESG Combined Score and the index listing.

	Index
ESG Combined Score (lagged)	0.0130***
	(9.46)
	(0.0014)
N	328
R^2	0.1930
F	89.42
Significance F	0.0000

*, **, *** statistically significant at 10%, 5%, 1% respectively. t Value in brackets. Robust std. Error in italic brackets.

Table 8 presents the relationship between ESG Combined Score, which is lagged by one year and listing on the STOXX Global ESG Leaders Index. This result presents changes in the index membership when ESG score increases by one unit. From the results it can be seen that when ESG Combined Score increases one unit, index listing increases 0.01 units and this is statistically significant with 1 % significance level. This indicates that when companies' ESG Scores increases they are closer to being listed on the index. These results are rational because index listing depends on the ESG Scores. Also small coefficient is logical because index listing gets only values 0 or 1. However, model's coefficient of determination is 0.19, which indicates that only about 20 % of the changes in index listing can be explained with ESG Combined Score. Again, these results are in line with the criteria for listing on the index, as listing on the STOXX Global ESG Leaders Index is measured based on the ESG's categories, environment, social and governance scores not on the total ESG Score. Based on these results it can be stated that higher ESG Combined Scores can support the listing on the STOXX Global ESG Leaders Index.

Table 9. Pooled OLS results between index listing and the change of ESG Combined Score.

	Δ ESG Combined Score
Index	-3.0408* (-1.90) *(1.5972)*
N	340
R^2	0.0080
F	3.62
Significance F	0.0578

*, **, *** statistically significant at 10%, 5%, 1% respectively. t Value in brackets. Robust std. Error in italic brackets.

Table 9 in turn presents the relationship between listing on the index and delta of the ESG Combined Score. Delta of the ESG Combined Score represents the change in the score between current year and the following year. Index in turn represents the index listing in current year. The idea was to investigate whether the inclusion in the index would affect on the improvements of the ESG Combined Score. As seen in Figure 5, in 2016-2021 ESG Combined Score improved more among non-listed than index listed companies. These would indicate that inclusion in the sustainability index may negatively affect on how big is the change in ESG Combined Score between current and the following year. As seen from Table 9, when company is listed to the STOXX Global ESG Leaders Index, its ESG Combined Score does not change that much anymore between listing and the following year because the coefficient is negative. This would indicate that improvements in the ESG Combined Score is bigger among non-listed companies. For example this may be due to the fact that index listed companies cannot improve their ESG Scores as much as non-listed companies or after index listing companies are no longer forced to invest as much on the sustainability because the membership of the sustainability index will already indicate from their investments on the sustainability. However, these results are only significant at the 10 percent significance level and the coefficient of determination for this model is very low. This indicates that no conclusion about the effect of index listing on changes in ESG Combined Score can be made based on the results of this model.

Even though listing on the sustainability index may decrease the changes in the ESG Scores, it doesn't affect on the results of this study as was presented in this subchapter. It also need to be considered that even though the ESG Combined Score affects on the listing on the STOXX Global ESG Leaders Index, it does not have any statistically significant relationship with the CFP variables and therefore it does not affect on the financial performance of the companies. Also the index listing affects only straight on the financial performance of the companies. It does not affect on the CSP-CFP relationship, when CSP is measured with ESG Combined Score, because index listing does not have any moderating effect in the models. Therefore it can be stated that listing on the index only affects straightly to the financial performance, but it does not affect on the financial performance indirectly through higher ESG Scores.

5 Conclusions

In this study's last chapter, the results of the regression analyses are analysed by comparing those to the earlier similar researches. Also, the main research question and its sub-questions of this thesis will be answered, and conclusions are drawn. Additionally in the end the limitations and prospective further implications of this study are mentioned.

5.1 Main Findings and Contributions

The main purpose of this master's thesis was to investigate what impacts does listing on the STOXX Global ESG Leaders Index have on corporate financial performance among industrial goods industry companies in Europe. It was also examined whether sustainability index listing has stronger effect on the CFP than ESG Score and also whether the index listing moderate the effect of ESG on CFP. There are numerous amount of studies examining the CSP-CFP relationship in which the sustainability index listings have been used as proxies for CSP. However, the results have been mixed and no consensus has been founded so far. Some of the researchers have found positive relationship (Matuszewska-Pierzynka 2021; Robinson et al. 2011; Wang & Chen 2017) whereas others have founded negative relationship (Taliento et al. 2019; Alsayegh et al. 2020). However, majority of the studies regarding sustainability indices have either not founded any relationship or the results have been mixed and insignificant. Previous studies have also only investigated the relationship between sustainability index membership and CFP, while this study also investigated the moderating effect of sustainability index listing on the CSP-CFP relationship when CSP is measured with the ESG Combined Score. Also, there is only very little industry and geographic specific studies in existing literature. That is why the purpose of this study was to address the research gap regarding industrial goods industry in Europe on the CSP-CFP relationship. Also, there is no prior studies examining the impact of listing exactly on the STOXX Global ESG Leaders Index on the CFP.

This study focused on the STOXX Global ESG Leaders Index and industrial goods industry in Europe within years 2016-2021. The research sample consisted of annual data, and it was examined with Pooled OLS and random effect regression models. However, the sample was quite small having only about 320 observations. Small sample size was probably affecting to the results having either quite small coefficients or being insignificant. However, the results are in line with previous studies, and these are discussed in this chapter. In addition to sustainability index membership, the CSP was examined with ESG Combined Score which was lagged by one year. CFP in turn was measured with ROA, ROE, operating profit margin and market value. Control variables were revenue and total debt of total capital. The information of the inclusion in the STOXX Global ESG Leaders Index was retrieved from index provider Qontigo's website whereas all other data was gathered from the Refinitiv. This study focused only on the CSP-CFP relationship, not how the CFP could affect on the CSP.

In order to answer the objectives of this study, a main research question and two sub-research questions were formed. Also, the hypotheses, which were based on the previous studies and literature, were constituted to support research questions. This study's hypotheses assumed that both ESG Combined Score and listing on the STOXX Global ESG Leaders Index have significant relationship with CFP variables. The third hypothesis also assumed that sustainability index listing has stronger relationship with CFP than ESG Combined Score. Hypothesis concerning the effect of listing on sustainability index on the CSP-CFP relationship, was assumed to be moderating. The conclusions to these hypotheses were presented in the previous chapter. In this section all the research questions will be answered, and results investigated deeper. However, because of the lack of relevant studies investigating the effect of inclusion in the STOXX Global ESG Leaders Index on CSP-CFP relationship, the results of this study cannot be reliably compared with earlier studies.

The first sub-question was as follows;

- *What are the relative effect sizes of ESG scores and sustainability index listing on CFP?*

As presented in Table 4 and Table 5, it can be stated that the relative effect sizes of ESG Combined Score and index listing are dependent on the CFP variables. The biggest relative effect size of CSP on CFP is when CSP is measured with STOXX Global ESG Leaders Index membership and CFP with market value. It indicates that listing on the index increases market value notably more than increase in ESG Combined Score. When observing operating profit, the situation is relatively similar. The relative effect size is higher with index listing than with ESG Combined Score, which again indicates that listing in the STOXX Global ESG Leaders Index increases operating profit margin more than one unit increase in ESG Combined Score. However, it needs to be acknowledged that these relative effect sizes cannot be compared between others dependent variables because these are getting different values. For example, operating profit margin get values from about -10 % to 24 % and market value getting values from 175 million to 89 billion. When in turn investigating ROE and ROA, the situation is similar than with operating profit margin and market value. The index listing is getting higher and positive relative effect sizes whereas ESG Combined Score gets negative. However, the results of the regressions between ESG Combined Score and ROA and ROE, and the relationship between index and ROE are statistically insignificant when examined with random effect model. As an answer for the first sub-question, it can be stated that the listing on the STOXX Global ESG Leaders Index is getting statistically significant and higher relative effect sizes than ESG Combined Score with ROA, operating profit margin and market value. Therefore, index listing is affecting more on the CFP.

The second sub-question of this study was as follows;

- *How does sustainability index listing moderate the effect of ESG on CFP?*

The second sub-question was studied by the fourth hypothesis. Moderating effect was studied with the interaction terms in both Pooled OLS model and random effect model. In all of the models interaction term was statistically insignificant. Based on multiple regression analysis ran, it can be stated that listing on the STOXX Global ESG Leaders Index does not moderate the effect of ESG on CFP among European industrial goods companies. This indicates that the CSP-CFP relationship, when CSP is measured with ESG Combined Score does not differ between sustainability index listed and non-listed companies. These results

are not supporting the fourth hypothesis of the study. These results are in line with previous research executed by Santis et al. (2016) for example. However, they have investigated the CSP-CFP relationship through other sustainability index which need to be considered when comparing the results. It can be stated that despite of the sustainability index, these are mostly including only the most sustainable companies and that is why these are comparable.

Next the main research question of this study will be answered, and it was as follows;

- *What impacts does listing on the STOXX Global ESG Leaders Index have on corporate financial performance?*

Results of this study addresses that listing in the STOXX Global ESG Leaders Index has positive and statistically significant relationship with CFP, when measured with ROA, operating profit margin and market value. Therefore, it can be stated that the inclusion in the sustainability index affect positively on the corporate financial performance. However, the the coefficient of determinations with ROA and operating profit margin were quite low so it cannot be assumed that listing on the index would notably increase these metrics. With market value the coefficient of determination was significantly higher which indicates that index listing together with control variables are explaining the changes in market value. These results regarding market value are in line with Chahuán-Jiménez's results which indicate that sustainability index inclusion does have a stronger relationship with market value of the companies (Chahuán-Jiménez 2020). Robinson et al. (2011) have resulted in the same situation where sustainability index listing has positive relationship with market value (Robinson et al. 2011). The insignificant relationship with ROE is also in line with Chahuán-Jiménez (2020) study, where they have stated that inclusion in sustainability index does not affect on the CSP-CFP relationship when ROE has been used as proxy for CFP. Positive result with ROA and operating profit margin in turn are in line with Pätäri's et al. (2012) study where they have concluded that inclusion in sustainability index has positive relationship with these metrics (Pätäri et al. 2012). Also, Artiach et al. (2010) have concluded positive relationship with ROA and sustainability index listing.

Results of this study are mainly in line with the hypothesis. However, the first hypothesis was not supported, which assumed that ESG Combined Score has effect on the CFP. Based

on the results on the second hypothesis, in can be stated that listing on the STOXX Global ESG Leaders Index has positive relationship with the companies' financial performance in European industrial goods industry companies. Also, the index listing has higher relative effect sizes on the CFP variables which indicate that listing on the index affect financial performance more than ESG scores. The results also indicated that there is no moderation effect present in the models, which means that the relationship between ESG Combined Score and CFP does not differ between index listed and non-listed companies. Therefore it can be stated that listing on the index only affects straightly to the financial performance and to the ESG Scores, but it does not affect on the financial performance indirectly through higher ESG Scores.

These results indicate that by getting listed on the STOXX Global ESG Leaders Index, companies may receive better financial performance. However, it needs to be taken into account that index listed companies have initially better financial performance than non-listed companies which might affect on the results. It can also be stated that index listing may indicate better stock market performance, when company can indicate its sustainability actions with index membership. Because ESG Combined Score was not statistically significant, it may reflect the fact that higher ESG Score does not automatically lead to better financial position. However higher ESG Scores may affect on the sustainability index listing, which in turn may increase financial performance. There can also be a bidirectional relationship between CSP and CFP, but it was not examined in this thesis.

This study has several contributions to the current literature. First, this study supports previous literature by addressing current research gap regarding CSP-CFP relationship among European industrial goods companies. Also, not any studies were found which are using the membership of STOXX Global ESG Leaders Index as proxy for CSP in this context at the time of this research. Even though some of the results of this study are statistically insignificant, provides it information about the impact of listing on the STOXX Global ESG Leaders Index on the companies' financial performance. These results are also mainly corresponding with earlier studies which have used inclusion in sustainability index as one of the proxies for CSP. As previously presented these studies have also resulted to situation where there inclusion in sustainability index may have positive relationship with corporate financial performance. Second, this study has supported previous literature by

providing results of the differences of accounting-based measures on the CSP-CFP. Majority of the previous results have used only share price or market value as proxies for CFP and sustainability index membership as proxy for CSP. This thesis in turn combined the CSP-CFP relationship examination with sustainability index inclusion and ESG score with accounting-based measures. Findings of this study also support the earlier findings that the CSP-CFP relationship is dependent on the used measures. Third, this study's time period and scope are relevant to the current day, and the results enhances the information of the CSP-CFP relationship as well as the sustainability index inclusion nowadays.

5.2 Limitations and Future Research

The biggest and most restrictive limitation of this study is the small data sample size. There were only 113 observations of the STOXX Global ESG Leaders Index listed companies and totally fair 300 observations in the total sample. This small sample size is due to limiting industry to concern only companies producing industrial goods during 2016-2021. Also, the geographical limitation to Europe narrowed this data sample. Study limited only to years 2016-2021 because of the public availability of the constituents of the STOXX Global ESG Leaders Index. Also lagging the ESG Combined Score narrowed the sample more. Both dependent variables ROA, ROE, operating profit margin and market value and independent variables ESG Combined Score and index listing were used in this study. This study also contained two control variables revenue and total debt of total capital. The selection of these variables are in line with previous studies as well as the methodology used in this thesis. However these are simultaneously limitations of the study because the results are often dependent on the chosen variables. For example the results might have been more significant if other variables had been used. Also used models are rather simple and therefore by using more advanced models and methodology, more extensive analysis might have been able to conduct.

Even though the CSP-CFP relationship with sustainability index membership as proxy for CSP has been researched multiple times more through research are needed. There is still quite little evidence on how the inclusion in sustainability index affect on the CSP-CFP

relationship. Many of the earlier studies have used membership of sustainability index as proxies for CSP whereas more studies investigating the effect of listing on the sustainability index on the CSP-CFP relationship when CSP is measured with other proxies are needed. Also, many of the earlier studies using sustainability index membership as proxy for CSP, have concentrated on the market-based metrics whereas more studies based on the accounting-based metrics are needed. In addition, there is no previous studies investigating how listing precisely on the STOXX Global ESG Leaders Index affect on the CSP-CFP relationship. Earlier studies have concentrated for example on the DJSI or FTSE4Good Index. Because of the lack of studies concerning STOXX Global ESG Leaders Index, more studies with same index using larger data sample should be executed. Even larger sample could lead to better and more accurate results. It would also be interesting to utilize the extent of this study to other geographical area or industry. This would implicate whether the results are location or more industry specific. The ESG metrics in this study were retrieved from Refinitiv which might also affect on the results because every data provider might have their own ways to calculate certain metrics. That is why this study could also be executed with different providers' ESG metrics to be able to get more coherent results.

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Appendix

Index listed companies (at least in one year in 2016-2021)	Index non-listed companies (in 2016-2021)
Leonardo SpA	Knorr Bremse AG
Aalberts NV	Tomra Systems ASA
Abb Ltd	Morgan Advanced Materials PLC
Alfa Laval AB	Nkt A/S
Alstom SA	Beijer Ref AB (publ)
Atlas Copco AB	Heidelberger Druckmaschinen AG
CNH Industrial NV	Vesuvius PLC
Eaton Corporation PLC	Trelleborg AB
Epiroc AB	Nibe Industrier AB
Georg Fischer AG	Pentair PLC
IMI PLC	Cargotec Corp
Johnson Controls International PLC	Duerr AG
Kion Group AG	Babcock International Group PLC
Kone Oyj	Rheinmetall AG
Konecranes Abp	Dassault Aviation SA
Legrand SA	Andritz AG
Metso Outotec Corp	Schindler Holding AG
MTU Aero Engines AG	Trane Technologies PLC
Osram Licht AG	Rolls-Royce Holdings PLC
Prysmian SpA	Thales SA
Rexel SA	Safran SA
Saab AB	BAE Systems PLC
Sandvik AB	Krones AG
Schneider Electric SE	Leoni AG
SKF AB	nv Bekaert SA
Spirax-Sarco Engineering PLC	Interpump Group SpA
TE Connectivity Ltd	SFS Group AG
Valmet Oyj	OC Oerlikon Corporation AG Pfaeffikon
Volvo AB	Sulzer AG
Wartsila Oyj Abp	Airbus SE
Weir Group PLC	Bucher Industries AG
	Nordex SE
	Wacker Neuson SE
	Qinetiq Group
	GEA Group AG
	Indutrade AB
	Nexans SA