

VARIABLE EXECUTIVE COMPENSATION LINKED TO ESG GOALS

EVIDENCE FROM THE NORDICS

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Variable executive compensation linked to ESG goals: evidence from the Nordics

Abstract

The practice of linking executive compensation to the performance on environmental, social and governance (ESG) factors, commonly referred to as ESG Pay, remains an underexplored issue in academic literature. This study focuses on the relationship between ESG Pay, financial performance and ESG performance in the Nordic region. The data, built from merging the Nordic Compass and Capital IQ databases, consists of a panel of 490 companies with 2291 observations, from the years 2016 to 2021. The study provides evidence of a positive link between total CEO compensation and ESG Pay and a negative relationship between total CO2 emissions and ESG Pay. Moreover, no evidence is found of a link between ESG pay and the return on assets or the return on equity. ESG Pay is less prevalent in the Nordics as compared to other countries in the European Union and the United States, with Swedish companies leading its implementation within the Nordic region.

Keywords:

Executive compensation, firm performance, incentive pay, ESG Pay, ESG metrics

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1. Introduction

In the last decade, companies have adopted several Key Performance Indicators (KPIs) associated with Environmental, Social and Governance (ESG) factors. A growing number of these firms are linking the compensation of their executives to the achievement of ESG goals, a phenomenon that has become known as ESG Pay. From a panel of 10,000 global companies, the share of companies with ESG Pay has increased from 1% in 2011 to 38% in 2018 (Cohen, S., et al, 2022).

The introduction of ESG goals in executive compensation contracts is related to two major trends in Corporate Finance: the rise of Stakeholderism and the increasing concern of investors for the interrelation between ESG factors and financial performance.

Stakeholderism is defined as the “promotion of interests of all stakeholders in the firm, including its customers, employees, suppliers, societies and the environment” (Mayer, 2020). Advocates of Stakeholderism defend that companies must prioritize the interest of all stakeholders, including society at large (Bebchuk, Tallarita, 2020). For instance, the World Economic Forum (2021) promotes in its Davos Agenda four key stakeholders that shall be encompassed in stakeholder capitalism: governments, civil societies, companies, and the international community. There are three main concepts behind the idea of Stakeholderism: the maximization of total long-term value creation, the promotion of sustainability at the core of any business and the obsolescence of assessing firm performance exclusively on financial indicators. Opposite to Stakeholderism is shareholder primacy, also known as Shareholderism. According to Shareholderism, the interest of shareholders should be the predominant concern for corporate executives (World Economic Forum, 2021), a view commonly associated with the economist Milton Friedman (Friedman, 1970).

Tying executive pay to financial performance has been linked with an increase in financial performance (Murphy, 1985). Proponents of ESG Pay argue that its implementation can lead to better performance in ESG factors, which in turn can result in financial overperformance.

ESG Pay is a recent practice that has become prevalent in several countries. In 2021, 73% of S&P 500 companies linked their executive pay to ESG performance

(Spierings, 2022). In the Nordics, the practice seems to be less prevalent. Out of a panel of Nordic companies covered by ISS Executive Compensation Analytics, comprising 49 Norwegian, 132 Swedish and 37 Danish firms; only 28.6% of Norwegian 21.6% of Danish and 16.7% of Swedish companies had implemented ESG Pay in 2020 (Cohen, Kadach, Ormazabal, & Reichelstein, 2022).

The implementation of ESG Pay and its interrelationships with financial and environmental performance within the context of the Nordic region is essential for enhancing the knowledge about this practice, due to the presence of the Nordic corporate governance model. Companies in Nordic countries are often studied in the context of stakeholder theory for their strong stakeholder orientation and commitment to sustainability targets (Thomsen, 2016).

The objective of this paper is to shed light on the status of ESG Pay in the Nordics, analyse the relationship between the implementation of ESG Pay, financial, and environmental performance, and provide an overview of the main arguments in favour and against the implementation of ESG Pay. A quantitative analysis is performed using the Nordic Compass Database from the Swedish House of Finance, which contains ESG-related factors from more than 400 Publicly traded mid and large-capitalization companies.

This study shows evidence that companies that introduce ESG Pay also show higher levels of total CEO compensation, and that there is a negative relationship between ESG Pay and CO2 emissions. However, I fail to find conclusive evidence of a link between ESG Pay and financial performance. These results should be understood within the context of the Nordic region, which shows a lower degree of implementation of ESG Pay as compared to other European countries and the United States.

Section 2 of this paper provides an overview of the main discussion points in the literature related to ESG Pay: Stakeholderism, the relationship between financial performance and ESG performance, and the prevalence and determinants of ESG Pay in the context of executive contracts. Section 3 discusses the data sources for this study and the methodology, followed by a presentation of the empirical results in section 4. The implications of the results within the current context of the topic of ESG Pay are analysed in section 5, which also highlights the limitations of this study. Final remarks are provided in section 6.

2. Literature Review

This literature review aims to give an overview of the main underlying theories behind the implementation of ESG Pay. Section 2.1 briefly evaluates the main arguments of stakeholder and shareholder theory. Following this, section 2.2 reviews the link between financial performance and the performance of companies in ESG factors. Lastly, the implementation of these concepts into executive compensation contracts is discussed in section 2.3.

2.1. Stakeholderism vs Shareholderism

The concept of Stakeholderism sets the framework under which the idea of ESG Pay has come to fruition. According to Mayer (2020), Stakeholderism is defined as the “promotion of interests of all stakeholders in the firm, including its customers, employees, suppliers, societies and the environment”. The concept is opposed to Shareholderism, a doctrine inspired by Friedman's postulate that argues that “the social responsibility of any business is to increase its profit” (Friedman, 1970). Shareholderism was the predominant view until the recent shift towards corporate sustainability, under which more companies have embraced Stakeholderism.

Stakeholderism has been adopted by a large majority of multinationals in the United States and Europe. In 2019, The Business Roundtable, an association that unites 181 CEOs from leading US companies, issued a statement urging for the widespread adoption of Stakeholderism. According to that statement, companies should serve the interests of their customers, invest, and offer opportunities for personal development to their employees, have healthy and fair relations with their suppliers and deliver a positive impact in their communities (Business Roundtable, 2019). Generating long-term value for shareholders is listed only as one of the five stakeholder priorities to pursue. Following this trend, 93% of companies belonging to the S&P 500 index issued a sustainability report in 2020 (G&A, 2021). A sustainability report outlines in detail the relationship between a business and its different stakeholders. In turn, Stakeholders can use this information to ascertain if companies consider their interests when making decisions (Frynas & Yamahaki, 2016).

According to Freeman (2010), companies that acknowledge the interests of all stakeholders are more prone to adopting sustainable business practices, that in turn can lead to long-term value creation. Harrison, Bosse, & Phillips (2010) suggest that companies that understand and address the concerns of their stakeholders can benefit from three potential advantages: increased demand and efficiency, an increase in innovation, and a greater ability to deal with unexpected changes. The company can then translate these benefits into greater value for all its stakeholders.

Support for Stakeholderism can also stem from the concept of Corporate Social Responsibility. In line with this concept, companies have a moral obligation to consider the effect of their company on society (Parmar et al., 2010).

Even when managers do not believe that the business has a moral obligation or that it will increase its performance directly through the consideration of the wellbeing of its stakeholders, it might still benefit indirectly from its implementation. The relationship between financial performance and ESG performance is further explored in section 2.2.

Despite the prevalence of the practice and extensive research made on stakeholder theory, it is not a settled debate that it provides higher value to society than Shareholderism. As mentioned before, Shareholderism builds on the postulate made by the American Economist Milton Friedman (1970) that “there is one and only one social responsibility of business to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud”. Following this argument, Friedman argued that businesses that engaged in social responsibility activities were levying indirectly a tax on shareholder’s profits. If preferences for ESG factors vary across shareholders, having a homogeneous ESG business policy that reduces profits can be seen as a market inefficiency. In line with Friedman’s postulate, maximizing profit would also result in the maximization of social wellbeing, since individual investors would be free to allocate their share of profit to those causes that are aligned with their ESG preferences.

Bebchuk, Lucian & Tallarita (2020) provide a thorough review of the main weaknesses of stakeholder theory. The first concern is the heterogeneity of stakeholders’ interests. According to their argument, the interests of stakeholders are too diverse and often in conflict with one another, making the act of balancing them difficult. For instance, the demand for higher wages by workers from an oil company might not be

compatible with the required investment in technologies that reduce the CO2 intensity of their processes.

Bebchuk, Lucian & Tallarita (2020) also argue that the objectives of corporate leaders become less transparent under Stakeholderism, and that “corporate leaders become less accountable and more insulated from shareholder oversight”. Due to the diversity of stakeholder interests, corporate executives could easily justify suboptimal business decisions, basing them on the preferences of some stakeholder group.

Even if the acknowledgement of the preferences of all stakeholders is theoretically possible, in practice it adds a layer of complexity that increases associated costs (Sundaram & Inkpen, 2004). According to the same paper, Shareholderism is the system that maximizes the value of the firm. Moreover, the interests of stakeholders are often protected by the legal system. Sundaram and Inkpen also argue that the risk-aversion of stakeholders introduces another layer of inefficiency. It is likely that certain stakeholders of a company (for instance, its workers), have a stronger preference for stable cash-flows. If the concerns of risk-averse stakeholders are taken into consideration, entrepreneurial risk-taking might become less prominent in the company.

Table 1. Summary of arguments regarding Stakeholderism

Arguments supporting Stakeholderism	Arguments against Stakeholderism
- Sustainable business practices lead to long-term value creation (Freeman, 2010) - Increased Demand and Efficiency (Harrison et al., 2010) - Increase in innovation (Harrison et al., 2010) - Greater ability to deal with unexpected changes (Harrison et al., 2010) - The moral obligation of businesses towards society (Parmar et al., 2010) - Higher long-term financial performance (explored in section 2.2)	- Destruction of value for shareholders (Friedman (1970) - Heterogeneity of stakeholder interests (Bebchuk, Lucian & Tallarita, 2020) - Loss of transparency of corporate leaders' objectives (Bebchuk, Lucian & Tallarita, 2020) - Increased complexity leads to higher costs (Sundaram & Inkpen, 2004) - Loss of efficiency due to risk-aversion of stakeholders (Sundaram & Inkpen, 2004)

Source: own elaboration

Stakeholderism has been the underlying theory that has enabled the surge in ESG Pay. If companies have a wider responsibility to all stakeholders, it is reasonable to expect that some portion of executive pay should be linked to the preferences of all stakeholders. However, as previously shown, there is no consensus on the validity of Stakeholderism arguments, and its prevalence has raised questions on corporate transparency, efficiency, and the fading accountability of companies towards their shareholders. Table 1 summarizes the arguments given by the authors reviewed during this section.

2.2. The link between financial performance and ESG performance

2.2.1. Theoretical arguments

The prevalence of Stakeholderism has led companies to increase their consideration of factors that affect all their stakeholders. These factors, commonly referred to as ESG factors (Environmental, Social, and Governance), have been included and considered a pivotal part of corporate strategy by numerous companies.

Beyond the arguments explored in the previous section that discern between Shareholderism and Stakeholderism, the main topic of research in academic literature has been the link between financial performance and the performance in ESG factors.

Numerous arguments would explain a positive relationship between financial and ESG performance. Companies with a strong determination for the adoption of ESG practices might be more likely to manage risks effectively, leading to better financial performance (Giese, Lee, Melas, Nagy, & Nishikawa, 2019).

Strong performance in ESG factors can signal the ability of the company to manage its resources effectively (Whelan, Atz, Van Holt, & Clark, 2021). This effective management would lead to reduced costs, an increase in innovation and a higher ability to attract talent. ESG performance can also signal a long-term orientation of the firm, with efficient management focused on value creation (Zumente & Bistrova, 2021).

In the last decade, demand for ESG assets has grown exponentially, surpassing \$35 trillion in value in 2020 (Bloomberg, 2022). According to Bloomberg estimates, ESG assets could exceed \$50 trillion in 2025. This demand for ESG assets can create a mismatch between the number of investors willing to hold companies with a strong focus on ESG in their portfolios and the number of investors willing to hold companies that

disregard ESG. This disequilibrium can translate into a lower cost of equity for ESG-focused firms, leading to better financial returns (Gonçalves, Dias, & Barros, 2022).

Lastly, companies with high ESG standards are better positioned to react to changes in environmental legislation and are better placed to comply with legal and regulatory requirements. This position reduces the risk of receiving fines or suffering reputational damage (Gillan, Koch, & Starks, 2021).

2.2.2. Empirical evidence

Several studies have found evidence of a positive link between ESG performance and financial performance. Friede, Busch, & Bassen (2015) analysed the outcome of over 2200 unique primary studies that evaluated this link. 62.6% of the studies reviewed found a positive link between ESG and financial performance, while only 8% showed a negative link. Their analysis also differentiates between factors and regions. Governmental factors have the largest amount of empirical support (62.3% positive, 9.2% negative), followed by environmental (58.7% positive, 4.3% negative) and social factors (55.1% positive, 5.1% negative). Interestingly, the weight of evidence varies across regions: only 26.1% of studies find a positive link in developed Europe, as compared to 42.7% in North America and 65.4% in emerging markets.

Whelan et al. (2021) aggregated evidence from more than 1,000 research papers written between 2015 and 2020, making a distinction between corporate financial performance (using operating metrics such as the return on assets, the return on equity or share price performance) and investment performance (using measures such as alpha or Sharpe ratio). For corporate financial performance, 58% of studies show a positive relationship between ESG and financial performance, while only 8% show a negative relationship. The results are similar when focusing on investment performance, with 59% of studies suggesting a positive link and 14% suggesting a negative link. The authors highlight several factors that could explain this relationship. First, “ESG investing appears to provide downside protection, especially during a social or economic crisis”. Moreover, sustainability initiatives at companies might foster innovation and improved risk management, in turn leading to financial overperformance. However, the study emphasizes that ESG disclosure, on its own, does not show any correlation with financial performance.

Atz, Van Holt, Liu, & Bruno (2022) conducted a similar meta-analysis, aggregating evidence from 1,141 primary peer-reviewed papers and 27 meta-reviews. From 13 meta-analyses, covering the period from 1976 to 2018, and with a total number of primary studies of 1,272; 12 found “a positive association between sustainability and financial performance on the firm level”. Using this information, the authors conclude that “under a broad definition of sustainability a new study would, with 95% likelihood, find a partial correlation coefficient between 0.05 and 0.13”. While the evidence is robust at a firm level, the paper does not find a significant difference in financial performance between ESG investments and conventional investments, based on 107 studies covering the period from 1978 to 2016.

Khan, Serafeim, & Yoon (2016) evaluate the relationship between financial and ESG performance with their dataset that links the materiality¹ of sustainability investments with firm-specific sustainability ratings. Issues are deemed as either material or immaterial following the standards of the Sustainability Accounting Standards Board (SSAB). In their analysis, they find evidence that “firms with good ratings on material sustainability issues significantly outperform firms with poor ratings on these issues”. Moreover, “firms with good ratings on immaterial sustainability issues do not significantly outperform firms with poor ratings on the same issue”.

As mentioned previously, it has been suggested that one of the main mechanisms through which a firm achieves higher financial performance when it has a good ESG performance is a lower cost of capital. Gonçalves, Dias, & Barros (2022) performed a panel analysis of large European firms listed on the STOXX Euro 600 Index, from years 2002 to 2018. Their results suggest that better ESG performance is associated with a lower cost of equity, but a higher cost of debt. In quantitative terms, a 10% improvement in the ESG score increases the interest rate of debt by 1.32 basis points, while it decreases the equity premium by 1.42 basis points. Interestingly, ESG becomes non-influential in the cost of capital in times of financial crisis.

In summary, there is solid evidence that firms that consider ESG as part of their strategy and deliver on that strategy through ESG outperformance also deliver higher financial returns. Evidence also suggests that there are significant regional differences that affect this positive relationship. This can be explained by factors such as the

¹ Issues deemed as material are of high importance for the financial analysis of a company.

divergence of investor's preferences, market segmentation and differences in environmental legislation.

The positive link between financial and ESG performance has important ramifications that affect executive pay. If the link holds, prioritizing ESG goals at a company level caters to the interest of all stakeholders, including shareholders. Incorporating ESG metrics as part of executive variable compensation should be regarded as an additional layer of granularity for financial goals. However, as will be explored in the next section of this paper, setting ESG objectives is complex. If financial performance has a clear positive relationship with ESG performance, it can also be argued that ordinary financial goals in executive pay contracts will also incentivize executives to deliver on ESG objectives.

While this paper does not directly approach the relationship between financial and environmental performance, it still provides valuable insights into the link between those factors. If linking executive compensation to ESG performance is effective, it would lead to better environmental performance. Therefore, if the relationship between environmental and financial performance is positive, we would expect that this practice leads to better financial performance.

2.3. Variable executive compensation and company performance.

Linking executive pay to financial performance has been associated with an increase in financial performance (see section 2.3.1). In the last decade, companies have transitioned from stating short-term financial goals to basing their strategy on long-term non-financial objectives, considering the interests of their stakeholders. If linking executive compensation to financial performance results in better financial returns, one would expect a similar outcome from linking it to ESG goals, enhancing the possibilities of delivering value to all companies' stakeholders.

2.3.1. Variable compensation linked to performance

Traditionally, the main variable compensation schemes for executives have been based on financial objectives. This practice is rooted in the theories of incentive contracting and principal-agent theory.

Holmstrom (1979) examines the relationship between executive compensation and the concept of moral hazard, which describes the situation when one party can take detrimental action against another party to which it is contractually linked, without bearing the consequences. In the context of executive compensation, moral hazard arises when the CEO or other executives can act in a way that negatively affects the company, due to a lack of alignment between personal and company incentives. The paper argues that the introduction of performance-based incentives can mitigate the moral hazard problem by tying the interest of the agents (executives) and the principal (the company). In a later paper, Holstrom and Milgrom (1991) extend the initial framework, suggesting the necessity of multidimensional goals as opposed to solely financial objectives. An excessive focus on financial goals can lead to a distortion of priorities, yielding unintended consequences.

Building on this theoretical framework, numerous studies have provided empirical evidence that linking executive pay to firm performance can result in superior organizational outcomes, such as Murphy (1985) or Jensen & Murphy (1990). However, more recent literature has also shown evidence of the impact of a narrow focus on financial goals. For instance, in an extensive review of the topic of executive compensation, Edmans, Gabaix, & Jenter (2017) show that overreliance on financial goals can lead to short-term thinking and unintended consequences. As it is pointed out in their review, it can also lead to other undesirable outcomes, such as manipulation of accounting data and prioritization of accounting value over financial value.

In summary, there is strong evidence for the inclusion of financial goals as part of executive compensation contracts. However, there are also numerous theoretical and empirical arguments for the inclusion of non-financial goals, such as those that would be considered ESG Pay.

2.3.2. Prevalence of ESG Pay

ESG Pay differs from previous performance measures introduced in executive compensation packages, since it goes beyond the financial performance of the company, considering the wider interest of stakeholders.

The prevalence of ESG Pay is unclear, due to the differences in the definition of ESG among sources. However, an increasing number of companies report linking their

executive pay to some ESG indicators. A report by Semley Brossy Consulting (2022) examined the prevalence of various ESG metrics among companies in the S&P 500. According to this report, the percentage of S&P 500 companies that apply ESG metrics in incentive plans increased from 57% in 2021 to 70% in 2022.

Significant differences can be found among industries (table 2). ESG Pay is more common in heavy industries. Normally, companies within energy, utilities and material have a high environmental footprint and face significant safety challenges in their operations. These companies are also subject to more stringent environmental regulations. Despite this, more than half of the companies link executive pay to ESG targets, except for the Consumer discretionary industry (50%).

Table 2. Prevalence of ESG Pay in S&P 500 companies by industry

Industry	Number of Companies	ESG Pay (%)
Energy	22	100%
Utilities	28	96%
Materials	29	86%
Real estate	29	86%
Financials	67	84%
Consumer staples	33	73%
Healthcare	63	63%
Industrials	70	61%
Information technology	77	57%
Communication services	22	55%
Consumer discretionary	60	50%

Source: own elaboration using data by Semley Brossy Consulting (2022)

Spierings (2022) reports a similar result for S&P 500 companies, highlighting that the percentage of companies that have implemented ESG Pay grew from 66% in 2020 to 73% in 2021. The study also finds equivalent industry dynamics to the ones displayed in table 2.

A report by PwC (O'Connor, Harris, & Gosling, 2021) demonstrates that the practice is also common in the United Kingdom. Of all companies included in the FTSE 100 index, 45% report having an ESG measure in executive pay,

Studies that focus on the rest of the world are less prominent, with research being hindered by a lack of aggregate data on executive compensation. In the largest study regarding ESG Pay to date, Cohen et al. (2022) compiled data from the ISS Executive Compensation database from over 10,000 global firms. Out of the companies in the database, the share of firms that indicate that some ESG metrics are KPIs for their executives increased from 3% in 2010 to 38% in 2021. In the Nordics, the practice seems to be less prevalent: From 49 Norwegian, 132 Swedish and 37 Danish firms in the database, only 28.6% of Norwegian, 21.6% of Danish, and 16.7% of Swedish companies had implemented ESG Pay in 2020. However, the database only contains information from highly developed countries in Europe, North America, and Oceania.

2.3.3. Nature and weight of ESG Pay metrics in executive contracts.

One of the main problems researched in academic literature regarding ESG is the divergence of ESG criteria. Since there is no clear definition of what constitutes an ESG activity, indicators related to ESG practice show high variance. This problem is reflected in ESG ratings. O'Connor et al. (2021) found that correlations between ESG ratings range from 0.38 to 0.71, comparing ratings from six different providers. The average correlation between factors was 0.53 for the environmental dimension, 0.42 for the social dimension and 0.30 for the governance dimension. This suggests that considerations of company performance in governance widely differ among rating providers. The changes are explained by differences in the measurement (56%), scope (38%) and weight (6%).

Bebchuk, Lucian A. & Tallarita (2022) elaborated on the main aspects for the critique of the current state of practice in ESG Pay, concluding that ESG Pay is obscuring transparency in executive compensation, and is serving the interests of executives instead of those of stakeholders. Their study focuses on CEO pay in S&P 100 companies. Grouping by stakeholder groups, the most common goals are those based on employee treatment (42% of total companies), followed by employee composition (33%), customers (26%), the environment (21%), community (10%), and suppliers (2%). The weight of these goals as part of the total CEO compensation package is low, ranging from 1.5% to 3%, with limited exceptions². The authors express their concern that “ESG metrics currently tend to focus on narrow dimensions of a subset of relevant

² Weights are 12.5% for Southern Co., 6.6% for American Express and 4% for Ford Motor Company

stakeholders”, and that “the current use of ESG metrics exacerbates the agency problem with respect to executive pay”, due to the difficulty by shareholders to assess the performance and weight of ESG metrics.

Semler Brossy Consulting, (2022) finds similar results extending their analysis to S&P 500 companies: 65% of companies have ESG goals as part of their executive compensation program related to human capital management, 23% to environmental metrics and 41% to other ESG metrics³. Diversity and inclusion metrics are the most common overall, being in the top 3 metrics by prevalence in 10 out of 11 industries.

In summary, it seems that the implementation of ESG Pay has been gradual and that it supposes a relatively low amount of the total executive compensation package. Moreover, some authors have voiced their concerns about the fact that ESG Pay metrics are commonly internally defined, with obscure targets that distort the understanding of executive compensation. However, the inclusion of ESG targets is consistent with the wider consideration of companies of the interest of all their stakeholders.

2.3.4. The link between ESG Pay, ESG performance and financial performance.

As reviewed in section 2.2 of this paper, there is solid evidence that good performance in ESG metrics is linked with financial overperformance. Given this, it could be expected that executives that are rewarded for delivering on ESG targets are also more motivated to address the concerns of all firm stakeholders. This, in turn, would lead to higher financial performance.

Literature on the alleged link between ESG Pay and financial performance is limited. Cohen et al. (2022) reviewed relationships among these factors for 4,935 firms from 21 countries between 2011 and 2020. They conclude that companies that adopt ESG Pay tend to receive higher ESG scores and show better improvements in their CO2 emissions as compared to companies without ESG Pay. Among companies with ESG Pay, “and after controlling for stock price performance, executives of firms exhibiting higher ESG ratings and lower CO2 emissions receive higher variable compensation. However, they find no positive link between the adoption of ESG Pay and return on assets, and they find a decrease in the stock price after the adoption of ESG Pay.

³ Other ESG metrics include community engagement, customer satisfaction, cybersecurity, and product quality.

Chouaibi, Rossi, & Zouari (2021) examine the interrelations among corporate social responsibility, executive compensation, and cost of equity for 154 French firms from 2015 to 2020. The authors show evidence of a negative association between “executive compensation based on the achievement of sustainability and development goals (equivalent to ESG Pay) and the cost of equity.

Haque & Ntim (2020) analysed a panel consisting of 4379 firm-year observations, with companies from 13 European industrialized countries, covering the period 2002 to 2016. They conclude that higher “executive compensation is linked to better process-oriented carbon performance”, and that this relationship is reinforced for firms that adopt an ESG-based compensation policy. However, they do not find a significant relationship between executive compensation and ESG Pay and the actual reduction in greenhouse gas emissions.

Some authors have also presented voiced their concerns over the practical implementation of ESG Pay, as mentioned in section 2.3.3. In summary, empirical evidence on the topic of ESG Pay remains limited, highlighting the need for further research.

3. Methodology

3.1. Motivation

As highlighted in the literature review, the practice of linking executive compensation to ESG performance has become increasingly prevalent, with 73% of S&P 500 companies linking their executive pay to ESG performance (Spierings, 2022). Despite this emerging trend, the interrelations among financial performance, ESG performance and ESG Pay remain underexplored in academic literature. The largest study to date aggregates data from 21 countries, while showing significant differences in the adoption of this practice among them (Cohen et al., 2022), highlighting the need for focused research on different regions.

This paper aims to address the gap in the academic literature on ESG Pay, particularly in the context of the Nordic Region. The region is of special interest due to the ubiquity of the Nordic corporate governance model, which is often recognized for its strong stakeholder orientation and commitment to sustainability targets (Thomsen, 2016). The Nordic region is also known for its progressive environmental and social policies, which may affect the regulatory environment under which ESG Pay emerges and develops. However, it must be noted that countries from the Nordic region present significant differences in their corporate structures, leading sectors, and governance mechanisms (Thomsen, 2016). For this reason, this study provides a descriptive analysis of the differences in the prevalence of ESG Pay among Nordic countries, contemplating potential divergences among sectors and industries.

The first objective of this paper is to shed light on the degree of adoption of ESG Pay among Nordic Companies, and its evolution over time. This analysis also intends to identify industry-specific adoption trends.

After this descriptive exercise, a quantitative analysis of the interrelations among financial performance, ESG performance and ESG Pay will be conducted. The hypotheses for the quantitative study and the model specifications are provided in section 3.3 of this paper.

3.2. Data collection

The main data source for this study is Nordic Compass, a database belonging to the Swedish House of Finance that “analyses ESG factors on more than 400 mid and large capitalization companies from the Nordic region. More concretely, the database includes data from 2015 of all companies with a market value higher than 150 million € trading in NASDAQ-OMX Nordic and Oslo Bors.

Related to the topic of ESG Pay, Nordic Compass collects the following two datapoints: “Has the company board compensation linked to environmental or social performance?” and “is the compensation of at least one executive linked to environmental or social performance?”. The number of companies that had implemented ESG Pay for their board was deemed low for a quantitative analysis of the topic. Consequently, the second point will be utilized in the regression models and will be hence referred to as ESG Pay.

A manual effort to ensure the quality of the data in Nordic Compass was carried out, reviewing information in annual reports, remuneration reports and sustainability reports of companies. This effort resulted in the change of 87 unique data points related to ESG Pay⁴ and was also used to obtain insights about the reporting practices of ESG Pay that will be examined in the discussion. Moreover, the data was filtered to exclude companies that have their headquarters outside of the Nordic region⁵, to focus the question on the particularities of Nordic corporate governance.

Data from Nordic Compass also contains information about the CO2 emissions of companies, total energy consumption, CEO compensation⁶ and financial performance (earnings per share, sales). The data also provides the Industry Classification Benchmark (ICB) sector classification of a company, facilitating the analysis of industry trends.

Financial information about companies has been obtained from the S&P Capital IQ database, which was merged with the Nordic Compass database using the ISIN (International Securities Identification Number) of each company.

⁴ These changes have been reported and suggested to the Swedish House of Finance. However, this can create a point of inconsistency with future analysis conducted using Nordic Compass.

⁵ Companies with headquarters in Finland, Norway, Sweden, Iceland, and Denmark are included.

⁶ Certain datapoints for CEO compensation are only available from 2019.

The effort resulted in an unbalanced panel comprising 490 companies with 2291 observations, ranging from 2016 to 2021. Data from 2016 was included to calculate the increase in CO2 emissions, return on assets, and return on equity for the year 2017. However, the empirical study will focus on the time period from 2017 to 2021.

This panel, due to its size, time frame and focus on the Nordic region is unprecedented in academic literature. Cohen et al. (2022), the largest panel study to date on the topic of ESG Pay, contains information about a total of 263 Nordic companies. However, the effects of the implementation of ESG Pay and its interrelations with other variables are evaluated at an aggregated global level. As mentioned earlier, the Nordic region is known for its distinct corporate governance model (Thomsen, 2016), which can affect the prevalence, implementation, and relationships of ESG Pay with other variables.

3.3. Hypotheses and research design

This research study aims to examine the interrelations among ESG Pay, ESG performance, and financial performance. The formal hypotheses proposals for the expected relationship among variables are given in sections 3.3.1 to 3.3.3 of this paper. The econometric models for the interrelations among ESG Pay, ESG performance, and financial performance are based on Cohen et al. (2022). A fixed effects model is employed for both years and companies due to the potential unobserved heterogeneity across firms and years. The use of a fixed effects model is suitable for this scenario, due to the potential presence of unobserved firm-specific characteristics (ex. corporate culture, firm strategy, or management style) or time-specific factors (ex. market conditions or macroeconomic trends). This is especially necessary considering the ex-post analysis of the time period 2017 to 2021, when financial returns were significantly affected by the effects of the COVID-19 pandemic.

Regressions in hypotheses 1-4 are all based on Cohen et al. (2022). The main change relative to their model is related to the variables used to control for the size of each company. Cohen et al. (2022) preferred the use of total assets and the book value of equity to account for firm size. However, I favour the use of revenue as a single metric for controlling for size, following Gray & Cannella Jr (1997) and Skalte (2007). The choice of revenue as the proxy for company size is influenced by the high presence of technological companies in Sweden, and by the prevalence of asset-intensive companies

in the oil and gas sectors in Norway. Moreover, I also expect further divergence in accounting practices for the consideration of intangible assets. The rest of the control variables are kept identical to allow for comparability between the two studies.

Hypothesis 5 explores the relationship between total CEO compensation and the inclusion of ESG goals in executive contracts. The analysis is based on Kato & Kubo (2006), that conducted a panel data analysis of the relationship between the CEO's salary and company performance in Japan with data comprising the period 1986 to 1995. I differ from their analysis in the use of firm and time fixed effects. I have also focused my analysis on the total level of executive compensation, in contrast to the yearly change. The total level of executive compensation is preferred to the yearly change due to the disruptive effects of the COVID-19 pandemic, for which a logarithmic transformation is more suitable.

Table 3. Variable definitions for regression models

Variable	Definition
ln(ceo_comp)	Natural logarithm of reported amount of total compensation paid to the CEO (in millions of €) during the last fiscal year, excluding severance payments and pension payouts that are one-time charges.
ln_Rev	Natural logarithm of (the total reported yearly revenue in € +1).
NEGPROF	Dummy variable that is equal to 1 if earnings before taxes (EBT) are negative and equal to 0 otherwise.
ESGPAY	Dummy variable that is equal to 1 if the compensation of at least one executive in the company depends on environmental or social factors and equal to 0 otherwise.
ROA	Net income of the company divided by average total assets, expressed as a percentage.
ROE	Fiscal year's net income (after preferred stock dividends but before common stock dividends) divided by total equity (excluding preferred stock), expressed as a percentage.
CH_ROA	Yearly change in ROA.
CH_ROE	Yearly change in ROE.
Lev	Leverage, defined as total debt divided by total assets.
Tang	Tangibility, defined as net property, plant and equipment divided by total assets.
Div	Total dividends paid in €.
ln_CO2	Natural logarithm of the company's reported total greenhouse emissions in kilo tonnes.
ln_ENCON	Natural logarithm of the company's reported total energy consumption in Gigajoules.

Sources: Capital IQ, Nordic Compass. Own elaboration.

For the analysis of CEO compensation, several studies have found positive relationships between CEO compensation and the age of the CEO and her tenure in the company. However, none of the databases utilized in this study contains those data points. The manual collection of those datapoints is beyond the scope of this paper.

Table 3 contains a brief description of all the variables included in this study. Following Table 3, I provide the regression models used for my analysis, along with a brief explanation of the expected sign of the relationship between the dependent and the independent variables.

3.3.1. ESG Pay and ESG performance

Hypothesis 1: there is a positive relationship between ESG Pay and CO2 emissions performance.

With variables as defined in table 3, ζ_t representing time fixed effects, δ_i representing firm fixed effects, and ε_{it} representing the error term:

$$\ln_CO2 = \beta_1 \ln_Rev + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \beta_4 Lev_{it} + \beta_5 Tang_{it} + \beta_6 Div_{it} + \beta_7 ESGPAY_{it} + \zeta_t + \delta_i + \varepsilon_{it}$$

I expect revenue to have a positive correlation with greenhouse emissions, as larger companies tend to have higher greenhouse emissions. For leverage and tangibility, I also predict that the coefficients will be positive, as they are associated with higher capital intensity and size, both factors being related to higher greenhouse emissions. The relationships between ROA, ROE and dividends with CO2 emissions are less clear. On the one hand, better financial health might signal an ability to invest in climate-efficient technologies, but it also indicates the size of the company.

Finally, if as explained in the literature review the implementation of ESG Pay is associated with better performance in greenhouse emissions, the coefficient for ESGPAY would be negative.

Hypothesis 2: implementing ESG Pay is associated with lower levels of energy consumption.

With variables as defined in table 3, ζ_t representing time fixed effects, δ_i representing firm fixed effects, and ε_{it} representing the error term:

$$\ln_ENCON_{it} = \beta_1 \ln_Rev + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \beta_4 Lev_{it} + \beta_5 Tang_{it} + \beta_6 Div_{it} + ESGPAY_{it} + \zeta_t + \delta_i + \varepsilon_{it}$$

The presumed relationships between the dependent variables and energy consumption are the same as for hypothesis 2, as I believe that energy consumption (ENCON) and CO2 emissions are highly correlated and dependent on each other.

3.3.2. ESG Pay and financial performance.

Hypothesis 3: there is a positive relationship between the return on assets and ESG Pay.

With variables as defined in table 3, ζ_t representing time fixed effects, δ_i representing firm fixed effects, and ε_{it} representing the error term:

$$CH_ROA_{it} = \beta_1 \ln_Rev + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \beta_4 Lev_{it} + \beta_5 Tang_{it} + \beta_6 Div_{it} + \beta_7 ESGPAY_{it} + \zeta_t + \delta_i + \varepsilon_{it}$$

I expect revenue to be positively correlated with the increase in the ROA, as well as the baseline levels of ROA and ROE. The relationships of leverage, tangibility, and dividends with the change in the ROA (CH_ROA) are less clear. If the coefficient of ESGPAY is positive and significant, it would indicate that companies that implement ESG Pay show signs of financial overperformance.

Hypothesis 4: there is a positive relationship between return on equity and ESG Pay.

With variables as defined in table 3, ζ_t representing time fixed effects, δ_i representing firm fixed effects, and ε_{it} representing the error term:

$$CH_ROE_{it} = \beta_1 \ln_Rev + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \beta_4 Lev_{it} + \beta_5 Tang_{it} + \beta_6 Div_{it} + \beta_7 ESGPAY_{it} + \zeta_t + \delta_i + \varepsilon_{it}$$

I expect the relationship of the dependent variables with the increase in the return on equity to be like those presented in hypothesis 4 for the return on assets. Therefore, a positive and significant coefficient of ESGPAY would be interpreted as reflecting the financial overperformance of companies that have executive compensation linked to environmental or social factors.

3.3.3. ESG Pay and total executive compensation

Hypothesis 5: ESG Pay is associated with higher levels of executive compensation.

With variables as defined in table 3, ζ_t representing time fixed effects, δ_i representing firm fixed effects, and ε_{it} representing the error term:

$$CEO_COMP_{it} = \beta_1 \ln_Rev + \beta_2 ROA_{it} + \beta_3 ROE_{it} + \beta_4 NEGPROF_{it} + \beta_5 ESGPAY_{it} + \zeta_t + \delta_i + \varepsilon_{it}$$

The expected relationship of revenue, ROA, and ROE with CEO compensation is positive, as higher financial performance is likely to be related to higher levels of CEO compensation. The expected coefficient for ESGPAY is also positive, which would imply that ESGPAY is also associated with higher levels of CEO compensation.

On the contrary, I expect the coefficient of NEGPROF, the dummy variable that shows if a company had negative EBT in a particular year, to be negative. This would mean that firms penalize CEOs that do not achieve positive earnings before taxes with lower executive compensation.

4. Empirical Study

4.1. Summary statistics

As a first step in the analysis of the topic of ESG Pay in Nordic countries, a brief overview of the characteristics of the data utilized is provided. Table 4 shows the summary statistics of all the variables used in the regression models. The prevalence of ESG Pay among countries and industries is addressed in section 5.1.

Table 4. Summary statistics of panel regression data

Variable	Count	Mean	SD	Min	Max	Skewness	Kurtosis
ln_CEO_COMP	2,092	-0.08	0.82	-4.02	2.76	-0.05	0.75
ln_Rev	2,291	6.25	1.97	0.00	11.26	-0.76	1.33
ROA	2,291	3.97	9.04	-97.95	59.28	-3.45	29.25
ROE	2,281	11.93	78.61	-388.41	3,558.83	40.11	1,814.49
NEGPROF	2,291	0.14	0.35	0.00	1.00	2.07	2.27
ESGPAY	2,289	0.11	0.31	0.00	1.00	2.47	4.10
Lev	2,281	0.25	0.19	0.00	3.39	3.15	41.27
Tang	2,281	0.24	0.28	0.00	1.00	1.39	0.91
Div	2,280	0.57	2.30	0.00	80.00	25.04	766.54
ln_CO2	1,251	3.82	3.77	-9.21	21.05	0.43	1.08
ln_ENCON	1,212	12.98	3.02	-3.02	23.21	-0.40	1.47
CH_ROA	1,709	-0.21	4.58	-54.97	55.01	-0.47	35.71
CH_ROE	1,702	-0.95	16.39	-153.13	140.50	-1.67	23.83

Sources: Capital IQ, Nordic Compass. Own elaboration.

4.2. Results

4.2.1. ESG Pay and ESG performance

Table 5 presents the results for the regression models previously introduced for hypotheses number 1 and 2.

Table 5. Regression results ESG variables models

Dependent variable:		Dependent variable:	
ln_CO2		ln_ENCON	
ln_Rev	0.058 (0.278)	ln_Rev	-0.093 (0.243)
ROA	0.022 (0.058)	ROA	0.029 (0.034)
ROE	0.014 (0.011)	ROE	-0.001 (0.006)
Lev	3.636* (2.015)	Lev	0.406 (1.075)
Tang	1.474 (1.962)	Tang	0.723 (1.069)
Div	0.009 (0.037)	Div	0.022 (0.019)
ESGPAY	-0.775** (0.353)	ESGPAY	0.015 (0.186)
Observations	1,084	Observations	1,057
R2	0.017	R2	0.004
Adjusted R2	-0.485	Adjusted R2	-0.467
F Statistic	1.763*	F Statistic	0.395
Note: *p<0.1; **p<0.05; ***p<0.01		Note: *p<0.1; **p<0.05; ***p<0.01	

Table notes: the regressions are run with company and time fixed effects. Ln_CO2 and ln_ENCON are the natural logarithms of total CO2 emissions and total energy consumption. Ln_rev is the natural logarithm of revenue. Lev, Tang, and Div stand respectively for leverage, tangibility, and dividends. ESGPAY is a dummy variable equal to 1 if a company has implemented ESG Pay and 0 otherwise. Refer to table 3 for the complete definition of variables.

The models show low explanatory power, with most of the variables being insignificant at a 10% level. The coefficient estimate for ESG Pay is negative and significant for the regression on the left. This is consistent with the theory that companies with ESG Pay show lower levels of CO2 emissions than companies without ESG Pay. However, the weight of evidence is weak, due to the low explanatory power of the model and the value of the F-statistic, which is significant only at a 10% level.

The limitations of these models and potential solutions to improve the outcomes of subsequent research exploring the topic are presented in section 5.5.

4.2.2. ESG Pay and financial performance

The next two models explore the relationship between ESG Pay and financial performance, defined as the yearly change in the return on equity and the return on assets.

Table 6. Regression results financial variables models

Dependent variable:		Dependent variable:	
CH_ROA		CH_ROE	
ln_Rev	1.170*** (0.240)	ln_Rev	1.574* (0.848)
ROA	0.731*** (0.043)	ROA	-0.326** (0.152)
ROE	-0.010 (0.011)	ROE	0.912*** (0.039)
Lev	-3.623* (1.869)	Lev	13.861** (6.593)
Tang	5.461*** (2.016)	Tang	14.073** (7.112)
Div	-0.044 (0.046)	Div	-0.180 (0.161)
ESGPAY	0.461 (0.370)	ESGPAY	1.662 (1.304)
Observations	1,696	Observations	1,696
R2	0.372	R2	0.439
Adjusted R2	0.158	Adjusted R2	0.248
F Statistic	106.970***	F Statistic	141.305***
Note: *p<0.1; **p<0.05; ***p<0.01		Note: *p<0.1; **p<0.05; ***p<0.01	

Table notes: the regressions are run with company and time fixed effects. CH_ROA and CH_ROE are the yearly change in ROA and ROE. Ln_rev is the natural logarithm of revenue. Lev, Tang, and Div stand respectively for leverage, tangibility, and dividends. ESGPAY is a dummy variable equal to 1 if a company has implemented ESG Pay and 0 otherwise. Refer to table 3 for the complete definition of variables.

For the change in the ROA model, the natural logarithm of revenue, ROA and tangibility are all significant at a 1% level. Moreover, the sign of the coefficient estimates is as expected and previously mentioned in section 3.3.2.

Similarly, ROA, ROE, leverage, and tangibility are all significant at a 5% level for the change in the ROE model. All the coefficients of the control variables are as expected except ROA, which is negative. This would imply that companies with higher ROA tend to show worse performance changes in the ROE, holding other factors constant and controlling for unobserved time and firm-specific characteristics.

The main variable of interest for this regression, ESGPAY, is not significant at a 10% level for any of the regressions. In other words, there is no evidence that the implementation of ESG Pay results in financial overperformance.

The results for R^2 show that the model is a good fit for the data. The F-statistic is significant at a 1% level. Considering this, the weight of evidence that there is no statistically significant relationship between the implementation of ESG Pay and better financial performance is strong. The implications of these results are further explored in section 5.3 of this paper.

4.2.3. ESG Pay and total executive compensation

Results for the fixed effects regression model proposed for hypothesis 5 are presented in table 7.

Table 7. Regression results CEO compensation model

Dependent variable:	
ln_CEO_COMP	
ln_Rev	0.145*** (0.022)
ROA	-0.012*** (0.003)
ROE	0.0001 (0.0002)
NEGPROF	-0.065 (0.049)
ESGPAY	0.138*** (0.038)
Observations	1,791
R2	0.052
Adjusted R2	-0.297
F Statistic	14.440***
Note: *p<0.1; **p<0.05; ***p<0.01	

Table notes: the regression is run with company and time fixed effects. Ln_rev is the natural logarithm of revenue, NEGPROF a dummy variable equal to 1 if the EBT of a company is negative and 0 otherwise, and ESGPAY is a dummy variable equal to 1 if a company has implemented ESG Pay and 0 otherwise. Refer to table 3 for the complete definition of variables.

Results show a positive correlation between the natural logarithm of revenue and the natural logarithm of total CEO compensation, at a 1% level of significance. The coefficient estimate is also high, implying that if the revenue increases by 1%, CEO compensation increases approximately by 14.5%, holding other factors constant and controlling for unobserved time and firm-specific characteristics. ROA is also significant at a 1% level, but counterintuitively the coefficient is negative, although the coefficient

estimate is low. The coefficient for ROE and NEGPROG, the dummy variable equal to 1 if a company has negative EBT, are insignificant at 10% significance.

The main variable of interest for this analysis, ESG Pay, is significant at a 1% level. The coefficient estimate implies that the implementation of ESG Pay is associated with an overall increase in CEO compensation of 13.8%, after controlling for the aforementioned factors. This is consistent with the theory that variable compensation schemes that reward CEOs for ESG performance are introduced as an addition to existing compensation, instead of replacing other items of the compensation package.

The F-Statistic indicates that the overall model is statistically significant. However, the results for R^2 and adjusted R^2 lead us to exercise caution in weighting the statistical evidence. As mentioned before, the model would have benefitted from including control variables related to CEO characteristics, such as age, or tenure. Moreover, the data range of the period is also short, comprising only a total amount of 5 years.

4.2.4. Results with Sweden country interaction term

As later shown in table 9, ESG Pay is more common in Sweden than in other Nordic countries. For this reason, it is important to analyze if the relationship between ESG Pay and other variables in previous regressions differs in Sweden.

To evaluate this, all regressions from sections 4.2.1 to 4.2.3 have been run with an additional interaction term between ESG Pay and Sweden. This new variable takes the value 1 if the country is Sweden and the company has implemented ESG Pay, and it is equal to 0 otherwise.

Results from these regressions can be found in tables A2, A3, and A4 in appendix 8.2. The interaction term is only significant for the regression that analyzes total energy consumption, at a 5% significance level. This suggests a correlation between Swedish companies with ESG Pay and energy consumption. For the rest of the variables, there is no evidence that the effects analyzed in the previous section differ in Sweden as compared to other Nordic countries.

5. Discussion

The forthcoming section aims to shed light on the prevalence of the practice of ESG Pay in Nordic countries and to provide a contextualized interpretation of the results obtained in the empirical analysis of section 4. Section 5.1 summarizes and discusses the practice of ESG Pay in the Nordics, whereas sections 5.2 to 5.4 focus on the outcome of the regression analysis.

5.1. Prevalence of ESG Pay in the Nordics

5.1.1. Industry level implementation

Table 8 shows the prevalence of ESG Pay in the different industries among Nordic Countries, using the same panel data as for previous regressions in this study (see section 3.2) and the Global Industry Classification Standards (GICS) for sector classification.

The adoption of ESG Pay in the Nordics varies among industries, ranging from 17% of companies in healthcare to 75% in utilities in 2021. The results are similar to those presented in Table 3 for companies belonging to the S&P 500. Companies in heavy industries have the highest rates of implementation of ESG Pay, with 75% of utility companies, 62.5% of energy companies and 50% of material companies adopting this practice in 2021. On the contrary, ESG Pay is less frequent in healthcare (17%), communication services (17.6%) and financials (21.8%).

This disparity can be explained by the relationship of different industries with ESG practices. Companies in heavy industries have in general a higher environmental footprint, and there are higher risks for personnel during operations. These sectors can also be subject to targeted environmental legislation. Consequently, ESG goals for companies in heavy industries are more relevant to their business context, and stakeholders might press for the introduction of ESG practices, including ESG Pay. From the other side of the argument, ESG Pay can be less relevant for sectors in which the societal value of the sector activity is perceived as high and the environmental impact is low, such as healthcare or communication services.

Table 8. Industry Prevalence of ESG Pay in the Nordics

Year	2017	2018	2019	2020	2021
Communication services					
Number of companies	14	14	17	15	17
% ESG PAY	0.0%	0.0%	5.9%	6.7%	17.6%
Consumer discretionary					
Number of companies	42	41	39	44	41
% ESG PAY	2.4%	2.4%	2.6%	15.9%	22.0%
Consumer staples					
Number of companies	25	21	23	24	22
% ESG PAY	0.0%	0.0%	8.7%	16.7%	31.8%
Energy					
Number of companies	15	10	13	16	8
% ESG PAY	13.3%	20.0%	23.1%	31.3%	62.5%
Financials					
Number of companies	54	43	62	59	55
% ESG PAY	0.0%	0.0%	8.1%	8.5%	21.8%
Healthcare					
Number of companies	44	44	48	53	47
% ESG PAY	2.3%	2.3%	8.3%	13.2%	17.0%
Industrials					
Number of companies	106	101	110	112	109
% ESG PAY	0.0%	1.0%	2.7%	18.8%	28.4%
Information technology					
Number of companies	33	29	32	39	35
% ESG PAY	0.0%	0.0%	12.5%	20.5%	22.9%
Materials					
Number of companies	22	27	25	25	22
% ESG PAY	13.6%	11.1%	20.0%	48.0%	50.0%
Real estate					
Number of companies	25	25	31	25	30
% ESG PAY	0.0%	4.0%	12.9%	28.0%	33.3%
Utilities					
Number of companies	5	4	5	5	4
% ESG PAY	20.0%	50.0%	40.0%	40.0%	75.0%

Source: Nordic Compass. Own elaboration.

Notes: % ESG Pay show the percentage of companies for which the compensation of at least one executive is linked to social or sustainability goals. Number of companies shows the sum of companies in our sample for each respective industry, at an aggregated Nordic level.

5.1.2. Country level implementation

Evidence by Cohen et al. (2022), shows that out of a panel of Nordic companies covered by ISS Executive Compensation Analytics, comprising 49 Norwegian, 132 Swedish and 37 Danish and 45 Finnish firms; only 28.6% of Norwegian, 21.6% of Danish, 16.7% of Swedish and 22.2% of Finnish companies had implemented ESG Pay in 2020. The practice is not nearly as prevalent as in the United States, where 73% of S&P 500 companies linked their executive pay to ESG performance (Spierings, 2022).

Table 9 presents data on the prevalence of ESG Pay in the Nordics, using the adjusted data from Nordic Compass that was used for the regression analysis.

Table 9. Country prevalence of ESG Pay in the Nordics.

Year	2017	2018	2019	2020	2021
Denmark					
Number of companies	58	57	55	57	52
% ESG PAY	3.4%	3.5%	5.5%	10.5%	23.1%
% Expected ESG Pay	2.0%	3.2%	8.6%	18.4%	27.0%
Finland					
Number of companies	63	63	63	68	60
% ESG PAY	4.8%	6.3%	6.3%	10.3%	21.7%
% Expected ESG Pay	2.3%	3.0%	8.6%	20.1%	28.0%
Iceland					
Number of companies	7	5	11	8	1
% ESG PAY	0.0%	0.0%	0.0%	12.5%	0.0%
% Expected ESG Pay	0.7%	1.7%	8.3%	17.3%	17.0%
Norway					
Number of companies	82	48	85	94	75
% ESG PAY	1.2%	4.2%	7.1%	13.8%	18.7%
% Expected ESG Pay	3.4%	5.5%	10.2%	19.7%	30.5%
Sweden					
Number of companies	175	186	192	190	202
% ESG PAY	1.1%	1.6%	11.0%	27.4%	33.7%
% Expected ESG Pay	1.4%	2.4%	7.4%	18.2%	26.4%
Nordics					
% ESG PAY	2.1%	3.0%	8.4%	18.9%	27.5%
Number of companies	385	359	406	417	390

Sources: Nordic Compass. Own elaboration.

Notes: % ESG Pay show the percentage of companies for which the compensation of at least one executive is linked to social or sustainability goals. % Expected ESG Pay is the percentage of companies predicted to have ESG Pay given ESG Pay industry prevalence and each country's industry composition. Number of companies shows the sum of companies in our sample for each respective country or region.

For the context of this analysis and in consistency with my previous interpretation, a company is understood to have ESG Pay when the compensation of at least one of its executives is linked to environmental or social factors. The panel data includes all companies with a market value higher than 150 million € trading in NASDAQ-OMX Nordic and Oslo Bors, belonging to the five Nordic countries between the years 2017 to 2021. Further description of the data can be found in section 3.2 of this paper.

As can be seen in Table 9, ESG Pay has followed a similar trend among the different Nordic countries. Excluding Iceland, due to the small sample size, consistent patterns can be seen in all countries. In 2017, only 2.1% of the companies in the panel had implemented ESG Pay, ranging from 1.1% in Sweden to 4.8% in Denmark⁷. The largest yearly change was from 2019 to 2020 when the percentage of companies with ESG Pay in the panel increased from 8.4% to 18.9%. The change was particularly large in Sweden, with a surge from 11% to 27.4%. 2021 was also a year in which a significant number of companies implemented ESG Pay, resulting in 27.5% of companies in the Nordics having adopted this practice by that year.

In 2021, at the end of the sample period, implementation in Norway (18.7%), Finland (21.7%) and Denmark (23.1%) is similar. However, ESG Pay is substantially more common in Sweden, where 33.7% of companies in the panel had ESG Pay in 2021. The higher degree of adoption of ESG Pay in Sweden could be plausibly explained by a difference in industry composition. However, using ESG pay industry prevalence data from the panel, I calculated the percentage of companies that would be expected to have ESG Pay in each country given its industry characteristics. As can be seen in table 9, country differences in the implementation of ESG Pay do not seem to be explained by industry differences in the Nordics, with all countries having a lower percentage of companies with ESG Pay than expected.

Table 9 is consistent with the findings of Cohen et al (2022), providing further evidence that the Nordics are trailing behind in the adoption of ESG Pay. Several reasons might explain this lower prevalence of ESG Pay. These include differences in regulatory frameworks, management styles, executive compensation structure or industry composition.

⁷ Iceland is excluded from country comparisons, due to the small sample size.

First, Nordic companies are subject to generally more stringent ESG regulation as compared to the United States (Ioannou & Serafeim, 2012). This, in turn, can lead to a higher degree of adoption of ESG business practices without the need of tying executive compensation to ESG performance. The higher reporting standards for ESG corporate practices under directive 2014/95 of the European Union might also affect the data, as the considerations of what constitutes ESG might be narrower. However, the panel study by Cohen et al. (2022) suggests that the Nordic countries are also trailing behind in the implementation of ESG Pay as compared to other countries from the European Union.

Another possible reason behind the disparity can be the Nordic management model, which is characterized by consensus-based decision-making, employee involvement and wider regard for stakeholder interests (Thomsen, 2016). This model might encourage the adoption of ESG practices without the need for explicit ESG incentives in executive compensation contracts.

5.2. ESG Pay and environmental performance

As shown in regressions in section 4.2.1, there is a negative relationship between total CO₂ emissions and the implementation of ESG Pay, at a 5% significance level. These findings are consistent with the theory that the introduction of incentives related to ESG goals in executive compensation contracts drives companies to better environmental performance.

Previous results in academic papers are also aligned with these results. Cohen et al. (2022) concluded that companies that adopt ESG Pay show better improvements in their CO₂ emissions. Haque and Ntim (2020) also suggest a connection between ESG Pay and improved process-oriented carbon performance.

The regression concerning energy consumption lacks enough explanatory power to reach any conclusion, with no dependent variables being relevant at 10% significance. To the best of my knowledge, no previous studies have analyzed the relationship between energy consumption and ESG Pay.

The rationale for ESG Pay relies on a negative relationship between its implementation and total CO₂ emissions. This study shows a negative relationship between total CO₂ emissions and ESG Pay. However, this does not prove causality. Executives that are aware of a future reduction in CO₂ emissions can promote the inclusion of goals in their

executive contracts related to CO2 performance, creating a reverse explanation for this relationship. As shown in section 5.5, reverse causality is a possible interpretation of these results. In summary, as further clarified in section 5.5, there is an acute need for further research on the relationship between these two variables, changing the period and universe of the study.

5.3. ESG Pay and financial performance.

Results presented in section 4.2.2 show no evidence of a relationship between ESG Pay and financial performance. These results contrast with Chouaibi, Rossi, & Zouari (2021), which gives evidence of a negative relationship between “executive compensation based on the achievement of sustainability and development goals and the cost of equity. Cohen et al. (2022) find similar results for stock returns, but no association between the adoption of ESG Pay and the return on assets.

These results are opposite to the argument that the wider consideration of stakeholders' interests results in financial overperformance. Considering these results, there is no financial reason for the implementation of ESG Pay. However, there is also no evidence for the existence of a trade-off between the implementation of ESG Pay and financial performance.

5.4. ESG Pay and executive compensation

Results in section 4.2.3 showed a positive correlation between the implementation of ESG Pay and total CEO compensation. As it was shown, the implementation of ESG Pay is associated with an overall increase in CEO compensation of 13.8%, holding other factors constant and controlling for unobserved time and firm-specific characteristics. This suggests that pay for goals related to ESG factors is included as an additional item in executive compensation packages, instead of replacing existing forms of compensation.

The difference in executive compensation between companies with ESG Pay and companies without ESG Pay could be attributed to a fundamental difference in the characteristics of both groups. More concretely, executives are often compensated for higher risk. If companies with ESG Pay show higher variance in ROA and ROE than companies without ESG Pay, the higher compensation could be a mere signal of the

higher degree of risk. However, as it is shown in table 10 (appendix 8.1), the contrary is true for our panel: companies with ESG Pay show a lower variance in ROA and ROE.

The trend of linking executive compensation to ESG goals can be detrimental to the interests of shareholders for several reasons. First, as shown in results 4.2.2, there is little evidence that the introduction of ESG Pay results in financial overperformance. In this scenario, executives would increase their compensation with ESG Pay without delivering additional value to shareholders, exacerbating the agency problem of executive pay. However, results in 4.2.1. show a negative relationship between CO2 emissions and the implementation of ESG Pay. Given this, it is possible that managers are receiving higher executive compensation for their efforts to reduce CO2 emissions. However, it is necessary to exercise caution on this interpretation due to the chance of reverse causality.

The second issue that arises is related to transparency and corporate accountability. As shown by Bebchuk, Lucian A. & Tallarita (2022) in an analysis of S&P 100 companies, reporting on ESG objectives in executive compensation contracts is opaque, failing to deliver outsider observability for stakeholders. As it will be pointed out in section 5.5, there is not enough research on the topic of ESG Pay in Nordic countries. Consequently, it is difficult to ascertain if reporting on ESG Pay suffers from the same problems as it does in the United States.

Finally, it is challenging to set ESG goals that satisfy the interest of all stakeholders. Bebchuk, Lucian A. & Tallarita (2022) point out that “ESG metrics currently tend to focus on narrow dimensions of a subset of relevant stakeholders”.

In summary, this empirical study has shown proof that having ESG goals as part of executive compensation contracts is associated with a substantially higher level of executive pay. In the interpretation of these results, we must consider the limitations of the model, as well as the necessity of interpreting the results within the Nordic context.

Despite its promise and its well-intended outcomes, ESG Pay can be used to justify the creation of compensation components that are not transparent, easy to manipulate, unclear, and not based on easily measurable quantitative metrics.

5.5. Limitations

This study faces limitations related to the time period. Since ESG Pay is a relatively recent practice, it has only started to be monitored and studied during the last few years. The

empirical analysis comprises the years 2016 to 2021, which might not be a long enough period of time to consider the long-term effects of the different study variables. Moreover, the period is abnormal due to the effects of the COVID-19 pandemic. This event caused widespread economic disruption, affecting unequally different sectors of the economy. The event can affect some of the relationships studied in this analysis. Future studies on the topic can build on the methodology proposed for this study, using the publicly available data of Nordic Compass to conduct subsequent studies that consider a different time frame.

The focus in the Nordic countries was a conscious decision taken by the lack of academic research on the topic of ESG Pay within the region, the particularities of the Nordic corporate governance model and the characteristics of the data in the Nordic Compass database. However, it should be considered that the results of this study can only be interpreted within its geographical context. The characteristics, implementation, and interrelations of ESG Pay with other variables can vary across different regions. The sample size of the panel data was also affected by this narrow focus.

The regression models were also affected by a lack of availability of data. More concretely, for the analysis of the determinants of CEO total compensation, variables intrinsic to the CEO could have been considered, such as age or tenure. The inclusion of these variables might give a better overview of the main explanatory variables behind CEO compensation and provide a more accurate estimate of the effect of introducing ESG Pay on total CEO compensation. The regression models utilized for evaluating the link between ESG Pay and environmental performance would have also benefitted from the inclusion of explanatory variables that were more closely related to the dependent variables.

This study does neither delve deeper into the characteristics of the ESG goals set in executive compensation schemes in the Nordics. It can be the case that certain goals are correlated with better environmental or financial performance. Moreover, no distinction is made between environmental, social and governance goals when considering ESG Pay. The qualitative characteristics of ESG goal in executive compensation contracts within the Nordic context needs to be examined in future academic papers. These findings can in turn be used to conduct a more detailed analysis that distinguishes the effects of the different ESG goals.

The definition of ESG Pay varies among different papers. In this case, a company is considered to have implemented ESG Pay when the compensation of at least one of its executives is linked to sustainability or social factors. This excludes governance factors, which are also normally part of the definition of ESG Pay. The focus on sustainability and social factors is explained by the data availability of the Nordic Compass database. I consider this consistent with the fact that there is a heterogeneous understanding of what constitutes a governance factor. However, this consideration can make this study diverge from the results of other academic literature that examines the topic of ESG Pay.

When interpreting the results, it is necessary to keep in mind the possibility of reverse causality. This is especially true for the negative relationship between CO2 total emissions and the implementation of ESG pay. As mentioned earlier, there are two ways to interpret this relationship. On the one hand, it is possible that companies implement ESG Pay, leading to a change in their CO2 practices. On the other hand, it could also be the case that the implementation of ESG Pay takes place with ex-ante information about the CO2 performance of the companies. In this interpretation, ESG Pay would be exacerbating the agency problem by giving executives a justification for a higher level of compensation.

Finally, the lack of reporting about ESG-related factors, such as CO2 emissions or energy consumption has also limited the explanatory power of this analysis. The regressions for those two variables had 1,084 and 1,057 observations respectively. This is much lower than the 1,696 observations for the regressions that evaluated the change in ROE and ROE. The lack of stringent reporting standards on ESG variables limits data availability for academia, hindering the process of ascertaining the implications of ESG practices.

This paper serves as a first approach to the analysis of ESG Pay in the Nordic region. The extent of ESG Pay as a practice makes it one of the most important topics for academic literature related to executive compensation. Conclusions from this paper must only be considered within the Nordic context and acknowledging its limitations, due to the time period analysed and data availability constraints.

6. Conclusion

The main motivation for this study was the lack of academic research concerning the topic of ESG pay within the context of the Nordic countries, where the Nordic corporate governance model prevails. This empirical analysis provides evidence of a positive relationship between total CEO compensation and the implementation of ESG Pay. Moreover, this study shows evidence of a negative relationship between ESG Pay and CO2 emissions. The regressions to analyze the relationship between ESG Pay and the return on assets, and between ESG Pay and the return on equity fail to prove any significant relationship between these variables.

This first finding is relevant for several reasons. First, it is commonly argued that ESG goals in executive compensation contracts replace other forms of executive compensation. In the context of this study, ESG Pay is added to existing executive compensation, increasing the overall compensation package of CEOs. Furthermore, that increase in CEO compensation is not associated with better financial performance, which could be understood as detrimental to the interests of shareholders. However, this study also shows that ESG pay is linked to better CO2 performance, which could justify the increase in overall CEO compensation. The negative relationship between ESG pay and CO2 emissions can be interpreted as proof that the incentives help to deliver on a key goal for stakeholders. However, it can also be explained by reverse causality.

As highlighted in the discussion, the results of this regression should be interpreted in the context of the Nordic region. The time period considered is also heavily affected by the COVID-19 pandemic, which had uneven effects in countries, industries and individual companies.

The Nordics are trailing behind other European Union countries in the implementation of ESG Pay. Despite this, 27.5% of companies analysed had ESG Pay in 2021. Due to the high degree of adoption, it is paramount that future studies expand on providing answers to the questions presented in this paper. Understanding the implications of ESG Pay, and the motivations for its introduction in executive compensation schemes is crucial for the areas of corporate sustainability and corporate governance.

7. References

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8. Appendix

8.1. Difference in variance among regression groups

Table A1. Variance of financial returns in panel data analysis

Group	ROE	ROA
ESG Pay	488.1	63.6
No ESG Pay	6887.3	84

8.2. Regression tables with Sweden country interaction term

Table A2. Regression results ESG variables models and country interaction term.

Dependent variable:		Dependent variable:	
ln_CO2		ln_ENCON	
ln_Rev	0.063 (0.279)	ln_Rev	-0.099 (0.242)
ROA	0.021 (0.058)	ROA	0.021 (0.035)
ROE	0.014 (0.011)	ROE	-0.001 (0.006)
Lev	3.627* (2.017)	Lev	0.244 (1.076)
Tang	1.508 (1.970)	Tang	0.923 (1.071)
Div	0.008 (0.037)	Div	0.019 (0.019)
ESGPAY	-0.699 (0.501)	ESGPAY	0.378 (0.261)
SE_ESG_Pay	-0.140 (0.655)	SE_ESG_Pay	-0.692** (0.349)
Observations	1,084	Observations	1,057
R2	0.017	R2	0.009
Adjusted R2	-0.487	Adjusted R2	-0.461
F Statistic	1.546	F Statistic	0.839
Note: *p<0.1; **p<0.05; ***p<0.01		Note: *p<0.1; **p<0.05; ***p<0.01	

Table notes: the regression is run with company and time fixed effects. Ln_CO2 and ln_ENCON are the natural logarithms of total CO2 emissions and total energy consumption. Ln_rev is the natural logarithm of revenue. Lev, Tang, and Div stand respectively for leverage, tangibility, and dividends. ESGPAY is a dummy variable equal to 1 if a company has implemented ESG Pay and 0 otherwise. SE_ESG_PAY is a dummy variable equal to 1 if the company is Swedish and has implemented ESG Pay and equal to 0 otherwise. Refer to Table 3 for the complete definition of variables.

Table A3. Regression results financial variables with country interaction term.

Dependent variable:		Dependent variable:	
CH_ROE		CH_ROA	
ln_Rev	1.577* (0.849)	ln_Rev	1.170*** (0.241)
ROA	-0.327** (0.152)	ROA	0.731*** (0.043)
ROE	0.912*** (0.039)	ROE	-0.010 (0.011)
Lev	13.831** (6.598)	Lev	-3.623* (1.870)
Tang	14.190** (7.142)	Tang	5.463*** (2.024)
Div	-0.182 (0.161)	Div	-0.044 (0.046)
ESGPAY	1.965 (2.083)	ESGPAY	0.464 (0.590)
SE_ESG_Pay	-0.476 (2.548)	SE_ESG_Pay	-0.005 (0.722)
Observations	1,696	Observations	1,696
R2	0.439	R2	0.372
Adjusted R2	0.247	Adjusted R2	0.157
F Statistic	123.552***	F Statistic	93.525***
Note: *p<0.1; **p<0.05; ***p<0.01		Note: *p<0.1; **p<0.05; ***p<0.01	

Table notes: the regressions are run with company and time fixed effects. CH_ROA and CH_ROE are the yearly change in ROA and ROE. Ln_rev is the natural logarithm of revenue. Lev, Tang, and Div stand respectively for leverage, tangibility, and dividends. ESGPAY is a dummy variable equal to 1 if a company has implemented ESG Pay and 0 otherwise. SE_ESG_PAY is a dummy variable equal to 1 if the company is Swedish and has implemented ESG Pay and equal to 0 otherwise. Refer to Table 3 for the complete definition of variables.

Table A4. Regression results CEO compensation model with country interaction term.

Dependent variable:	
ln_CEO_COMP	
ln_Rev	0.145*** (0.022)
ROA	-0.012*** (0.003)
ROE	0.0001 (0.0002)
NEGPROF	-0.065 (0.049)
ESGPAY	0.180*** (0.060)
SE_ESG_Pay	-0.067 (0.074)
Observations	1,791
R2	0.053
Adjusted R2	-0.297
F Statistic	12.168***
Note: *p<0.1; **p<0.05; ***p<0.01	

Table notes: the regression is run with company and time fixed effects. Ln_rev is the natural logarithm of revenue, NEGPROF a dummy variable equal to 1 if the EBT of a company is negative and 0 otherwise, and ESGPAY is a dummy variable equal to 1 if a company has implemented ESG Pay and 0 otherwise. Refer to Table 3 for the complete definition of variables.