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The link between ESG and financial performance of the Nordic banks

An Empirical Analysis of the Relationship Between ESG Scores and Financial Performance of the Banks in the Nordic Region

Shadi Mohammadi & Hadis Heydarian

Supervisor: Nataliya Gerasimova

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NORWEGIAN SCHOOL OF ECONOMICS

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We dedicate this thesis to the brave women in Iran who fight for equality with the slogan of

WOMEN

LIFE

FREEDOM

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Hadis Heydarian

Shadi Mohammadi

Abstract

This study examines the relationship between financial performance (FP) and ESG performance of banks in the Nordic region. ESG-FP link is examined using fixed effect and 2SLS regressions on two samples of data obtained from Thomson Reuters' database which spans the years 2011 to 2021. In order to measure financial performance, we employ four different dependent variables of Tobin's Q, ROA, ROE, and SR. We discover a certain number of significant positive links between S Score, E Score, G Score, and ESG combined Score with the four financial performance indicators. Furthermore, by carrying out 2SLS regression and removing endogeneity problems, we conclude causal relationships between ESG Score and FP. Hence, not only our results highlight that ESG Score and its pillars in most cases are positively associated with ROA, ROE, SR, and TQ but also FP can be counted as a positive and significant predictor of ESG.

Keywords: ESG performance, ESG, financial performance, ROA, ROE, Tobin's Q, FP, Nordic Banks.

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List of Abbreviations

Abbreviations	Meaning
CAP	Capital adequacy ratio
CFP	Corporate financial performance
CI	Cost to income
CSP	Corporate social performance
CSR	Corporate social responsibility
DJSI	Dow Jones Sustainability Index
Dow Jones Global Index	Dow Jones Global Index
E Score	Environmental Score
ESG	Environmental, social and governance factors
FP	financial performance
G Score	Governance Score
GDP	Gross domestic product
GP	Gross profit
GP	Governance performance
LOANSDEP	Loans to total deposits ratio
PBT	Profit Before Tax
ROA	Return on assets
ROE	Return on equity
S Score	Social Score
SME	Small to medium enterprises
SP	Social Performance
SR	Stock return
TQ	Tobin's Q

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1. Introduction

Social and environmental issues have become more important in recent years compared to the last century. According to research on climate change, mankind is responsible for this issue (European Commission, 2022). Many claim that the greatest threat of the twenty-first century is climate change. Some activists insist that we need to take better actions right away (Thunberg, 2019). To fix the issue, cooperation is essential, and the sooner we start, the better the results will be (Calzolari, Casari, & Ghidoni, 2018). Although it is difficult to explain the sustainability development of a country (Gray, 2010) explains the sustainability practices of a country by all the related activities of it in regards to environmental, social, and governance policies for the companies. Nowadays, moving toward a greener and more sustainable business model has become a key criterion in the companies' policies (Jørgensen & Pedersen, 2022, 26:40). Moreover, organizations are held accountable to society as well as shareholders resulting in the fact that not only the owners are concerned about the organization's activities, but also the other groups of stakeholders who are capable of influencing the firm being able to reshape the organization's activities because they could be as effective as the owners (McDonalds & Puxty, 1979). A notable point is that sustainable actions of a company are linked to its long-term corporate financial performance, as the stakeholders' reaction such as the financial community is followed by the sustainability performance. Sustainability performance reflects a forward-looking leadership of a company that attracts a wide array of investors and social mutual funds as well as impacts the stock price (Epstein & Roy, 2001). When it comes to environmental resources outside the organization, one can conclude that taking sustainable actions such as generating and utilizing renewable resources, minimizing pollution, and using new manufacturing and distribution techniques provide a plethora of costs (Weber and Feltmate 2016). It is crystal clear that acting sustainable comes at a cost in the present times but it is counted as a precious investment for the future as it impacts not only positively on society, but also the organization itself (Aras & Crowther, 2008). The terms sustainable investing and non-financial reporting have existed for a while and gained popularity in the 1970s with the advent of social contracts and the coining of the term Corporate Social Responsibility (CSR) (ACCP, 2020). After the Brundtland commission identified significant environmental problems in 1987, which became the basis of climate agreements like the Kyoto protocol and the Paris agreement, the focus on sustainability increased even further (Pokharel, Norouzi, Martin, & Breault, 2016). The term ESG was

originally used to construct a framework and recommendations for adopting the ESG in the essay "Who cares wins" in 2004 (Williams, O. F. 2004). ESG is becoming a crucial factor for many capital providers when making investment decisions. ESG investment strategies have already been implemented by several traditional fund managers (Duuren et al., 2016). Exchange-traded funds worth $26 billion can currently be classified as ESG assets. Their growth could be characterized as exponential. The largest investment firm in the world, BlackRock, predicted in 2019 that during the following ten years, ESG assets will exceed $400 billion (Financial Times, 2019).

ESG practices are not only highly significant for the public and the private investors of a company, but also seriously considered by the policymakers of companies (Garcia et al., 2017). The main competitive advantage of companies is the strong relationship with the stakeholders and the shareholders (Arrive et al., 2018). The decision-making process of a firm is affected by the ESG practices in which risk management and the management of resources are included. Long-term company gains, customers' loyalty, the reputation of the corporate governance, the company's access to capital, and the capacity of innovation becomes possible when the ESG practices are efficiently applied within the company (Arrive et al., 2018). It is critical for the firms to gain enough trust from the stakeholders compared to the shareholders. The concept of ESG practices has been discussed numerous times by different scholars but the results are inconsistent and the findings are still in early stages (Semenova & Hassel, 2016). The research community has yet to discuss so many concepts about ESG practices. Nasrallah & Khoury, (2021) examined the relationship between ESG practices and the financial performance (FP) of the companies but they suggest that this relationship is still not fully explained by their research. Therefore, more investigation needs to be done to determine whether there is a relationship between ESG and FP. It goes without saying that studying the relationship between financial performance and ESG practices in banks became significantly more important after the financial crisis in the year 2008 which illustrates a plethora of failures in different corporate social dimensions and governance mechanisms in banks (Esteban-Sanchez et al., 2017). Banks are becoming more and more involved with corporate social responsibility and environmental, social, and governance approaches (Lauesen, 2013; Cuesta-González et al., 2006). Playing a dominant role in both financial stability and economic developments globally, the banks' performances should be monitored carefully. As time goes by, more banks accept the potential to increase their social and environmental responsibilities (Lauesen, 2013). As Greenbaum & Thakor, (2007) discuss "As intermediaries, banks cannot directly influence sustainable development. However, in their financial services, they can

account for environmental, social, and governance characteristics and policies of firms and organizations in their financing policy and decision". That said, the indirect effect of banks through lending and investment can considerably affect the customers' behavior when it comes to environmental, social, and governance practices (Scholtens & van't Klooster, 2019). Not only can the clients' environmental and social risks can harm the bank as the lender, but also the whole group of stakeholders require the bank to act sustainably and improve their environmental, social, and governance performance (Oyegunle & Weber, 2015). When it comes to sustainability, a wide array of research suggests that the more sustainable a bank acts, the better will be its financial performance. For instance, Ciciretti et al., (2014) illustrate that by adhering to their social responsibilities, banks tend to have lower costs of capital for debt and equity. Moreover, decreasing environmental costs can substantially cause an increase in the banks' financial performance in the long term as it increases the company reputation and the potential to hire more professional employees (Jo et al., 2015). Ameer & Othman, (2012) examined the relationship between sustainability practices and corporate financial performance. They mention that the impact of environmental management and protection activities on corporate economic performance has been debated strongly for many years. This results in the rise of opposing ideas. Some believe that there is a trade-off between social responsibility and the firm's financial performance and socially responsible actions raise costs. On the contrary, others hold a view that the costs of acting socially responsible are minimal for the organizations and the benefits of such responsible approaches outweigh the costs (McGuire et al., 1998).

Taking the fact that the majority of the leading countries following ESG practices are European countries (Buallay, 2019; Johansson et al., 2021), and within Europe the Nordic financial institutions have outstanding economic performance, and tight interconnection, and are subject to similar risks as well as shared policies and institutions (Aggarwal, 2013), studying the ESG-FP in the Nordic region seems to be of high significance. In the current study, we analyze the relationship between environmental, social, and governance practices to examine the financial performance of Nordic banks. By the Nordics, we mean Sweden, Norway, Denmark, Iceland, and Finland (*Facts About the Nordic Countries*, n.d.). The next section includes the definition of ESG, ESG Score and its pillars. The third portion presents a proposal for a literature review while the third section is allocated to hypothesis development. The fourth section provides a description of the research methodology and data collection followed by the study's findings presented in the fifth part. The conclusion and limitations of this work are then explained in the sixth and final sections. Accounting performance is

assessed using Tobin's Q in addition to Return on Assets (ROA) and Return on Equity (ROE) as profitability Ratios, and performance on the stock market is measured based on the Stock Return variable (SR). Using the mentioned indicators and assessments, we formulate the following question:

Is there a positive link between ESG and Nordic banks' financial performance?

2. Definition of ESG Factors and Context

As mentioned in the introduction section, the abbreviation ESG refers to “environmental, social and governance”. These are all factors that companies take into account to make their operations profitable and sustainable for not only all the stakeholders (and not just financial shareholders), but also all the society (Dierk-Oliver, 2019). It is worth mentioning that the term CSR (corporate social responsibility) is also used as a synonym for the acronym ESG. The fundamental ESG measurement is to identify additional aspects of a company's performance that are not disclosed from the view of accounting data (Tarmuji et al., 2016). Most studies use ESG data from sustainability rating agencies to quantify sustainability. There are more than 100 ESG rating companies (Sustainable Insight Capital Management, 2016). Large ESG providers include RobecoSAM, Bloomberg, Thomson Reuters, Sustainalytics, MSCI, and Sustainalytics. Furthermore, major rating agencies like Moody's, S&P, and Fitch now offer ESG ratings in various forms (Boffo & Patalano, 2020). ESG measures' main objective is to accurately represent a company's performance on a certain ESG issue (Kotsantonis & Serafeim, 2019).

The three pillars, though, can be defined separately as illustrated in Figure A in the Appendix. Firstly, the environment pillar addresses both the positive and negative externalities of the company's operations on the environment. This criterion may relate to the control of pollution, the use of natural resources, energy use, CO2 emissions, the approach to fighting global warming, etc. (Ramić, 2019). Secondly, the social pillar addresses all concerns pertaining to how businesses interact with society at large. Both internal (workers, clients, etc.) and external actors (government, vendors, society at large, etc.) are affected by this (Batae et al., 2020). Relevant examples include the company's beliefs, employee working conditions, commitment to the neighborhood, encouragement of safety and health inside the organization, etc. The final pillar is governance. Investors have always shown a greater interest in corporate governance issues compared to environmental and social issues. This issue may relate to the board of directors' independence, the dual role of the CEO and board chairman, the board of directors' diversity in general (diversity in terms of gender, age, ethnicity, experience, etc.), the managers' level of transparency, their interactions with shareholders, etc (Eccles et al., 2011). ESG professionals use qualitative ESG investigation to report investment decisions in internal and external research which develop individual proprietary scores for environmental, social, and governance issues. These scores are weighted to produce an overall ESG score for each

firm in the portfolio and the investable universe (Chouaibi et al., 2021). Refinitiv's ESG scores are constructed to measure a firm's relative ESG performance, commitment, and effectiveness in terms of information provided by the company. These are categorized into ten areas that reformulate the three pillar scores and the final ESG score, such as shareholders, human rights, environmental product innovation, and emissions. Note that the ESG score is interpreted as percentages and letter grades from D- to A+ (Refinitiv, 2021). In addition to one common way of exporting ESG-related information which is annual reports, the data may be published on various other sources such as company websites, NGO sources, newspapers, etc. All these sources of data on ESG practices will be reviewed by analysts to rate each company. Currently, there are several ESG data providers in which Bloomberg and Thomson Reuters are the most popular ones (Boffo & Patalano, 2020).

3. Literature Review

Over two thousand studies have been conducted on the relationship between the financial performance of firms and their ESG activities (Friede et al., 2015). From the 1970s scholars embarked on seeking the relationship between corporate social responsibility (CSR) which is a term close to ESG, and corporate financial performance (CFP) when Milton Friedman claimed a negative link between social and financial performance (The New York Times Magazine, 1970). Bragdon & Marlin, (1972) looked at a link between pollution and the financial performance of companies. At the same time, Moskowitz (1972) concluded a positive relationship in this regard. That being said, some scholars held the opposite view that ESG performance had no impact on financial performance (Abbott & Monsen, 1979). As stakeholder theory emerged, Freeman proposed that a company's goal goes beyond maximizing profits but is rather related to the outcome of its existence (Freeman, 1984). A number of scholars have concluded that the relationship between the ESG and the FP of the companies is controversial. It is difficult for the companies to determine the stakeholders' needs which ultimately creates agency problems for the companies (Spangenberg, 2004). ESG data seem to be a significant factor in which the shareholders and the management board are interested given the quick changes in the business environment. With respect to the company's long-term strategic plans, it is also seen as a crucial element for competitive success. (Koellner et al., 2007; Caplan et al., 2013). The management's decision-making process is significantly affected due to the strategy of ESG implementation practices and it also creates agency conflicts within the company (Xie et al., 2019). Environmental, social, and governance factors play vital roles in the corporate world as the financial performance of the companies improves and the management strategies strengthen when all three elements of the ESG practices combined are used (Tarmuji et al., 2016). Looking at the previous literature on this subject the following questions arise. Do environmental, social, and governance aspects affect financial performance of the firms? Do all the pillars influence the financial performance similarly or does the impact differ? Diving deeper into the details regarding ESG, the relationship between environmental, social, and governance pillars with one another and the financial indicators will be further developed in the subsequent lines.

First, Carroll, (1979) examines that the organizations are responsible for the social responsibility of the society in which legal, ethical and economic practices are included. When it comes to social responsibility of the company, it is of high significance that the firms follow

moral values and acknowledge the moral significance in addition to human interactions both internally and externally (Austin, 1994). Most of the recent research has been done on the relationship between the corporate social responsibility (CSR) and the corporate social performance of the companies (Aguilera & Jackson, 2003). Campbell, (2007) examines the relationship between the CSR and the institutional conditions of the company resulting in the fact that the company should act in a socially responsible way because it automatically influences the economic and institutional conditions of a company. Moreover, the research illustrates that the companies should perform social behavior according to the competition level which each company faces. When the competition level in the market is high, the financial performance decreases and the firms save adequate money as reserve which ultimately affects the social practices of the company. Hence, when the competition level is high, it becomes difficult for the companies to fully perform the CSR activities (Ven & Jeurissen, 2005). Looking at the social pillar in the company, the diversity of boards of directors has become an important issue for companies in recent years. Diversity can be represented in terms of gender, age, ethnicity, work experience, etc. The diversity of a company's board of directors allows it to better respond to the needs of different stakeholders, according to Harjoto et al., (2015) not to mention that it also positively affects ESG performance.

When it comes to sustainable development practices in the societies, the European countries are considered the major countries (Buallay, 2019). The relationship between the environmental performance and the economic performance of the companies varies consonance with the economic success of the companies (Schaltegger & Synnestvedt, 2002). According to earlier research, the environmental component significantly and favorably affects CFP (Goss and Roberts, 2011; Al-Najjar and Anfimiadou, 2012; Clark et al., 2015; Endrikat et al., 2014; Fatemi et al., 2018; Li et al., 2018; Albitar et al., 2020; Chouaibi et al., 2022). In contrast, several earlier investigations discovered a negative or indifferent relationship between environmental variables and CFP. (Revelli and Viviani, 2015; Aouadi and Marsat, 2018). The relationship between the environmental performance and the economic performance of the companies are related to the company’s management. The two mentioned practices are negatively related, but the negative relationship’s disadvantages can be mitigated by implementing environmental regulations (Epstein, 1996). Moreover, the sustainable and responsible environment performance of the firms positively affects the sales level, and ultimately enhances its financial activities (Wagner & Schaltegger, 2004). Finally, it is worth mentioning that financial management is involved with the company’s resource

management in a way that it results in future value creation. The two performances significantly affect one another and not only is there no dichotomy between financial and environmental practices but also, they are merging into one dimension (Aras & Crowther, 2008). Nevertheless, Schaltegger & Synnestvedt, (2002) keep the perspective that there is no strong evidence supporting that environmental performance and the economic performance of the companies are strongly related to one another.

To further study the relationship between the social and environmental aspects, corporate strategies, quality management, safety, and health practices, and social issues seem to be among the most significant goals for companies that improve environmental practices (Wagner, 2007). On the other hand, efficiency-related elements such as market, product image and risk drive the economic performance of a firm. The relationship results in the emergence of financial benefits as well. Should a large portion of the firms follow environmental practices more efficiently and effectively, more innovative products will be introduced to the market, a plethora of costs will be saved, and accidents and injuries will considerably be reduced. When companies implement careful environmental practices, the relationship between society and the company will be improved which leads to the reduction of the product cost. A value-adding policy takes both society and the economy into serious consideration and manages the social and economic performances in parallel (Godfrey, 2005).

The relationship between corporate performance and social responsibility with mediating role of environmental practices is discussed by Pivato et al., (2008). Customer satisfaction and brand loyalty impact the companies' financial performance. Thus, the researchers should take the mentioned criteria into account when studying the environment, social, and governance activities. Companies that follow the best environmental practices, and viable policies for their customers and corporate citizens, attract new and loyal customers and will accordingly be able to improve their financial and economic performances (Cacioppe et al., 2008). Additionally, in accordance with Patten, (2008) when companies donate to tsunami relief, their market value increases as such activities illustrate the firm's social performance. Furthermore, suitable corporate governance next to labor performance positively influences corporate financial performance (Esteban-Sanchez et al., 2017).

4. Hypothesis Development

Agency Theory

In consonance with Jensen & Meckling, (1976) agency theory means that when the company acts as a principal and the other person acts as an agent of the company. Principal implies the top management of the company and the agent which means the shareholders of the company. When the companies are unable to fully complete the rights of the agents then agency conflicts arise between the agents and the principal of the company. In agency theory, it is the main duty of the company to fulfill the needs of the shareholders and increase the value of the firm for the benefit of the shareholders (Rahimi et al., 2016). From the shareholders' point of view the companies should invest in those projects which should improve or maximize the value of the firm and minimize the cost of the company, and ultimately the effectiveness of the company should improve. The separation between shareholders and company managers creates agency problems (Shleifer & Vishny, 1997).

Stakeholder Theory

Stakeholder theory explains that the company should give importance to the stakeholders of the company, and not just the shareholders of the company (Rahimi et al., 2016). The social and environmental responsibility and the stakeholder's relationship with the companies are strongly related to each other. Stakeholder theory scholars have argued that stakeholders' satisfaction is a critical aspect in achieving better CFP (Freeman, 1984; Donaldson and Preston, 1995; Freeman, 2002). Moreover, this theory also considers that stakeholders' interests (i.e., decision-making processes) need to be prioritized by the firm's management (Aboud and Diab, 2018; Husted and de Sousa-Filho, 2019) while monitoring the management-stakeholders relationship is a helpful tool in improving CFP (Yoon et al., 2018). Stakeholders have different expectations from the firms and for long-term survival in the market, it is important for the firm to complete the wants and needs of the stakeholders. Consequently, firms are responsible for maintaining a high level of satisfaction among their stakeholders (Barnett & Salomon, 2012). Stakeholders are also affected due to the ESG practices of the companies. The companies are enforced to meet the demands of the stakeholders so that they can survive at the competition level of the market. As claimed by the stakeholder theory, it is provided that firms should pay attention to the interest of the stakeholders on a priority basis (Barnett & Salomon, 2012). Hence, it is expected that firms should integrate ethical ESG

practices within their operations to enhance stakeholders' satisfaction and help ensure that their interests are met, which leads to improved FP (Albitar et al., 2020).

The traditional theory of maximizing shareholder value is summed up by Milton Friedman. In accord with Friedman, corporate executives should solely be concerned with increasing share value in order to serve the needs of shareholders. Other stakeholders' interests and well-being are unimportant *(The New York Times Magazine, 1970)*. Nonetheless, Freeman's stakeholder theory holds an opposite view in comparison to maximizing shareholder value. The consequence of a firm's existence should be taken into consideration and the company must satisfy all its stakeholders (employees, customers, suppliers, etc.) by minimizing the externalities and maximizing social well-being (Freeman, 1984).

Johansson et al., (2021) examines the relationship between the sustainable development in the responsible SMEs in which they investigate what makes the government and private venture capitals different from one another. They suggest that future researchers should focus on the social and environmental issues and their long-term effect on the firm's FP. Thus, we use these gaps to develop a model in which the researchers examine how ESG practices affect the financial performance of the banks in the Nordics. Therefore, the research question of the impact of ESG Score on the financial performance of Nordic banks will be answered.

Sustainability practices that focus on environmental, social, and governance (ESG) use metrics and reports to collect non-financial data to make decisions (Bassen & Kovacs, 2008; Tarmuji et al., 2016; Yoon et al., 2018; Torre et al., 2018). ESG data include information about pollution, loss of biodiversity, emission of greenhouse gasses, management of waste material, renewable energy resources, the efficiency of energy sources, internal control system, board processes, gender diversity, ownership independence, transparency of the information and the risk management (Qudah et al., 2021; Sultana et al., 2018; Xie et al., 2019). FP considers a plethora of criteria to determine a company's long-term financial health, such as its adequacy of capital, efficiency of the company, financial leverage, liquidity of the company, profitability and the solvency of the companies (Fatihudin et al., 2018).

Lopez et al., (2007) use economic, environmental, and social indices to evaluate the relationship between sustainability and corporate success. Lopez et al., (2007) peruse 55 companies from the Dow Jones Sustainability Index (DJSI) and 55 companies from the Dow Jones Global Index from 1998 to 2004 (DJGI). They made a model based on the relationship between CSR and Profit Before Tax (PBT), taking firm size, leverage, and other factors into account, discovering that they are negatively related. Adam & Zutshi, (2004) argue that companies that implement sustainable strategies will have a leg up on the competition. A

company's capacity to introduce new products and maximize the effectiveness of its sales personnel directly correlates to an increase in both cash flow and profitability (Dowling, 2001). Cost savings, competitive advantage, reputation and legitimacy building, and the pursuit of win-win results are the four categories of benefits that Kurucz et al., (2008) list as possible outcomes for organizations that engage in CSR activities. A sustainable business's return on assets will improve if it is able to negotiate favorable terms with its suppliers, employees, and creditors while spending less on contracting and oversight overall (Roberts & Dowling, 2002). The best CSP enterprises actively manage their CSP profile and have a reduced equity cost of capital, proving the importance of CSP from a financial market standpoint (Lee et al., 2009). There are numerous studies that illustrate the positive relationship between the ESG practices and the FP. Even though there are many positive examples of the relationship between ESG and FP, it is stated said that the result of the relationship is not clear that whether there is positive, negative or insignificant relationship (Revelli & Viviani, 2015; Rowley & Berman, 2000; Beurden & Gossling, 2008; Alareeni & Hamdan, 2020; Orlitzky et al., 2003).

Albuquerque et al., (2012) state that ESG has been suggested as a way for companies to make more money. It also shows that the business appreciates the customer's trust and takes its responsibility towards them seriously (Alsayegh et al., 2020; Buallay, 2019; Steyn, 2014). Lourenco et al., (2012) analyzed the relationship between the sustainability practices and the productivity and the efficiency of the business with the less systematic risk of the business and it ultimately decreased the competition level. Note that at the corporate level, sustainability is assessed and determined using environmental, social and governance criteria (Semenova & Hassel, 2015).

Hoepner et al., (2019) found that high ESG ratings indicate low business risk, and that ESG practices were found to reduce organizations' downside risk (Buallay, 2019). Lower operating costs, financial costs, and debt service costs have all been linked to ESG practices (Eliwa et al., 2019). Increasingly, the financial community is looking into ESG metrics as the means of gauging a company's potential for long-term success and efficiency (Broadstock et al., 2020). On the contrary, some other studies hold the opposite view which suggests that ESG does not help to manage risks significantly (Grisales & Caracuel, 2019; Lee et al., 2009).

Researchers have also reached different results assessing how different ESG dimensions affect FP. It is of high importance to think about environmental stakeholders because a wide array of research has found a link between acting responsibly towards the environment and making money (Salama, 2005; Friede et al., 2015). Horvathova, (2010) shows that when the earning performance increases, it would increase the cost of production and hence decrease the

company's profit margin. The results from various circumstances vary as well. Effects vary among nations and regulatory frameworks (Di Vita, 2009). Additionally, academics stress the importance of investigating various organizational environments further (Theyel, 2000).

Keeping the analysis developed above in mind, a question regarding the ESG-FP link in different sectors of an economy arises. How does the banking sector take this issue into consideration? Since the 2008 financial crisis, the banking sector has implemented guidelines to make sure that its activities support not only economic objectives but also other environmental and social concerns. When conventional banking moves its money toward green ventures, it can develop into more ethical banking methods. Therefore, establishing reliable reporting standards is crucial for both revealing significant climate-related financial disclosures and effectively communicating ESG performance to a variety of stakeholders. The extent of accountability is more difficult to quantify in the financial sector than it is in other sectors. The direct and indirect impacts of the financial sector on climate change are a good illustration of this concern. The banks' failure to assume liability for their clients' emissions and their inability to determine the portfolios' exposure to climate risk are the causes. The division of duty is another cause of this lack of information (Jeucken, 2001). Simpson & Kohers, (2002) pursued the relationship between FP and CSR in the banking industry concluding a positive link as a universal phenomenon by investigating 500 data on commercial banks. It is becoming clear that firms that act socially responsible are likely to be financially successful (Servaes & Tamayo, 2013). Social Performance (SP) has the potential to raise money for the company and provide it with the tools it needs to stay ahead of the competition (McWilliams & Siegel, 2000). Moreover, research shows that investing with a social conscience positively influences FP (Shahzad & Sharfman, 2017). Other research, on the other hand, has shown that there are downsides to SP investment, such as the fact that it eliminates money from the other departments that would have been likely to result in more profit if they had access to the budget (Smith & Sims, 1985; Peng & Yang, 2014). There are also some findings regarding the fact that SP and FP are not linked (Fauzi et al., 2007; Weston & Nnadi, 2021). In spite of that, Atmaja, (2009) expresses that the previous studies show weak and contradictory results about the relationship between governance performance (GP) and FP. When the firms have a higher level of ownership concentration, the FP of the companies is likely to be weakened (Shan & McIver, 2011). Financial institutions are considered to be the most influential stakeholder in pushing environmental change, according to sustainability academics and practitioners (Cremona & Passador, 2019). However, other stakeholders like regulators, financial managers, and policymakers have criticized or disregarded this crucial

role. Financial organizations may see opportunities in green investments to raise the standard of their operations. Risks are essentially accounted for as an environmental liability in loan assessments (Weber & Feltmate, 2016). However, a number of other scholars such as Xu & Wang, (1999) and Nasrallah & Khoury, (2021) demonstrate a considerable positive correlation between the firms' FP and the high amount of ownership concentration. Investments that have a favorable effect on the environment, shareholder/stakeholder relationships, and internal governance structures enable banks to perform better economically (Smirnov, 2020).

There is evidence that higher levels of insider ownership improve financial performance by reducing agency costs (Xu & Wang, 1999; Shan, 2019). Some Gross Profit (GP) worries have been evaluated inconsistently. To begin with, while some research suggests that larger boards reduce FP (Cheng, 2008; Bebeji et al., 2015), other research suggests that they improve FP by making it easier for people to get the information they need (Dalton et al., 1999; Badu & Appiah, 2017; Puni & Anlesinya, 2020). All in all, an independent board is more effective, and this can help reduce agency difficulties by limiting management's ability to act in a self-serving manner (Haniffa & Hudaib, 2006; Kyere & Ausloos, 2020) as the board has independent directors and audit committees (Anderson et al., 2004). To sum up, there is a wealth of prior research on ESG practice and FP, both generally and in terms of the ESG's different aspects (Rowley & Berman, 2000; Beurden & Gossling, 2008; Hoepner & McMillan, 2009; Revelli & Viviani, 2015; Friede et al., 2015).

When it comes to sustainability efforts evaluation, external audits, third-party awards and certification processes, benchmarking of codes and standards (Singh et al., 2009), indices (Lopez et al., 2007), and non-quantifiable sustainability activities (Sze'kely & Knirsch, 2009) are just a few of the various ways sustainability can be measured. The physical environmental performance indicators can be used to define a company's environmental performance (Wagner & Schaltegger, 2003). It is worth mentioning that when analyzing ESG-related concerns at the corporate level, sustainability is represented by environmental, social, and governance characteristics (Semenova & Hassel, 2015; Dorfleitner et al., 2015; Friede et al., 2015).

Besides environmental ratings, other empirical indicators include hazardous waste recycling rates (Al-Tuwaijri et al., 2004), toxic discharges (Patten, 2002), and work-related injury rates (Epstein & Roy, 2001) (Dow Jones Sustainability Index). By combining ratings for processes and outcomes with those for internal and external elements Henri & Journeault, (2010) are able to provide a comprehensive assessment of environmental performance. They argue that

the meeting point of these two measures provides a structure for organizing the many vantage points on environmental performance.

Epstein & Roy's, (2001) provide a list of sustainability performance measures that include diversity in the workforce, effects on the environment, bribery and corruption, involvement in the community, ethical values of the people, human rights, the safety of the products, and usefulness of the products and services which are provided by companies. Schaltegger & Synnestvedt, (2002) come up with a clever way to measure environmental protection based on the type and number of environmental safeguards put in place. Their ideas are similar to Warhurst's, (2002) proposal for measuring sustainability, which calls for measuring sustainable development in two stages. Firstly, a review of the progress made in a number of selected individual fields. Secondly, an evaluation of the overall progress made toward sustainability as determined by a combination of these fields. Moreover, Bansal, (2005) suggested a model for corporate sustainable development based on the three principles of economic integrity, social fairness, and environmental integrity. Perusing the previous literature, taking the significance of the financial sector in each society and the lack of previous literature on the ESG-FP link in the Nordic region into account, we aim to answer the question of whether ESG activities have an influence on the Nordic banks' FP.

H1: There is a positive link between the ESG score and the Financial Performance of Nordic banks

5. Data Description and Methodology

This chapter presents the data used in the analysis to answer the hypothesis. The first subsection explains the example, data, and variables used in the model. The latter section provides an overview of the econometric model that is used to test our hypothesis. The hypothesis is that there is a positive relationship between ESG Scores and the financial performance of banks in the Nordic region.

The research process is described as either inductive or deductive. Either the researcher collects theory, makes himself well acquainted with the theory, and then collects empiricism or the researcher tries to understand a problem, collects empiricism, and then tries to search for a theory that responds to the problem afterwards (Patel & Davidson, 2019). The choice of the deductive method came naturally to the subject because we use existing theories to test our hypothesis. To check for the endogeneity problem, we are using omitted variable bias, and reverse causality, Durbin Watson test, VIF, and Hausman test were done as well as implementing 2SLS regression.

5.1 Sample and data

In this study, we investigate the headquarters of the listed banks in the Nordic region which covers Denmark, Norway, Sweden, Finland, and Iceland due to the state of the Nordic region definition (Hilson, 2019). The main data source collected from Refinitiv (also called Refinitiv Eikon hosted by Thomson Reuters) is based on a total of 641 banks in Nordic countries. Among the 641 Nordic banks, 75 are listed banks 24 of which have reported ESG and financial data from year 2011 to 2021 (See Table1). It should be noted that the accounting variables used to measure financial performance are taken from Refinitiv and Capital IQ. Moreover, ESG variables are derived from Refinitiv which measures a firm's total environmental, social, and governance performance. It is worth mentioning that Refinitiv ESG scores are taken from DataStream. Finally, the control variables are collected from the World Bank statistics. Note that we collect data in the banks' respective currencies of Norwegian Krone (NOK), Danish Krone (DKK), Euro (EUR), and Swedish Krona (SEK). Finally, we obtained the exchange rates for the respective currencies from Yahoo Finance and converted them all to Euro.

Our study is based on two samples. The main sample includes all 24 banks with published ESG reports from 2011 to 2021. The subsample, on the other hand, includes 14 banks in

Sweden, Norway, Denmark, and Finland with data available in four consecutive years from 2018 to 202. The goal of using two samples is to enhance the robustness. Note that we used a logarithmic form for the control variables and the explanatory ones. The reason is that by using the logarithmic form not only we took care of the outliers, but also the scatter plot became closer to linear (see Figure B in the Appendix).

Table1: Nordic listed banks

Country	Number of Banks	Number of Listed Banks	Banks with ESG	Consecutive year 2018-2021
Denmark	97	21	8	4
Finland	223	6	3	2
Iceland	9	4	2	0
Norway	154	38	7	4
Sweden	158	6	4	4
Total	641	75	24	14

5.2 Variables

5.2.1 Dependant Variables - Financial Performance

Financial performance is usually measured by return on the asset, return on equity or both (Waddock & Graves, 1997; McGuire et al., 1988; Johnson & Greening, 1999). That said return on asset (ROA), return on equity (ROE), stock return market (SR), and Tobin's Q (TQ) are the dependent variables in this study as the main dimensions of financial performance in the banking industry.

The accounting metric of ROA is determined by comparing operational income and total assets (Okafor et al., 2021). In other words, it specifies how much profit the business should make from the assets in which it has invested. According to Kabajeh et al., (2012), ROA is a common and valuable financial ratio that is used by researchers to anticipate financial factors as well as by scientists to determine a company's profitability.

One of the most commonly used ratios for reviewing financial statements and assessing a company's performance is the ROE variable (Marchini & D'este, 2015). ROE is calculated by dividing the profit after tax by the book value of equity (De Wet & Du Toit, 2007).

Stock Return (SR) is a market performance that calculates the annual change in stock prices (El Khoury et al., 2021). According to Karolyi, (2001), the Stock Return defines the volatility of stock price over a period of time.

Tobin's Q (TQ) is used to determine the value of firms. Tobin's Q value is forward-looking and takes both accounting and market-based measures into account (Okafor et al., 2021). Tobin's Q is calculated as follows:

$$\frac{\text{market value of equity} + \text{book value of liabilities}}{\text{total book value of asset}}$$

5.2.2 Independent Variables

Our independent variable is ESG score and its pillars which are issued by Thomson Reuters. Refinitiv ESG scores are an easy-to-understand, data-driven assessment of firms' relative ESG performance and capacity, taking industry materiality and company size into account. They also provide an explanation of the ESG information framework. Refinitiv's ESG scoring strategy uses a number of fundamental calculation principles. ESG scores are ranged between 0 and 100, and its category scores are involved in three pillar scores of environmental, social, and corporate governance. The pillar scores for environmental, and social are calculated as the sum of category weights which can be different in each industry. That said, the governance pillar is different and the weights remain the same in all industries (Refinitiv, 2021). ESG combined score is a thorough scoring of the bank's environmental, social, and governance performance.

The environmental score is counted based on firstly, resources used, which indicate a company's ability to conserve energy, water, and materials, as well as to find complementary eco-friendly solutions. Secondly, reducing emissions measures the company's commitment to reducing environmental emissions. Thirdly, innovation indicates a company's ability to reduce environmental costs through the use of new technologies (Batae Et al., 2020).

The social score takes four category scores into consideration. Firstly, the Workforce score which measures the effectiveness of a company in providing a healthy and safe workplace in addition to job satisfaction maintenance and providing the employees with equal opportunities. Secondly, human rights fundamentals in the company (Boffo & Patalano, 2020). Thirdly, the Community score that illustrates the company's commitment to business ethics and public health. Finally, the Product responsibility reflects the company's capacity to produce goods and services with high quality (Kotsantonis & Serafeim, 2019).

The governance score holds the view for three dimensions. Firstly, the Management score is based on the corporate governance's best practices applied in the company. Secondly, the Shareholders score includes the equal consideration of shareholders. Thirdly, the CSR strategy score ensures the implementation of CSR initiatives in the daily activities (Boffo & Patalano, 2020).

5.2.3 Control Variables

A set of control variables are included in the model to eliminate the influences of the presumed factors on the dependent variable. This study includes two types of control variables; bank-specific and macroeconomic or country-specific characteristics. Bank-specific control variables include four categories of size, capital adequacy ratio, the cost to income, and loans to total deposits ratio.

Size of the bank is related to its profitability of the bank which is influenced by different aspects including legal and financial factors (Platonova et al., 2018).

Capital adequacy ratio (CAP) is defined as equity divided by total assets. It is one of the main internal factors of bank profitability, in other words, it is an indicator of the banks' ability to succeed and grow under the present capital structure which is determined as the banks' invisible risk of default (Siueia et al., 2019).

Cost to income (CI) measures economic efficiency through the dividend of costs by income (Gangi et al., 2019). El Khoury et al., (2021) mentioned the efficiency ratio as a determining factor of profitability for banks and a higher efficiency implies a low Cost to income ratio.

Loans to total deposits ratio (LOANSDEP) explains the share of loans funded by deposits. This ratio means available funds for banks to follow their social responsibilities well (El Khoury et al., 2021).

Three country-specific control variables are defined as GDP per capita, GDP growth, and inflation. Countries differ regarding technological capacity, intellectual property regimes, economic development, and geography (Bătae et al., 2021). Nizam et al., (2019) stated that GDP growth has a positive impact on the profitability of banks, due to less possibility of a default rate with an increase in lending rates. Inflation is estimated as the annual rate of GDP deflator (El Khoury et al., 2021), and presents the fact that banks under inflationary environments have wider margins and greater returns (Nizam et al., 2019). Finally, it is worth mentioning that since none of the banks in the Nordic region has reported ESG scores, there

was no need to check for the impact of the 2008 financial crisis. Thus, no binary variables are used in that regard.

5.3 Econometric Model

Based on our hypotheses and literature, we describe the model of the link between ESG and banks' performance in Nordic countries as follows:

$$Perf_{itg} = \beta_0 + \beta_1 ESGscore + \beta_2 SIZE + \beta_3 CAP + \beta_4 CI + \beta_5 LOANSDEP + \beta_6 GDP + \beta_7 GDPGrowth + \beta_8 Inflation + \varepsilon$$

(Equation 1)

We investigate the effects of prior-year ESG performance, as evaluated by ESGScore, EScore, GScore, and SScore, on financial performance using the following econometric models in order to address the endogeneity problem (Godos-Díez et al., 2018):

$$Perf_{itg} = \beta_0 + \beta_1 Ecore + \beta_2 SIZE + \beta_3 CAP + \beta_4 CI + \beta_5 LOANSDEP + \beta_6 GDP + \beta_7 GDPGrowth + \beta_8 Inflation + \varepsilon$$

(Equation 2)

$$Perf_{itg} = \beta_0 + \beta_1 Sscore + \beta_2 SIZE + \beta_3 CAP + \beta_4 CI + \beta_5 LOANSDEP + \beta_6 GDP + \beta_7 GDPGrowth + \beta_8 Inflation + \varepsilon$$

(Equation 3)

$$Perf_{itg} = \beta_0 + \beta_1 Gscore + \beta_2 SIZE + \beta_3 CAP + \beta_4 CI + \beta_5 LOANSDEP + \beta_6 GDP + \beta_7 GDPGrowth + \beta_8 Inflation + \varepsilon$$

(Equation 4)

Where:

Perf presents banks' financial performance calculated by four dependent variables of ROA, ROE, SR, and Tobin's Q. ROA is net income divided by total assets of the bank (i), in year (t), and in country (g). ROE is net income divided by the equity of bank (i), in year (t), and in country (g), SR is the annual change of stock price, and Tobin's Q is the sum of the market value of equity and book value of liabilities divided by total assets of bank (i), in year (t), and country (g).

β_0 means the constant variable and β_{1-11} are the coefficients of the independent and control variables.

ESG represents an independent variable, which is taken from Refinitiv and includes the environmental, social, and corporate governance performance of bank (i) in year (t), in country (g).

Bank-specific control variables are defined by Size calculated as the natural log of the total assets for bank (i), in year (t), and in country (g). CAP is the ratio of equity divided by total assets of the bank (i), in year (t), and in country (g), CI is measured as the ratio of cost to income, and finally LOANSDEP is the ratio of loans to the deposit of the bank (i), in year (t), and in country (g).

Macroeconomic control variables are GDP is the gross domestic product for year (t), in country (g), GDP growth rate which is the growth rate of gross domestic product for the year (t), in country (g) and Inflation is the annual rate of GDP index. Ɛ is a random error.
We used Stata for panel data regression with fixed effect model as the most commonly used panel estimator regression models (Brooks, 2008, p.490). Fixed effect model consider that the intercept is not a random value, which means that there are significant differences in the base values of the dependent variable for each firm (Bătae et al., 2021). Panel data is used in many studies on corporate performance in the banking sector. The research on business performance in general and banking in particular typically uses Stata panel data modeling approaches like the fixed effects models. However, numerous studies claim that a bank's success persists through time, meaning that current profitability is impacted by the results of the year before. (Buallay et al., 2020).
Moreover, in order to check for the endogeneity problem, omitted variable bias, and reverse causality, Durbin Watson test, VIF, and Hausman test were done as well as implementing 2SLS regression. The formula used for 2SLS regression is as follows:

$$ESGScore = \beta_0 + \beta_1 ESG\_Mean + \beta_2 SIZE + \beta_3 CAP + \beta_4 CI + \beta_5 LOANSDEP + \beta_6 GDP + \beta_7 GDPGrowth + \beta_8 Inflation + \varepsilon$$

$$Perf_{itg} = \beta_0 + \beta_1 \widehat{ESGscore} + \beta_2 SIZE + \beta_3 CAP + \beta_4 CI + \beta_5 LOANSDEP + \beta_6 GDP + \beta_7 GDPGrowth + \beta_8 Inflation + \varepsilon$$

We employ the 2SLS estimates to look for endogeneity issues. We use the average of the ESG as an instrumental variable, which is highly correlated with the ESG score but has no direct effect on the financial performance of banks. The first equation belongs to the initial regression of ESG on the ESG average and all the control variables. In the second step, we regress the firm performance on the expected value of ESG as we obtain from the first step and all control variables.

6. Results and Discussion

In this section, we discuss the findings from both of the data samples. We cover two groups of data, one with 24 listed banks with reported ESG data from 2011 to 2021, and the other including 14 listed banks in 4 consecutive years from 2018 to 2021 which is named subsample1. Note that subsample2 is explained in the final part of this chapter and belongs to a new regression.

In accordance with our hypothesis, we expected to find positive correlations between the indicators of financial performance including ROA, ROE, SR, and TQ, and ESG Score and its pillars. In other words, the goal is to capture a positive link between financial performance and ESG. Then a section is allocated to descriptive analysis of the independent, dependent, and control variables. After that we illustrate a correlation matrix of all data we used followed by the results from the regression analysis. Finally, some tests for multicollinearity, autocorrelation, and endogeneity are further carried out to seek a causal relationship between the dependent and independent variables.

6.1 Descriptive statistics

Table 2 displays the summary statistics for ESG and FP included in the regression analysis. As the table shows, there are 440 observations included in the main sample, all the ESG variables are rated as numerical scores from 0 to 100. The company with the highest ESG score (in the logarithmic form) has an ESG rating of 4.425 while the bank with the lowest ESG rating has a score of 1.122 resulting in a moderate gap between the best and least ESG-performing bank in the dataset. The mean ESG rating for all banks listed in the sample is 3.872. As seen from the table, the E pillar score has higher maximum score levels than the ESG score because the ESG rating is an aggregate score. In addition, the environmental pillar has the highest average among the three pillars. However, the Governance pillar score (G) has a lower mean than the ESG score. On the other side of the equation, our results show high variability in financial performance, with a minimum of -105.98 and a maximum of 57.48 for ROE and a minimum of -4.67 and a maximum of 5.07 for ROA. The mean Tobin's Q rating for all banks listed in the sample is 0.562 and it is under 1 indicating that the overall bank

stocks are undervalued. Moreover, the mean ROE is higher than the other financial variable which helps the company's ability to turn equity financing into profits.

Stock & Watson (2003) state that skewness indicates a distribution's lack of symmetry, and kurtosis implies how thick or heavy the tails are on either the left or right side of the distribution. They argue that the skewness of the distribution defines the quantity of how much a distribution differs from the normal distribution curve and measures the lack of symmetry in the data distribution (Stock & Watson, 2015, p. 70). The amount of mass in the tails of a distribution is measured by its kurtosis. Heavy tails, which reveal data outside the normal distribution, are indicated by high kurtosis while low kurtosis suggests lighter tails, which are closer to the normal distribution (Brooks, 2008, p. 161). According to Hair et al. (2010), data is regarded as normal if the skewness and kurtosis are within a range of -2 to +2 and -7 to +7, respectively. Positive values for skewness and kurtosis signify a positive skewness and a peaked distribution, respectively. While negative values for kurtosis show a flatter distribution (Ibrahim, 2018). Table 2 shows that the only variables that have a skewness of more than +2 or less than -2 are Inflation with the value of 3.37 and logarithm form of S Score, GDP, ROE, and ESG Score holding the score of -2.79, -2.69, -2.53, and -2.058 respectively on skewness. On the other hand, ROE, Inflation, ROA, S Score, SR, GDP, ESG Score, and E Score are the variables with a larger kurtosis greater than +7 or less than -7 with the values of 40.373, 19.753, 15.95, 13.36 and 10.23,9.19, 8.54 and 7.33 respectively that indicate a leptokurtic distribution meaning a fatter tail (Brooks, 2008, p. 162). TQ's distribution has lighter tails than a normal distribution because of the kurtosis value of 1.104 which is less than 3 concluding that there are no outliers (Jane, 2018). In contrast when it comes to ROE, we can see a distribution with a flatter tail, and a higher peak as indicated by the kurtosis value of 40.373 demonstrating large value movements which was expected due to the extreme negative and extreme positive values of ROE (Stock & Watson,2003). ROE's negative skewness value (-2.53) indicates that it has a longer or fatter tail on the left side of the curve which means a high inequality in the distribution of the Nordic banks' ROE (Jane, 2018). Moreover, at the bottom of the table the summary statistics of the control variables is shown. The standard deviation is high for Inflation among the other control variables proving that the banks are heterogeneous regarding their specific characteristics of variables. The highest standard deviation belongs to the return on equity (ROE) which means that the series of ROE values are spread out over a wider range. Our data variables E score, G score, S score, and ESG score exhibit kurtosis values that indicate a platykurtic distribution which indicates thinner tails (Brooks, 2008, p. 162).

Table 2: Descriptive Statistics of FP, ESG pillars and Control variables

	N	Mean	SD	Min	Max	Skewness	Kurtosis
ROA	440	.452	.718	-4.67	5.07	-.132	15.956
ROE	440	5.798	10.187	-105.98	57.48	-2.538	40.374
SR	440	.047	.217	-.726	1.491	1.579	10.235
TQ	440	.562	.49	0	1.269	-.258	1.104
logESGScore	440	3.872	.531	1.122	4.425	-2.058	8.543
logEScore	440	3.923	.82	.344	4.539	-1.969	7.328
logGScore	440	3.805	.542	1.876	4.51	-.967	3.526
logSScore	440	3.868	.615	.378	4.431	-2.793	13.364
GDPgrowth	440	1.015	1.675	-6.504	6.304	.155	4.629
Inflation	440	1.247	2.679	-3.605	16.928	3.367	19.753
logSIZE	440	2.29	.173	1.997	2.6	.446	1.909
logCAP	440	2.944	.225	2.313	3.459	-.471	2.812
logCI	440	3.867	.335	2.079	4.965	-.648	5.957
logGDP	440	3.268	.034	3.141	3.297	-2.698	9.189

Note: This table displays the descriptive analysis including the number of observations, mean, standard deviation, minimum and maximum value, skewness, and kurtosis for all the variables.

6.2 Correlogram

The overall correlation analysis illustrates that the environmental, social and governance scores in addition to the ESG score combined are highly correlated with one another. Table 3 shows that there is an imperfect multicollinear relationship between all of the independent variables (ESG) and its pillar (E, G, S) with values of 0.615, 0.953, and 0.817 respectively. Since the ESG score is a combination of its pillars and therefore it is produced on the basis of the same raw input data, such a high correlation was expected. We can explain the high correlation between the E, S, and G pillars scores by the fact that companies adopt environmental, social and governance approaches simultaneously (Ramić, 2019). Moreover, as expected ROA and ROE are also highly correlated while they are not significantly correlated with the market-based measures such as SR and TQ. The relationship between ROA and ROE, though, can vary over time and from company to company as the investment policies and strategies change. That said, a relatively strong correlation sounds logical as the two key factors play vital roles in determining the financial performance of a firm. It is worth mentioning that the two phenomena Return on Equity and Return on Assets ratios are said to be the most viable indicators of the success or failure of the firm's governance and management in achieving its financial goals (Bidgolo M, 2006). Among the dependent variables ROA, Tobin's Q, ROE, and SR have the highest to lowest correlation respectively with E score, S score, ESG score combined, and G Score. Thus, there is no evidence for a

neutral relationship between ESG score and profitability measured by ROA, and it holds a strong and positive relationship with ROE and Tobin's Q. Moreover, it is worth mentioning that the logarithm form of ESG Score combined and all the pillars hold a relatively strong and positive relationship with ROE and TQ which rejects the null hypothesis of neutral relationship between environmental, social, and governance scores on the banks' financial performance.

Table 3: Matrix of correlations

Variable	ROA	ROE	SR	TQ	E	S	G	ESG	SIZE	CAP	CI	GDP	LOAN	GDP growh	Inf
ROA	1.000														
ROE	0.662	1.000													
SR	0.278	0.196	1.000												
TQ	0.202	0.345	0.295	1.000											
E	-0.545	-0.158	0.038	0.238	1.000										
S	-0.149	0.233	-0.065	0.429	0.578	1.000									
G	-0.170	0.126	-0.052	0.174	0.300	0.646	1.000								
ESG	-0.205	0.178	-0.046	0.366	0.615	0.953	0.817	1.000							
SIZE	-0.540	0.003	-0.166	0.151	0.543	0.581	0.608	0.639	1.000						
CAP	0.151	0.073	-0.099	0.134	0.054	0.226	0.171	0.231	0.017	1.000					
CI	-0.507	-0.536	-0.116	-0.143	-0.072	-0.198	0.013	-0.143	0.102	-0.162	1.000				
GDP	-0.200	0.191	-0.114	0.013	0.261	0.220	-0.051	0.149	0.265	0.008	-0.165	1.000			
LOAN	-0.286	-0.120	-0.162	0.065	0.458	0.434	0.343	0.481	0.295	0.191	-0.092	0.051	1.000		
GDPg	0.189	0.374	0.227	0.105	-0.014	0.060	-0.066	0.011	0.063	0.111	-0.088	0.253	-0.052	1.000	
Inf	0.151	0.083	0.292	0.033	0.008	0.059	-0.001	0.054	-0.117	0.038	-0.150	0.012	-0.096	0.291	1.000

Notes: This table presents the correlation matrix. It includes the variables Return on Asset, Return on Equity, Stock Return, Tobin's Q, Environmental, Social, and Governance scores, and ESG Score.

6.3 Regression Result

In order to analyze the relationship between the ESG components and financial performance, the fixed power (FE) models are the most effective estimates for testing whether we can accept or reject the H1 hypothesis. In the regression model, the results for the individual E, S, and G pillars, and ESG combined scores are separated into two columns. The goal of this section is to describe and discuss the coefficients $\beta_1, \beta_2, \beta_3, \ldots, \beta_{10}$ in the two following equations. Note that we expect significant and positive coefficient numbers to interpret environmental, social, governance, and ESG combined Scores as strong predictors of the financial performance of the Nordic banks.

$$Perf_{itg} = \beta_0 + \beta_1 ESGscore + \beta_2 SIZE + \beta_3 CAP + \beta_4 CI + \beta_5 LOANSDEP + \beta_6 GDP + \beta_7 GDPGrowth + \beta_8 Inflation + \varepsilon$$

$$Perf_{itg} = \beta_0 + \beta_1 Ecore + \beta_2 Sscore + \beta_3 Gscore + \beta_4 SIZE + \beta_5 CAP + \beta_6 CI + \beta_7 LOANSDEP + \beta_8 GDP + \beta_9 GDPGrowth + \beta_{10} Inflation + \varepsilon$$

Looking at the relationship between the independent variables and ROE, logarithm of both the environmental and social scores are strong predictors at even 1% significance level. With a 1% increase in the E Score, ROE is decreased by 2.24 points. We expected such result on the short-term proxy as enhancing ESG performance can seem contradictory to financial performance in the short run, but in the long run the link becomes positive. Clark & Lalit, (2020) highlight long-term alpha enhancing potential when emphasizing major ESG issue improvement and demonstrate the growing distinction between "Leaders" and "Improvers" in ESG integration. Furthermore, increasing S Score by 1% increases ROE by 2.84 points and it is statistically significant which is consistent with the findings of Esteban-Sanchez, Cuesta-Gonzalez, and Paredes-Gazquez, (2017) and Peni & Vähämaa, (2012) who claim a positive link between ESG Score and ROE. However, the results show that although the social aspect of ESG can increase the expenses for the firm in the short-term horizon according to some costly processes such as quality assurance of the product and employee training (Buchanan et al., 2005), in the long term it seems to be beneficial and positively associated with financial performance. Moreover, while the governance, social pillars, and ESG Score are not significant predictors of ROA, our regression results show that a 1% increase in Environmental Performance decreases ROA by approximately 0.28 points at any significance level and it is statistically significant. The environment pillar, on the other hand, is a significant positive predictor of SR as a 1% increase in E Score increases the stock return by approximately 0.12 points at a 1% significance level. Our finding on the positive link between environmental score and stock return is consistent with a cross-sectional examination of companies with high ESG ratings where mid and long-term returns were up to 3.8% higher per standard deviation of ESG score (Dorfleitner et al., 2017).

Finally, ESG Score, S Score, and G Score are all significant predictors of Tobin's Q at a 5% significance level. If ESG Score increases by only 1%, TQ goes up by approximately 0.08 points. In addition to that, the same increase in social score causes an almost 0.2-point rise in TQ. Finally, G Score is a significant negative indicator of Tobin's Q as 1% growth in the G Score concluding an almost 0.06 points lower TQ. Apart from the negative effect of governance score on TQ, for the rest of the indicators in our analysis, governance score is not a significant predictor which is consistent with the findings of Aebi, Sabato, and Schmid,

(2012) where governance performance is not a significant predictor of the banks' stock returns. On the contrary, Velte, (2017) holds the view that governance is the strongest predictor of financial performance.

To encapsulate, with the significant correlations we can reject the null hypothesis of no links between FP and ESG. The results prove that ESG combined and ESG pillar scores in most cases are significant and positive predictors of the banks' financial performance based on our fixed effect model. The profitability of Nordic banks is significantly correlated with ESG parameters which confirms our hypothesis. Needless to say, previous literature and firms' experiences show that a wide array of costs will turn into benefits in the long term and flip some of the coefficient signs. Decision-makers and corporate stakeholders should view sustainable performances as strategic processes that determine the future of the ecosystems in which they live rather than as a tool for extracting immediate benefits. The creation of "internal information and reporting systems" by businesses is essential. These systems must track and report "important performance indicators," which result from a corporate strategy applied to every function (Schaltegger & Burritt 2000). Note that sustainability is typically measured at the company level by factors related to the environmental, society, and governance (Semenova and Hassel, 2015; Dorfleitner et al., 2015; Friede et al., 2015).

It is of high significance to highlight that the subsample results are qualitatively similar to the main sample with few expected exceptions. The coefficients of the subsample which includes 14 banks in consecutive years approve the mentioned results. As highlighted in the Appendix Table C the same result of the negative significant impact of the logarithm form of E Score on ROA confirms our main sample's conclusion. Furthermore, the significant positive effect of G Score on SR, and the negative link between ESG Score and ROA emerged in the sub-sample which completes the final results. The negative link between ESG Score and ROA is not surprising as already the significant negative impact of E Score on this indicator has been detected in the main sample. We believe that the deviations are due to the time frame limitation as Refinitive only illustrates data in only 4 consecutive years, and the fact that the subsample concentrates on a small size.

According to the Table 4, we can conclude that the variables of Cost to income (CI), GDP, CAP, and LOANSDEP are almost all statistically significant at any significance level. The

majority of them hold a p-value lower than 1%. Therefore, a strong effect on the financial performance by the control variables is suggested.

Table 4: fixed effect regression model

	(1) ROA	(2) ROA	(3) ROE	(4) ROE	(5) SR	(6) SR	(7) TQ	(8) TQ
E	-0.286***		-2.240***		0.128***		0.001	
	(0.049)		(0.421)		(0.048)		(0.017)	
G	0.031		-0.403		0.087		-0.067**	
	(0.080)		(0.688)		(0.079)		(0.028)	
S	0.319***		2.847***		0.006		0.217***	
	(0.098)		(0.845)		(0.097)		(0.034)	
SIZE	-1.031***	-1.162***	-0.516	-1.422	-0.445*	-0.243	-0.089	-0.034
	(0.237)	(0.248)	(2.048)	(2.076)	(0.235)	(0.218)	(0.083)	(0.084)
CAP	-0.155	-0.029	-3.716***	-2.526**	-0.283**	-0.262*	-0.083*	-0.020
	(0.134)	(0.152)	(1.158)	(1.270)	(0.133)	(0.134)	(0.047)	(0.051)
CI	-1.099***	-1.010***	-9.319***	-8.454***	-0.243*	-0.229*	-0.192***	-0.134**
	(0.133)	(0.153)	(1.148)	(1.280)	(0.132)	(0.135)	(0.047)	(0.052)
GDP	26.430***	38.018***	221.913***	324.463***	3.352	3.817	0.899	4.844
	(9.737)	(11.094)	(84.247)	(92.744)	(9.655)	(9.755)	(3.417)	(3.736)
LOANS DEP	-0.123**	-0.232***	-0.402	-1.193**	-0.094*	-0.047	-0.019	-0.014
	(0.052)	(0.058)	(0.453)	(0.484)	(0.052)	(0.051)	(0.018)	(0.019)
GDP g	0.005	0.001	0.240*	0.212	0.019	0.021	-0.003	-0.003
	(0.015)	(0.017)	(0.130)	(0.143)	(0.015)	(0.015)	(0.005)	(0.006)
Inflation	-0.014*	-0.023***	-0.130*	-0.210***	0.011	0.012	0.001	-0.001

	(0.008)	(0.009)	(0.066)	(0.073)	(0.008)	(0.008)	(0.003)	(0.003)
ESG		0.126		0.471		0.058		0.085***
		(0.085)		(0.714)		(0.075)		(0.029)
Constant	-78.629**	-117.069***	-667.980**	-1.0e+03** *	-8.804	-10.348	-1.319	-14.522
	(31.861)	(36.250)	(275.681)	(303.058)	(31.593)	(31.877)	(11.183)	(12.208)
Observations	113	116	113	116	113	116	113	116
R^2	0.720	0.608	0.633	0.507	0.243	0.190	0.389	0.173

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table is an illustration of the model displayed with fixed effect. Two columns exist for each of the four components of the financial performance. One shows the correlations with ESG combined score, while the other column separates the results for the individual E, S, and G pillar scores.

6.4 Data tests

6.4.1 Multicollinearity Test

The study examines the potential multicollinearity issue of the data by analyzing the variance inflation factors (VIF) between the independent and control variables by using 5% significance level. The VIF indicates how multicollinearity inflates the variance of the coefficient (Senaviratna, 2019). According to Daoud (2017) the variance of predictor coefficients is boosted when there is a correlation across predictors because of an increase in the standard error of predictors coefficients. As shown in Table 5, all the variables hold a VIF value lower than 2.5 confirming that they are moderately correlated. Logarithmic for of ESG score has the highest VIF value which is 2.3, and the lowest VIF value is for logCAP (1.070). VIF values lower than the threshold of 5 indicate no multicollinearity issues between the variables (Hair et al., 2006).

Table 5: Multicollinearity (Variance inflation factor) Test

Variable	VIF	1/VIF
logESGScore	2.300	0.434
logSIZE	2.080	0.481
LOANSDEP	1.380	0.723
logGDP	1.180	0.845
logCI	1.180	0.845
GDPgrowth	1.180	0.846
Inflation	1.160	0.864
logCAP	1.070	0.931
Mean VIF	1.440	

6.4.2 Test for Autocorrelation and Endogeneity

Although firm fixed effects can account for time-invariant omitted variables, they are incapable of controlling for omitted variables that vary across time. Our explanatory variable is potentially endogenous as a result of joint determination between independent variable of ESG combined score and dependent variable of financial performance, or omitted variables, or if there is a correlation between explanatory variables and the error term (Greene, 2003). Durbin-Watson (DW) measures the first-order serial correlation in the errors of a time series regression model with a range value between 0 and 4. A value of 2.0 means that there is no autocorrelation in the sample. Positive autocorrelation is shown by values between 0 and 2, whereas negative autocorrelation is indicated by values between 2 and 4 (Wooldridge, 2012, p. 523). As shown in Table 6, for $\alpha = 0.05$ and 440 observations, and 9 independent variables in the regression model, the Durbin-Watson table shows a value of 1.805 for lower critical value and 1.886 for upper critical value. Since the test statistics are 0.68 ,0.87 ,1.50, and 1.72 for ROA, ROE, SR, and TQ respectively, and all less than 1.805 which is the lower critical value, we reject the null hypothesis confirming that autocorrelation exists confirming that endogeneity can represent a problem (Gujarati, 2003)

Table 6: Test for autocorrelation

Variables	Test Result
ROA	0.6742151
ROE	0.8709521
SR	1.506226
TQ	1.72288

6.4.3 2SLS Regression

The independent variable ESG score is likely to be endogenous because of firm-specific omitted factors. Although including additional control variables reduces the omitted variable bias, following previous studies (Platonova et al., 2016), we implement 2SLS regression with the goals of eliminating endogeneity problems and validating the result interpretation. This approach assists us with interpreting the estimated coefficients causally as we need to have an unbiased or at least a consistent estimator of the relationship between financial performance indicators and ESG score.

Table 7 presents the 2SLS regression analysis with an instrumental variable (IV) applicable to fixed effects panel data models. Checking the exogeneity, relevance, and exclusion conditions (Wooldridge, 2012, p. 514), ESG average is chosen as an IV estimator. The reason for choosing ESG average as an instrumental variable is that firstly, it correlates with ESG Score as the correlation is statistically highly significant. Secondly, it does not have a direct effect on the financial performance of the banks. Thus, it meets the relevance condition for instrumental variables. Although the other two conditions of exclusion and exogeneity conditions are not testable, with economics intuition we can conclude that ESG average is not correlated with the error term (Mardini, 2022). Initially we could not count ESG score as a strong predictor of ROE, SR, and TQ in the fixed effect model, however, carrying out 2SLS regression changed the results. As Table 7 illustrates, after excluding the effect of ESG Average in the 2SLS model, the ESG score became a strong and positive predictor of ROA at 10% significance level. Thus, now we can reject the null hypothesis of the neutral and negative relationship between ESG score and FP. We conclude that holding all the other factors constant, with 1% increase in the ESG score of a listed bank in the Nordic region, the return on asset is increased by approximately 0.5 units. It is worth mentioning that the viable 2SLS

regression results allow us to claim a causal relationship in addition to the positive link between ESG Score and FP.
Additionally, in order to interpret the bigger standard errors in 2SLS model's results, it is important to point out that there is always a tradeoff between efficiency and unbiasedness. IV estimator is less efficient than the OLS estimator holding a bigger variance. Consequently, the less biasedness, the less precise the estimate as the price of having a more consistent estimator of FP (Wooldridge, 2012, p. 526).

Finally, when it comes to reverse causality although not a lot of previous studies cover the impact of FP on ESG, we believe that the relationship should not be totally underestimated since reverse causality can be a problem caused by endogeneity as well. Therefore, we regressed ESG Score on ROA, ROE, SR, and TQ and concluded positive and statistically significant coefficients in all the 4 regressions. As illustrated in the tables (E-H) in the appendix, we conclude that ESG Score can significantly and positively affect FP as well. With the increasing significance of ESG integration into the business model especially in the finance sector, and with a focus on the competitive advantage and regulatory compliance costs, it seems logical to claim that the banks with better financial performance are more likely to enhance their environmental, social, and most significantly governance performances. There is evidence that financial restrictions have a direct impact on corporate environmental policy by utilizing various fresh establishment-level data sets (Xu & Kim, 2021). We believe that a bank with a higher stock return, ROA, and ROE is less reluctant to increase the level of integration of sustainability to the organization although they are associated with a plethora of costs. The reason is that both the risk of receiving fines and being monitored by the authorities and the stakeholders become higher by avoiding ESG implementations. Moreover, the banks, as one of the key segments of society, need to carefully follow the government regulations and more significantly avoid acting against ESG-related regulations such as mandatory ESG reporting for all large companies and SMEs according to the Corporate Sustainability Reporting Directive. Note that in a wide array of the mentioned regulations the revenue and financial performance of a corporation determine whether it is obligated to follow the rule or not. To wrap it up, the higher is the Bank's financial performance the more probable is the demand by the EU regulations on sustainability related disclosures to release ESG reports.

Table 7: 2sls regression model

	(1) ESG	(2) ROA	(3) ROE	(4) SR	(5) TQ	(6) ROA	(7) ROE	(8) SR	(9) TQ
AVG_ESG	0.238***								
	(0.074)								
SIZE	2.218***	-3.007***	-12.101	-0.353	0.046	-2.132***	2.821	-0.255	-0.011
	(0.287)	(0.720)	(8.681)	(0.425)	(0.119)	(0.623)	(5.942)	(0.441)	(0.194)
CAP	0.074	0.546**	8.731*	-0.022	0.014	0.151	0.121	-0.164	0.036*
	(0.155)	(0.271)	(5.240)	(0.101)	(0.016)	(0.141)	(1.039)	(0.136)	(0.021)
CI	-0.364**	-0.701***	-4.284**	-0.049	-0.034*	-0.682***	-7.173***	-0.075	-0.032
	(0.159)	(0.194)	(1.913)	(0.085)	(0.017)	(0.146)	(1.170)	(0.105)	(0.022)
GDP	-1.796	-0.013	48.580***	-0.006	0.512**	-4.151***	0.697	-1.900	-0.286
	(1.188)	(1.873)	(17.066)	(0.786)	(0.256)	(1.261)	(12.129)	(2.102)	(0.280)
LOANSDEP	0.253***	-0.515***	-2.794**	-0.116*	-0.025*	-0.340***	-1.079	-0.063	-0.021
	(0.075)	(0.116)	(1.275)	(0.061)	(0.014)	(0.115)	(0.912)	(0.072)	(0.021)
GDP growth	0.002	0.049***	0.525**	0.012	0.001	0.050***	0.537***	0.031**	0.004
	(0.019)	(0.017)	(0.220)	(0.008)	(0.002)	(0.018)	(0.117)	(0.012)	(0.003)
Inflation	0.009	-0.018	-0.195	0.009	-0.001	-0.015	-0.087	0.012**	-0.001
	(0.007)	(0.013)	(0.153)	(0.005)	(0.001)	(0.011)	(0.083)	(0.006)	(0.002)
fitted values		1.092***	8.376*	0.184	0.018				
		(0.353)	(4.369)	(0.195)	(0.050)				
ESG						0.496*	-0.856	0.052	0.068
						(0.277)	(3.006)	(0.225)	(0.112)
Constant	4.574	5.574	-158.229**	0.636	-0.741	20.214** *	33.304	7.549	1.732*
	(4.070)	(6.370)	(67.227)	(2.623)	(0.817)	(4.062)	(39.695)	(6.912)	(0.959)
Observations	116	209	209	209	209	116	116	116	116
R^2	0.595	0.418	0.187	0.073	0.097	0.567	0.404	0.191	0.146

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table illustrates the 2SLS regression with ESG Average Score being the IV estimator for the explanatory variable ESG Score.

6.4.4 Hausman test

Hausman's specification test is an asymptotic Chi^2 test based on the quadratic form which is acquired from the difference between an estimator under the null hypothesis and a constant estimator under the alternative hypothesis (Holly, 1982). The Hausman test is used to analyze cross-section dependency for the ESG score and ESG pillar scores. Given that it is a panel data study, the Hausman test's accuracy is crucial. The Hausman test is often used when choosing between OLS and 2SLS methods for estimating a linear regression (Sheytanova,2015). The technique of comparing OLS and IV estimations of the same factor is demonstrated for testing overidentifying restrictions. The basic idea is that we have more instruments than we require to consistently estimate the parameters. Therefore, it is simple to calculate a test statistic using the 2SLS residuals (Wooldridge, 2016, P. 531). A Hausman test is used to assess whether a fixed-effects or 2SLS model should be utilized. It uses a Chi^2 distribution with the degree of freedom. In other words, the Hausman test determines which of these models is the most effective at interpreting the data. The fixed effect model is an OLS model which is coherent and practical, according to the underlying theory. On the other hand, the 2SLS regression model is more suited and should be employed instead of the OLS model, according to the alternative hypothesis of the Hausman test (Sheytanova, 2015). The OLS estimator is consistent, which is the null hypothesis. If approved, we would presumably choose to use OLS rather than 2SLS (Josheski et al., 2011).

The findings in Table 8 illustrate the result of the Hausman test. The OLS is acceptable at levels of significance of 1% and 5% but not at 10%. If not, 2SLS squares would be preferred. As a result, the Hausman test rejects the null hypothesis at the 5% level of significance. We conclude that OLS had better Hausman test results than 2SLS, thus we may conclude that OLS is a superior estimator than 2SLS (Josheski et al., 2011).

Table 8: Hausman test

Hausman test	Chi-square test value($\chi 2(k)$)	P-value	OLS / 2SLS**
ROA	29.293	0.0001	OLS
ROE	12.52	0.0847	2SLS
SR	21.824	0.0027	OLS
TQ	5.682	0.5773	2SLS

Note(s): ** OLS /2SLS; $\chi_2(k) > \chi_2$(Hausman) 2SLS ; $\chi_2(k) < \chi_2$(Hausman) OLS

7 Conclusion

In this section, the conclusion from the analysis is presented as well as study limitations followed by a certain number of suggestions for further research.

7.1 Conclusion

In this paper, we aim to better understand and measure the relationship between the ESG Score and the financial performance of the banks in the Nordic region. The primary focus is on ESG both as a total concept and in detail taking environmental, social, and governance factors individually. With the goal of enhancing robustness as much as possible, we took two samples into account. The main sample with 24 listed banks from 2011 to 2021 and another one with 14 listed banks in 4 consecutive years located in the Nordic region. Additionally, the results are subjected to robustness tests to ensure their validity. Accounting performance is measured using ROA and ROE as long-term and short-term proxies respectively, while Tobin's Q measured market performance. We have evidence that ESG combined score, and its pillars have a certain number of positive links with our financial performance indicators. Two groups of bank-specific and country-specific control variables are incorporated into the model as well. To formulate our hypothesis, we referred to Barnett & Salomon (2012) regarding stakeholder theory and Jensen & Meckling (1976) regarding agency theory. Our results are inconsistent with the agency theory as we found Social Score as a significant positive predictor of both ROE and TQ. In contrast, the positive impact of E Score on SR is consistent with the stakeholder theory and rejects the null hypothesis of a neutral or negative relationship between FP and ESG. Our hypothesis was also confirmed by Friede et al. (2015), who reviewed more than 2,200 academic studies on the relationship between corporate financial performance and ESG performance and found a non-negative association in 90% of cases. Several academic articles have confirmed our findings (Erhemjamts, 2022; Esteban-Sanchez et al., 2017; Peni & Vähämaa, 2012; Dorfleitner et al., 2017; Cremona & Passador, 2019). According to our analysis, the most affected factor is Tobin’s Q which is significantly increased by the rising score of ESG combined, social, and governance score. On the other hand, we have implications that environmental score has a positive impact on ROE and SR which means that implementing environmentally-friendly policies as well as acting responsibly toward a greener future of banking will benefit the Nordic banks’ financial performance. Note that by carrying out 2SLS regressions with the goals of eliminating endogeneity problems and studying reverse

causality, we found causal relationships between FP and ESG in a way that not only ESG can positively affect FP, but also FP is a significant positive predictor of ESG.

7.2 Further Research

Although our study concentrates on a small size as there are only a few listed banks that have reported their ESG Scores, and the time frame is limited as Refinitive only illustrates the data older than 2010, we found significant results. However, maybe with an extended period, if data was available, the results would have been more interesting. Future research can focus on the key performance indicators in this area to better address the challenges that the banks need to face in order to reshape their business model and move toward a more sustainable one by taking environmental, social, and governance concerns into account. Moreover, we studied all the countries in the Nordics combined, but for further studies, each country can be perused at a disaggregated level, and conclude the difference between the countries in the Nordic region. Furthermore, it will be beneficial if the challenges for country-specific banks are studied. This way, not only the significance of the ESG topics can be determined and ranked in the countries in the Nordics, but also recommendations based on the specific country rules emerge.

8 Reference

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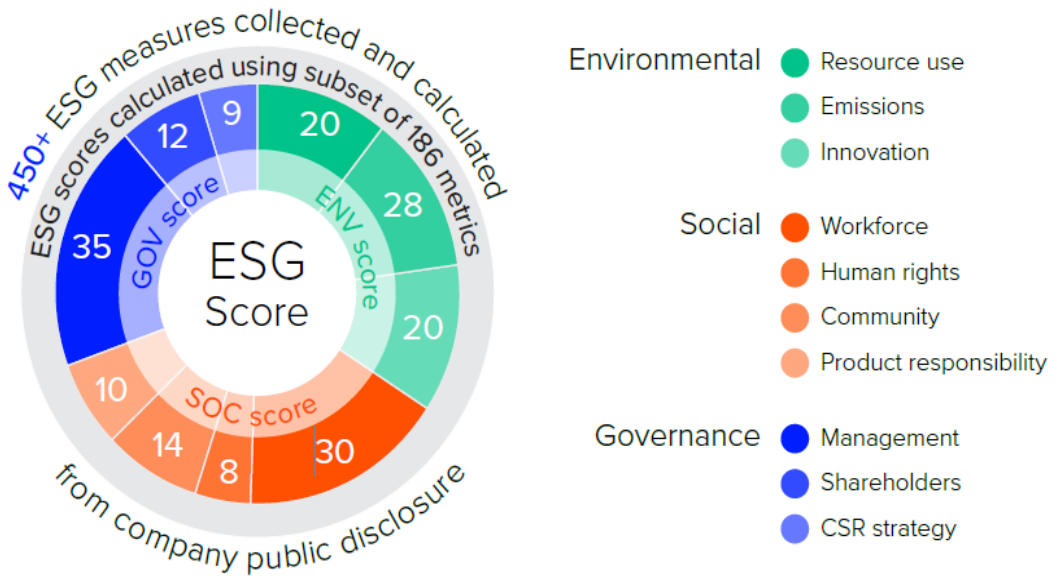
9 Appendix

Figure A: ESG Score



(Source: Refinitiv ,2021)

Figure B: The scatter plot before and after logarithmic form

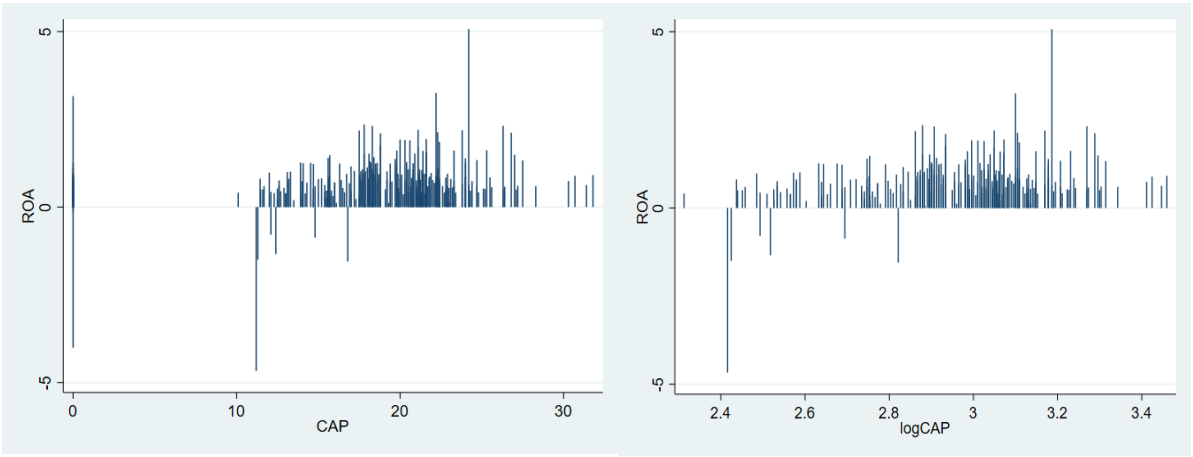


Table A. Descriptive Statistics Subsample 1

Summary statistics

	N	Mean	SD	Min	Max	Skewness	Kurtosis
ROA	64	.64	.386	0	1.57	.108	2.593
ROE	64	10.528	9.023	0	52.18	3.016	14.955
SR	64	.069	.29	-.468	1.491	1.995	10.512
TQ	64	.874	.335	0	1.168	-2.194	5.974
EScore	64	55.223	36.045	0	93.56	-.449	1.467
GScore	64	47.246	25.16	0	90.95	-.387	2.487
SScore	64	52.445	24.546	0	82.06	-.971	3.044
ESGScore	64	51.036	24.198	0	83.48	-.942	2.945
	64	1.21	2.233	-2.944	4.801	-.131	2.307
GDPgrowth							
Inflation	64	2.47	4.306	-3.605	16.928	2.248	8.542
logSIZE	56	2.392	.149	2.122	2.584	-.154	1.587
logCAP	56	3.057	.099	2.747	3.223	-.978	3.865
logCI	52	3.871	.296	3.299	4.338	-.086	1.832
logGDP	56	3.281	.01	3.263	3.297	-.029	2.054

Note: This table displays the descriptive analysis of the subsample including the number of observations, mean, median, standard deviation, minimum and and maximum value, skewness and kurtosis for all the variables.

Table B. Correlation Subsample 1

Variables	ROA	ROE	SR	TQ	E	S	G	ESG	SIZE	CAP	CI	GDP	LOAN	GDPg	Inf
ROA	1.000														
ROE	0.706	1.000													
SR	0.323	0.288	1.000												
TQ	-0.139	0.389	0.198	1.000											
E	-0.342	0.040	0.043	0.308	1.000										
S	-0.190	0.229	0.048	0.504	0.850	1.000									
G	-0.360	-0.009	0.085	0.470	0.399	0.446	1.000								
ESG	-0.339	0.111	0.069	0.495	0.870	0.920	0.729	1.000							
SIZE	-0.476	0.017	-0.092	0.598	0.465	0.585	0.682	0.685	1.000						
CAP	-0.200	-0.023	0.028	0.049	0.208	0.260	0.193	0.274	0.457	1.000					
CI	-0.647	-0.571	-0.159	-0.003	-0.347	-0.436	-0.024	-0.330	0.103	0.025	1.000				
GDP	0.296	0.612	0.211	0.271	0.269	0.390	0.120	0.320	0.252	0.422	-0.449	1.000			
LOAN	-0.311	-0.236	-0.106	-0.250	0.481	0.194	0.087	0.294	0.074	0.055	-0.145	0.024	1.000		
GDPg	0.264	0.481	0.489	0.189	-0.009	-0.029	-0.051	-0.042	0.019	-0.014	-0.102	0.367	-0.002	1.000	
Inflation	0.236	0.181	0.430	0.087	0.089	0.108	-0.057	0.062	-0.074	-0.008	-0.178	0.344	0.003	0.386	1.000

Notes: This table presents the correlation matrix for the subsample. It includes the variables Return on Asset, Return on Equity, Stock Return, Tobin's Q, Environmental, Social, and Governance scores, and ESG Score.

Table C. Regression Subsample 1

Fixed effect regression

	(1) ROA	(2) ROA	(3) ROE	(4) ROE	(5) SR	(6) SR	(7) TQ	(8) TQ
EScore	-0.157**		-0.960			0.009	-0.004	
	(0.071)		(0.843)			(0.113)	(0.010)	
GScore	-0.108		-1.328			0.217*	0.004	
	(0.069)		(0.812)			(0.109)	(0.010)	
SScore	-0.182		2.148			-0.056	0.034	
	(0.193)		(2.278)			(0.305)	(0.027)	
SIZE	-0.090	-0.038	-0.514	0.321	-0.565	-0.588	0.064*	0.080**
	(0.239)	(0.220)	(2.830)	(2.646)	(0.354)	(0.379)	(0.033)	(0.031)
CAP	-0.050	-0.056	-1.067	-1.224	0.751*	0.771*	-0.065*	-0.068*
	(0.272)	(0.270)	(3.214)	(3.239)	(0.433)	(0.430)	(0.038)	(0.037)
CI	-0.927***	-1.010***	-9.922***	-8.832***	-0.082	0.120	0.002	0.005
	(0.190)	(0.171)	(2.245)	(2.053)	(0.274)	(0.301)	(0.026)	(0.024)
GDP	31.178**	32.442**	289.369*	270.888	49.553**	46.268**	-0.963	-0.983
	(14.025)	(13.891)	(165.745)	(166.825)	(22.290)	(22.195)	(1.947)	(1.925)
LOANSDEP	-0.125***	-0.148***	-0.870*	-1.021**	-0.071	-0.053	-0.011*	-0.012***
	(0.039)	(0.032)	(0.464)	(0.389)	(0.052)	(0.062)	(0.005)	(0.004)
GDP growth	-0.014	-0.019	0.091	0.143	-0.005	0.005	0.003	0.003
	(0.018)	(0.018)	(0.216)	(0.212)	(0.028)	(0.029)	(0.003)	(0.002)
Inflation	-0.006	-0.006	-0.074	-0.080	-0.006	-0.007	0.001	0.001
	(0.007)	(0.007)	(0.081)	(0.082)	(0.011)	(0.011)	(0.001)	(0.001)
ESGScore		-0.540***		-1.910	0.237			0.016
		(0.125)		(1.506)	(0.201)			(0.017)
Constant	-95.525**	-99.035**	894.427	831.996	-163.941**	-153.690**	4.053	4.155
	(45.974)	(45.554)	(543.30	(547.06	(73.094)	(72.754)	(6.381)	(6.312)

			1)	5)				
Observations	52	52	52	52	52	52	52	52
R^2	0.818	0.811	0.700	0.678	0.454	0.490	0.463	0.443

Table D. Regression Subsample 2

Regression ESG on FP

	(1) ESG Score	(2) ESG Score	(3) ESG Score	(4) ESG Score
ROA	9.711***			
	(1.716)			
ROE		0.958***		
		(0.117)		
SR			18.828***	
			(5.825)	
TQ				29.230***
				(2.196)
Constant	11.819***	10.656***	15.327***	-0.232
	(1.455)	(1.366)	(1.289)	(1.638)
Observations	440	440	440	440
R^2	0.068	0.133	0.023	0.288