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ESG impact on bank performance

Evidence from Nordic countries

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ABSTRACT:

As in other industries, ESG and sustainability considerations continue to gain importance in the banking sector as well. Although stakeholders are demanding ever greater commitment from companies to promoting responsible business practices, it remains unclear to what extent ESG affects financial performance. For this reason, the financial performance perspective is particularly emphasized in the banking sector, where maintaining capital adequacy and profitability is critical. The Nordic countries, which can be seen as pioneers in sustainability alongside the rest of Europe, have, however, received relatively little attention on this topic.

The aim of the study is to identify the relationship between ESG and banks' financial performance in Nordic countries. To achieve this objective, four different linear regression models are created to illustrate the relationship between banks' financial performance and ESG. Financial performance is described as Tobin's Q, ROA and ROE. Since Nordic banks constitute a relatively small sample compared to other geographic regions, a sample consisting of all European banks was examined in the second phase of the analysis to enhance the relevance of the results. The data covers the period from 2015 to 2025, and the banks' performance and ESG scores are analyzed on an annual basis.

The results show a statistically significant and positive relationship between combined ESG score and the financial performance of Nordic banks, but only regarding ROA and ROE. However, a positive relationship between combined ESG score and all performance indicators, including Tobin's Q, is observed among all European banks. The effects of ESG on banks' financial performance are not observed to be stronger in the Nordic countries than across Europe. In line with previous studies, the results indicate that the relationship between ESG and banks' financial performance may depend on whether ESG is analyzed as combined score or individual dimensions.

KEYWORDS: ESG, banking, financial performance, bank performance, Nordic banks, European banks

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ABSTRACT:

Muiden toimialojen tavoin kestävyysnäkökulmat sekä ESG näyttäytyvät yhä tärkeämpinä myös pankeille. Vaikka sidosryhmät vaativat yrityksiltä yhä vahvempaa sitoutumista vastuullisten liiketoimintakäytäntöjen edistämiseen, on edelleen osittain epäselvää, missä määrin ESG vaikuttaa taloudelliseen suorituskyyyn. Tämän vuoksi taloudellisen suorituskyyyn näkökulma korostuu erityisesti pankkisektorilla, jolle vakavaraisuuden ja kannattavuuden ylläpitäminen on elintärkeää. Pohjoismaat, joita voidaan pitää kestävä kehityksen edelläkävijöinä muun Euroopan rinnalla, ovat kuitenkin saaneet suhteellisen vähän huomiota tämän tutkimusaiheen osalta.

Tämän tutkimuksen tavoitteena on selvittää, millainen suhde ESG:llä ja pankkien taloudellisella suorituskyyvällä on Pohjoismaissa. Tutkimuksen tavoitteen saavuttamiseksi luodaan neljä erilaista lineaarista regressiomallia, jotka kuvaavat pankkien taloudellisen tuloksen ja ESG-tekijöiden välistä suhdetta. Taloudellista suorituskyytä kuvataan Tobinin Q:lla, ROA:lla ja ROE:lla. Koska pohjoismaiset pankit muodostavat suhteellisen pienen otoksen verrattuna muihin maantieteellisiin alueisiin, analyysin toisessa vaiheessa analysoidaan kaikkia eurooppalaisia pankkeja käsittävää otosta tulosten luotettavuuden parantamiseksi. Aineisto kattaa aikavälin 2015–2025, ja pankkien suorituskyytä sekä ESG-pisteitä analysoidaan vuosittain.

Tulokset osoittavat tilastollisesti merkitsevän ja positiivisen suhteen yhdistetyn ESG-luvun ja pohjoismaisten pankkien taloudellisen tuloksen välillä, mutta vain ROA:n ja ROE:n osalta. Sen sijaan kaikkien eurooppalaisten pankkien osalta yhdistetyllä ESG-luvulla osoitetaan olevan positiivinen vaikutus jokaiseen taloudellisen suorituskyyyn mittariin mukaan lukien Tobinin Q. ESG:n vaikutusten pankkien taloudelliseen suorituskyyyn ei havaita olevan voimakkaampia Pohjoismaissa kuin koko Euroopan alueella. Aikaisempien tutkimusten mukaisesti tulokset viittaavat siihen, että ESG:n ja pankkien taloudellisen suorituskyyyn välinen suhde voi riippua siitä, analysoidaanko ESG:tä yhdistettynä pisteytyksenä vai erillisinä ulottuvuuksina

KEYWORDS: ESG, pankkitoiminta, taloudellinen suorituskyyky, pankkien suorituskyyky, pohjoismaiset pankit, eurooppalaiset pankit

Contents

1	Introduction	6
1.1	Purpose of the study	8
1.2	Structure of the study	11
2	Key elements of sustainable finance and investing	13
2.1	Environmental, social and governance (ESG)	14
2.2	Socially responsible investing (SRI) and valuing sustainability	16
3	The presence of sustainability aspect in banking	21
3.1	Regulation guiding responsible banking	22
3.2	ESG disclosure and reporting	24
4	Theories explaining the link between ESG and banking sector	26
4.1	Shareholder theory	27
4.2	Stakeholder theory	28
4.3	Agency theory	30
4.4	Legitimacy theory	32
5	Previous evidence on the relationship between ESG and financial performance	34
6	Data and methodology	37
6.1	Data	37
6.2	Dependent and independent variables	38
6.3	Control variables	39
6.4	Descriptive statistics	40
6.5	Methodology	42
7	Empirical results	45
7.1	Relationship between ESG and banks' financial performance in the Nordic countries	45
7.2	Relationship between ESG and banks' financial performance in all Europe	49
7.3	Summary of the results and limitations of the study	53
8	Conclusions	56

References	59
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Tables

Table 1 Descriptive statistics for Nordic banks	40
Table 2 Descriptive statistics for all European banks.....	41
Table 3 The impact of ESG score on bank performance in Nordic countries	46
Table 4 The impact of separate ESG pillars on bank performance in Nordic countries .	48
Table 5 The impact of ESG score on bank performance in all European countries.....	50
Table 6 The impact of separate ESG pillars on bank performance in all European countries	51

1 Introduction

To some extent, sustainability issues have become part of everyday business for all companies. This is due not only to the regulations and guidelines that have taken shape over the past few decades, but also to the growing expectations of companies' stakeholders. Like other industries, the banking sector has also undergone a transformation, with steps toward more responsible business operations driven by the trust placed in them by stakeholders. Undoubtedly, maintaining this trust is vital for the banks themselves, other businesses, and the global economy collectively. What makes sustainability issues particularly relevant to banks is the need to balance the costs they entail with the requirement to maintain a stable financial position.

Europe has long been regarded as a leader in sustainable development (Buallay, 2019), and especially the Nordic countries have also been recognized for this. However, only a small amount of research on this topic focuses on a region that is generally regarded as a pioneer of considering sustainability and responsibility-related perspectives. An important finding from previous research on the relationship between ESG and the banking sector concerns the limited amount of research conducted on the Nordic countries compared to other similar geographic regions that are advanced in terms of sustainability. ESG is considered a key indicator for measuring responsibility and sustainability, as it addresses these themes from environmental, social, and governance perspectives.

In addition to serving as strategic indicators for companies, these sustainability metrics have also been used by investors for several years as part of their investment decisions (Berry & Junkus, 2013). Thus, the promotion of responsible business practices has evolved not only due to increasingly diversifying regulations but also under pressure from stakeholders' growing demands. Although social change also creates pressure on banks, it simultaneously presents a significant opportunity for them to channel financial resources into avenues that benefit society from a sustainability perspective, and to regulate responsible lending themselves (Schulte et al, 2024).

Since ESG activities, in all their dimensions, are not fully mandatory, banks, like other companies, invest in them as they see necessary to promote their own responsible business practices. Although this may partly be due to a desire to maintain a good reputation, previous research shows that ESG-related risks are demonstrable from a financial perspective. For this reason, Schulte et al. (2024) suggest that, rather than pursuing profit through sustainability initiatives, banks should incorporate ESG risks into their strategic planning and thus find an optimal balance between passive and excessive engagement in sustainability.

However, the issue is not straightforward, as ESG is shown to incur costs for banks, and at the same time, they must maintain their capital adequacy while waiting for the returns on their sustainability initiatives to materialize in the future. What further complicates the issue are the observed variations in the relationship between ESG and banks' financial performance found in previous research on the subject. At the same time, it has been shown that these differences result from several different factors and economic shifts, over which banks themselves have limited control. This also highlights the role of national and country-specific guidelines, as banks often consider themselves an extension of the regulatory framework (Schulte et al, 2024).

It is therefore important to continue research on the topic in a field where stakeholders have high expectations of the various actors involved. In the Nordic countries in particular, sustainability risks can take many forms, and regulatory issues can easily deal a significant setback to business operations (Schulte et al, 2024). Since Nordic banks generally operate within small geographical areas and their stakeholders have a high level of awareness regarding sustainability issues, banks must take both internal and external ESG risks into account in their operations. This, in turn, emphasizes the focus on the financial aspect in particular.

1.1 Purpose of the study

The aim of the study is to identify the relationship between ESG and banks' financial performance in Nordic countries. Previous research on the topic has focused extensively on geographical differences in ESG and bank performance (eg. Azmi et al, 2021; Bătae et al, 2021), and examines, for example, the performance of banks in individual countries (eg. Menicucci & Paolucci, 2023). In this way, previous research also points to differences arising, for example, from the legislative frameworks due to geographical location. Nevertheless, even within broader geographical areas, there are differences, although the legislation follows broad guidelines.

It is worth noting that previous research on this topic has not focused significantly on Nordic banks, even though Nordic companies are often considered to have a high level of commitment to corporate responsibility and sustainability (Rahi et al, 2022). This may be partly since the data available from the Nordic countries is more limited than that from, for example, all European or U.S. banks. Thus, this study focuses on bank performance in the Nordic countries but also includes the impact of ESG on bank performance across all Europe to provide a broader perspective and comparison of results. The limitation of the study topic is nevertheless intended to add value to the research topic, as, in addition to contributing to the body of ESG research on Nordic banks, Buallay (2019) argues that research on the responsibility of banks can benefit all stakeholders. This is assumed to apply regardless of the banks' geographic location. In addition, it is possible to examine how ESG implementation affects banks' performance in regions that share similarities with the rest of Europe but are still considered to have very similar legislation and operating principles among themselves.

From an operational perspective, the potential of banks to promote sustainability combines two significant aspects, financial performance and ESG principles. The previous literature on the link between ESG and bank performance provides varying results, which may be due to differences in the research data and the databases used (Gonzalez-Ruiz et al, 2024). Although the mixed results may also be due to differences between the

banks examined, such as size, or geographical area, thus differences in regulations and laws, differences in the previous literature make it more relevant to study the link. Based on the previous literature, the first hypothesis is formed as follows:

H1: There is a statistically significant positive relationship between ESG and banks' financial performance in the Nordic countries

According to Buallay (2019), a positive correlation between ESG and banks' financial performance can be expected, as the primary goal of improving ESG performance is to achieve improved financial results, reduced risks, and stable revenue in the future. Thus, based on the previous literature, a statistically significant relationship between ESG and banks' financial performance in the Nordic countries is assumed, and it is expected to be positive for all financial performance indicators. In this study, financial performance of banks is measured by Tobin's Q, return on equity and return on assets. However, the models consider the role of key factors influencing the relationship between ESG and performance, such as bank size, capital adequacy of banks, and the growth rate of gross domestic product (see Menicucci & Paolucci, 2023). Although previous research also shows a negative or statistically insignificant relationship between ESG and financial performance metrics such as ROA and ROE, the data under examination covers Nordic financial institutions in general, not just banks (eg. Rahi et al, 2022).

Since the sample of Nordic banks is expected to be relatively small compared to broader geographic regions or large countries, such as China or the United States, to demonstrate the reliability of the results and provide added value from the perspective of the study's objective, the relationship between banks and ESG across all of Europe will also be examined. Compared to other regions, for example, the Nordic countries largely share the same reporting standards and bank-related laws as other European countries. Based on the previous literature related to ESG actions in the Nordic countries, and evidence on the relationship between ESG and bank performance, the next hypotheses are formed as follows:

H2: There is a statistically significant positive relationship between ESG and banks' financial performance in all European countries

H3: ESG has a greater impact on banks' financial performance in the Nordic countries than in all European countries

In addition to examining the link between ESG and banks' financial performance in the Nordic countries and all European countries, to obtain a more accurate understanding of the topic in this context, the study also examines ESG both overall and as individual ESG pillars. Breaking down ESG into its environmental, social, and governance pillars can help illustrate the impacts of sustainability actions more clearly and also bring new perspectives to strategic operations focused on sustainability (Buallay, 2019). On the other hand, examining performance through different indicators can illustrate the concrete impacts ESG has on banks from the perspective of both capital adequacy and shareholder interests. Among others, according to Azmi et al. (2022) the results are expected to vary depending on how ESG is measured. Although the relationship between ESG and bank performance is expected to be statistically significant and positive, based on previous findings, this relationship is expected to depend on the ESG metric used. Thus, the last hypothesis is presented as follows:

H4: The relationship between ESG and banks' financial performance depends on individual ESG pillars in both the Nordic countries and all European countries

Although the development of ESG considerations and the implementation of related measures have been evident across Europe for a long time (Rahi et al, 2022), despite their similarities, banks operating in Europe are subject not only to national regulations but also to country-specific factors. Furthermore, even within Europe, countries and banks have different and varying fields of operation, which is why greater variation among banks and their performance across the European region can be expected.

Guided by this, this study aims to provide insight into how ESG affects bank performance in European countries that share similarities, but also more specifically in the Nordic countries, which can be seen as increasingly similar to one another compared to the rest of Europe. Differences not only in the impacts of ESG but also in regional variations may reveal the results of previous regulations and sustainability efforts, as well as illustrate the potential need to improve ESG implementation.

1.2 Structure of the study

After introduction the study continues as follows. To understand the broader underlying phenomenon, the second chapter presents the key concepts, ESG and SRI, that are associated with sustainable finance and closely related to the banking sector all around the world. Definition of terms helps to understand not only the role of sustainability in financial markets but also the methodology and results of the analysis. The third chapter links the concept of sustainable finance directly to the banking sector by presenting regulatory and reporting aspects of sustainability. The fourth chapter presents the theoretical background of the study.

Chapter 4 provides an overview of the main financial theories that can possibly explain the link between sustainable finance and the banking sector, and are in many ways related to the topic, including those that support and those that challenge the economic viability of ESG. Examining the phenomenon in the light of different theories clarifies the importance of sustainability for both companies and stakeholders but can also demonstrate the challenges of implementing sustainability. After that, chapter 5 presents a related literature review, which also highlights the importance of research on the topic. Although previous research on ESG and the banking sector has been presented, it shows different views on how sustainability affects financial performance of the banking sector.

The sixth chapter presents the data and the estimated regression models with all variables used. The methodology used to achieve the aim of the study is described. After that,

chapter seven presents the empirical results of the analysis. Chapter seven provides results in two different sub-categories and a short summary to improve the understandability of the study. Limitations of the study are also presented. Finally, chapter eight concludes with a summary of the study and a discussion of potential further research on the topic.

2 Key elements of sustainable finance and investing

As the importance of sustainable business has grown, the term sustainable finance has become established (Janicka & Sajnóg, 2022). While sustainable finance can be seen in its simplicity as financing ecological and low-carbon projects and companies (Janicka & Sajnóg, 2022), the definition of sustainable finance also covers broader perspectives. For example, according to Soppe (2004) sustainable corporate finance is based on the idea of protecting future generations through sustainable financial policies. This is not only the responsibility of companies, but also of all stakeholders involved in their activities (Soppe, 2004).

Sustainable finance can be viewed from the perspective of both behavioral and traditional finance (Soppe, 2004). Traditional finance assumes that behavior is rational and self-serving, but at the same time it partially ignores the importance of actors' behavior in financial modelling (Soppe, 2004). Behavioral finance, on the other hand, considers these features, but pays less attention to moral aspects of economic agents and their implications (Soppe, 2004). While the concept of sustainable finance can bridge the gap between these views, the existence of clearly divergent perspectives also underlines the importance of research on the subject.

The perspective of sustainable finance adopts features of behavioral finance but also recognizes the moral human being as an economic actor (Soppe, 2004). In simplified sense, an individual is expected to act rationally, but at the same time to show trust and cooperation for the greater expected utility (Soppe, 2004). However, applying the theory in practice requires defining the key concepts and terms of sustainable finance. This is important because sustainability should be measurable in order to prove its added value not only to companies but also to all stakeholders. A key aspect of sustainable finance is its connection with the financial performance of companies (Drempetic et al, 2020).

As a background, chapters 2.1 and 2.2 define ESG and socially responsible investing (SRI) as part of sustainable finance. A more detailed examination of these concepts helps to

understand the ways in which sustainability and responsibility can be promoted in financial markets. In addition, it will also clarify the theoretical background, and literature review of this study which concretizes the measurement of sustainability and its benefits from a performance perspective. The concepts of sustainable finance are not only relevant for investors and companies themselves, but for all stakeholders, as sustainability issues affect everyone involved in the business as a whole.

2.1 Environmental, social and governance (ESG)

ESG consists of the words environmental, social and governance. The environmental perspective considers the issues and threats related to climate change, such as environmental pollution, global warming and loss of biodiversity (Billio et al, 2021). While environmental well-being policies are often part of the public debate, stakeholders also demand action from companies to promote social well-being, both internally and externally. The social dimension of ESG can be seen to include, for example, the care of working conditions, the promotion of equality and the elimination of discrimination and racism (Billio et al, 2021). In addition to environmental issues, companies are often in the news for neglecting the social well-being of stakeholders such as employees or customers.

While actions to promote the governance dimension of ESG may not be directly visible from the company to the consumer, it is significant on a large scale. Good corporate governance means, for example, that the company respects shareholders' rights, ensures the independence of the management team and avoids conflicts of interest (Billio et al, 2021). To summarize the breakdown of ESG elements, it provides broad guidelines for responsible business conduct, regardless of a company's industry, size or geographical area. In terms of ESG scores, they reflect a company's performance and achievement in the above-mentioned areas of sustainability.

In addition to ESG, CSR, corporate social responsibility, is often discussed as a concept in the context of sustainability and responsibility. Although the definition of CSR differs

from ESG, the two concepts still have some similarities. Chang et al. (2022) state that CSR highlights the need for companies to identify and minimize the negative impacts of their business activities on society and the environment. It can therefore be argued that sometimes it is in society's interest to act differently from what law and corporate interests would suggest (McWilliams & Siegel, 2001). Stakeholder demands for CSR compliance have intensified, especially in the banking sector, whose reliability was shaken by the financial crisis (Miralles-Quirós et al, 2019).

The collection of ESG-related data and reporting on ESG and CSR activities has increased among all companies over the past 30 years (Amel-Zadeh & Serafeim, 2018). Reporting informs stakeholders about corporate responsibility activities, the impact of which, for example on performance, is usually important for shareholders (Buallay et al, 2021). When ESG reporting is done in good faith, it increases the transparency of operations. However, increased awareness of sustainability principles and the growing demands of stakeholders can lead to the manipulation of information only in the light of a good reputation.

Although the focus of this study is not on greenwashing or the misuse of sustainability perspectives in other ways, it is noteworthy that sustainability trends have increased the pressure to make responsible choices and to look good from the perspective of stakeholders. For example, Fang et al. (2024) find that greenwashing of ESG and CSR reports increases when environmental regulations are tightened. However, according to Ghitti et al. (2024) greenwashing has a negative impact on firm value, which may suggest that stakeholders punish them for misleading consumers and misusing sustainability perspectives. It is still likely that not all activities suggesting greenwashing or the magnification of sustainability actions are always detected.

Even if ESG actions, reporting, and ESG scores are largely aimed at the common good, questions remain about the accuracy and reliability of corporate responsibility measures and whether measurable outcomes are comparable between companies. However,

certain activities are increasingly governed by local and international regulations. While regulation is tightening and companies are expected to be transparent about their operations, the complexity of ESG and sustainability issues challenges their interpretation not only for companies but also for stakeholders.

2.2 Socially responsible investing (SRI) and valuing sustainability

ESG principles can be seen as a basis for responsible investing. According to Dorfleitner et al. (2015) socially responsible investing (SRI) can be defined as investment decisions that are guided by the ESG principles and overall responsibility of the investment. Basically, every investment decision should be based on features of responsibility (Drempetic et al, 2020). From a theoretical approach, compliance with the principles of sustainable investing can be very open to interpretation, as there is no straightforward model for relating risk and return to the “right” amount of social responsibility, for example (Berry & Junkus, 2013).

Not only can SRI be open to interpretation because of the lack of unambiguous financial models, but secondly, individual investors behave differently when weighing up what level of social responsibility is perceived as desirable. This is because investors may have varying perceptions of morality and ethics (Drempetic et al, 2020). It could be said that this summarizes the complex and ambiguous nature of responsibility. Views on what can be seen as responsible or sustainable can vary widely depending on people’s perceptions of what is right or wrong, for instance.

Berry and Junkus (2013) study SRI with 5,000 investors who either have or have not considered SRI criteria in their investment decisions. Their most significant findings are that both above investor groups rank the environmental and sustainability aspects highest in SRI. However, they note that there are differences between investor groups in how important these themes and aspects are generally perceived to be. This underlines the ambiguity of responsibility and sustainability as well. Even if responsibility is generally seen

as a good thing, it covers various sub-categories that investors weigh in their decision-making. This also raises the question whether sustainability or responsibility is considered in sufficient depth at its sub-category level, or whether does focusing on one area make a company a responsible actor or investment in the minds of investors and other stakeholders.

The general principle of SRI is to filter and prioritize; either exclude or to look for investments with certain characteristics (Berry & Junkus, 2013; Dremptic et al, 2020). Excluding investments with certain questionable characteristics can also be called negative screening (Trinks & Scholtens, 2017). Berry and Junkus (2013) list the most common excluded products or industries, which are tobacco, alcohol, weapons, and gambling. Other questionable industries and companies include those related to nuclear power, genetic engineering, adult entertainment, fur and animal testing, for example (Trinks & Scholtens, 2017). Some controversial industries are already well rooted in the exclusionary screening of SRI portfolios, while negative screening of some industries is only reflected in individual mandates (Trinks & Scholtens, 2017).

SRI investors generally agree on the criteria that lead to the rejection of an investment (Dremptic et al, 2020). The ambiguity of sustainability is particularly highlighted when investors seek to incorporate certain characteristics into their investments, as it is up to the investor to define the significance of the characteristics of the investment (Berry & Junkus, 2013). While the exclusionary strategy is common in SRI, the findings show that investors nevertheless tend to adopt a broader approach, basing investment decisions on the sustainable performance of the investment targets in a more comprehensive way (Berry & Junkus, 2013).

According to Dremptic et al. (2020) most responsible investment decisions are made based on ESG scores, as few individual investors know how to assess sustainability for themselves. In addition to ESG scoring of individual stocks, funds can be screened according to SRI criteria. The definition of a responsible fund can be based, for instance,

on what industries and companies the fund excludes (Berry & Junkus, 2013). More detailed, SRI funds favor companies that pollute less, where working conditions are respectful of workers and their safety, and where management and governance are diverse (Heath et al, 2023). Investors' lack of resources to assess the sustainability and ESG performance of investments often leads them to rely on agencies calculating ESG scores (Drempetic et al, 2020). However, this leads to another approach; can an individual investor form a comprehensive view of sustainability using ESG scoring alone?

Drempetic et al. (2020) study does firm size and accessibility of ESG related data affect firm's sustainability performance. In addition, they analyze the correlation between sustainability performance and firm's resources to provide ESG data. The findings show that there is a significant positive correlation between all listed variables, which could mean that larger companies could have the resources to appear more sustainable than the ESG scores suggests (Drempetic et al, 2020).

Firms seek legitimacy, meaning acceptance, by fulfilling demands of society, and large firms in particular, which usually have more resources to use, often feel more pressure to achieve legitimacy (Drempetic et al, 2020). However, legitimacy is manipulated if companies whose long-term sustainability goals are not credible, receive higher ESG ratings than they deserve (Drempetic et al, 2020). This places the spotlight on investors. While ESG scores help investors to filter out more responsible investments in the larger context, Drempetic et al. (2020) argue that the bias caused by firm size can weaken credibility of ESG raters in long-term, which is why further research on measurement systems is also needed.

Heath et al. (2023) study the behavior of SRI funds and their impact on firm behavior. Of the SRI funds in the research sample, all acknowledged that they select portfolio companies based on environmental and social performance criteria, while 81% of funds made commitments to influence the environmental and social behavior of portfolio companies (Heath et al, 2023). The results show that SRI funds pick companies that

perform better on environmental and social objectives, but despite their promises to influence the sustainable behavior of portfolio companies, do not significantly influence the behavior of the selected companies (Heath et al, 2023).

While not outright greenwashing, SRI funds are taking shortcuts in their pledges to promote the environmental and social performance of portfolio companies (Heath et al, 2023). This again leads to ambiguity, because if SRI funds do not deliver the promised change in portfolio companies' behavior, and do not reward companies that have changed their behavior, investors may interpret this limit as a threshold of appropriate sustainability. The ambiguity of the whole topic highlights the need for further research from both the investor and sustainable business perspectives. Heath et al. (2023) suggest that further research should focus on regulation and SRI methods, especially to enforce investors' rights.

Trinks and Scholtens (2017) analyze over 1600 questionable stocks to study the impact of negative screening on financial performance of investment. They note that the study is partly hypothetical, as some of the industries studied are not yet recognized as excluded in the SRI framework, even though many individual investors would take advantage of negative screening for these industries. Both this and the findings show a strong ambiguity in the interpretation of SRI. Trinks and Scholtens (2017) find that screening does not produce the desired financial results, and that stocks considered questionable and controversial often produce positive abnormal returns for the investor. They point out that screening reduces the number of possible investment options, and that screening creates opportunity costs if questionable companies are not invested in. In addition to ambiguity, the expected return may in some cases be the reason for investing in less responsible assets.

Even though the ambiguity of SRI and the different ways of measuring sustainability create challenges for investors and other agents, sustainable finance with its concepts is a growing field of research. According to Trinks and Scholtens (2017), both institutional

and individual investors are increasingly interested in the concepts of ethics, social responsibility and sustainable business in investing. This is because investors are increasingly looking for a portfolio to reflect their own values (Trinks & Scholtens, 2017).

In addition to other business sectors, the role of banks in the sustainability framework is relevant, because of their contribution to society. Banks can influence sustainable investment decisions, both at the customer interface and in equity investing. In addition, publicly listed banks act as investments themselves. These factors highlight the relationship between banks and SRI, which is discussed in the next chapter, straightforward.

3 The presence of sustainability aspect in banking

Especially the Covid-19 pandemic highlighted the importance of risk management and resilience of the banking sector (Gonzalez-Ruiz et al, 2024). The pandemic was a reminder that in addition to financial crises, the financial sector is threatened by other kinds of crises as well. As the performance of the banking sector affects the global economy, banks can be expected to promote responsible business practices in all areas (Miralles-Quirós et al, 2019). However, maintaining profitability while respecting sustainability creates challenges for the banking sectors of China, the US and Europe, which can be considered major global operators (Istudor et al, 2022).

Banks can contribute to the promotion of responsible business and ESG principles in many ways and through many different channels, as they have many important stakeholders. This places the banking sector at the forefront of the sustainability discourse on a larger scale. The banking sector can channel resources and funding into green initiatives and projects, allowing them to have an impact on the environment and green transition, and contribute to the efficiency of their own operations (Bătae et al, 2021; Gonzalez-Ruiz et al, 2024). The responsible business conduct of banks is also reflected in their governance and its independence, as well as in their efforts to further cultural diversity and equality (Bătae et al, 2021).

In addition, banks can promote sustainability at the customer interface by offering their customers responsible investment products (Bătae et al, 2021). Although one of the main functions of banks is to operate as financial intermediaries, they nevertheless have the possibility to influence their customers' investment solutions (Gangi et al, 2019). This can refer to investment decisions of individual customers, at both retail and corporate level, and for example to the type of products a bank offers its customers. Responsibility at the customer interface is also reflected in risk management. It should be promoted by identifying the risks arising from various customer relationships (Bătae et al, 2021). Promoting responsible business conduct at the customer interface is particularly important for the risk management and performance of individual banks. Banks' customers create

risks associated with credit losses, which is why banks need to consider the credit risk of their customers on an individual basis. Today, the rise of financial crime, especially with digitalization, such as money laundering and various types of fraud and scams, also creates new risk factors for the banking sector.

Gonzalez-Ruiz et al. (2024) point out that it requires a systematic approach to integrate ESG principles into the decision-making process in businesses. In addition, all ESG aspects should be broadly factored into banks' risk management (Bătae et al, 2021). Istudor et al. (2022) suggest that a strategic shift towards green banking and sustainable business models will contribute to banks' competitive advantages over those that do not emphasize sustainability in their operations. On the other hand, banks' operations are mostly governed by mandatory regulation, which nowadays also includes various aspects that support responsible business conduct.

3.1 Regulation guiding responsible banking

Agnese et al. (2023) state that requirements for banks to consider ESG aspects in business operations have increased rapidly in the recent past, especially in Europe. According to them the Covid-19 pandemic led to specific guidelines from regulators and organizations to protect the stability of the banking sector. One example is a guide on ESG related risks published by the European Central Bank in 2020, which was made to be part of banks' risk management (Agnese et al, 2023). Stakeholder engagement has a significant impact on the performance of banks as well as other companies. During the pandemic, other stakeholders, in addition to regulators, had strong demands for transparency in the sustainability reporting and ESG practices of financial institutions (Gonzalez-Ruiz et al, 2024).

According to Redondo Alamillos and de Mariz (2022) the European Union has been a guiding influence on regulation, because in addition to international interdependence, Europe has set high standards for the banking sector, for example. In general, responsible

business in Europe is guided by ESG-standards developed by the European Union, which take a stand on several perspectives such as responsible implementation of asset management, due diligence, and information transparency (Redondo Alamillos & de Mariz, 2022). Globally, the sustainability initiatives have been driven by Equator Principles for financial institutions, as well as the Global Compact, which is a business network focused on promoting corporate responsibility (Miralles-Quirós et al, 2019). In addition, the global sustainability framework is increasingly reflected in corporate reporting, which in turn is linked to the GRI guidelines. Global Reporting Initiative guidelines direct the preparation of sustainability reports worldwide (Miralles-Quirós et al, 2019).

Looking more specifically at the banking sector, a responsible transition is guided by a responsible banking framework Principles of Responsible Banking (PRB) by UN Environment Programme, which aims to promote sustainable finance comprehensively across all areas of the banks' operations (Feridun & Talay, 2023). According to United Nations Environment Programme (n.d.) the framework aims to harmonize banking practices by emphasizing the role of all stakeholders in banking operations and by encouraging the promotion of business transparency and responsible governance.

In this way, banks can effectively respond to the demands of both individuals and society and increase the positive impacts of their operations while also reducing negative ones. In Europe in particular, the framework has been successfully integrated into banking operations, although the level of commitment to it varies globally (Feridun & Talay, 2023). Although sustainability considerations have been incorporated into legislation and regulations worldwide, some ESG guidelines and frameworks promoting sustainability remain voluntary. However, sustainability reporting is an area where regulation is increasingly shaping practices, particularly regarding ESG activities.

3.2 ESG disclosure and reporting

Before the financial crisis, banks' participation in projects promoting social responsibility and in sustainable business reporting varied (Matuszak-Flejszman et al, 2024). After that, ESG reporting has become a central part of corporate annual reporting, and according to Gipper et al. (2025), it has been the most rapidly expanding area of reporting in the United States, for example, in recent decade. Although maintaining financial stability and disclosing related information are seen as particularly important in the context of banks, an increase in the voluntary disclosure of non-financial information can also signal a desire to restore the trust that was lost during the financial crisis (Matuszak-Flejszman et al, 2024). However, it is also a matter of financial performance, which has been found to improve as a result of ESG disclosures (Buallay, 2019).

According to Wang (2023) banks' ESG reports typically cover several different sustainability aspects, which include environmental considerations, the sustainability of the products offered by banks, information security, and human rights, as well as the well-being and safety of bank employees. She states that according to Sustainability Accounting Standards Board (SASB), one of the key responsibility initiatives undertaken by banks and financial institutions relates to responsible lending and financing. Since banks' business operations are largely based on non-material factors, their reporting often focuses on measures that are considered important from a societal perspective and that promote widespread well-being.

The growing popularity of ESG reporting, coupled with the demands of stakeholders and regulators, has also raised some concerns. These are central to the reliability and quality of published information (Gipper et al, 2025). On the other hand, the readability of the reporting may also have been compromised by a lack of comparability. In addition to the challenge of comparing ESG reports across different banks, increasingly stringent regulations have also made it difficult to compare reports from different time periods (Matuszak-Flejszman et al, 2024). This has also led to conclusions about more consistent and cross-border legislation and regulatory frameworks (Buallay, 2019).

One solution to promote reliability of reports is ESG assurance, which refers to the disclosure of information that has been reviewed and approved by a third party (Gipper et al, 2025). Although promoting sustainability incurs costs, which may lead to measures being considered unprofitable in the short term (Istudor et al, 2022), the pressure brought by societal changes may encourage active participation and the development of reporting practices. This could be explained, for example, by the findings of Gipper et al (2025) showing that compliance with ESG reporting frameworks is shown to lead to easier obtaining of ESG assurance, which in turn enhances credibility among stakeholders.

4 Theories explaining the link between ESG and banking sector

The theoretical framework of this study considers shareholder theory, stakeholder theory, agency theory, and legitimacy theory, as they can all explain the connection between banking sector and ESG activities. In their own ways, the theories help to illustrate why sustainability is important not only for banks but also for all other companies. In addition, through them it is easier to understand the different perspectives from which ESG and sustainability can be approached, and the key issues that can arise when integrating sustainability aspects into business.

The theories are widely referenced in previous research linking the banking sector and ESG (see Agnese et al, 2023; Buallay, 2020; Gonzalez-Ruiz et al, 2024; Mandas et al, 2024), and their basic ideas can explain the implementation, non-implementation and prioritization of ESG principles from several perspectives. Also, despite the date of first publication, the main features of the theories can still be applied to today's research. Stakeholder theory and principal-agent theory, in particular, illustrate the complexity of combining the banking sector with ESG aspects (Gonzalez-Ruiz et al, 2024).

Put simply, combining shareholder theory and agency theory with ESG research can illustrate, for example, the prioritization of financial interests over sustainability strategies and ESG implementation, and explain the disagreement on sustainability issues. Stakeholder theory and legitimacy theory, in turn, guides the focus on a broader, multi-stakeholder perspective, and can illustrate the importance of sustainability and the drivers for implementing ESG principles at a more societal level. While the theories do not necessarily provide a clear-cut solution to sustainability issues, they all contain relevant elements for business development, which, when distinguished, help to illustrate the complexity of implementing ESG principles.

4.1 Shareholder theory

Shareholder theory is originally presented by Milton Friedman, and it suggests that the sole fundamental purpose of companies is to produce and increase profits, thus creating benefits for their shareholders (Friedman, 1970). In other words, the company will achieve its goal by increasing its earnings per share, which makes it possible to pay dividends to shareholders (Yamak & Süer, 2005). Although shareholder theory provides a framework for understanding the ultimate purpose of corporate activity and is therefore also applicable to research on banks, the theory has drawn criticism, particularly because of its simplicity. According to Tse (2011) one key limitation of the theory is that it overlooks many other important stakeholders that are essential to the continuity of the company's operations.

Despite these limitations, the theory can explain why it is in the shareholders' best interest to pursue this objective. Tse (2011) points out that dividends are paid only after key operational obligations, such as tax and salary payments, have been met, which encourages companies to maximize their profits in any case. If the primary goal were to generate the highest possible return for shareholders, pursuing that goal would also benefit other stakeholders, such as the company's employees and the government, at the same time. This may partly undermine the credibility of the claim that shareholder theory views a company's pursuit of profit as something that benefits only one group.

Although benefits generated for a company's shareholders extend to a wider range of stakeholders, according to Zumente and Bistrova (2021), more specific issues with this theoretical approach arise when determining which stakeholders' interests a company should prioritize. This perspective is also highlighted when a company's purpose is considered from a responsibility standpoint. Although promoting the interests of shareholders remains at the center of listed companies' operations, long-term business practices that create added value, based above all on responsibility and sustainability, are now considered a more important priority than short-term profits (Zumente & Bistrova, 2021). However, the perspective of corporate responsibility may conflict with the views of

shareholder theory, and this depends solely on the nature of the shareholders. Friedman argues that a company can fulfill the obligations when the capital raised from shareholders is directed toward optimal investments (Yamak & Süer, 2005). Thus, it can be considered that to fully integrate shareholder theory into the context of responsible business practices and ESG implementation, shareholders should view responsible decisions and investments as actions that serve their interests.

To that extent, shareholder theory can explain the sustainability aspect, depending on the extent to which shareholders themselves consider ESG implementation, for example, to be important. This is because, according to the theory, a company's decisions must be made within the framework of mutually agreed-upon rules. In other words, shareholders should view the promotion of corporate responsibility as a factor that adds value, while at the same time it should also improve the earnings per share. Responsibility plays a particularly important role in the banking sector, as banks must continually maintain the trust of their stakeholders. If shareholders did not demand actions that build trust, the stability of the entire banking sector could be undermined. For this reason, it can be concluded that stakeholder theory provides an important perspective for ESG research in the banking sector as well, even though the theory excludes other important stakeholders.

4.2 Stakeholder theory

Stakeholder theory can be seen as filling the central gap in shareholder theory presented before, and it was developed by Edward Freeman to complement this perspective. Freeman (1984, p. 246) argues that the essence of stakeholder theory lies in considering not only shareholders but all a company's stakeholders that are significant from the perspective of business continuity and that, at the same time, make the company's existence possible in the first place. Applying stakeholder theory to the banking sector helps illustrate, in particular, the interactions between financial sector actors and their stakeholders, which are shaped by institutional and political requirements (Yamak & Süer, 2005).

According to stakeholder theory, stakeholders can be classified according to the impact they have on the company. Freeman (1984, p. 92-93) considers key stakeholders to be those that have an immediate financial impact on the company's stock price or its profitability, examples of which include customers. Another group of stakeholders influences company's operations through technology, as they are responsible for determining what kinds of technological solutions are delivered and provided to the company. This stakeholder group plays a key role across all industries today, and especially in the banking sector

Freeman (1984, p. 92-93) classifies stakeholders according to the impact they have on the company, making it easier to understand their role in the overall context. First, he lists the stakeholders that have a direct economic impact on the company, in terms of profitability or share price. A clear example of such stakeholders are the company's customers. Secondly, he mentions stakeholders that influence the company's activities through technology. These stakeholders are responsible for providing and delivering alternative technologies to the firm. The benefits technology brings to the profitability and efficiency of business operations have made these stakeholders important regardless of industry. Especially with the digital shift in the banking sector, technology is required to improve customer experience, but also to promote security, as digital technologies have a significant role not only in customer experience but also in the security of financial transactions and personal data protection. These managerial effects can be

According to Freeman (1984, p. 92-93), one stakeholder group can also be identified based on their social and political behavior. These actors can be seen as establishing the framework within which the company's existence can be accepted. On the other hand, the distinction between the social and the political may be blurred in this context, since socially accepted decisions are most often based on political decisions (Freeman, 1984, s. 92-93). Lastly, Freeman (1984, p. 92-93) mentions stakeholders that primarily

influence the company's management. These managerial effects may be reflected in requirements regarding leadership style and the general behavior of management.

Considering various stakeholders from a strategic perspective is important because their impacts on the company can occur simultaneously (Freeman, 1984, p. 26). This is largely since all stakeholders have the opportunity to influence the company's reputation, which, in turn, is linked to the acceptance of its existence. This also requires management to have a good understanding of stakeholders so that the strategy can be developed with a stakeholder-based approach (Freeman, 1984, s. 26). Applying stakeholder theory to business helps to identify the stakeholders who are critical to business continuity and, in this way, to take their needs into account in recurring operations (Deegan, 2002).

Based on Freeman's (1984, s. 92–93) approach, the key stakeholders of banks include employees and customers who enable their operations, as well as external stakeholders and those who influence the bank through technology. Yamak and Sürer (2005) classify key customers into depositors and borrowers, who expect a return on their deposits as well as lending based on equality and fairness. In addition to this, the key stakeholders of banks are shareholders or, in the case of cooperative banks, members, who set requirements for the bank's operations. However, the banking sector is largely governed by national and international regulations, which is why states and governments are also important stakeholders (Yamak & Sürer, 2005). In addition to providing an optimal framework for promoting business responsibility (Mandas et al, 2024), stakeholder theory can also help to understand how banks implement ESG principles (Gonzalez-Ruiz et al, 2024).

4.3 Agency theory

Agency theory relies on the work of Jensen and Meckling (1976), and its main aspects can also be identified in the banking sector. The theory links two parties, the principal and the agent, examples of which in the banking context are shareholders and bank managers (Gonzalez-Ruiz et al, 2024). Eisenhardt (1989) summarizes the central idea of

the theory that the relationship between principal and agent should reflect the efficiency of information and organization of costs from risk-taking. Literature on the theory has subsequently been divided into a less mathematical subfield, where researchers have focused on principal-agent conflicts through governance mechanisms, and a more mathematical principal-agent study (Eisenhardt, 1989).

Agency theory often assumes a conflict between principal and agent, which is called agency problem (Eisenhardt, 1989). The situation refers to a conflict arising from different aims of the principal and the agent, or a situation where the principal is unable to ensure that the agent's behavior is reasonable (Eisenhardt, 1989). The situation can be understood, as the aims of the actors depend mostly on the pursuit of self-interest, the prioritization of different issues and the extent to which the actors consider each other, which may lead to disagreements between the actors.

It is also possible that moral hazard or adverse selection drives the behavior of the agent, often leading to an unfavorable contract (Eisenhardt, 1989). Self-interested managers may allow controversial and high-risk operations to be adopted even if they are not in the interests of shareholders (Agnese et al, 2023), which in turn is an example of moral hazard, where risk-taking is partly at the expense of others. Despite this, the aim must be to create an optimal contract between the principal and the agent for all (Eisenhardt, 1989).

In particular, the integration of agency theory into the banking sector illustrates how the benefits received by managers can influence the implementation of ESG strategies (Gonzalez-Ruiz et al, 2024). For instance, if short-term actions enhance managers' returns but conflict with shareholders' ESG requirements, or if, in turn, ESG goals pursued by managers reduce shareholders' returns in the short term, disagreements are likely to arise between the parties. However, the agency problem in the banking sector is mitigated by prudential regulation, under which strategies must also be found to prevent agency problems related to sustainability (Agnese et al, 2023).

4.4 Legitimacy theory

Legitimacy theory can be connected to previously presented shareholder theory, as Friedman (1970) states that the company has no social obligations other than to uphold the shared values established by society. Put simply, Deegan's legitimacy theory, which is based on the political economy theory, can also be seen as largely fitting this definition. One of the central arguments of the theory is that the existence of companies is due only to the fact that society accepts their existence and views them as legitimate (Deegan, 2002). This, in turn, leads to the same conclusion as shareholder theory, according to which a company is not considered to have a right or purpose for its existence as such.

According to Deegan (2002) legitimacy theory is based on the rules governing the relationship between businesses and society, within which businesses have the right both to use and to produce shared resources. He notes that companies must base their operations on generally accepted and desirable principles to maintain society's approval. On the one hand, this means that if a company violates these principles, it may face penalties, which could result in a decline in the consumption of its products or a reduction in the supply of labor, for example. Thus, legitimacy theory argues that the benefits generated by companies must exceed the costs they generate for society (Deegan, 2002).

However, Deegan (2002) states that companies can also face a legitimacy gap, which indicates that the company's key target groups disagree on what kind of behavior they should expect from the company. In such situations, company management plays a key role in determining which target groups' interests are prioritized and what kind of information about the company is disclosed. Thus, legitimacy theory also demonstrates the importance of disclosing information (Deegan, 2002). In turn, this perspective can be linked, for example, to sustainability practices and reporting, because if stakeholders expect a company to take steps to promote responsible business practices, communicating these efforts can not only promote social acceptance but also enhance competitive advantage among other companies.

Although legitimacy theory has its limitations (Deegan, 2002), it can help us understand the various aspects of responsible business practices and the effects of implementing them on both society and a company's financial performance. This is because the disclosure of information can also have undesirable impacts. Deegan (2002) argues that if society perceives management's reporting as aimed at promoting only their own interests, the unwritten rule of approval between the company and society may be broken. Examples include greenwashing or exaggerating sustainability efforts to highlight the benefits the company brings to society. Thus, legitimacy theory also shows that management plays an important role in taking society's expectations into account and in maintaining public acceptance of the company.

5 Previous evidence on the relationship between ESG and financial performance

Several previous studies show a positive relationship between ESG and bank performance. Buallay (2019) studies the impact of ESG on bank performance in Europe from 2007 to 2016. A significant positive relationship is observed between ESG and financial performance. Nevertheless, the results vary when ESG factors are measured independently. According to Buallay (2019) the environmental pillar of ESG has a positive impact on return on assets and Tobin's Q, whereas social dimension affects negatively to performance in all models. However, governance dimension has a positive impact on Tobin's Q and affects negatively to ROA and ROE. One key control variable included in the model, bank size, has a positive effect on all performance measures, suggesting that larger banks are likely to perform better due to their resources and available assets (Buallay, 2019).

Bătae et al. (2021) find that environmental dimension, and more specific, emission and waste reduction, of ESG has a positive impact on ROA and ROE. They suggest that improvements in performance can largely be attributed to reduced emissions, efficient waste management, and climate risk management, which also enhances the company's reputation, and this way supports the perspective of stakeholder theory, for example. Like Buallay (2019), the findings of Bătae et al. (2021) suggest that the effects depend on whether ESG is measured as a whole (ESG combined) or as individual dimensions. According to Bătae et al. (2021) social and governance of ESG have either neutral or negative impacts on financial performance of banks.

From another perspective, Gangi et al. (2019) state that banks' significant commitment to CSR is linked to greater environmental responsibility and, consequently, to lower risk-taking, for example. In addition, good corporate governance is shown to decrease bank risk. Although Gangi et al. (2019) examine the banking sector from a perspective that differs slightly from the ESG approach, their findings indicate that various aspects of

responsible business practices influence factors that are, in turn, closely linked to financial performance. Again, environmental dimension is shown to have significant impact on banks' operations.

On the other hand, Gangi et al. (2019) also successfully link their findings to a theoretical framework, as, within the context of legitimacy theory, the acceptance that banks receive from society is seen as being fundamentally based on a social dimension. It should be noted, however, that a rise in costs relative to total income is seen to increase bank risk (Gangi et al., 2019), which can be linked to Buallay's (2019) findings on the impact of bank size on performance. It would therefore be understandable that smaller banks, which also have less resources, are unable to invest in sustainability in the same way as large banks without increasing their risk-taking.

Miralles-Quirós et al. (2019) present that both environmental and governance dimensions of ESG have significant positive impact on Tobin's Q. They state that social of ESG has the opposite impact, which is shown to be negative and statistically significant. However, differences arise when banks are examined in markets with different geographical characteristics and in regions with different legal systems. A key finding is that ESG factors have a greater positive impact on Tobin's Q in countries such as the US, the UK, and Canada, which follow the common law system, than in many European countries classified as civil law countries (Miralles-Quirós et al, 2019). This shows that a bank's size is not the only factor explaining the relationship between financial performance and ESG, as the country's legal system and the banks' geographic location contribute to the variation in results.

In developing countries, the relationship between ESG and bank value is found to be nonlinear (Azmi et al., 2021). Azmi et al. (2021) find that only the environmental dimension increases the value of banks, while no statistically significant effect is observed in other areas of ESG. They argue that the nonlinear relationship between ESG and bank value is illustrated by the observation that, beyond a certain point, higher ESG levels no

longer improve bank value. In other words, it is a matter of the level of ESG. Low ESG levels are found to increase banks' value, but when ESG levels are high to begin with, the marginal benefits become smaller (Azmi et al., 2021).

Central to explain the negative relationship between ESG and performance over a specific period are the costs associated with ESG implementation. Although environmental objectives are seen as improving financial performance in the financial sector, the effect is delayed and often only becomes apparent after a couple of years, by which time environmental costs have already declined (Jo et al, 2015). Jo et al. (2015) show that lower environmental costs are a statistically significant predictor of higher ROA, and this effect is found to be stronger among financial firms in developed markets, such as Europe and the US. Menicucci & Paolucci (2023) also find that the environmental dimension of ESG improves the ROA and ROE ratios of Italian banks. At the same time, they show that governance has both positive and negative effects on key indicators, whereas the social dimension has only negative effects. Menicucci & Paolucci (2023) suggest that differences between ESG dimensions can be explained by stakeholders' attitudes toward certain ESG actions. One example is the governance dimension, which is perhaps seen as having a clearer impact on a company's financial performance through management than the social dimension.

Although previous literature on the subject shows mixed results regarding the relationship between ESG and banks' financial performance, factors influencing these differences have been identified, such as how financial performance is measured, whether ESG is examined as a whole or through separate dimensions, as well as, for example, the size of the bank under study, its geographic location, and the regulatory environment. A key similarity, however, relates to the environmental dimension of ESG, which has generally been found to enhance financial performance regardless of external factors affecting the link between ESG and bank performance.

6 Data and methodology

This chapter presents the data and methodology used to achieve the aim of the research, which is to illustrate the relationship between ESG and banks' financial performance in the Nordic countries. First, this chapter gives a presentation of the data used. Later, the subsequent subsections present all variables and illustrate how the regression model used in the study is formed. Finally, the methodology used to support the study is introduced. Models formed to achieve the aim of this study are presented in support of previous studies.

6.1 Data

To achieve the aim of the study, the data consists of financial indicators and ESG metrics from both Nordic and all European banks from Thomson Reuters. In previous ESG related literature, banks' ESG data has mostly been collected from Thomson Reuters database (eg. Miralles-Quirós et al, 2019; Gangi et al, 2019). To analyze the data of Nordic banks from the dataset of all European banks, country-specific data has been collected and separated from the original dataset. Thus, the data on the Nordic countries consists of banking data from Finland, Denmark, Iceland, Norway and Sweden. This data set consists of 1042 observations, while data of all European banks consists of 6202 observations in total, which means that other European banks cover 5160 observations. Some of the variables presented later have been derived from calculation formulas based on previous research. To promote comparability and consistency of the data, it has been collected in a single currency, the US dollar.

The relationship between banks' financial performance and ESG factors is examined over the period 2015–2025. In defining the sample, the aim was to cover as broad period as possible during which banks' ESG data was fully reported. Compared to many previous studies on the subject, the time frame of the data analyzed is either longer or similar. For this reason, the results are expected to either confirm or challenge the findings of

previous studies suggesting that ESG actions have a positive impact on banks' performance in the long term. Since the data covers most of the previous decade, it is relatively up-to-date and largely reflects a period during which ESG and corporate responsibility have begun to receive special attention in legislation and reporting.

6.2 Dependent and independent variables

The model's dependent variables are intended to describe the financial performance of banks. It is typically measured using Tobin's Q, return on assets, and return on equity. The first ratio, Tobin's Q, indicates the market valuation, and can be used to describe a company's ability to generate returns for shareholders (Miralles-Quirós et al, 2019). This means that the ratio indicates how company's resources and capabilities are used, and added value is created if assets increase above their replacement cost (Minutolo et al, 2019). According to Bătae et al. (2021), the optimal value for Tobin's Q is 1, and values lower or higher than this may indicate either undervaluation or overvaluation of the firm. Despite variations in the calculation of this ratio, based on Minutolo et al. (2019) the formula for calculating Tobin's Q is presented as follows:

$$Tobin's\ Q = \frac{Market\ Capitalization + Preferred\ Stock + Debt}{Total\ Assets} \quad (1)$$

In addition to Tobin's Q, return on assets (ROA) and return on equity (ROE) are commonly used in the previous literature to describe the financial performance of banks. Based on Bătae et al. (2021), ROA can be calculated by dividing net income after taxes with total assets. ROE, which indicates the profitability of equity invested, can be presented as net income divided by total equity (Bătae et al, 2021). However, the financial ratios, ROA and ROE, used in the model were obtained directly from a database where they are presented as annual statistics of banks.

The independent variables used in the model describe the banks' ESG scores. Based on previous studies, ESG is examined both as an aggregate figure (ESG Combined) and as separate indicators (Environmental Pillar, Social Pillar and Governance Pillar). According to Buallay et al. (2020) the combined ESG term in the database comprehensively describes the cumulative impact of all pillars. However, separate ESG pillars cover different sub-categories related to the main categories, environmental, social, and governance.

6.3 Control variables

Based on the previous literature, key factors affecting the relationship between ESG and bank performance are bank size, capital adequacy ratio (CAP), and gross domestic product growth. As for bank size, it is typical that larger banks have more financial resources for enhancing ESG implementation. In addition, according to Menicucci & Paolucci (2023), previous research also shows that large banks would find it easier to obtain financing at lower costs, which would enable them to increase the capital available for this purpose. Thus, the first bank specific control variable is Size describing bank size and calculated by the natural logarithm of total assets (see Bătae et al, 2021; Menicucci & Paolucci, 2023).

Capital adequacy ratio is included in the model as a bank specific control variable as it can be considered as most recognizable ratio for describing regulatory capital requirements of banks (Menicucci & Paolucci, 2023). In other words, the measure can explain how a bank is able to cover losses with specific equity, which makes it represent the financial risk default that arises due lending from and for stakeholders (Menicucci & Paolucci, 2023). Lastly, GDP growth is added to the model as a control variable. Based on Menicucci & Paolucci (2023), GDP growth is added to the model to indicate macroeconomic changes, and it is calculated as the annual rate in percentage.

6.4 Descriptive statistics

Descriptive statistics for two separate data sets used in this study are presented below. Table 1 shows the descriptive statistics for data consisting of the Nordic banks. Based on the values describing the financial performance of banks, the relative performance of Nordic banks can be considered typical. Although the standard deviation indicates variation among the values, similarities with financial performance metrics can be observed (see Menicucci & Paolucci, 2023). Overall, the performance and stability of Nordic banks can be considered adequate during the observation period, as is also indicated by capital adequacy ratio.

From the perspective of ESG, environmental pillar receives the highest scores compared to the other pillars in terms of the mean, median, minimum, and maximum. In general, this may indicate that the Nordic countries place a much greater emphasis on the environmental dimension than many other regions, a trend that is evident in decisions made at the individual, industry and national levels. On the other hand, values related to other ESG areas are also high, which may indicate the positive effects of regulatory progress. On average, Nordic banks have received high values in terms of ESG during the observation period.

Table 1 Descriptive statistics for Nordic banks

	<i>Mean</i>	<i>Median</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Tobin's Q</i>	0,31	0,26	0,35	0,0002	5,86
<i>ROA</i>	1,40	1,15	2,06	-12,18	47,37
<i>ROE</i>	11,60	11,37	8,12	-51,64	76,81
<i>ESG Combined</i>	55,56	58,98	16,33	3,22	82,00
<i>Environmental Pillar</i>	73,50	83,48	21,97	1,50	93,90
<i>Social Pillar</i>	60,06	66,47	17,55	0,76	84,04
<i>Governance Pillar</i>	56,47	57,40	20,65	5,16	92,04
<i>Size</i>	16,45	16,22	2,69	4,57	20,51
<i>Capital Adequacy Ratio</i>	21,52	21,40	4,05	11,10	68,30
<i>GDP Growth</i>	0,01	0,01	0,09	-0,16	0,19

Table 2 shows the descriptive statistics for data set including all European banks. The results show similarities related to values of Nordic banks, although some observations about differences can be made. For example, nearly all key indicators of financial performance show values that differ significantly from those in the Nordic countries. This indicates greater variation in the indicators reflecting banks' performance at the time.

Although capital adequacy ratio shows similarities in solvency across all European banks, median and standard deviation indicate. However, values related to ESG scores have similar nature in both tables. This may be due to the regulations occurring internationally and across European Union, and the nature of banks business operations, because sustainability can already be considered high, since, for example, the use of fossil fuels and polluting materials is not as extensive as in sectors focused on industry and material production.

Table 2 Descriptive statistics for all European banks

	<i>Mean</i>	<i>Median</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Tobin's Q</i>	0,40	0,23	8,50	0,0001	14,36
<i>ROA</i>	-0,65	0,69	2,58	-69,88	47,37
<i>ROE</i>	7,29	7,94	9,89	-76,67	92,85
<i>ESG Combined</i>	57,44	59,11	17,37	1,55	92,36
<i>Environmental Pillar</i>	74,73	84,80	24,15	0,91	98,02
<i>Social Pillar</i>	68,39	73,53	20,55	0,76	98,23
<i>Governance Pillar</i>	62,63	67,82	23,08	0,71	95,14
<i>Size</i>	18,05	18,23	2,56	4,57	21,83
<i>Capital Adequacy Ratio</i>	18,58	17,90	6,22	1,46	68,30
<i>GDP Growth</i>	0,02	0,02	0,08	-0,16	0,19

Based on these observations, it is possible to conclude that on average, banks in the Nordic countries can be considered as more stable and profitable than in all European countries. This assumption can be said based on financial performance ratios such as ROA and ROE. However, variation in variables describing banks' financial performance shows outliers, which may indicate that some of the banks have faced significant financial crises during the observation period.

On the other hand, related to other papers, differences may occur since differences in calculation formulas. However, related to values describing banks in all Europe, significant differences are not recognized in Nordic banks, even though the standard deviation indicates some similarities in this regard as well. Although no significant conclusions can be drawn from a comparison of these figures in this context, since the sample size is significantly larger across the whole of Europe, and it is possible that outliers may skew the overall results, the tables nevertheless show that the performance of Nordic banks, both from a financial and a sustainability perspective, is demonstrable despite their relatively smaller operating area.

Although the ESG score and the individual pillars achieve high maximum values, there is still significant variation within the observation period. On the one hand, this may be explained as the significant development of ESG and related regulations during the observation period. However, as there are less variations in bank size, it could be possible that it doesn't explain the variation in ESG-score by itself. Differences between gross domestic product growth in the Nordic countries and all European countries are quite small, which is also expected due to similarities in countries' legislation, and the mutual relations between countries, for example.

6.5 Methodology

The methodology of this study is based on previous research explaining the relationship between ESG factors and banks' financial performance. To achieve the aim of the study, the study analyzes panel data and uses linear regression models. In this respect, there are similarities, for example, in the methodology used in the papers by Buallay (2019), Bătae et al. (2021) and Menicucci & Paolucci (2023). The method used in this study is ordinary least square (OLS). However, other methods, such as two-step generalized method of moments (Azmi et al, 2021), are also used in previous studies to avoid, for example, biases caused by missing data points, which can be common in ESG data, for instance.

The use of OLS can, however, be justified noting that research focusing on Nordic banks, for example, is less extensive than that covering other geographic regions. Given the strong status of responsibility and sustainability in this area, further research in this field is justified. Combined with the observation that ESG implementation incurs costs for banks and may weaken financial performance in the short term, the primary purpose of this study is to identify the nature of the relationship between ESG and financial performance. Thus, the study does not focus on strictly demonstrating causality between the factors. Based on previous literature, the model has been formed as follows:

$$(1) CFP_{it} = \beta_0 + \beta_1 ESG_comb_{it} + \beta_2 Size_{it} + \beta_3 CAP_{it} + \beta_4 GDP_{it} + \varepsilon_{it} ,$$

where:

CFP_{it} = corporate financial performance, in regression, either Tobin's Q, ROA or ROE

$\beta_1 ESG_comb_{it}$ = bank's combined ESG score

$\beta_2 Size_{it}$ = bank size

$\beta_3 CAP_{it}$ = capital adequacy ratio

$\beta_4 GDP_{it}$ = annual growth rate of gross domestic product

ε_{it} = random error

Model (1) presents the central idea in examining the relationship between ESG and banks' financial performance, and the models presented later are based on this. Although the model presents financial performance as a single figure, the CFP aims to capture either Tobin's Q, ROA, or ROE of bank (i), in period (t), for which a regression model is used for each specific ratio (see Buallay, 2019). The calculations for the dependent and control variables have been presented earlier. In addition to Model (1), based on the previous literature it is justified in creating other models that consider ESG scores more specifically. To enable a more detailed examination of the impact of ESG on bank performance, the panel data includes separately reported ESG pillars, which have been used

to create models that explain specific sustainability aspects. Models that consider ESG factors in greater detail are presented below.

$$(2) CFP_{it} = \beta_0 + \beta_1 ESG_{env_{it}} + \beta_2 Size_{it} + \beta_3 CAP_{it} + \beta_4 GDP_{it} + \varepsilon_{it} ,$$

$$(3) CFP_{it} = \beta_0 + \beta_1 ESG_{soc_{it}} + \beta_2 Size_{it} + \beta_3 CAP_{it} + \beta_4 GDP_{it} + \varepsilon_{it} ,$$

$$(4) CFP_{it} = \beta_0 + \beta_1 ESG_{gov_{it}} + \beta_2 Size_{it} + \beta_3 CAP_{it} + \beta_4 GDP_{it} + \varepsilon_{it} ,$$

where:

$\beta_1 ESG_{env_{it}}$ = environmental pillar score

$\beta_1 ESG_{soc_{it}}$ = social pillar score

$\beta_1 ESG_{gov_{it}}$ = governance pillar score

The separation of ESG variables creates a change in the independent variable in models (2), (3), and (4), whereas the other variables remain as presented in model (1). The separation of the ESG pillars can provide meaningful insight into the impact of sustainability practices, as the three distinct pillars that make up ESG can be broken down into several different subcategories. The environmental score measures, for example, the reduction of emissions and waste, the social score assesses, among other things, the implementation of human rights and workforce well-being; and the governance pillar evaluates the independence of management and shareholder rights (Buallay, 2019).

7 Empirical results

The results of the analysis are presented in two parts: first, the impact of ESG on banks' financial performance in the Nordic countries is illustrated. Although the study focuses on this perspective, the analysis is also conducted on a dataset covering all European banks for purposes of comparison, reliability, thus added value. The results present the impact of combined ESG score, while also showing the effects of individual ESG pillars in both Nordic and all European countries to obtain a more detailed understanding of the topic.

According to the first hypothesis formed at the outset of the study, statistically significant and positive relationship between ESG and banks' financial performance in the Nordic countries is assumed. The same expectation is made regarding the analysis of banks in all European countries. Based on previous research and the Nordic countries' strong performance in terms of responsibility, it is expected that the impact of ESG on banks' performance will be greater than across all Europe. Finally, it is expected that the relationship between ESG and bank performance depends on how ESG is incorporated in the modelling.

7.1 Relationship between ESG and banks' financial performance in the Nordic countries

Results of estimated regression model (1) for Nordic countries are presented in table 3. Corporate financial performance presented in the model (1) is presented separately as Tobin's Q, ROA and ROE in every table, as the model is used to analyze the impacts to all performance ratios separately. Statistical significance of the results is marked with asterisks, *, **, ***, indicating significance at levels 10%, 5%, and 1%, respectively. First, the results present that the impact of ESG_comb, which stands for the overall ESG-score in the model, is only partly in line with the first hypothesis.

Combined ESG score is found to be negative and statistically insignificant in the first model, which measures the relationship with Tobin's Q. Thus, the expectation of a positive relationship between total ESG score and overall financial performance is not supported regarding Tobin's Q. However, ESG is statistically significant at the level of 1% in models examining the relationship with ROA and ROE. In this regard, the results are mostly as expected and in line with the previous literature. Thus, the hypothesis expecting a statistically significant positive relationship between ESG and banks' financial performance in the Nordic countries is supported regarding ROA and ROE. As for the R squared values in the ROA and ROE models, the explanatory capacity of the models is clearly higher than that of Tobin's Q.

Table 3 The impact of ESG score on bank performance in Nordic countries

	Tobin's Q	ROA	ROE
<i>Constant</i>	0.404*** (0.044)	2.763*** (0.209)	28.818*** (2.227)
<i>ESG_comb</i>	-0.0001 (0.000)	0.005*** (0.001)	0.096*** (0.013)
<i>Size</i>	-0.006** (0.003)	-0.154*** (0.013)	-1.515*** (0.134)
<i>CAP</i>	-0.001 (0.001)	0.048*** (0.005)	0.308*** (0.050)
<i>GDP</i>	-0.010 (0.039)	-0.742*** (0.181)	-0.913 (1.951)
<i>R²</i>	0.010	0.190	0.133

What comes to the control variables used in every model, bank size is observed to have a statistically significant negative impact on every performance ratio. Statistically significant coefficient is shown to be bank size as a result of a model regarding Tobin's Q, which

would indicate that larger banks are valued at a lower market value book value than smaller banks. However, the impact of size is minimal related to the coefficients for ROA and ROE. Coefficient for size in ROA model may indicate that larger banks in Nordic countries are less effective to create return on assets than smaller banks. This could be due, for example, since competition may be more intense in smaller, non-international markets, and the growth of banks that are already large may become less efficient in such an environment. Similar factors may also explain the significant negative relationship between bank size and ROE.

On the other hand, among the control variables, the capital adequacy ratio has a statistically significant and positive relationship with both ROA and ROE, indicating that capital adequacy is also linked to these accounting-based indicators. Another noteworthy finding relates to the GDP coefficient in the ROA model, which indicates that GDP growth has a negative impact on banks' ROA. One possible explanation may be related to the smaller operating area of Nordic banks. As GDP grows, competition may intensify, meaning that revenues do not necessarily grow at the same rate.

Table 4 shows the results of estimated regression model (2), (3) and (4), that consider ESG as separate pillars, which are environmental, social and governance. Again, the models are used to analyze relationship between different ESG dimensions and each performance ratio separately. Although the first model showed no statistical significance for ESG, the results from the other models indicate that ESG_soc describing the social dimension of ESG, has a negative, but statistically significant impact on Tobin's Q at the significance level of 10%. It is also notable that the different dimensions of ESG are assigned to varying levels of statistical significance in the models, which supports the hypothesis regarding variation in results whether ESG is analyzed as one, or individual pillars.

Table 4 The impact of separate ESG pillars on bank performance in Nordic countries

	Tobin's Q	ROA	ROE
<i>Constant</i>	0.374*** (0.053)	2.655*** (0.254)	22.514*** (2.503)
<i>ESG_env</i>	0.0001 (0.000)	0.004*** (0.001)	-0.147*** (0.011)
<i>ESG_soc</i>	-0.0006* (0.000)	-0.003 (0.002)	0.131*** (0.015)
<i>ESG_gov</i>	0.0000 (0.000)	0.0009 (0.001)	0.051*** (0.009)
<i>Size</i>	-0.003 (0.004)	-0.147*** (0.017)	-0.890*** (0.167)
<i>CAP</i>	-0.0004 (0.001)	0.051*** (0.005)	0.310*** (0.046)
<i>GDP</i>	0.001 (0.039)	-0.577*** (0.183)	-2.300 (1.824)
<i>R²</i>	0.015	0.183	0.257

The results presented in table 4 can be seen to be partly consistent with the previous literature, particularly in that the *ESG_env*, environmental pillar, has a statistically significant impact on both ROA and ROE. However, the impact on ROE is observed to be negative, which could point out the costs, and that ESG investments are high related to returns that may not yet be realized. Thus, activity regarding environmental activities may increase operational efficiency, but through costs decrease it from shareholder perspective (Menicucci & Paolucci, 2023).

The findings that contradict the hypothesis relate to Tobin's Q, as combined ESG is found to have no effect on it in table 3, while the social pillar is found to have a negative effect in table 4. This could partly reflect what previous literature suggests that investors, for example, do not view companies' contributions to social issues as beneficial from a profitability perspective. In addition, the level of development in this area is often considered

to be already high in the Nordic countries, which is why growth in this area is not necessarily seen as adding value, from the perspective of shareholders, for example.

When it comes specifically to the social pillar of ESG, the impact of internal operations is often viewed as less relevant than responsible investments and lending portfolios, which can be categorized, in other words, partly external indicators (Schulte et al, 2024). On the other hand, this view can also be linked to the central principle of shareholder theory, which holds that a company should primarily pursue the interests of its shareholders. If sustainability considerations are shown to be economically unprofitable, investors' attitudes toward the profitability of an investment may turn negative. For control variables, the models (2), (3) and (4) show mostly similar results than the model (1).

7.2 Relationship between ESG and banks' financial performance in all Europe

Table 5 shows results for estimated regression model (1) for banks in all European countries. Compared to the results regarding ESG and Nordic banks, ESG_comb is statistically significant with a significance level of 1% in all models estimating Tobin's Q, ROA and ROE, when examining banks across the entire European region. Since previous research has focused relatively little on Nordic banks and more on the overall Europe, key similarities between these results and those of previous studies can be observed. Similar to the results from Nordic banks' models, the impact of ESG on ROE can be observed as the greatest, while combined ESG still has a positive relationship with ROA as well. Compared to the results presented earlier, the R-squared value is also higher for Europe overall, particularly regarding Tobin's Q.

Noteworthy is that a statistically significant and positive correlation can be observed between ESG and Tobin's Q in all European banks, unlike among Nordic banks. However, related to coefficients for ROA and ROE, the coefficient for Tobin's Q is relatively smaller.

A positive outcome regarding Tobin's Q may indicate that, at the European level, banks' sustainability activities are given greater weight in valuation than in the Nordic countries.

Table 5 The impact of ESG score on bank performance in all European countries

	Tobin's Q	ROA	ROE
<i>Constant</i>	0.947*** (0.023)	3.732*** (0.148)	17.110*** (1.313)
<i>ESG_comb</i>	0.0006*** (0.000)	0.011*** (0.001)	0.139*** (0.006)
<i>Size</i>	-0.037*** (0.001)	-0.219*** (0.007)	-1.4549*** (0.062)
<i>CAP</i>	-0.0004 (0.001)	0.042*** (0.003)	0.595*** (0.028)
<i>GDP</i>	-0.099*** (0.025)	0.351** (0.157)	9.359*** (1.390)
<i>R²</i>	0.155	0.184	0.188

Regarding the control variables, they are all observed to have statistically significant coefficients. Bank size has quite similar impacts on all financial performance indicators than in the models regarding Nordic banks only. Similarly to Nordic banks, CAP has a positive impact on both ROA and ROE. However, for all European countries, GDP growth is noticed to have significant positive impacts on both ROA and ROE. Thus, GDP growth may indicate better accounting-based measures for banks all over Europe.

More importantly, results from the estimated regression models (2), (3) and (4) for all European banks are recognized to be statistically significant for every ESG coefficient, ESG_env, ESG_soc and ESG_gov. The results are consistent with the previous studies regarding statistically significant and positive relationship between environmental pillar and all financial performance indicators. These are mostly in line with the findings of Bătae et al. (2021), who present that environmental pillar has a positive impact on ROA and ROE, but negative for Tobin's Q. The results show that, among all European banks,

environmental performance improves both market value relative to book value, return on assets and return on equity. In addition, social pillar is observed to have a negative impact on Tobin's Q similarly such as among Nordic banks. The change in R-squared is not as significant as in the results for models regarding Nordic banks.

Table 6 The impact of separate ESG pillars on bank performance in all European countries

	Tobin's Q	ROA	ROE
<i>Constant</i>	1.039*** (0.026)	4.955*** (0.169)	31.632*** (1.503)
<i>ESG_env</i>	0.0014*** (0.000)	0.0076*** (0.001)	0.084*** (0.008)
<i>ESG_soc</i>	-0.0005*** (0.000)	0.002* (0.001)	0.020** (0.009)
<i>ESG_gov</i>	-0.0003*** (0.000)	0.003*** (0.001)	0.047*** (0.006)
<i>Size</i>	-0.043*** (0.002)	-0.298*** (0.010)	-2.352*** (0.092)
<i>CAP</i>	-0.0004 (0.001)	0.042*** (0.003)	0.595*** (0.029)
<i>GDP</i>	-0.074*** (0.025)	0.358** (0.159)	9.613*** (1.418)
<i>R²</i>	0.169	0.182	0.174

In the context of Europe, control variables in ESG pillar models are shown to be more significant than models regarding Nordic banks. Also in Europe, bank size has negative impact on all performance indicators, as well as on other tables. Contrary to expectations, the results differ from, for example, the positive relationship shown by Buallay (2019). CAP does have similar effects when measuring ESG score and ESG pillars separately. Similarities between the results regarding GDP growth from all European models can also

be observed. Examining all European banks, GDP growth still has different impacts on all performance indicators related to the results from Nordic bank sample.

When comparing the impact of ESG and its individual pillars on bank performance, first in the Nordic countries and then across Europe more broadly, it becomes apparent that the effects of ESG are contrary to expectations. The clearest difference is found in the ESG_env coefficient, as for the Nordic countries it has statistically insignificant, negative, and positive effects on financial performance indicators. The coefficients are all positive regarding all European banks. Although a positive relationship with ESG and Tobin's Q is observed from table 5, which supports the second hypothesis, results presented in table 6 do not support this finding about the social and governance pillar. However, the last hypothesis is supported, similarly to the results of the analysis of individual ESG pillars in the Nordic countries.

A key finding regarding Tobin's Q and the differences observed when comparing Nordic banks with all European banks may be related to how ESG activities are valued on a country-by-country basis. Since the results show a positive correlation across Europe between all ESG pillars and both ROA and ROE, it is possible that the benefits gained from diverse ESG activities could be demonstrated more clearly from a financial perspective, which could also be reflected in banks' valuations from the perspective of Tobin's Q. However, this is not expected to be able to explain it comprehensively, or on the other hand, the negative or statistically insignificant coefficients obtained for Tobin's Q.

For example, Peni & Vähämaa (2012) present that during the financial crisis, high ESG scores regarding governance dimension can be connected to lower Tobin's Q. They state that the results may indicate that especially during a crisis, value expected from good corporate governance is not considered significant, and it is not seen as increasing reliability among shareholders. However, they add that banks that demonstrated good corporate governance achieved higher stock returns immediately after the crisis. Views

related to this could partly explain why the results mostly reveal other than a statistically significant positive relationship between ESG and Tobin's Q in this study.

If shareholders view an effective and independent leadership and good corporate governance as an unquestionable foundation for business profitability, the actual added value they provide may be more difficult to identify. From the shareholders' perspective, this may become apparent later, as the results on post-crisis stock returns by Peni & Vähämaa (2012) indicate, but the high ESG governance pillar and its link to business profitability may not be as clearly recognized or factored into ongoing valuation. On the other hand, particularly regarding the Nordic countries, the governance pillar is already expected to be at a high level, as legislation and banking regulations applicable to the Nordic countries and Europe in general provide grounds for assuming that good governance is already incorporated into the core operations of banks. From this perspective, a negative relationship with the social pillar could also be considered, as its benefits are not as apparent to shareholders as other factors or indicators affecting or describing financial performance. Compared to, for example, the environmental pillar, the effects of which can be measured more precisely from an economic perspective, it is shown to be connected to a lower cost of equity (Azmi et al, 2022).

7.3 Summary of the results and limitations of the study

The results show that ESG has a statistically significant impact on banks' financial performance in the Nordic countries, but in all European countries as well. Even though the significant impact between these factors can be observed, the relationship does not appear as statistically significant in results from all estimated regression models, even if the significance of coefficients can be proven. The hypothesis regarding a positive relationship between combined ESG and financial performance is supported by the results regarding ROA and ROE in the Nordic countries, and all financial performance indicators in Europe overall. However, variation between the results occurs when ESG is considered

as individual pillars instead of combined ESG score. Contrary to expectations, ESG is seen as having a greater impact across Europe than in the Nordic countries.

As for the final hypothesis suggesting that the effects depend to some extent on the measure of ESG, it is supported by the results and is thus consistent with previous research. This is evidenced in the results showing that despite the positive relationship between ESG and performance metrics observed in the first models, the relationship may turn out to be negative or statistically insignificant when ESG is analyzed using the environmental, social, or governance pillars. This is in line with Buallay (2019) and Bătae et al. (2021), who suggest that the findings depend on whether ESG is measured as a single entity or as separate dimensions.

Despite the positive relationship between ESG and bank performance presented, the study has several limitations. Although endogeneity issues are considered from the perspective of gross domestic product growth in this study, one of the key limitations of the studies regarding this topic is the reverse causality (see Menicucci & Paolucci, 2023). This is illustrated, for example, by Drempetic et al. (2020), who suggest that larger companies can achieve higher ESG scores due to their financial resources. For this reason, the key limitations of this study arise from the fact that banks' financial performance may also simultaneously influence their ESG performance, thus ESG score, even though ESG dimensions would be generally seen as factors affecting financial performance.

Although the review period covered by the data is longer than in some previous studies, the time fixed effects that may bias the results are not considered. In other words, the models do not consider, for example, economic shocks, inflation, sudden changes in the regulatory framework, or crises, the most significant of which during the period under review has been the COVID-19 pandemic. From the perspective of comparability, it is also worth noting that the data sample of Nordic banks is significantly smaller than that of all European banks, naturally.

It is also important to note that the calculation formulas for variables also vary. Changes in the presentation of financial ratios and the variety of methods available for calculating financial ratios significantly increase the limitations on their application (Liang et al, 2024). With its methodology-based limitations, this study confirms the findings of previous research on the European banking sector but also adds value by focusing more specifically on ESG on the Nordic banking sector, which has received relatively little attention in the past.

In addition, the selection of banks is based solely on those that were listed on the stock exchange at the time of the review. This excludes, for example, cooperative banks from the scope of the review and does not take a position on the business models of the banks under examination. In addition, ESG data introduces additional limitations to the study, as reporting and the assessment of some ESG scores have become established later than the other key indicators used in the models. This means that, regarding ESG data from Nordic countries, some banks have been found to have deficiencies in ESG scores during the data collection process. For this reason, to enhance the reliability of the results, in addition to the Nordic banks, the entire European area, which has a larger sample size, was also examined from the perspective of broad comparability.

8 Conclusions

From the perspective of financial performance, ESG constitutes a complex framework, but one that is important for both banks and their stakeholders. The study focused on examining the relationship between ESG and financial performance of the Nordic banks, while comparing it with results from all European banks. A statistically significant positive relationship between ESG and bank performance is observed in the Nordic countries and Europe as well. Nevertheless, the results differ clearly between the outcomes from estimated regression models, suggesting that the effects may depend on how ESG is included in the models. The results of the study reveal key similarities with previous research on the topic, although such studies have rarely focused on the Nordic banks. However, the impact of ESG factors does not appear to have more significant effect on performance in the Nordic countries than across the whole of Europe. Put simply, this could be explained, for example, by the attitudes of stakeholders, the potentially smaller resources of banks, and changes in regulation, the statistical impact of which, however, cannot be demonstrated using the models in the study.

Nevertheless, the results provide insights that can be linked not only to theoretical framework but also to practical operations in the banking sector. A key issue regarding ESG implementation concerns the conflict over whose interests should be prioritized and to what extent. In particular, the costs associated with ESG objectives and the realization of returns over the long term create a conflict between, for example, shareholder theory and stakeholder theory from banks' perspective. On the other hand, Rahi et al. (2022) demonstrate that the negative relationship between ESG and financial performance in the short term can be explained by rapidly changing legislation that requires immediate sacrifices to achieve longer-term targets. Thus, both the negative and positive coefficients revealed by the results may provide meaningful information for regulatory authorities. In addition to the need to address the costs banks are facing due to rapidly changing regulations, the results may also reflect the small positive outcomes of the green transition that has been ongoing in Europe for several years. However, due to strict regulatory

frameworks and operational differences compared to other sectors, change in the banking sector may be slower and steadier.

It can be concluded that stakeholder theory explains the relationship between ESG and bank operations best, as financial performance and thus shareholder interests are given consideration while the common good is being built. Banks must also recognize that external and internal issues are demonstrably dependent on each other (Schulte et al, 2025). On the other hand, legitimacy theory partly succeeds in explaining this pattern, since if the stakeholders vital to banks were to stop supporting their operations, the bank would not be able to generate value for shareholders either. It should be noted, however, that legitimacy theory can explain only the two opposite ends of the scale in terms of ESG: either sustainability and responsibility are seen as a necessity or as punishable behavior.

Although there has been significant progress in this area over the past decade, it still remains common for stakeholders to value ESG issues differently. It is true that even a short-term boycott can lead to the collapse of a business, but banks generally operate under strict legal regulations. For this reason, legitimacy theory leaves room for interpretation: if a bank's operations are otherwise viewed as acceptable and in line with legislation, individual actions or neglect, for example, to promote the interests of its own employees or to reduce emissions, do not necessarily immediately turn all stakeholders' views negative. For this reason, banks should communicate their ESG activities more transparently and, for example, provide concrete details on the expected costs and returns for investors, so that decision-making can increasingly be based on sustainability considerations.

The results also indicate that agency theory offers an important perspective on the ESG field. As in the findings of Rahi et al. (2022), the governance pillar of ESG is shown to have a positive impact on accounting-based ratios. Rahi et al. (2022) suggest that effective and transparent governance of a company can help ensure that returns are invested

efficiently, which is reflected, for example, in a higher ROA. In this way, the results can also demonstrate to managers and executives that tackling different agent problems and striving for better overall ESG performance will, in the long run, also lead to financial success, that benefit stakeholders more broadly. However, Rahi et al. (2022) state that in the future, compromises between different perspectives of the theories will be necessary if the aim is to satisfy multiple stakeholders. Examining ESG impacts through different pillars can help address this issue (Menicucci & Paolucci, 2023), and in this regard, this study offers additional value, particularly from a Nordic perspective.

Since the study and previous literature indicate that differences in results stem from how ESG is measured, that is, whether ESG is viewed as a whole or as separate pillars, it can also be expected that more precise results would be obtained by measuring the ESG pillars as distinct components. This would make it possible to determine the relationship between specific ESG measures, such as reducing emissions or promoting equality among staff, and the financial performance of banks. Since previous research has focused only minimally on Nordic banks, the need for further research is justified. The Nordic countries should also be examined more closely at the national level, considering the individual dimensions of the ESG pillars.

This could provide benefits, for example, in terms of how banks can further develop their operations in areas where the activity towards sustainability and responsibility is already high. Also, despite global initiatives and common regulation, different geographic regions present distinct challenges that banks must consider. According to Schulte et al. (2025), the core of sustainable development, put very simply, is the idea that, including the participants in the economic system, society has two options: either achieve an optimal level of sustainability or cease to exist. This should encourage banks to actively consider ESG and its different dimensions' financial impacts in their operations, even though the link between ESG and improved financial performance is not straightforward.

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