Technische Universität München
TUM School of Management

Three essays on ESG and Compensation: Driving Sustainability in European companies

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Vollständiger Abdruck der von der TUM School of Management der Technischen Universität München zur Erlangung einer Doktorin der Wirtschafts- und Sozialwissenschaften (Dr. rer. pol.) genehmigten Dissertation.

Vorsitz:	Prof. Dr. Hanna Hottenrott
Prüfer der Dissertation:	1. Prof. Dr. Gunther Friedl
	2. Prof. Dr. Michael Stich

Die Dissertation wurde am 07.11.2023 bei der Technischen Universität München eingereicht und durch die TUM School of Management am 15.01.2024 angenommen.

Acknowledgements

First and foremost, I wish to express my deepest gratitude to my supervisor, Prof. Dr. Gunther Friedl, for his mentoring guidance, feedback, and continuous support throughout my doctoral studies and beyond. Thank you for supporting me and encouraging me to participate in several international conferences and conduct a research stay abroad at Macquarie Business School in Sydney, Australia. Therefore, I extend my gratitude to Prof. John Dumay for welcoming me so kindly in Sydney.

I am grateful to the entire Chair of Management Accounting team for their everyday help, continuous feedback, and the enjoyable working environment they created. I am particularly grateful to my *partner in crime* Johanna Schulze-Berge, who has been an excellent colleague and a source of inspiration for two years.

I am also deeply indebted to the numerous master's students at TUM who supported my research by writing their own final theses in related fields. Their contributions added valuable insights to my work and helped me to develop a more comprehensive understanding of the subject. I want to extend my thanks to Annika Rörig and Jonas Gorlo, whose exceptional support and dedication greatly contributed to the success of my research.

Last but not least, I want to express my sincere gratitude to my family, especially my parents, Ilka and Michael, for their unwavering support and encouragement throughout my research journey. My heartfelt gratitude belongs to my partner, Tim, who has kept me motivated and determined to succeed.

Abstract

This dissertation aims to investigate the use of environmental, social, and governance (ESG) key performance indicators (KPI) in companies' compensation systems and evaluate their effectiveness in driving real ESG effects and their role in shareholder voting outcomes. This research is particularly relevant in the European context, where there is growing concern about executive compensation and the need for ESG-friendly corporate management. Essay I focuses on how companies integrate ESG goals into their compensation systems. It provides a framework for integrating ESG factors, serving as a guideline for companies to assess their current practices and offer guidance for adjustments to managers and investors. Companies vary in their use of ESG goals, focusing on environmental targets with quantifiable measures, integrating them more into short-term incentives, and exhibiting differences in incentive setting. Essay II examines the implications of the European Non-Financial Reporting Directive (NFRD) on introducing ESG-based compensation in European companies, finding that companies with ESG-based compensation tend to make more substantial progress in decarbonization. And Essay III explores the role of Proxy Advisors (PAs) in influencing institutional investors and their considerations of ESG-based compensation in their recommendations. We show that PAs favor compensation contracts with ESG-related performance targets. These three essays contribute to the literature on ESG in compensation by providing insights into the integration of ESG goals in compensation systems, the effectiveness of ESG-based compensation in driving real ESG effects, and the role of PAs in influencing shareholder voting outcomes and considering ESG-based compensation. These findings have implications for companies looking to assess and adjust their compensation systems, regulators in shaping sustainability directives, and institutional investors in their decision-making process. The research highlights the importance of incorporating ESG goals in compensation systems for driving sustainability outcomes.

Summary in German

Diese Dissertation zielt darauf ab, die Verwendung von Umwelt-, Sozial- und Governance- Kennzahlen in den Vergütungssystemen von Unternehmen zu untersuchen und ihre Effektivität bei der Förderung von realen ESG-Effekten und ihre Rolle bei den Abstimmungsergebnissen der Aktionäre zu bewerten. Diese Forschung ist besonders im europäischen Kontext relevant, wo die Besorgnis über die Vergütung von Führungskräften und die Notwendigkeit einer ESG-freundlichen Unternehmensführung wächst. Essay I konzentriert sich darauf, wie Unternehmen ESG-Ziele in ihre Vergütungssysteme integrieren. Er bietet ein Konzept für die Integration von ESG-Faktoren und dient als Leitfaden für Unternehmen zur Bewertung ihrer aktuellen Praktiken und bietet Anleitung für Anpassungen an Manager und Investoren. Die Unternehmen nutzen ESG-Ziele unterschiedlich: Sie konzentrieren sich auf Umweltziele mit quantifizierbaren Maßnahmen, integrieren sie eher in kurzfristige Anreize und weisen Unterschiede bei der Festlegung von Anreizen auf. Essay II untersucht die Auswirkungen der europäischen Richtlinie zur nichtfinanziellen Berichterstattung auf die Einführung einer ESG-basierten Vergütung in europäischen Unternehmen und kommt zu dem Ergebnis, dass Unternehmen mit ESG-basierter Vergütung tendenziell größere Fortschritte bei der Dekarbonisierung machen. Essay III untersucht die Rolle von Stimmrechtsberatern bei der Beeinflussung institutioneller Investoren und deren Berücksichtigung von ESG-basierter Vergütung in ihren Empfehlungen. Wir zeigen auf, dass Stimmrechtsberater Vergütungsverträge mit ESG-bezogenen Leistungszielen bevorzugen. Diese drei Essays tragen zur Literatur über ESG-Vergütung bei, indem sie Einblicke in die Integration von ESG-Zielen in Vergütungssysteme, die Effektivität von ESG-basierter Vergütung bei der Förderung von realen ESG-Effekten und die Rolle von Stimmrechtsberatern bei der Beeinflussung von Aktionärsabstimmungen und der Berücksichtigung von ESG-basierten Vergütungen bieten. Diese Ergebnisse haben Auswirkungen auf Unternehmen, die ihre Vergütungssysteme bewerten und anpassen wollen.

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Abbreviations

AGM	Annual General Meeting
CO_2	Carbon Dioxide
CSP	Corporate Social Performance
CSRD	Corporate Sustainability Reporting Directive
CSR	Corporate Social Responsibility
DiD	Differences-In-Difference
EBITDA	Earnings Before Interest, Taxes, Depreciation, Amortization
EC	European Commission
ESG	Environmental, Social, and Governance
ESMA	European Securities and Markets Authority
ETF	Exchange-Traded funds
EU	European Union
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
HR	Human Resources
ISS	Institutional Shareholder Services
KPI	Key Performance Indicator
LTI	Long-Term Incentive
MCS	Management Control Systems
NFRD	Non-Financial Reporting Directive
NIT	Neo-Institutional Theory
PA	Proxy Advisors
R&D	Research and Development
ROA	Return On Assets
SCS	Sustainable Control System
SDG	Sustainable Development Goals
SMSG	Security Markets Shareholder Group
SRD	Shareholder Rights Directive
STI	Short-Term Incentive
UK	United Kingdom
UN	United Nations
US	United States

1 Introduction

1.1 Motivation

This dissertation comprises three essays, each addressing how environmental, social, and governance (ESG) criteria are incorporated into businesses with the help of control instruments. Throughout the three essays, I contemplate ESG criteria and compensation from different perspectives. ESG has been a widely discussed topic for the past decade. It has implications for society as a whole, including the ongoing debate on climate change. Hence, I explore the meaning of ESG and its importance for both individuals and companies, particularly in terms of management and competitiveness. This dissertation focuses on three key areas of ESG and compensation: how companies integrate ESG into compensation systems, its consequences for real effects, and how Proxy Advisors (PA) evaluate it. Existing research in these areas is limited in terms of its relevance, its focus on specific industries or geographical regions, and its reliance on US data. By addressing these gaps, this study aims to provide valuable findings that can contribute to discussions and help companies to successfully integrate ESG criteria in their businesses.

This introduction presents the basis of this dissertation, starting with a practical example of the application. Then, I briefly demonstrate what ESG stands for, its relevance for different stakeholders, and how it is connected to compensation. In addition, I state in this chapter the practical and theoretical background, explicitly the fundamentals for compensation related to Essay I, the regulatory background associated with Essay II, and the governance mechanism in Essay III. Subsequently, I give an overview of comprehensive and essay-specific literature and methodological approaches and present my results and contributions as well as the structure of this dissertation.

Following the example of the Swedish Swiss automation company, *ABB* illustrates an ideal practical instance of the promiscuity of ESG integration. As a pioneer in sustainability, it published its first sustainable development report in 1994 (The ABB Group, 1999), followed by a relaunch of the sustainability reporting in 2014, reflecting the new corporate strategy to accelerate their sustainable value creation (Spiesshofer, 2014). However, *ABB* is facing allegations of bribery in South Africa (315 million US Dollar settlement), violating the US Foreign Corrupt Practices Act (Muncaster, 2022). This contradicts *ABB's* previous reputation for good governance practices, including recognition for their Corporate Social Responsibility (CSR) activities and verifications of their compliance and anti-corruption programs (U.S. Securities and Exchange Comission, 2022b). Switzerland's Attorney General Office has criticized *ABB* for inadequate internal measures to prevent bribery (Triebe, 2022). In 2017, *ABB* won the SEIFSA Award for Excellence and received Ethisphere verifications for their CSR activities and anti-corruption efforts in South Africa (Bradshaw, 2017, Seifsa, 2016, ABB, 2018, 2021).

From 2018, *ABB* tied executive compensation to ESG metrics, focusing on environmental and social factors, following the Global Reporting Initiative (GRI) framework for key indicator reporting (ABB, 2018). However, they did not include governance metrics in their sustainability reporting (ABB, 2023). Without a fully comprehensive ESG integration into compensation, this trend continued until 2022. ESG rating agencies have highlighted *ABB's* environmental activities and emphasized ongoing governance challenges for the company, as Morningstar's Sustainalytics ESG rating emphasized "Business Ethics" as significant material ESG concerns (Morningstar, 2023, p. 1).

ABB published a press release in response to a fine, stating that they "cooperated fully with all authorities" (ABB, 2022, p. 1). They also announced the implementation of a new code of conduct, employee education, and an enhanced control system to prevent future incidents. This case highlights that even ESG-responsible companies may have blind spots if subject to external assessments. *ABB's* executive compensation in 2022 lacked comprehensive coverage of all ESG components. This suggests that incorporating such ESG criteria into compensation could enhance its internal governance to identify such ESG deviations earlier because it incentivizes managers to prioritize and actively monitor ESG practices. This would create a stronger alignment between the company's values and the actions of its leaders. Overall, this case underscores the ongoing need for companies to continuously assess and improve their ESG practices. It also

highlights the potential benefits of incorporating ESG criteria into executive compensation as a means to bolster internal governance.

1.2 The Concept of ESG

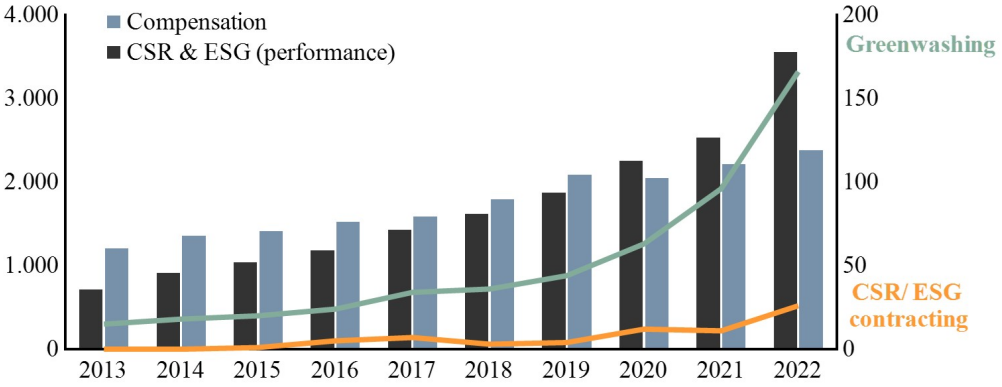
What is ESG? "ESG [...] is climate change, worker conditions, diversity; it's everything." (Nee and Zemmel, 2022, p. 12), is postulated by Sandra Horbach, the managing director and cohead US buyout and growth at *Carlyle*. The pure number of metrics increased to measure sustainable company concepts and the corporate social performance (CSP) in the last years boosted the opacity and complexity (Cohen et al., 2022). Initially, the concept of CSR strived to hold companies accountable, which is associated with self-control and a desired positive effect on, for example, the environment, employees, and communities (Piyush, 2023). Accordingly, the predominant ESG concept concretely measures a company's efforts by providing a framework and expanding philanthropy into an understandable set of company practices for investors and stakeholders (Gyönyörová et al., 2021). Through implementing ESG into corporate strategies and valuation tools, firms and investors can accurately capture the ESG performances of their engagement efforts (Kotsantonis and Serafeim, 2019).

Overall, ESG indicators should give a quantitive understanding of a company's attitude towards balancing moral, ethical, and sustainable business practices versus profit and are used for the measurement of sustainability (Piyush, 2023). In academia, sustainable concepts are partially utilized as substitutes, such as the words "ESG" and "sustainability". Both often refer to corporate sustainability. I refer to ESG throughout this dissertation as a means of measurement of corporate sustainability including environmental, social, and governance activities of companies (Rezaee, 2016). The ESG concept relates to a trilogy of topics: First, environmental (E) aspects contain "climate change, deforestation, air and water pollution, land exploitation and biodiversity loss" (Billio et al., 2021, p. 1427). Second, the social (S) pillar refers to "gender policies, protection of human rights, labor standards, workplace and product safety, public health, and income distribution" (Billio et al., 2021, p. 1427). Third, the governance (G) aspect is less analyzed. Aspects are the "independence of the board of administration, shareholders' rights, managers' remuneration, control procedures, and anti-competitive practices, as well as the respect of the law" (Billio et al., 2021, p. 1427).

Despite the aim of measurability, ESG indicators are not all easily measurable. For example, Carbon Dioxide (CO_2) emissions are perceived as one of the most important criteria and reflect a specific cost, e.g., for the society (Adu et al., 2021). In contrast, a company's diversity is not associated with a price, making valuing more challenging. ESG indicators are supposed to reflect a company's risks (Eccles and Stroehle, 2018). Their associated measurements can have a positive or negative impact on the company. Thus, ESG criteria are not a pre-defined set of indicators with similar consequences and make integration into companies and prioritization challenging (Rahdari and Rostamy, 2015, Veenstra and Ellemers, 2020).

Why is it important? ESG is a highly relevant academic topic and is analyzed from different angles. The number of publications has increased enormously, especially in the last ten to fifteen years. As this thesis investigates compensation, which I will explain later on, I use compensation

FIGURE 1.1: Development of Number of Publications from 2013 until 2022



Notes: Publications from Scopus (2013-2022), Subject Areas: Business, Management, Accounting, Economics, Econometrics, Finance, Environmental Science Terms in Title, Abstract and Keywords.

publications as a reference point of comparison against ESG publications of Scopus for the last ten years. In Figure 1.1, I demonstrate that since 2020 the number of publications for CSR/ ESG (performance) overtakes the number of compensation publications (left axis), highlighting the actuality and demand for research. During this time, also the number of CSR/ ESG contracting[1] publications are evolving and are on a high in 2022. However, as the demand for greater ESG

[1]These are compensation systems that incentivize ESG in the short- and long-term incentive in addition to financial key performance indicators (Flammer et al., 2019).

grows, some companies struggle to meet these requirements. This leads to a focus on activities that seem environmentally friendly but lack true impact. Greenwashing refers to companies that should "be perceived as eco-friendly and socially engaged," as they, for example, invest in "green marketing communications" but do not have sustainable business practices (de Freitas Netto et al., 2020, p. 2). Research on this topic has augmented, especially since 2018, highlighting the relevance of measuring actual ESG performance.

Caring about the future is not new; in 1987, the United Nations (UN) Brundtland Commission initiated a breakthrough with their first determination of sustainable development. It states "to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (Imperatives, 1987, p. 16). After that, numerous supranational mandatory and voluntary regulations, initiatives, and conferences contributed to the still ongoing debate on how to foster climate protection. This broad spectrum ranges from, e.g., the Paris Climate Agreement, the UN Sustainable Development Goals, and the Global Reporting Initiative to the Non-Financial Reporting Directive and is updated and amended annually (e.g., Corporate Sustainability Reporting Directive). These fast-moving regulatory developments pose major challenges for practitioners.

Departing from frequent regulatory changes, companies have to react quickly to fulfill mandatory ESG measurements such as reporting or voluntary initiatives due to stakeholder pressure. There are different reasons why companies integrate ESG into business operations. There is either an intrinsic motivation of managers to, e.g., develop more environmentally friendly products and consider future generations (de Freitas Netto et al., 2020). Or, there is extrinsic motivation, usually due to external pressure by stakeholders. ESG ratings, which have experienced a rise in popularity lately, measure firm risk and "reduce information asymmetries in firm valuation during the last decades" (Utz, 2019, p. 504) and pressurize companies to transparently disclose their ESG efforts. Companies also work with non-profit organizations to promote ESG and establish organizations like the Business Roundtable in the US in 2018, where customers, employees, distributors, and public communities are all involved as collaborators (Bergman et al., 2020).

For whom is it important? The plurality of researchers uses ESG information because they are "financially material to investment performance" (Amel-Zadeh and Serafeim, 2018, p. 2) and are expected to create a significant positive effect on profitability. However, regional differences reveal a higher association of European investors with ESG (48%) than US investors (27%)

(Amel-Zadeh and Serafeim, 2018). Therefore, given that ESG is still in its early stages, it is more appropriate to focus on the EU in this dissertation, as it offers more advanced development and learning opportunities.

A variety of stakeholders is affected by ESG in a way that these groups change their behavior, such as on the consumer levels (change in consumption such as veganism), governmental levels (green technology subsidies such as solar panels), and on company levels. Companies feel the pressure from stakeholders to become more *green* and integrate ESG criteria into investment decisions (Van Duuren et al., 2016). For example, Bosch lately started to develop a "custom technology for the worldwide use of electrolyzers in hydrogen production" for an environmentally friendly treatment of water for a climate-neutral world (Christmann, 2023, p. 1).

The concentration of industrial greenhouse gas (GHG) emitters is high, demonstrating the high environmental power. For example, only 100 companies are accountable for 71% of global emissions (Griffin, 2017). This small group significantly influences the environment, and the managers' compensation is incentivized by high performance. Hence, compensation is a powerful tool (Agarwal, 2010) to steer management's attention by allowing for more control (Read, 2005).

What is ESG-based compensation? Companies consider ESG for their design of compensation systems. Bayer, for example, fulfills stakeholders' requirements for stockholders, the public, and policymakers by increasing the disclosure of compensation of the Board of Management and the Supervisory Board by fostering the company's sustainable development (Bayer AG, 2022). As indicated by the recent increasing number of publications on ESG, data on ESG (and in conjunction with compensation) is only now available, especially once analyzed for more extended periods than one year. Moreover, this is also confirmed by Cohen et al. (2022), who underline a noticeable increase of ESG metrics in the compensation system to over 30% in 2021, used to measure and evaluate CSP with positive implications. Past research shows that organizational change needs to be accompanied by the adoption of compensation schemes, affecting executives' behavior, which is required for successful organizational change such as the financial crisis (Wruck, 2000). Hence, for a successful shift in business toward better ESG performance, effective integration of ESG criteria into compensation is necessary and ensures long-term value creation (Flammer et al., 2019).

So far, academia has shown that companies that incentivize managers with financial and non-financial criteria can improve financial and CSP (Adu et al., 2021, Baraibar-Diez et al., 2019,

Derchi et al., 2021, Flammer and Bansal, 2017). Consequently, compensation is highly relevant in different aspects based on academia: First, compensation increases firm performance and value (Jensen and Murphy, 1990). Second, compensation affects managers' behavior to make people focus on the long-term perspective versus short-termism (Flammer and Bansal, 2017). Third, compensation is considered a steering instrument in terms of corporate governance, as it may be used to direct executive decisions (Sarhan and Al-Najjar, 2022). Fourth, it aligns shareholders' and managers' interests (Tosi et al., 2000). Fifth, also in conjunction with ESG, ESG-based incentives can increase ESG performance (Velte, 2016). As a result, this dissertation primarily focuses on analyzing this mechanism from various perspectives through three individual essays, making it a fundamental element of the research.

1.3 Research Background

1.3.1 Practical Background: Corporate Governance

Malmi and Brown (2008) developed a framework (see Figure 1.2) of management control systems (MCS) to address the balance of decision-making and control for steering employees' behavior. The typology contains five groups: "planning, cybernetic, reward and compensation, administrative and cultural controls" (Malmi and Brown, 2008, p. 287). The authors underlined that the employees' actions should be consistent with the organization's strategy and goals to direct their behavior, including, for example, practices and tools. This framework emphasizes the relevance of compensation for companies and its symbolic nature. Reward and compensation embody an extrinsic incentive designed for employees with good performance. It is also used to motivate and "control effort direction, effort duration, and effort intensity" (Malmi and Brown, 2008, p. 292).

Compensation design is a corporate governance tool that grabs significant attention and generates controversy among the public outside of academia (e.g., (Edmans et al., 2017)). The attention is mainly on the amount of compensation, as the media headline scurrilous articles such as "Investors are finally pushing back on massive CEO [Chief Executive Officer] pay hikes" (Popli, 2022). For example, the highest-paid CEO, Sundar Pichai, CEO of Alphabet, received 2022 about 225 million US Dollars (Papadopoulos, 2023). From 1978 until 2020, CEO compensation grew by 1,322%, far outpacing the growth of the S&P stock market (817%) and the 0.1%

FIGURE 1.2: Framework of Control

<table>
<tr><td colspan="8">Cultural Controls</td></tr>
<tr><td colspan="3">Clans</td><td colspan="2">Values</td><td colspan="2">Symbols</td><td></td></tr>
<tr><td colspan="2">Planning</td><td colspan="4">Cybernetic Controls</td><td rowspan="2">Reward and compensation</td></tr>
<tr><td>Long range planning</td><td>Action planning</td><td>Budgets</td><td>Financial Measurement Systems</td><td>Non-Financial Measurement Systems</td><td>Hybrid Measurement Systems</td></tr>
<tr><td colspan="8">Administrative Controls</td></tr>
<tr><td colspan="2">Governance Structure</td><td colspan="3">Organisation Structure</td><td colspan="3">Policies and Procedures</td></tr>
</table>

Notes: This Figure shows the Management control systems package by Malmi and Brown, (2008.)

growth in peak earnings as well as the employee's salary growth of 18% (Mishel and Kandra, 2021). However, what is somewhat neglected is the form of pay, the usage of performance measures, and time horizons leading to a wide stance of academic, public, and regulatory discussion in recent decades (e.g., (Bebchuk and Fried, 2010, Murphy, 2013, Edmans and Gabaix, 2016)). Compensation is more than the pure amount.

Compensation fundamentals

Compensation systems serve as a mechanism for corporate governance and are a contract between executives and shareholders of a company to align their interests (e.g., (Bebchuk and Fried, 2010)). Thus, it is among the essential techniques influencing executives' behavior (Morgan and Poulsen, 2001).

Compensation consists of different aspects: the fixed salary, fringe, and pension benefits[2], a short-term incentive (STI), and a long-term incentive (LTI). The latter two are usually linked to key performance indicators (KPIs), which can have an additive or multiplicative linkage to the bonus. These KPIs are traditionally financial or operational metrics and either qualitative, rather difficult to measure (e.g., customer satisfaction), or explicit (e.g., EBITDA margin). The Shareholder Rights Directive (SRD) II[3] obligates companies to increase their compensation systems' transparency and include more non-financial KPIs.

[2]This depends on the legal requirements of a company.
[3]The EU Directive (EU) 2017/828 of the European Parliament and of the Council of 17 May 2017.

A central theory of compensation is the principal-agent theory, which goes back to Jensen and Meckling (1976) and Berle and Means (1991). It deals with the relationship between a principal and an agent, where the agent's actions affect the principal. The split of ownership and control can lead to conflicts of interest, as both parties want to maximize their benefits. (James, 1933). Usually, parts of the authority are delegated to the agent. The latter benefits from an information advantage and might act opportunistically (Jensen and Meckling, 1976). For example, managers may be motivated to expand the company beyond the ideal size and invest in projects with negative value due to their access to ample financial resources. In this agency relationship, information asymmetry can prevail between the principal and the agent and is characterized by different risk attitudes (Eisenhardt, 1989b, Jensen and Meckling, 1976). Moreover, the problem is anchored in information asymmetry, which can result in adverse selection or a moral hazard problem. Agency costs occur when the agent and principal have conflicting interests, resulting in monitoring expenses, bonding expenses, and residual loss (Jensen and Meckling, 1976).

Does compensation solve the agency problem? In this context, compensation is used to moderate the agency relationship between managers and shareholders and minimize agency costs (Bloom and Milkovich, 1998, Tosi et al., 2000). Compensation contracts between organizations can be highly intricate due to their complexity and diversity (Albuquerque et al., 2020). Moreover, the optimal contracting theory highlights the linkage of compensation and corporate performance, as efficient incentives maximize shareholder wealth. The literature provides two reasons why long-term compensation packages might also help in this conflict. First, provided the duration and staggered payout, it aligns the interests to tackle agency risks. Second, it motivates and leads to effort maximization and best performance (Pepper et al., 2013). However, selected researchers criticize that this theory is far from the reality of executive compensation (Bebchuk and Fried, 2009).

In this particular scenario, the crowding-out effect refers to the idea that external motivation can diminish the internal motivation of managers (Frey and Jegen, 2001). Compensation is closely tied to motivation because it replaces internal motives with explicit external goals that are often within control and easier to observe. As a result, internal motivation typically decreases, which cannot be easily directed. Consequently, the diversion of managers from internal motivation can even reduce motivation in a task (Murayama et al., 2010). This shift from internal to external motivation can also hurt the motivation of the individual in charge (Frey and Jegen, 2001) and positively affect maximized economic profits (Read, 2005).

In the context of ESG, "the explicit inclusion of incentives related to sustainability may crowd out the intrinsic motivation to pursue sustainability" (Maas and Rosendaal, 2016, p. 394). Further, as "findings show that firms' intrinsic motivation drives [ESG] more than extrinsic motivation," the inclusion of ESG criteria into compensation might only be a partial solution to this problem (Grimstad et al., 2019, p. 553). However, the effectiveness of incentive pay in resolving the principal-agent conflict is a topic of ongoing debate in the academic literature (e.g., (Adelopo et al.), (2023)). Departing from this, I strive to understand in Essay I what this means concerning ESG in practice.

Regulatory aspects of ESG

Since 2004, the UN and the UN Global Compact have provided guidelines for integrating ESG factors also into asset management and securities brokerage services, while the Financial Sector Initiative "Who Cares Wins" has further increased awareness, leading to regulatory developments, emphasizing the collaboration of significant stakeholders (United Nations, 2004). All UN member countries strive to achieve the 17 Sustainable Development Goals (SDGs) by 2030, using various strategies, ratings, and frameworks (United Nations, 2023). Another significant event promoting sustainable development was the Paris UN Climate Conference in 2015, where 196 parties adopted the Paris Agreement to limit global warming (United Nations, 2015). To align with this, the European Commission (EC) introduced the European Green Deal in 2019, which aims to make Europe the first climate-neutral continent by 2050. In 2020, the EU implemented more ambitious targets, requiring a 55% reduction in emissions by 2030 compared to 1990.

ESG reporting involves sharing a company's ESG metrics (Santamaria et al., 2021). Hence, these reports should detail the company's performance, risks, and opportunities related to ESG factors. However, there is currently a lack of standardization in disclosing non-financial information, such as ESG factors as per Directive 2022[4]. The landscape of voluntary and mandatory reporting on ESG issues is complex and varies across different regions and countries. International initiatives, such as the GRI and the UN's development goals, promote sustainability reporting globally. The GRI provides standards for companies, also in the EU, to report on sustainability, enhance transparency, and comply with EU regulations (Iwata and Okada, 2011).

[4]Directive 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting (Text with EEA relevance).

The European level is denoted, for example, by the European Taxonomy, the Non-Financial Reporting Directive (NFRD)[5], and the Corporate Sustainability Reporting Directive (CSRD)[6]. The NFRD requires large European companies to disclose social and environmental information. At the same time, the CSRD expands on this by applying it to a broader range of companies and introducing more detailed reporting requirements based on EU sustainability standards. The EU is developing sustainability reporting standards called the European Sustainability Reporting Standards. The European Climate Change Act is the legal basis for this initiative (Fetting, 2020).

In the realm of corporate governance, compensation is a heavily regulated subject that varies greatly depending on the country. In the case of Germany, these regulations are outlined in Essay I. Compensation policies aim to make executive pay transparent, accountable, and aligned with long-term goals and sustainable development. Companies must disclose these policies and practices, including CEO pay relative to employees and promoting sustainable and socially responsible remuneration linked to ESG performance and long-term value creation (TEG, 2019, Khan, 2019). Further, the EU's SRD II requires companies to disclose the annual total compensation ratio, comparing employee pay to CEO pay, in annual reports to inform investors about the impact of executive pay on ESG performance as per EU Directive 2017[7].

The role of mandatory ESG Reporting is to address the imbalance of information between companies and their investors, as well as among investors themselves, as laid out by Christensen et al. (2021). By disclosing relevant information, companies can reduce the problem of information asymmetry, benefiting both investors and the overall market (Verrecchia, 2001). First, it levels the playing field among investors, reducing the adverse selection problem and increasing market liquidity. This lowers the return investors require for investing in company stocks (e.g., Constantinides, (1986)). Second, disclosure helps investors estimate future cash flows and the relationship between them, reducing the cost of capital (e.g., Lambert et al., (2012)). Third, it enables external stakeholders to monitor and evaluate managers' decisions, leading to more efficient corporate investments (e.g., Lambert et al., (2007). Last, disclosure by one firm can provide helpful information about other firms, creating information transfers and spillovers.

This underscores the importance of mandating disclosure and reporting as it helps to create positive externalities (e.g., Foster, (1980) and Bushee and Leuz, (2005)). Christensen et al. (2021)

[5]The EU Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014, hereafter "NFRD" or "the Directive").
[6]The EU Directive 2022/2464 of the European Parliament and the Council of 14 December 2022.
[7]Directive 2017/828EU of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement (text with EEA relevance).

argue that publishing ESG reports helps to establish the credibility of a company's activities and serves as evidence to the public that they are taking measures to address any social issues associated with their business model. The evidence supports the notion that ESG reporting influences public perception of a company's societal impact. In addition to mandatory ESG disclosure, voluntary ESG disclosure is driven by aligning company practices with investor, stakeholder, and societal expectations. Understanding the most relevant theories and motivations behind this disclosure helps companies meet these expectations (Rezaee, 2016).

Institutional, stakeholder and legitimacy theory, utilized in ESG research, are integrated to explore the theoretical predictive motivations behind ESG practices, showing that these theories are complementary (Fernando and Lawrence, 2014). The institutional theory provides valuable insights for companies prioritizing sustainability and long-term growth. According to this theory, organizations that establish proper structures and processes in institutional environments are more likely to be successful and meet society's demand (DiMaggio and Powell, 1983, Zucker, 1987, Roberts, 1992). Stakeholder theory is considered the primary explanation for sustainability reporting, given that stakeholders can exert influence on companies (Rawson and Hooper, 2012, Hahn and Kühnen, 2013). However, it assumes that disclosing ESG information will lead to better ESG performance. The legitimacy theory is often discussed with ESG reporting and examines the broader relationship between an organization and society. This considers influences on the organization that stakeholder theory often overlooks (Gray et al., 1995). In essence, legitimacy theory suggests that an organization is part of a larger social system and must be perceived as legitimate by society to have the right to use resources. Through addressing ESG factors, companies demonstrate their commitment to sustainable practices and societal well-being, aiming to strengthen their position and credibility (Deegan, 2017). This set of theories lays the foundation for the analyses, specifically in Essay II, as it takes a closer look at the introduction of the NFRD.

Governance mechanism including stakeholders

Interacting with stakeholders on ESG and compensation is important but complex. Information asymmetry drives investors' demand for ESG information, especially non-financial data (Raimo et al., 2021). As a result, companies may disclose ESG information if institutional investors request it, as the latter has significant influence and commitment (Mcintyre et al., 2022).

Investors are increasingly concerned about ESG factors and their impact on investment risk (Ilhan et al., 2023). They rely on information about these factors to make informed decisions (Krueger et al., 2020). Institutional investors are particularly interested in companies that disclose climate risks and encourage them to publicly disclose their ESG practices (Ilhan et al., 2023). BlackRock, for example, uses its annual letters to demand more disclosure from companies and can influence their disclosure practices (Pawliczek et al., 2021).

Companies often choose not to provide incomplete or incorrect information, but they are more likely to disclose ESG information when stakeholders request it or when shareholder activism demands it (Bond and Zeng, 2022, Baloria et al., 2019). Companies are motivated to provide ESG disclosure when stakeholders specifically request it because they recognize the value of enhancing their reputation and public image (Muserra et al., 2020). This highlights the importance of considering stakeholders' motivations and expectations when deciding on ESG disclosure and practices. The increasing demand for ESG information, especially from institutional investors interacting with third parties, motivates Essay III in the ESG context.

1.3.2 Empirical Background

"Management control systems represent an interconnected system of tools and techniques used by and on managers with the intention to ensure the achievement of corporate goals [...], including its strategic vision, and [...] the element of control [... and] an effective instrument [...] by providing managers with feedback" (Vimrová, 2017, p. 523). Thus, they close the loop between shareholders' interests and the practical strategy (Malmi and Brown, 2008). The number of sustainability reporting regulations and guidelines increased to more than 50 lately (Serafeim et al., 2019) and also the measurement of CSP improved.

The usage of ESG KPIs in executive compensation has grown (Cohen et al., 2022). Most companies listed on European stock exchanges, including 90% of DAX[8] companies and 72% of MDAX[9] companies incorporate non-financial targets such as CO_2 emissions, employee engagement, or inclusion and diversity goals into their compensation systems (Friedl et al., 2022). Investors prefer a quantitative approach to integrating ESG into compensation, but there has been an increase

[8]DAX is the German stock index consisting of 40 major German companies, serving as a benchmark for the German stock market.
[9]MDAX is a stock market index representing the performance of 50 mid-sized companies in Germany.

in the number of metrics used to measure and evaluate CSP (Winschel, 2021). The organizational structure related to ESG indicates a firm's commitment to improving ESG, including compensation plans. Using ESG metrics in compensation schemes is symbolic and has positive implications for improving ESG performance, motivating this dissertation (Fiechter et al., 2022, Cohen et al., 2022).

As outlined, the EU is affiliated with higher CSP scores (0.63 EU to 0.43 US), based on the stakeholder-oriented perspective and ESG sensitivity (Ioannou and Serafeim, 2012, Cohen et al., 2022). Most of the research on executive compensation, focusing on its determinants and effects, relies heavily on data from US-listed firms due to its high transparency level requested by the SEC (Edmans et al., 2017). The EU provides an opportunity to analyze executive compensation in a diverse and interconnected economic area involving firms from various countries. For example, employee mobility is robust within European borders, as evidenced by the European Commission (2019) and comparatively weaker beyond. Essay I analyzes a single country setting, and both Essay II and III examine the European context, as it provides an interesting research setting due to the higher sensitivity to ESG factors (Ioannou and Serafeim, 2012, Cohen et al., 2022). Regarding Esasay II, examining the European approach to combating climate change through sustainable directives, it focuses on the NFRD. It provides insights into the successes, challenges, and future opportunities for achieving climate goals at the European level. The literature on corporate voting is predominated by US literature. Hence, Essay III builds upon the scarce European literature (Ertimur et al., 2013, Hitz and Lehmann, 2015, 2018)

Status quo and effects of ESG-based compensation

Different KPIs are used in the merit-based pay system for managers and the management board. These include quantitative KPIs, such as EBITDA margin, and qualitative KPIs, like customer satisfaction. Individual KPIs are also customized for each employee's role, department, and targets (Gomez-Mejia et al., 2015). Additional KPIs can lead to conflicting goals and reduced productivity (Ethiraj and Levinthal, 2009) despite increased commitment (Christ et al., 2016) and increase the general complexity and coordination (Albuquerque et al., 2022). In the context of the stakeholder theory, goals can contradict (Schaltegger et al., 2019), and information overload can result in managers working inefficiently (Roetzel, 2019). As compensation is an effective tool for the alignment of interests and also for signalizing ESG commitment (Lys et al., 2015) especially for investors (Khan, 2019), one expects companies to integrate ESG into compensation. Ditillo and Lisi (2016) believe that a company's ESG focus is the key factor in determining

how it integrates sustainability practices. Therefore, examining how a company's strategy and orientation align with its incentives is important.

Studies on ESG-based compensation policies investigate their impact on financial performance and ESG ratings (e.g., Flammer et al., (2019)). These policies align managerial incentives with desired behavior, promote non-financial goals, and reduce monitoring costs (Velte, 2016). Research focuses on public companies in specific countries and finds that sustainable management board compensation positively affects ESG performance. Long-term-oriented companies also positively influence ESG and promote environmental and social integration in investments (e.g., Velte, (2016). Recent research supports the effectiveness of ESG-based pay in improving companies' ESG performance (Cohen et al., 2022).

Regarding Essay I, ESG in compensation systems is a crucial management control instrument, but its integration into business is often discussed superficially as a buzzword. Yet, we have limited knowledge of how companies incorporate ESG criteria into their strategy and management control systems in a detailed and quantifiable manner. To truly impact ESG, companies need to define clear ESG goals and establish managerial incentives at all levels (Jensen, 2001). The increasing focus on ESG performance and integration, driven by regulations and investor demands (Christensen et al., 2021), has made executive compensation an essential governance tool (Edmans et al., 2017). By aligning incentives, companies can mitigate agency problems and promote sustainable development (Phung et al., 2022). There is debate about the optimal number of goals, as too many can reduce performance quality and cause information overload (Ditillo and Lisi, 2016, Ethiraj and Levinthal, 2009, Tuttle and Burton, 1999). Despite this, integrating ESG into business has been shown to positively affect company value, financial performance, and ratings, even during financial crises, and makes companies more attractive (Flammer et al., 2019, Friede et al., 2015, Lins et al., 2017, Servaes and Tamayo, 2013). Research on middle management is limited due to its heterogeneity and lack of disclosed data, but integration among manager levels increases the credibility of, e.g., sustainable business practices (Kampkötter and Sliwka, 2011). Given its long-term nature, the reason why not all companies integrate ESG into their business remains unclear (Callan and Thomas, 2014).

Research on ESG-based compensation in public companies shows increased implementation, but there is heterogeneity in how ESG goals are incorporated. Little is known about ESG goals in compensation schemes across hierarchy levels in German companies (Winschel, 2021,

Cohen et al., 2022). To fill this knowledge gap, this essay captures the status quo of ESG-based compensation in German public and private companies from five industries. Essay I aims to compare public and private companies, analyze ESG factors in incentives, assess middle management involvement, and examine the goal-setting process. The resulting research question *"How do companies integrate ESG criteria in German compensation systems along management levels?"* will be explored.

Disclosure and real effects

Essay II builds upon two strands of literature: the influence of sustainability reporting and the effect of ESG-based compensation on the ESG performance of companies. First, as previous research has shown, mandatory sustainability reporting improves the quality and transparency of non-financial reporting (first-order effects) (Ottenstein et al., 2022). In particular, the NFRD can also improve ESG activities of companies (second-order effects) (Fiechter et al., 2022). This paper focuses on compensation (Agarwal, 2010) as part of the latter. Companies have also begun to incorporate ESG criteria into their compensation systems to signal their commitment to ESG, to align stakeholder goals (Ellerman et al., 2021) and to increase the credibility of disclosures (Grabner et al., 2020). Proficient ESG performance is linked to countries that engage in higher levels of ESG contracting, indicating that ESG contracting can help enhance ESG performance (Pawliczek et al., 2021).

Second, the trend of integrating ESG into compensation has been found to have a positive effect on e.g., the long-term orientation of companies, operating performance, and market value creation as well as ESG indicators (e.g., Flammer and Bansal, (2017), Baraibar-Diez et al., (2019)). Environmental footprint is a key focus of companies' ESG strategies, driven by climate change concerns (Adu et al., 2021). Incentivizing executives through ESG-based compensation can enhance legitimacy and resist stakeholder pressure. However, the impact of compensation on environmental outcomes is mixed but is overall expected to improve companies' environmental performance (Cordeiro and Sarkis, 2008, Gebhardt et al., 2022). For this reason, there is a need for broader research in the EU context with a focus on real effects (Downar et al., 2021).

Sustainability reporting directives reduce information imbalance between a company and its investors and establish the legitimacy of their business operations (Christensen et al., 2021). The relationship between managers and compensation is essential in driving companies' ESG performance (Agarwal, 2010). Essay II addresses two issues. First, recent research has shown inconsistent results regarding the impact of the NFRD on second-order effects such as ESG performance, specifically in terms of ESG activities (Fiechter et al., 2022). The directive is supposed to positively impact companies' implementation of ESG-based compensation because it increases pressure on firms to perform well in ESG areas and improves transparency in disclosing ESG information. This suggests that firms adopting ESG-based compensation after the NFRD are likely to do so in response to it, making it a plausible event to analyze the causal effect. This

study specifically focuses on compensation as a potential channel through which the NFRD may influence companies, as it has been found to significantly impact their behavior (Agarwal, 2010).

Second, companies increasingly incorporate ESG criteria into their compensation systems to signal their commitment to sustainability and align their managers' incentives (Flammer et al., 2019, Grabner et al., 2020). Research shows that ESG-based compensation has a positive impact on ESG indicators, business practices, and environmental performance, also promoting sustainability and creating a culture of sustainability within the organization (Flammer et al., 2019, Velte, 2016, Adu et al., 2021, Herremans and Nazari, 2016). So far, previous research has primarily examined single-country settings, particularly in the United Kingdom (UK), and has relied on general scores that may be irrationally calculated (Downar et al., 2021, Baraibar-Diez et al., 2019, Derchi et al., 2021). This paper analyzes the broader effects of ESG-based compensation on real outcomes.

This essay examines the effect of sustainability reporting regulations on integrating ESG incentives in compensation schemes and their implications for ESG performance in the form of scores and real effects such as the reduction of CO_2 emissions based on calls for research of Arvidsson and Dumay (2022). Hence, with Essay II, we answer the research question: *"Do companies aspire to ESG-based compensation after the introduction of the NFRD? And does ESG-based compensation lead to better ESG performance?"*

Corporate voting

Ertimur et al. (2013) state that PAs act as middlemen for information. They collect, analyze, and distribute information about governance, aiming to reduce the costs for financial market participants to make informed decisions. PAs also help reduce information and monitoring costs for institutional investors with diverse international portfolios (European Securities and Markets Authority, 2012). Essay III addresses three research areas related to the role of PAs in corporate voting and corporate sustainability. First, previous research has examined the factors influencing PAs' decision-making processes for the US market (Ertimur et al., 2013, Hitz and Lehmann, 2015). Second, little research has been conducted on PAs' influence on institutional investors in the EU, despite the growing amount of investments being made (Larcker et al., 2015, Choi et al., 2008). Last, the potential impact of ESG factors on PAs' recommendations is an emerging area of interest, particularly about executive compensation and its potential impact

on value (Johnson et al., 2019). Integrating compensation and ESG factors in the work of PAs is a novel approach.

Around $26.5 trillion of assets are managed in the EU, with institutional investors owning 71% and retail investors 29% (Mcintyre et al., 2022) and the growing number of exchange-traded funds[10] (ETF) with growing investment volumes of 15% worldwide in the last 10 years (Kaczmarski et al., 2023). Institutional investors have a greater influence in voting at annual general meetings (AGM) due to their legal obligation, voting in 92% of cases compared to retail investors' 28% (Broadridge and PricewaterhouseCoopers, 23.09.2020). This has led to a shift towards strategic voting by institutional investors. According to Ertimur et al. (2013), PAs are information intermediaries and play a role in corporate voting due to their cost advantage and the growing influence of institutional investors (Choi et al., 2009). In response, Essay III aligns with the European focus of Hitz and Lehmann (2018). It explores the impact of institutional investors and PAs on voting outcomes and the relevance of ESG factors in this context. The European Securities and Markets Authority and academic bodies call for market-wide feedback on the Shareholders Rights Directive II and *Best Practices*[11] (European Securities and Markets Authority, 2012, Davis and Sergakis, 26.01.2023).

In light of the aforementioned scholarly discussions, we answer the research question: *"Do PAs consider ESG and idiosyncratic factors when formulating their corporate voting recommendations for European countries?"* We follow a two-step approach in the research: First, the essay analyzes whether PAs consider the unique characteristics of companies and countries and determine if ESG factors are incorporated into their compensation plans. Second, we assess the influence of PAs on all proposals and compensation proposals by estimating their impact.

[10] An ETF is a pooled investment security that operates like a mutual fund, traded on stock exchanges.

[11] The five largest PAs worked together to develop a set of international standards. These principles addressed issues related to service quality, conflicts of interest, and communication within the industry in the EU (Davis and Sergakis, 26.01.2023).

1.4 Methodologies

I used different research methodologies for the three Essays depending on the research context. This introductory chapter summarizes the applied methods, whereas the individual essays provide more detailed information. Essay I builds upon a qualitative approach, whereas Essay II and III use a quantitative approach. Because the topic of ESG has only become a priority in recent years, we can only now derive lessons learned and observe the first feedback loops. In addition, this means that the disclosure of ESG information has now reached a sufficient level, and thus, not only short-term but also medium- and long-term evaluations are possible. As the Essay starts with a classical *how* question following Eisenhardt (1989b), it demonstrates a basic understanding of how a compensation system is set up and how specifically ESG criteria are integrated. Further, Essays II and III build upon these insights and deploy different empirical approaches for short- and long-term analysis from this integration.

Essay I uses a qualitative approach with multiple case studies to examine compensation practices in the ESG context. The research design a theory-building approach with multiple case studies from the real-world business of various sources (Yin, 2018), allows for comprehensive exploration and analysis (Yin, 2018). I use a purposeful sampling technique to ensure a diverse and representative sample of companies in Germany. This helps to reduce bias and achieve a more balanced understanding of the topic.

I collected in-depth information from interviews with senior human resources or sustainability managers as the primary source of information. Archival data such as compensation and sustainability reports are used (Cohen et al., 2022, Fulmer and Li, 2022) as well as discussions with ESG and compensation experts for data triangulation (Yin, 2018). After collecting all the data, I analyze and enhance the data using an open coding system built on the foundation of Gioia et al. (2013) to categorize information and concepts (Corbin and Strauss, 1990) and conduct a critical analysis of the current state of German companies. Hereby, the unit of analysis is the form of integration of ESG factors across hierarchy levels. According to Corbin and Strauss (1990), a comprehensive theory can be developed.

This comparative case study method enables replication logic and ensures the validity of the findings (Eisenhardt, 1989a). In the first step, the within-case analysis helps handle interview information. Then, different perspectives are used for the cross-case analysis (Yin, 2018). This

parallel approach allows for flexibility in asking additional interview questions, particularly in a field characterized by limited research (Eisenhardt, 1989a). I develop a framework to generalize findings in future research by identifying replicable patterns (Yin, 2018). Despite limited literature on ESG integration into compensation, I derive my framework and a potential company guideline (Gioia et al., 2013) to advance the existing literature on compensation for ESG integration and management levels.

Essay II and III use a quantitative methodology. Data for these essays were obtained from *Refinitiv* (Baraibar-Diez et al., 2019, Fiechter et al., 2022, Haque, 2017). Additionally, data from the *S&P 500* index were used for Essay II (Hummel and Rötzel, 2019, Grabner et al., 2020), and data on voting recommendations were obtained from *ISS-Voting Analytics-Company Vote Results Global* for Essay III (Dey et al., 2022, Hayne and Vance, 2019, Albuquerque et al., 2020). The sample for each essay included a balanced representation from various industries and European countries, resulting in a total of 239 observations per year (II) and 2,396 observations (III) after outliers were removed and winsorizing was applied. The panel data set for Essay II covered the period from 2011 to 2021, while Essay III considered data from 2013 to 2021 to capture both short-term and long-term effects.

Both essays are constructed around the binary variable of ESG-based compensation, which is defined as whether a "company [has] an extra-financial performance-oriented compensation policy' including 'remuneration for the CEO, executive directors, non-board executives, and other management bodies based on ESG or sustainability factors" (Refinitiv, 2023). Among the set of control variables we include, as in line with existing research (Fiechter et al., 2022, Ottenstein et al., 2022, Gebhardt et al., 2022), for example, company-specific variables such as *Firm size*, *Leverage* and *Return on assets (ROA)* are incorporated (Velte, 2016, Cohen et al., 2022, Baraibar-Diez et al., 2019, Gebhardt et al., 2022, Adu et al., 2021). We also consider more precise ESG variables such as the *ESG Combined Score*, *Environmental Score* and *CO_2 emissions*(Baraibar-Diez et al., 2019, Adu et al., 2021, Flammer et al., 2019). For the regressions in Essay III, we add more compensation- and accounting-related variables such as *ExecComp* and account *FiveYrCAGRDPS*. To avoid unobserved heterogeneity, we include year- and company- as well as industry[12] fixed-effects for the analysis following Fiechter et al. (2022) to control for time-specific, time-invariant, unobservable company and industry characteristics, respectively.

[12]We apply the Global Industry Classification Standard for an aggregated sector level.

For Essay II, to assess the directive's impact, we use a DiD approach to compare European listed companies (eligible for the NFRD) to US companies in a year- and company-fixed effect model. The US is a suitable control group as it did not implement overall sustainability disclosure requirements, and there is ample country-level ESG data (Cuomo et al., 2022). Further, we use a staggered DiD set-up and focus on whether European companies introduced ESG-based compensation. We compare treated firms (introduced ESG-based compensation in 2014 or later) to a control group without these compensation specifics. The pre-intervention period includes years before the introduction, and the post-intervention period includes years after. We consider various dependent variables in our analysis, including ESG and environmental scores, as well as real effects data such as CO_2 emissions and carbon intensity. Thus, it allows us to incorporate lagged ESG data and examine the long-term effects of ESG (Ottenstein et al., 2022, Cuomo et al., 2022).

For Essay III, we utilize two essential models for the analysis. First, we employ a logistic regression model to examine the variables that may indicate the likelihood of a *For* decision. This model considers non-linear distributions (Choi et al., 2008, Ertimur et al., 2013). We also incorporate the binary variable "ESGComp," to underline if a company considers ESG in its compensation system and a comprehensive set of control variables. Furthermore, we utilize a multiple linear regression model with ordinary least squares to investigate the relationship between shareholder dissent and ISS recommendation. The variable *ForPct* represents a percentage between 0 and 100, indicating the proportion of votes favoring a proposal. This regression analysis is applied to general and compensation proposals to assess the impact of ISS.

1.5 Results, Discussion, and Contribution

Essay I analyzes how German companies incorporate ESG criteria into their compensation systems, focusing on the level of integration across different management levels. A framework is developed through case studies to evaluate the current state and identify challenges with a systematic and unsystematic approach. Companies may choose not to include ESG criteria, particularly in private companies. Many companies include ESG criteria in their incentive plans but often fall short of the recommended 30% share[13]. Environmental targets are prioritized, e.g., due to data inconsistencies. Public companies show higher ESG integration compared to private companies.

There are potential risks associated with integrating ESG into compensation. Companies may make big promises but not follow through, harming their reputation. Too much emphasis on ESG in compensation can lead to managers focusing on certain goals at the expense of others, reducing productivity. Finally, it remains to be seen if proxy advisors will set stricter requirements on ESG-based compensation for public companies.

My contribution to the existing ESG compensation literature focuses on the transparency of compensation schemes and integrating ESG goals (Flammer et al., 2019, Cohen et al., 2022, Mahoney and Thorn, 2006). Hence, I consider external pressures and different approaches, highlighting the shift from intrinsic to extrinsic motivation. Essay I elaborates on the legitimacy theory and highlights the challenges of balancing financial and non-financial priorities (Hahn et al., 2010, Zhou, 2013).

I derive managerial implications for stakeholders: Managers, investors, and regulators should consider ESG in their decision-making processes. Managers should integrate ESG into compensation and use the framework to assess and improve it. Investors should analyze companies' ESG integration utilizing the framework to make informed choices. The intricacy of various integration models hinders the comparison of companies, yet investors can use the framework to assess the extent of ESG integration and make well-informed investment choices.

Regulators must promote the disclosure of ESG in compensation schemes and ensure alignment with the European Green Deal (Commission, 2022). Precise reporting methods and audits are

[13]Recommendation of the advisory board of the Sustainable Finance of the German Government.

crucial for comparability. Regulators should focus on consistent integration and transparent disclosure of financial and non-financial compensation requirements.

With **Essay II**, we investigate the impact of the NFRD on firms' ESG criteria in their compensation systems. Additionally, we aim to analyze the corresponding effects on firms' overall ESG performance due to ESG-based compensation. First, our findings show that the NFRD has led to increased use of ESG criteria in compensation systems. Although the NFRD does not require companies to have ESG-based compensation, our research supports existing literature that sustainability reporting positively impacts (Fiechter et al., 2022, Cuomo et al., 2022). Integrating ESG into compensation aims to incentivize managers to prioritize ESG compliance. This incorporation of ESG criteria in compensation practices also plays a role in promoting socially responsible practices among EU companies.

Second, the relationship between individual ESG KPIs and scores using ESG-based compensation highlights the mixed progress in ESG performance. There is evidence of negative treatment direction in ESG and environmental scores, possibly due to benchmarking or the large German sample. However, the negative relationship between carbon emission reduction and carbon intensity suggests that companies invest in long-term carbon reduction measures. This indicates a commitment to tangible carbon reduction actions.

The study suggests that the NFRD partially improves companies' ESG performance but is not yet fully effective. Future directives should include industry-specific targets, sanctions, and monitoring mechanisms (Leong and Hazelton, 2019). Despite its limitations, the NFRD acts as a catalyst for further ESG improvements. The study supports the EC's role in regulating ESG disclosure in companies and addresses the need to understand sustainability reporting's impact on company-wide policies and outcomes. The findings show that the NFRD encourages companies to integrate ESG into compensation systems and leads to improved environmental performance. This study contributes to the literature on ESG-based compensation in the EU (Fiechter et al., 2022, Ottenstein et al., 2022).

ESG-based compensation is essential for policymakers aiming to reduce carbon emissions (Jouvenot and Krueger, 2019). The expanded non-financial reporting proposal may be difficult for smaller companies. The findings also apply to improving ESG performance in regions such as the US and Asia. Regarding practical implications, companies should use transparent actual outcomes rather than scores. Multiple ESG indicators should be chosen to reflect stakeholders'

interests. Easy-to-achieve indicators may not improve ESG performance, so a holistic approach to integrating ESG into compensation systems is recommended (Mio et al., 2015, Van Zanten and van Tulder, 2021, Berg et al., 2022).

Essay III examines the role of PAs in the decision-making process of institutional investors at AGMs and how their recommendations vary based on company- and country-specific factors. The study finds that PAs' recommendations influence voting results, particularly in compensation. Additionally, institutional investors place more importance on PAs' recommendations when a company's compensation system includes ESG criteria. These findings demonstrate PAs' significant role in institutional investors' participation at AGMs, even within the EU.

Previous studies on corporate voting have mainly focused on the US (Koch et al., 2021, Ertimur et al., 2013), but we contribute to the literature by examining EU activities (Hitz and Lehmann, 2018, Koch et al., 2021). Using a new dataset, we confirm the findings of previous studies that PAs play a significant role in voting outcomes. However, we find that their influence is smaller for general proposals and larger for compensation proposals. Higher dissent in compensation proposals is concerning, as it may lead to compensation standardization and lower market value. Several factors influence the recommendation process, including the pay level (Ertimur et al., 2013), governance ratings (Daines et al., 2010), and the influence of "busy season"(Calluzzo and Kedia, 2021). Only a positive attitude towards ESG proposals has been found so far, but we contribute to the literature by highlighting the importance of integrating ESG criteria into compensation systems (Bernard et al., 2022). This factor significantly influences PAs' decision-making process of recommendations.

Based on our research, the opinions of PAs play a crucial role in European voting decisions and governance mechanisms. Regulators should monitor the PA market, which is relatively unregulated and critical for shareholders, given the duopoly of *Glass Lewis* and *ISS*. The increasing demand for PA recommendations, especially with the rise of ETFs, calls for further investigation. PAs should engage with stakeholders more actively and be held accountable for considering the risk of value destruction through ESG-related proposals.

The findings on corporate voting have two practical implications for investors and companies: First, investors should rely on proxy advisors' recommendations when their interests align and monitor changes in voting guidelines. Transparent guidelines are needed to assess alignment with

investors' motives (Hoepner et al., 2016). Second, companies aiming for a favorable recommendation should link compensation systems to ESG goals. When formulating a recommendation, investors should consider various factors and take a "comply-or-explain" approach in case of dissent with ESG proposals (Chuah et al., 2019).

Overall, a more comprehensive approach should be taken when considering ESG-related proposals. Therefore, it is important to gather evidence on the role of PAs in the EU for future policy discussions (European Securities and Markets Authority, 2012). Furthermore, the constant engagement of PAs with stakeholders is important. PAs should also consider the potential risks of ESG-related proposals and be held accountable. The influence of shareholders on compensation and the convergence of compensation packages could negatively impact firm value (Cabezon, 2020).

1.6 Structure of the Dissertation

The remainder of the dissertation is structured along the three essays representing individual research projects. Hence, the overall topic of ESG and compensation might overlap, but each essay can also be read independently, as each tackles a distinct aspect. The subsequent chapters follow the structure of Table 1.1, which provides an overall view of the topic, methodology, as well as findings and contributions.

Subsequently, I summarize my key findings from the three essays and conclude with chapter 5. Thus, I provide theoretical and managerial implications, limitations, avenues for further research, and a final remark. After that, I include additional information in the appendix for the three essays. These are the interview protocol and guide from **Essay I**, variables description, further analyses, and robustness checks of **Essay II** and **Essay III**.

Table 1.1: Overview of the Three Essays

Essay Characteristics	**Essay I (cf. Chapter 2)**	**Essay II (cf. Chapter 3)**	**Essay III (cf. Chapter 4)**
Research question	Whether and how do companies integrate ESG criteria in German compensation systems along management levels	Do companies aspire to ESG-based compensation after the introduction of the NFRD? And does ESG-based compensation lead to better ESG performance?	Do PAs consider ESG and idiosyncratic factors when formulating their corporate voting recommendation for European countries?
Research approach and data	Qualitative: Multiple Case Study with fifteen DAX and Private Family Firms	Quantitative: (staggered) Differences-in-differences approach, EU and US compensation-related data and real effects	Quantitative: empirical regressions; *ISS* voting & compensation dataset
Call for research	Winschel, (2021); Ditillo and Lisi, (2016)	Ottenstein et al., (2022); Ioannou and Serafeim, (2017); Cuomo et al., (2022)	European Securities and Markets Authority, (2012); Hitz and Lehmann, (2018)
Findings	Multilayer framework including different archetypes (pros and cons) and key insights	Companies implement ESG-based compensation in response to NFRD, resulting in greater reduction of real CO_2 emissions	PAs consider company- and country-specific factors in recommendations formulation (e.g., ESG-based compensation)
Theoretical contributions	Elaboration legitimacy theory: Incorporating ESG into compensation systems	Effect of NFRD and effect of ESG-based compensation on real effects	Economic role of PAs in EU on corporate voting
Managerial Implications	Managers: Guiding principles; Investors: Stimulus for investment decisions	Practitioners: legitimizing the focus on ESG compensation schemes; Regulators: Integration of results for e.g., CSRD	Regulators: Higher attention to increase transparency and oversight; Institutional inv.: Align principles with PAs' guidelines

Notes: This Table summarizes the three essays of this dissertation and presents the reader with a comprehensive overview.

2 | ESG-based Compensation in German Companies

How green are bonuses? The role of ESG in compensation system in German companies

I investigate how companies use environmental, social, and governance (ESG) goals in their compensation systems on different hierarchy levels in German companies. Compensation, a management control instrument, aims to incorporate non-financial goals such as ESG, which has rarely been investigated in literature as a differentiating aspect in a company's governance and managers' compensation. I conducted multiple case studies and interviewed compensation and sustainability experts from 15 German companies. I find that the extent to which companies use ESG goals differs considerably: Companies range from well-advanced to lower levels of ESG integration. I derive a framework to demonstrate these divergences. Among ESG goals, companies focus on environmental goals, use quantifiable goals, are more likely to integrate them in the short-term than long-term incentives, and have differences in the steering of incentive setting. I contribute to the ESG compensation literature by achieving transparency on compensation schemes with a framework of ESG integration and key insights on integrating ESG into compensation. My work constitutes a guideline for companies to assess their status quo and offers guidance for potential adjustments for managers and investors as a stimulus for investment decisions.

Author: Alexandra Knoth

Status: Working Paper[14]

[14]Full paper presentation presented at the 39th USAEE North American Conference, Manufacturing & Services Accounting Conference 2022; Poster presentation at 3rd International Conference on Energy Research & Social Sciene.

2.1 Introduction

Experts consider integrating ESG metrics into compensation as "one of the most significant changes in executive compensation over a decade" (Ellerman et al., 2021). Due to this contemporary importance, ESG in compensation systems has also become a significant topic of interest in academia because it constitutes a relevant, crucial management control instrument. Despite its strategic importance on corporate agendas, integrating ESG into business is only frequently discussed superficially, with ESG being used as a buzzword. We know little about *how* companies integrate ESG criteria into a company's strategy and management control systems on a detailed, quantifiable level. The definition of ESG goals is key that a company *really* creates a sustainability impact for considerations of ESG achievements and to set up managerial incentives, also on middle and lower hierarchy levels (Jensen, 2001). Because ESG is often mentioned with self-reporting and voluntary disclosure (Ioannou and Serafeim, 2017), corporations might present ESG initiatives without real effects, resulting in the danger of green-washing even though the ESG integration is associated with higher ESG performance and protect legitimacy (Fulmer and Li, 2022).

Companies are experiencing growing pressure to increase transparency and attention on a company's performance and integration concerning ESG, e.g., from regulations such as the EU Taxonomy and the European Corporate Sustainability Reporting Directive (Christensen et al., 2021). There are high regulatory requirements for listed companies, and a growing number of investors aim to understand the ESG advancements within companies' management control systems. Among these, executive compensation is a frequently discussed governance tool (Edmans et al., 2017). Managers (agents) do "not always act in the best interests of the principal" (Jensen and Meckling, 1976, p. 5). Hence, one aims to limit deviations by setting incentives and have preferably low monitoring costs (Friedl, 2012). Phung et al. also support this with the "stakeholder-incentive alignment view that compensation is an effective mechanism to align the interest of management and stakeholders for sustainable development" (p. 13, 2022).

Management board-level compensation typically contains a fixed salary, a short-term incentive (STI), and a long-term incentive (LTI). The latter two are usually based on quantitative and qualitative targets and nowadays also include ESG-related key performance indicators (KPIs) (Gond et al., 2012). Existing management control instruments effectively consider non-financial goals, which is also expected when ESG targets are added (Ditillo and Lisi, 2016). Within this

complex target-setting process, there is a dispute about the *correct* number of goals because too many goals might reduce performance quality (Ethiraj and Levinthal, 2009) and lead to information overload (Tuttle and Burton, 1999). Although heavily discussed, the tendency exists that integrating ESG into business positively affects company value, financial performance, and ratings (Flammer et al., 2019, Friede et al., 2015, Lins et al., 2017, Servaes and Tamayo, 2013) even during financial crisis (Lins et al., 2017) and make companies more attractive (Fulmer and Li, 2022). In companies where managers from different levels have performance-oriented targets in their bonuses, these goals result in higher employee credibility and increased performance (Kampkötter and Sliwka, 2011). Why do all companies not integrate ESG into the business, and how does that convene with the rather long-term oriented topic of ESG (Callan and Thomas, 2014)?

Starting from these theoretical considerations, this exploratory case study deploys a qualitative approach to gather in-depth information apart from the disclosed compensation reports and nontransparent internal processes. To date, research mainly assesses the impact of ESG-related compensation on financial performance, but the status quo of ESG-based compensation is not fully explored yet (Cohen et al., 2022, Fulmer and Li, 2022). My study addresses this gap by gathering information, clustering, and critically reflecting on the status quo of German companies for a cross-case synthesis with pattern matching (Yin, 2018). The resulting research question *"How do companies integrate ESG criteria in German compensation systems along management levels?"* will be explored. The sample consists of public and private German companies from five different industries with companies of sufficient size (more than 750 million euros in revenue per year), maturity (existing longer than ten years), and ESG advancement (integration of ESG into business strategy and ESG ratings). Germany is selected as the largest economy in the European Union with rather strict non-financial regulations. Because public company compensation is subject to strict regulations, I opt to examine compensation in private companies to uncover contrasting findings. I conduct interviews with senior human resources and sustainability managers. In addition, I gather information from annual, compensation, and sustainability reports and augment the data with interviews with ESG experts for triangulation (Yin, 2018). I subsequently analyze and augment all collected data by employing a coding system based on Gioia et al. (2013).

I developed a framework that consists of an unsystematic approach to ESG integration and a systematic approach. The framework helps to explain the heterogeneity of compensation

systems based on the dimensions of STI/ LTI, integration level, selection of KPIs, and share of ESG components. Companies with an unsystematic approach to ESG integration can be divided into two clusters: I) no ESG integration and II) selective ESG in compensation. For the unsystematic approach, I find that the compensation schemes of these companies purely focus on the company's financial performance or have a low level of integration along management levels, a diminutive share of ESG with primarily environmental KPIs. On the other hand, the systematic approach is divided into III) a considerable amount of ESG in STI and LTI and IV) an elevated amount of ESG in both STI and LTI with a medium-to-high level of integration, a limited-to-broad ESG range and a small-to-medium share of ESG. The level of integration among managers is medium to high but differs for the STI. All compensation systems display high complexity, which shows the increased interest among principals to incentivize specific targets, including ESG. Integrating ESG into different bonuses in STI/ LTI with a broad range of KPIs aligns with expectations from the incentive alignment theory.

Based on the four clusters defined (I-IV), I assess the different approaches regarding strengths and weaknesses and derive key insights and trends. Among the key insights, there is a clear trend toward higher integration of ESG with a broad range of ESG KPIs based on the advancement of better measurable and more stringent KPIs. Currently, there is a focus on STI in practice, contradicting the expected concentration of ESG in LTI due to limited data and the time-consuming definition process. However, I also ascertain a shift from ESG-incentivized STI toward LTI, as sustainability needs a long-term perspective. Although most companies consider ESG KPIs, the actual and measurable focus is on environmental targets. Social and governance KPIs are more challenging to define and measure and suffer from data availability issues. Initiatives such as the Task Force on Climate-related Financial Disclosures, aiming at providing climate-related business frameworks, make it easier to define state-approved environmental KPIs.

Public companies tend to be more advanced in incorporating ESG into compensation schemes. Some private companies have a lower level of desire for ESG integration, e.g., because of lower pressure from stakeholders. Besides, there are different departments responsible for goal-setting and target-setting. Once established and growing in importance, the sustainability department has the highest impact on integrating ESG into compensation.

This paper contributes to the ESG compensation literature by revealing the status quo of how ESG is integrated into compensation schemes and depth across hierarchy levels in German companies. My key results, namely the comprehensive framework and derived key insights,

expand the existing ESG compensation literature, which primarily focuses on the effect of ESG-based compensation on ESG scores and financial performance (Flammer and Bansal, 2017). For researchers, these findings can be used to validate and further refine these new findings empirically. In addition to the framework, I developed guiding principles for managers, which they are encouraged to use, and also in discussions to improve their ESG strategy and KPI formulation. Moreover, managers can easily classify their companies in the current compensation framework, derive the status quo, and estimate the gap toward a higher level of ESG integration. Meanwhile, investors can use my insights on corporate governance characteristics to stimulate investment decisions.

The remainder of this paper is structured as follows: First, I review the relevant literature, and afterward, I explain the methodology and describe the sample. Subsequently, the developed framework is presented, and key findings are derived. The paper concludes with the contribution and pathways for further research.

2.2 Literature Review

2.2.1 Structure of Compensation within Companies

Compensation typically contains multiple components and is a multidimensional matter. These components are a fixed salary and a short and long-term bonus. Furthermore, different targets are differentiated into financial and non-nonfinancial targets with qualitative or quantitative measurement. Along with compensation, there are also some governmental aspects, such as the target-setting process and the monitoring of targets. Each employee receives a fixed salary independent of performance. Annual and multi-annual bonuses are provided to managers and the management board. They might receive a yearly flexible bonus, an incentive based on short-term performance (STI). In addition, mostly only members of the executive management board receive a long-term incentive in the form of stock options or monetary payment (LTI). The LTI structure is usually more complex due to specific holding periods and deferral rules and, hence, is perceived as a motivational factor to promote a focus on long-term results (Maas and Rosendaal, 2016). ESG criteria can be integrated differently: First, ESG criteria are either implemented as a stand-alone ESG metric for the whole company or based on individual STI and LTI goals.

Second, companies' ESG criteria are added to a Balanced or Business Strategy Scorecard. Third, ESG goals are added within a modifier to adjust the overall rating of the STI and LTI.

Several categories of KPIs exist for the meritocratic compensation of most managers and the management board system. First, the most common KPIs are quantitative KPIs: They are measurable, comparable, and explicit indicators. Examples are financial-based KPIs such as the EBITDA margin. Second, there are qualitative KPIs: They are non-financial and more challenging to quantify but can be measured with different and mostly more complex techniques, such as customer satisfaction. Third, individual KPIs are individually agreed upon with each employee and customized to specific roles, departments, and targets (Franco-Santos, 2014). Currently, the KPIs of a company's management control system focus mainly on financial performance. In contrast, the integration of non-financial goals is a trend of the last decade (Ellerman et al., 2021). ESG-related KPIs can be quantitative, such as reducing CO_2 emissions, and qualitative, such as employee satisfaction. If more KPIs are introduced, research shows employees try to participate within all dimensions. However, this results in a conflict among goals with a potential loss of productivity even though the commitment to goals increases (Christ et al., 2016).

Complexity of goal setting in compensation

After 2009, compensation packages became more complex, reflecting the scope and complexity of executives' work in companies. Compensation contracts cover the management's goals and the operating field of a manager whose work complexity has increased lately (Albuquerque et al., 2022). Generally, it is essential to set goals because it improves performance. Pursuing multiple goals is theoretically difficult and logically impossible (Jensen, 2001). Moreover, an increased number of goals also decreases performance. However, achieving a specific goal is more likely to be enhanced once it is an organizational goal (Obloj and Sengul, 2020). Studies show that multiple goals are challenging and expensive and trigger decision-making and coordination problems. The coordination increases significantly with organizational complexity (Zhou, 2013). Also, other researchers tackle the problem of multiple weakly correlated goals, as it "leads to a performance freeze in that actors are not able to identify choices that enhance organizational performance across the full array of goals" (Ethiraj and Levinthal, 2009, p.4). They also identify a performance decrease of 20 percent when switching from one goal to four goals (Ethiraj and Levinthal, 2009). Tuttle and Burton (1999) also point out that, typically, not more than six information items can be used for a decision. Goals need to be set that trigger higher effort

so that a positive relationship between effort and performance can be derived. Therefore, an increased number of goals might create a reduced performance.

Shareholder theory, as developed by Friedman in the 1970s, focuses purely on profit maximization and therefore has one goal: "The social responsibility of business is to increase its profits" (Friedman, 2007, p. 1). This, however, contradicts today's more prevalent stakeholder theory, considering the interests of all stakeholders with several contradicting goals in the company (Schaltegger et al., 2019). According to Jensen (p. 297, 2001), this emerging trade-off without specifications on how to solve the conflict of interest "makes it impossible for them to make purposeful decisions." He suggests a distinct postulation on defining a certain score for a solution. Contrary to that, companies use Balanced Scorecards for performance and compensation measuring, which leads to confusion among managers (Jensen, 2001). Accepting this, companies still set multiple goals that are positively and negatively correlated to "actively influence and lessen the trade-off" as long as they provide "additional information about the overall complex nature of organizational performance" (Obloj and Sengul, 2020, p.4).

In addition to the complexity of multiple goals, information overload on managers is a side effect. It describes the moment when the input of a system transcends processing capacity (Milford and Perry, 1977), accompanied by decreased decision quality and increased confusion (Speier et al., 1999). There are two possible perspectives in the case of information overload. First, decision-makers stop processing more information and decide based on the already acquired information when they can stop processing (cognitive view). Second, decision-makers are limited by resources such as time and, hence, information is not processed efficiently (Roetzel, 2019). This is relevant in the context of multiple incentivized goals and an excessive flow of information. How do decision-makers cope?

The attention of managers can be defined as a trade-off of a "broader or narrower set of strategic issues better facilitates firm performance" (Eklund and Mannor, 2021, 2). Contrary to the goal theory, Eklund and Mannor (2021) argue that broader executive attention enables managers to be more open and able to identify new possibilities. Hence, this aspect is associated with less risk and more opportunities. The goals of managers are the attention base. Based on the theory, companies with a broader focus, usually larger companies, can react to the changing external environment more quickly. The conflict of multiple goals within compensation systems, aligning stakeholders' interests and aiming executives' attention to issues, does not form a clear answer on designing compensation systems most effectively.

Theoretical underpinning of the study

The idea of the principal-agent theory is to align the interests of the owners of a company (so-called principals) and executives (so-called agents) (Jensen and Meckling, 1976). Thus, the theory demonstrates potential conflicting interests within the topic of compensation, which initially aims to steer managers' attention to specific goals (Read, 2005). The principal-agent theory states that some decision-making authority is delegated from the company's owner to the management board and managers. Shareholders/ family business owners set costly incentives to define the desired behavior and monitor performance related to optimal contracting theory to maximize shareholders' wealth (Rampling, 2012). Shareholders focus on long-term profit, which can potentially endanger the short-term goals of executives. A company's reputation, including ESG aspects, plays a substantial role in long-term profitability. Hence, profit maximization based on the shareholder theory alone might also fail due to the information asymmetry between principals and agents, as the latter is more aware of concrete companies' actions. As a consequence, one integrates ESG into compensation and motivates employees externally so that "executives [...] behave in a socially responsible manner" (Rampling, 2012, p.16) and tend to focus more on long-term growth. Research points out "that incentive alignment was a more powerful mechanism than monitoring for ensuring that agents acted in the interests of owners" (Tosi et al., 1997, p.584), also to mitigate agency problems. Phung et al. also support their study, the "stakeholder-incentive alignment view that compensation is an effective mechanism to align the interest of management and stakeholders for sustainable development" (p. 13, 2022).

In addition, several other theories represent reasons for companies to disclose and integrate ESG information beyond legal requirements. The stakeholder-oriented theory is complemented by the corporate sustainability aspect and is considered a core function in aligning all interests (Freeman and Dmytriyev, 2017). The legitimacy theory describes the status that companies disclose certain ESG-related information to contribute to social value and improve a company's sustainable reputation (Hahn and Kühnen, 2013). Companies might also choose to *signal* their ESG commitment in a voluntary set-up by voluntarily disclosing relevant information (signaling theory). Providing information, for example, reduces information asymmetry between the management board and stakeholders and aims to improve the ESG-based perception (Lys et al., 2015). Based on different theories, one expects companies to integrate ESG into compensation with different reasoning.

However, the motivation of managers is also important to understand. A manager is motivated by intrinsic and extrinsic factors: Intrinsic motivation rests on intangible motivation, the enjoyment from the task itself, and the internal self-image, depending on individual values (sustainability-oriented mindset) and the self-desire for challenges. Extrinsic motivation is mainly based on rewards such as money and appreciation (Makki and Abid, 2016). Extrinsic motivation with an external regulation style such as rewards causes non-self-determined behavior, e.g., for inherently uninteresting activities. In contrast, intrinsic regulation is driven by all forms of interest. This enjoyment constitutes a self-determined behavior when a law has been internalized, such as by transforming the business into personal goals (Gerhart and Fang, 2015). Hence, it is interesting to understand what role a manager's motivation plays in compensation systems in a discussion of ESG.

Management levels

"The middle management group is heterogeneous in terms of people, functions, responsibilities, and assignments" (Sbarra, 1969, p. 46). Moreover, the goals of these middle managers are not alike and can even be contradictory, such as production efficiency and sales increase. The research on middle management is extremely scarce because the group is very heterogeneous, and data is not disclosed. Research is available, e.g., in the relationship with earnings management for the United States (Guidry et al., 1999). Only findings from large and publicly listed companies with high shareholder impact on the management board level can partially be transferred to middle managers. However, for middle management compensation, the company's performance on a year-to-year basis is more relevant (Marler and Faugère, 2010).

The amount of payment and the corresponding annual performance is usually determined by senior human resources managers with the relevant management board member (Kampkötter and Sliwka, 2011). "Pay based on organizational performance significantly increases compensation risk" (Marler and Faugère, 2010, p. 315). Therefore, monitoring by the management board reduces agency costs, and the middle management focuses instead on individual performance compensation. But other researchers stress the supervisors' performance rating of middle management and postulate that companies should differentiate and standardize the ratings more strongly to positively affect performance (Kampkötter and Sliwka, 2011). In the 2000s, corporations also started to adopt equity incentives for middle management, but researchers mainly described these as window dressing (Marler and Faugère, 2010). However, this is a common practice nowadays, and one can assume that integrating ESG-related goals might also need decades to

become prevalent. Overall, there is little research on practical and actual ESG-oriented research for middle management.

Regulatory framework

Governments set policies and standards to affect companies' behavior in terms of reporting and ESG goals. There are significant legal differences, but also a diverse understanding of the necessity and scope of ESG among countries. Due to higher ESG sensitivity (Ioannou and Serafeim, 2012), countries of the European Union are more interesting to study, given the advancements in ESG. I selected Germany because it is the largest European economy and a stakeholder-oriented country, meaning companies aim to please several stakeholder groups, such as employees and investors, and the environment.

The compensation of the management board for German public companies is highly regulated: The German Commercial Code (Handelsgesetzbuch, GCC) embodies the fundamentals for regulatory requirements complemented by the Executive Compensation Disclosure Act (Vorstandsvergütungs-Offenlegungsgesetz), the Act on Appropriateness of Management Board Compensation (Gesetz zur Angemessenheit der Vorstandsvergütung) and the optional German Corporate Governance Code (Deutscher Corporate Governance Kodex) as well as IFRS 2 and IAS 24 (public companies) to increase the transparency of the compensation for the management and supervisory boards. Hence, the compensation of the management board must be disclosed separately for each member and each component (base salary and variable pay) and withstand the appropriateness test[15]. Besides, the Act on the Implementation of the Shareholders' Rights Directive (Gesetz zur Umsetzung der zweiten Aktionärsrechterichtlinie), effective since 2019, increases the codetermination of shareholders on the compensation of the management and supervisory board (say on pay) at the annual general meeting. Most importantly, based on European ESG advancement, non-financial indicators must also be integrated for the variable part of compensation from the fiscal year 2021 onward.

In contrast, there are also companies under private ownership and form, comprising 90 percent of Germany's largest group of companies. If they are substantially influenced by one or more families, depending on the concrete legal structure, they are called family firms and have less strict regulatory requirements (Koenig et al., 2013). Research has shown that family firms tend

[15]For the level of compensation (comparable to similar companies, reflecting the company's situation and employees' compensation, controlled by the supervisory board) at most every four years (§120a, §162 Stock Corporation Act).

to use incentive contracts to a lesser degree and also at "lower levels of incentive pay [...] when compared with nonfamily businesses" (Michiels et al., 2021, p. 53). Private companies are characterized by a long-term orientation to enable viability throughout generations with sustainable growth while maintaining their independence (Stein, 2015). They have lower reporting restrictions[16] and, therefore, lower public commitments, also for ESG requirements (Bassemir and Novotny-Farkas, 2018). Generally, the compensation schemes of family firms are somewhat subjective and focus on non-economic goals and a more significant time horizon. Despite the relatively small number of KPIs in the system, research stresses that there is a biased performance evaluation and increasing intricacy (Chua et al., 2009). In private firms, a union of management and ownership can exist to build trustful, long-lasting relationships among all company stakeholders. Also, non-financial factors are essential based on family traditions and regional responsibility and potentially result in a higher obligation from the regional community than from shareholders (Venohr et al., 2015). Therefore, one expects private companies to have a rather intrinsic-related integration of ESG goals than regulated public companies.

2.2.2 Compensation in the Context of ESG

Relevance of ESG

"Companies' performance on environmental, social, and governance (ESG) issues has garnered increasing attention in the past decade from various parties, including customers, employees, public interest groups, and government regulators" (Khan, 2019, p.103). ESG-related topics are nowadays especially relevant once they affect shareholder value because non-financial criteria are a signal for investors (Khan, 2019). Several directives textually regulate the ESG initiatives to hinder green-washing, foster the integration of sustainability into risk management, and increase transparency and comparability for a more sustainable economy. The EU taxonomy is defined as a classification system developing a list of environmentally sustainable economic activities primarily addressing environmental objectives such as climate change mitigation (TEG, 2019). The European Corporate Sustainability Reporting Directive, replacing the Non-Financial Reporting Directive in 2021, aims to expand the binding audit to a broader range of companies (e.g., non-public companies with more than 250 employees) with specific standards for their ESG ambitions. Aims are based on EU Taxonomy: environmental (e.g., pollution), social (e.g., equal opportunities), and governance aspects (e.g., ethics). The Directive is planned to be effective

[16] Except for issued stocks and bonds (Sect. 342b para. 2 HGB (German Commercial Code).

in 2023 and to be transformed into national German law (Proposal for a Directive of the European Parliament)[17]. Increasing regulation on ESG on the European level is also driving German legislation.

Research on ESG-based compensation

"We know very little about management control for sustainability," according to Ditillo and Lisi (p. 125, 2016), of which compensation is a relevant part. They further state that the "sustainability orientation of management is the relevant variable in explaining the observed variation in SCSs' [Sustainable Control System] integration" (Ditillo and Lisi, 2016, p. 126). Hence, it is interesting to understand how a company's strategy and orientation are consonant with its incentives.

Existing research analyzes how ESG-based compensation policies affect financial performance, ESG ratings, and companies' time horizon (Flammer et al., 2019, Friede et al., 2015, Lins et al., 2017, Servaes and Tamayo, 2013). Managerial incentives based on ESG-KPIs are a control mechanism with growing usage to expand the control among managers across hierarchy levels to limit deviations from desired behavior (Coughlan and Schmidt, 1985). It is beneficial for companies to consider non-financial components and long-term goals within their compensation policies (Velte, 2016). Mahoney and Thorn (2006) emphasize the usage of executive compensation as "an effective tool in aligning executives" welfare with that of the "'common good', which results in more socially responsible firms" (Mahoney and Thorn, 2006, p. 149) and monitoring costs (Ji, 2015).

Researchers who study how ESG-based compensation affects ESG and financial performance predominantly focus on public companies in specific countries such as Spain and Germany (Flammer et al., 2019, Velte, 2016, Friede et al., 2015). Velte (2016) argues that "sustainable management board compensation has a positive impact on ESG performance" (p. 23). Research shows that long-term-oriented companies have a positive influence on ESG. Further, it encourages managers to integrate environmental and social aspects into the investment process (Ji, 2015). Another recent study underlined the relevance of ESG-based compensation and identified an increase in the number of companies with improved ESG performance (Cohen et al., 2022).

[17] Amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting.

Research gap

Existing research focuses on the effects of and behavioral outcomes from ESG-based compensation on public companies. Researchers conclude that there is an increase in ESG integration into compensation. Still, companies implement ESG goals in their STI in heterogeneous ways potentially because regulatory standards differ across countries and carbon-intense industries (Winschel, 2021). More goals in a compensation system are not necessarily beneficial for companies and cannot purely be seen as a win-win paradigm. Moreover, research shows that this can result in "trade-offs and conflict" (Hahn et al., 2010, p. 217). It is relevant to understand how companies deal with the complex multi-goal dilemma. Here, Ditillo and Lisi (2016) point out the missing interplay in research between sustainability and management control systems.

We know little about whether and how companies use ESG goals in compensation schemes across hierarchy levels in German companies (Cohen et al., 2022). As the literature describes, are ESG incentives prevalent in long-term incentives to foster ESG performance? Only one exploratory study reveals with a European focus that integrating ESG factors for carbon reduction is predominantly seen in the STI for 2018-19 (Winschel, 2021). This study focuses on the German two-tier system[18], as previous studies have primarily focused on the US and the UK, which have a one-tier system (Ntim et al., 2015). Hence, comparing public and private companies focusing on German companies, analyzing predominant ESG factors in STI and LTI, the prevalence in middle management, and the goal-setting process go beyond prior research.

Further, I assess public and private companies about which there is not much research in compensation. Based on the literature, one could assume that private companies, due to their long-term orientation and the existing focus on non-financial KPIs, might also have a higher commitment to integrating ESG factors into their business and compensation. Therefore, a relevant question arises: *How do companies integrate ESG criteria in German compensation systems along management levels?*

[18] A one-tier board is an executive group that manages and supervises the company. A two-tier board consists of separate management and supervisory panels.

2.3 Methodology

2.3.1 Research Design, Data Collection, and Sample

Research Design

This research focuses on the current practicality of the ESG compensation business context, of which only limited information is available. Therefore, I deploy a qualitative approach to understand how companies use different ESG goals, the weighting of other factors, and the reasoning (Yin, 2018). I answer these questions with a theory-building multiple case study design to cover the most relevant features of the different compensation schemes based on an exploratory analysis (Yin, 2018). Numerous case studies depict real-world business situations from various sources (Yin, 2018). The aim is to build theory and advance the existing literature on compensation for ESG integration and management levels. As Corbin and Strauss (1990) point out, based on data collection (interviews), a comprehensive theory can be formulated. I use a comparative case study to allow for sufficient variation (Yin, 2018). This approach allows for replication logic, thereby ensuring validity (Eisenhardt, 1989a). I interviewed human resource and sustainability managers from fifteen companies operating in different industries, ESG experts, and Human Resources (HR) consultants. Due to industry specifics, such as higher regulation in the financial industry, I match the fifteen companies to five industries. Hence, I use cross-industry examples to triangulate results (Yin, 2018) and to develop an overall valid theory. The unit of analysis is the form of integration of ESG factors across hierarchy levels.

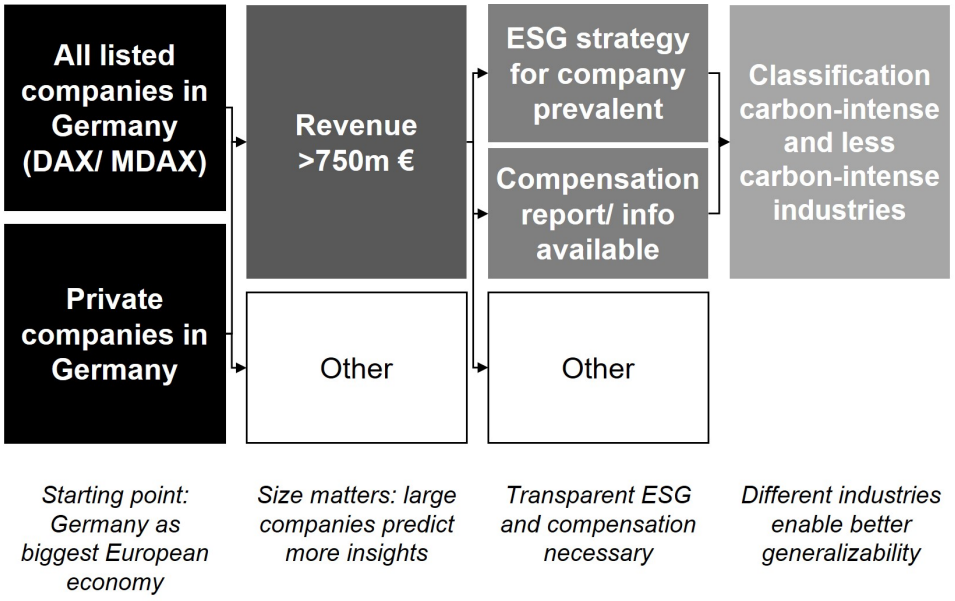
Sample

I compare how private versus public companies integrate ESG goals in compensation because of a differing legal and cultural context. Thus, my data set covers both types of companies. Purposeful sampling will be most suitable for decreasing bias towards selective companies, emphasizing replicable patterns, and elaborating theory (Yin, 2018).

I use the following selection criteria for public and private companies to compare companies from a homogeneous group with purposeful differences for observation. First, Germany, the largest economy in the European Union, has many big listed and private companies subject to extensive pressure on non-financial reporting. I use only German-headquartered companies to enable a consistent legal environment for compensation and sustainability reporting. Second,

I start with the largest publicly listed companies in terms of size from the DAX and MDAX and the 500 largest private companies. For an adequate comparison, I select companies with at least 750 million euros of revenue in 2021 because larger companies usually have more advanced compensation systems, underlined by higher stakeholder pressure (Signori et al., 2021). Third, I only consider companies with an ESG strategy, so ESG has to be integrated into their management control systems. Sufficient information on the compensation system must exist and be available via a report or website information. This is analyzed via extensive web research. Furthermore, companies without ESG consideration are of no theoretical interest to the study and can therefore be neglected to ensure the high quality of the case studies (Hallen and Eisenhardt, 2012). I deliberately exclude them, as these companies are rapidly decreasing. Fourth, I pick companies of different industries, therefore, carbon-intense and less carbon-intense companies, to derive varying insights (see Figure 2.1).

FIGURE 2.1: Sampling Process



Notes: This Figure illustrates the process I use to obtain my sample (own creation).

By applying the mentioned criteria, I develop a shortlist of 131 companies I contacted via email, of which twenty companies are eager to participate in my interviews. Fifteen of them form my sample. I mostly reach out to senior managers from the human resources or sustainability departments to ensure a high level of knowledge of the role of ESG within compensation.

Hence, I developed a specific matching approach: Each case consists of companies of the same

industry–at least one public and one private company to adjust for industry-specific regulations, totaling fifteen companies from Financial services (4), Pharma & Chemicals (3), Consumer Goods (2) Industrial Goods & Automotive (4) and Energy & Utilities (2); (see next page for details). These can be differentiated into carbon-intense industries; the latter two belong to this group, and the remaining to less-carbon-intense industries. Thus, this is relevant since companies from more polluting industries usually have higher external pressure on ESG topics and, therefore, handle ESG more cautiously (Nguyen, 2018).

FIGURE 2.2: Overview of the Organizations in the Sample

ID	Industry	Carbon-intense	Contact person/ position	Owner-ship	Description	Revenue 2021 (bn EUR)	Employees
Public - 1	Financial services		Group HR – Global Reward & Performance	Public	Global company, multiple divisions, several subsidiaries - ESG plays significant role for company-wide strategy, e.g., investments, business operations	148.5	159.000
Public - 2	Financial services		Human Resources - Corporate Executive Matters	Public	Company, globally operating, ESG plays significant role for company-wide strategy, e.g., investments, business operations, high regulations	47.1	336,000
Public - 3	Financial services		HR Compensation & bonuses, regulatory issues	Public	Company with core focus on German market, ESG plays significant role for company-wide strategy, e.g., investments, high regulations	12.2	42,000
Private - 4	Financial services		Chief Sustainability Officer	Private	Company with core focus on German market, ESG plays significant role for company-wide strategy, e.g., investments, high regulations	2.8	10,000
Public - 5	Pharma & Chemicals	x	Corporate HR - Senior Executive Compensation & Benefits	Public	Global company, multiple divisions, several subsidiaries - ESG plays significant role for company-wide strategy, e.g., investments, business operations, high-emission production sites	78.6	111,000
Public - 6	Pharma & Chemicals	x	Vice President Sustainability	Public	Global company, multiple divisions, several subsidiaries - ESG plays significant role for company-wide strategy, e.g., investments, business operations, high-emission production sites	14.4	18,000
Private - 7	Energy & utilities	x	Manager in strategy business unit	Private	Global company, multiple divisions, several subsidiaries - ESG plays significant role for company-wide strategy, e.g., construction technologies, investments	78.7	421,000
Private - 8	Pharma & Chemicals	x	Chief Responsibility Officer	Private	Global company, multiple divisions - ESG plays significant role for company-wide strategy, e.g., development of sustainable medicine, degradation	1.5	5,000
Public - 9	Energy & utilities	x	Executive Vice President Sustainability	Public	Company with core focus on German market, ESG plays significant role for company-wide strategy, e.g., investments, regulation and business model	164.3	7,000
Public - 10	Industrial goods & automotive	x	Group Reward/ Group Human Relations	Public	Global company, multiple divisions - ESG plays significant role for company-wide strategy, e.g., development of sustainable transportation, part of business model	33.8	236,000
Private - 11	Industrial goods & automotive	x	Global Rewards & Mobility	Private	Global company, multiple divisions - ESG plays significant role for company-wide strategy, e.g., development of sustainable transportation, part of business model	4.8	12,000
Private - 12	Consumer goods		Director Management Systems & Services	Private	Global company, B2B products, ESG plays a significant role from business model perspective	0.6	2,000
Public - 13	Consumer goods		Global Head of Total Rewards	Public	Global company, multiple divisions, B2B and B2C products, ESG plays a significant role from business model perspective	20.1	53,000
Private - 14	Industrial goods & automotive	x	Corporate HR Culture & Labour – Compensation & Benefits	Private	Global company, multiple divisions - ESG plays significant role for company-wide strategy, e.g., development of sustainable manufacturing	4.2	15,000
Private - 15	Industrial goods & automotive	x	Advisory committee	Private	Global company, multiple divisions - ESG plays significant role for company-wide strategy, e.g., development of sustainable construction	1.8	9,000

Notes: This overview illustrates the different cases with their company details.

Data Collection

I used different data sources: The main sources were in-depth, semi-structured interviews with senior human resources or sustainability managers. Information from annual, compensation, and sustainability reports was consulted. In addition, interviews with ESG and compensation experts from consulting companies provided valuable insights.

The fifteen interviews form the core information for this paper. An interview consisted of several parts based on problem-centric open-ended questions, allowing the expert to provide background information, explanations, and shortcomings (guide in Appendix A). After a personal introduction, some background information on ESG and compensation of the companies were exchanged, and I focused on the role of ESG in the company in general, the integration in the compensation system, the goal-setting and goal-monitoring process, the perceived influence and a final assessment of the current system. I also pretested the questionnaire with ESG researchers who do not focus on compensation to ensure a clear structure and understandable, focused questions. Each interview was slightly adjusted based on a company's practices in ESG and publicly available information on compensation to understand its current progress and the learning from the previous interviews until I reach theoretical saturation (Eisenhardt, 1989a). Interviews were conducted from December 2021 to February 2022 in a virtual set-up due to COVID-19 conditions. Each interview lasted 30 to 70 minutes. For all interviews, anonymity was ensured to allow for an open discussion of company-specific details. Interviews are transcribed verbatim for coding in MAXQDA.

I also consulted archival data, consisting of compensation and sustainability reports. I used both to get familiar with the cases during the interview preparation. In particular, compensation reports alone or integrated into annual reports provide an overview of the management board's previous and current compensation schemes. The reports detail the fixed salary per management board member, the assessment basis, and the KPIs in place to determine the STI and the LTI for the corresponding and last years. The performance and targets for each KPI are usually not provided. However, most reports explain the used KPIs on a rather superficial level and only describe the compensation systems at the management level. Information about lower-level managers is not found at all. The reports also show the variety of KPIs used. For ESG-related KPIs, a rather broad description is usually found without explicit information (e.g., ESG/ environmental performance). Moreover, the goal-setting and monitoring process is not mentioned. Sustainability reports provide an understanding of the current sustainability or

ESG strategy. They are used to understand the focus of the ESG strategy, the time frame, the ambitiousness, and the character of the KPIs implemented.

Further, I validated the initial findings with practical insights from experts. For example, I tested the industry standards on non-financial KPIs with ESG experts to understand which KPIs are used most. Besides, the HR experts outlined their recommendations for compensation systems to integrate ESG, compared to the developed archetypes.

I triangulate the information from my interviews with archival data from sustainability reports and expert interviews to ensure a high level of validity (Yin, 2018).

2.3.2 Data Analysis

In the first step, the with-in-case analysis helps to cope with the amount of information from one interview and become familiar with the data. Then, I analyze the data from different perspectives for the cross-case analysis. The parallelism of data collection and analysis enables flexibility for additional interview questions, which is specifically relevant in building theory in a relatively unexplored field of research (Eisenhardt, 1989a). The data is used to develop a general framework for the compensation systems of German public and private companies with certain dimensions supported by the literature. When developing the framework, I identify replicable patterns that will allow future research to generalize the findings (Yin, 2018). I use an open coding system with two levels (see Figures A.3 and A.4 for the codes). The first level focuses on information-centric topics with inductive, descriptive codes (see Figures A.1 and A.2 for the data structure). I also use the second level for concepts, categories, and dimensions aligned with the data reduction process to ensure that clusters are consistent (Corbin and Strauss, 1990). After some modification based on additional data from the ESG experts' calls, the complete set of first and second-level topics build the basis for the data structure. I determine transferable concepts and key insights assigned to a broader audience (Gioia et al., 2013). Thus, I do an analysis case by case to further compare each case within the matching group for cross-case analysis. Due to limited literature on ESG integration into compensation, the comparison to the existing literature is only sparsely possible. Furthermore, I derive my framework (Gioia et al., 2013), complemented with a potential company guideline.

2.4 Results

2.4.1 Case Presentation and Within-case Analysis

In the following, I detail the six most valuable cases of the fifteen cases due to brevity. The remainder is added in the Appendix.

Public-1. The core business of the company is in the financial industry (e.g., asset management, insurance). The company actively demonstrates responsibility for ESG topics throughout the business model, publicly discloses its ESG approach and integration, and experiences high regulatory pressure. Accordingly, high standards can be seen in the STI and LTI: The STI is based on the company's performance per department and has a multiplier that depends on achieving customized ESG targets (up to 50%) applicable until N-4. The LTI is based on the annual bonus performance factor and company performance and is multiplied by a sustainability check-based factor. The focus is on comparable, quantitative KPIs for environmental topics (e.g., CO_2 emissions, renewable energy) and social factors (customer and employee satisfaction in the form of the Net Promoter Score). For Public-1, governance KPIs are currently difficult to determine and expandable. The sustainability department is responsible for setting ESG targets and integration into the compensation scheme. The company derives ESG targets from the company-wide strategy. The integration of ESG targets into compensation was perceived as very positive by employees and is now seen as a competitive advantage. However, the path of ESG integration is ambiguous. For instance, one interviewed manager stated, "We don't think it is necessary to develop more and more targets and KPIs, but to consolidate and focus on the core targets, to really put these into practice."

Public-5. This company has production sites worldwide and is part of the pharma and chemistry sector. The transformation towards a more sustainable production company is central. The ESG department directly reports to the CEO, "As for us, ESG is already a must" (*Public-5*). Prioritized topics are sustainability in the form of CO_2 neutrality, supply chain management, raw-material-protecting purchasing, security at work, and compliance with human rights. The STI for all non-tariff employees is based on an individual target agreement; the ESG component can amount to 50% but depends strongly on the operative business department (e.g., security standards in production and purchasing of raw materials). Seventy percent of the individual component depends on operative, quantifiable KPIs (e.g., sales responsibility) and qualitative,

discretionary targets (e.g., employee motivation, improvement in the sustainable value chain). The supervisors assess how well the employee achieved the corresponding targets. Management board members and senior managers receive an LTI. The bonus multiplier is determined by profitability, growth, and sustainability (focus on CO_2 reduction). The new system was perceived "as very positive, as it was time to link compensation with the energy component."

Private-7. This global company from the pharma and chemical industry focuses on pain management. The company has a set of core ESG initiatives (three on social goals and one each on environmental and governance goals) and a focus on ESG ratings (past issuance of a bond). Responsible business plays a major role in innovation, data management, and the compilation of medication. The size of the short-term bonus depends on how well employees have achieved strategic goals and a corporate factor. This factor is a common metric "for the sense of togetherness," and responsible business counts for 5%. The development is towards quantitative targets; a few qualitative ones remain–set by the responsible department and the management board. "We really want to create an impact along our core business, following the stakeholder mindset–the aim is not to just reduce risks."

Private-12. This company is a private industrial machine manufacturer. Energy consumption reduction, sustainable energy supply, and offsetting of unavoidable emissions are central to the company, which is also reflected in the climate strategy (focus on E). However, the company also offers a broad set of social and governance initiatives. "Traditionally, as a family company, we have always been socially engaged in our community and employees, but for us, there is no need to talk about that." The company offers a STI. The share of individual qualitative targets decreases from lower management levels to the management board. So, higher levels focus more on financial KPIs. The team-based targets are defined top-down. There have also been intense discussions about integrating an LTI, but the company decided not to introduce it "because we think we do not need it. Besides, most important for us is that the different departments grow together, so we aim not to establish different KPIs depending on the department but to further create synergies." Regarding ESG introduction, "the family wants to do something for the environment because it desires to do so." Hence, the company invests in environmental initiatives also because this might otherwise create a financial pitfall in the future without the need for disclosure in compensation.

Private-13. This private construction product manufacturer focuses on improving material utilization, sustainable sourcing, and a better selection of raw materials. This is reflected in the

company's ESG priorities: climate change (E), employer attractiveness (S), and steering of sustainability (G). On the one hand, the individual STI contains an individual multiplier with ESG KPIs focused on quantitative and qualitative targets. However, the multiplier does not cover ESG factors in a systematic approach. So, the company also connects individual ESG targets to employee target agreements for two levels below the management board. On the other hand, the LTI for the management board is solely determined by the company's financial performance. Besides, the company aims not to integrate further targets to maintain a low complexity without losing the steering mechanism. "We want to keep the system simple, and sustainability is common practice."

Public-15. The company offers consumers goods with several departments, such as home care. Its overall aim is to reduce the CO_2 footprint along the value chain. The company covers a broad range of ESG targets with a slightly greater focus on environmental aspects, but social standards (S), compliance, and regulation (G) also play a big role. The STI of the management board is determined by financial performance. Still, the multiplier contains ESG targets depending on the department (with a focus on environmental targets such as climate neutrality). Managers below the management board receive a STI consisting of a group (for all the same, 30%), a team (depending on department, 70%), and an individual component as a multiplier (individual role ambition). Hence, the group and individual components usually have ESG-relevant targets, depending on the role of responsibility. Usually, a focus on environmental or social aspects is seen (no systematic approach). Group and team KPIs are quantitative and decided by the department. Targets are also qualitative, decided by the supervisor. The LTI only focuses on the KPI of Return on Capital Employed by the company. Considerations about an increased role of ESG in compensation are ongoing. "There are still many opportunities, e.g., mandatory sustainability training for each employee. But we want our system to be more systematic; this will depend on our new ESG strategy, which needs to be well reflected."

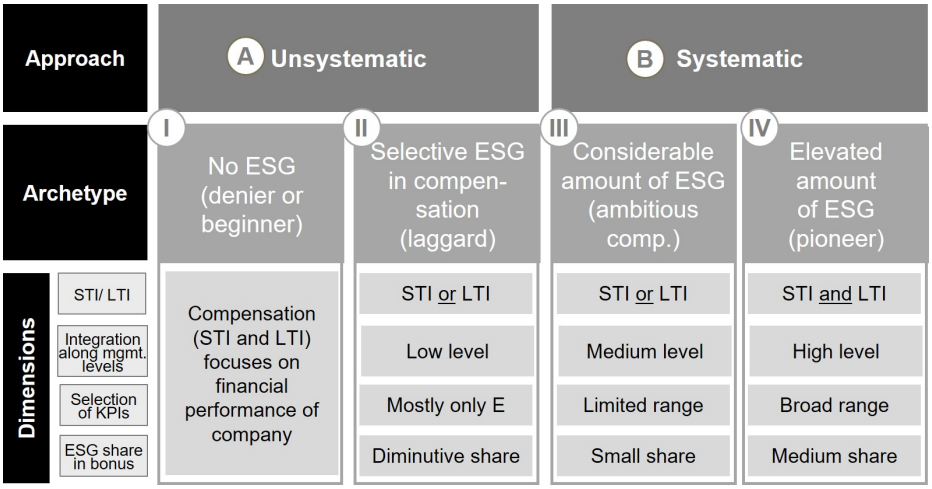
Additional remark

Apart from the mentioned interview partners, I receive feedback from several private companies stating that they are just on the beginner level of integration and are starting or are about to initiate considering ESG components in their compensation scheme. Hence, these companies are not available for an interview yet. These comments also signal the importance and actuality of the topic.

2.4.2 Cross-case Analysis, Framework and Connection to Theory

After analyzing the individual cases, I do a cross-case analysis. This analysis sets the foundation for the framework and demonstrates the different ways to integrate ESG into compensation. My cross-case analysis reveals four different archetypes of companies using ESG goals in their compensation systems. First, I differentiate between an unsystematic and a systematic approach for ESG integration into compensation. Second, the overarching approaches include a total of four different archetypes. Third, these four archetypes involve several dimensions. After a description of the approaches as outlined in Figure 2.3, I detail the mentioned dimensions.

FIGURE 2.3: ESG Compensation Framework



Notes: The Figure presents the derived framework based on two approaches, four archetypes, and different dimensions (own creation).

For the unsystematic approach (A), there is one archetype with no ESG integration (I) and one with selective ESG (II). First, companies refuse to integrate or are ultra-beginner companies (I): Archetype I only considers quantitative KPIs in the variable compensation based on financial performance. For archetype II, these are laggard companies with selective ESG in compensation: The compensation system considers selective ESG criteria, mostly environmental, especially quantitative KPIs in STI or LTI with a diminutive share and a low level of integration into the organization. Using ESG factors is not systematic and lacks broad coverage based on the ESG strategy.

Within the systematic approach (B), companies have a considerable or elevated amount of ESG in their incentives. Ambitious companies (III) have a significant amount of ESG in STI and

LTI: Compensation systems have a medium level of integration and a constrained coverage of ESG factors, which comprises a small number of the mixed KPIs. However, they have a systematic process and precise considerations for improvement. The pioneer companies have an elevated amount of ESG in STI and LTI (IV): Companies have a STI and LTI with a small to medium share of ESG factors in the compensation system, covering the range of E, S, and G. The STI is systematically applicable throughout the organization (above tariff employees). Even companies that systematically use ESG goals in compensation relate less than 30 percent of total compensation to ESG goals, which is the recommendation of the advisory board of the Sustainable Finance of the German government (Union Investment Institutional GmbH, 2021).

ESG in STI and LTI

Twelve companies integrate ESG in the STI or LTI (see Figure 2.4). Most companies in the sample integrate ESG in the STI (11/15) and fewer in the LTI (8/15). Laggard and ambitious companies tend to focus on integration in the STI since this can be incorporated faster and with less effort. These findings are in line with another international study, which determines the ESG share in pay for the STI to be 13% and 16% for the LTI (Cohen et al., 2022) and with findings that companies focus on the integration of ESG into the STI (Maas and Rosendaal, 2016). This, however, contradicts the expectation based on the literature hypothesis that ESG is predominant in the LTI but confirms the finding by Winschel (2021) that ESG criteria are found in the LTI. Hence, this partially contradicts the fact that ESG has a long-term character and also increases the challenge for managers to differentiate between ESG goals that count for the short-term and those that count for the longer term. As pointed out by the attention theory, a broader set of goals with integration into STI and LTI broadens the attention of the decision-makers. It allows for more opportunities and the ability to react more quickly to changing environment (Eklund and Mannor, 2021).

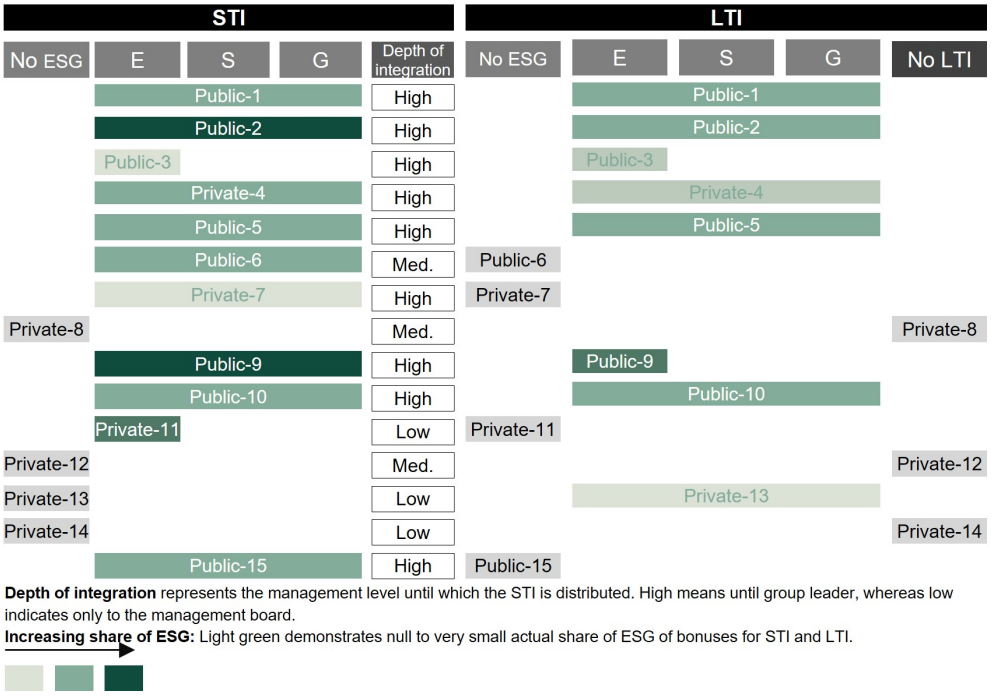
Integration level

Another relevant dimension is the integration level of the STI and, in particular, the ESG goals implemented. The company's size provides an indication about the number of layers and tariff employees[19]. Nine companies of the sample offer an STI until the lowest level of non-tariff workers. The other six companies employ an STI up to senior or middle managers, and one does not at all (see Figure 2.4). As theory points out, high integration increases credibility among

[19]In Germany, employees can be differentiated into tariff and non-tariff workers, of which the share of non-tariff workers is smaller.

managers and is especially prevalent in pioneer companies. The sparse literature shows that compensation systems for middle management are mostly derived from the management board. I also observed during the interviews that the same goals were used for managers of the same department within a company, but the relevance decreased for lower levels. This is in line with Obloj and Sengul (2020), as organizational goals have higher credibility. The integration among the management board is also easier and faster to implement in line with the legitimacy theory. However, developing detailed, flexible KPIs among lower management levels embodies a more substantial action and increases credibility.

FIGURE 2.4: Analysis of Cases for STI and LTI



Notes: The Figure illustrates the representation of cases in the STI and LTI based on their depth of integration and their share of ESG factors (own creation).

Selection of KPIs

The integrated KPIs differ widely: Six companies use E, S, and G KPIs, focusing on E. The remaining have different focuses on S or G, and three companies do not use ESG KPIs at all. Therefore, among the twelve companies with ESG criteria, most focus on environmental aspects (50%), some also on social (25%) or generic ESG (25%). Whereas laggard companies mostly have only environmental goals, ambitious and pioneer companies cover a limited to a broader range of ESG KPIs.

Most companies only have quantitative ESG-KPIs (5/12), and a few also have a small number of qualitative KPIs (3/12). The rest of the companies have both kinds of KPIs. Hence, the majority uses quantitative KPIs; they can be better compared with other companies and can be externally audited (*Public-2*). Qualitative KPIs represent conflict potential, as the supervisor has a broader scope to assess the level of target achievements. Examples of environmental targets are mostly quantitative such as the measurement of greenhouse gas emissions, waste creation, and energy management. These play a significantly more significant role in the LTI. Social targets include life cycle management, employee engagement, and quantitative and qualitative product quality. Companies say that governance KPIs such as system risk management, business ethics, and compliance are rather difficult to determine (*Public-2, Private-13*).

The number of goals determining the size of bonuses increased for the STI and LTI because these ESG goals were added to mainly existing financial goals. Based on my interviews, I identified that private companies focus on a relatively small number of goals with less ESG to narrow down decision-makers' attention. Compensation systems of public companies have a somewhat higher number of goals. As Jensen pointed out that it is "logically impossible to maximize in more than one dimension"(Jensen and Meckling, 1976, p. 297), the number of additional goals might create conflicts for decision-makers (Hahn et al., 2010) and information overload (Milford and Perry, 1977). One of my interviewees also mentioned that some goals could contradict, such as sales growth and emissions reduction. Therefore, decision-makers might either stop considering additional ESG goals or be restricted on time to consume information on, for example, ESG. However, based on the attention theory, a more significant number of goals also allows for more possibilities in different directions. Currently, decision-makers have to *accept* this state of conflict of objectives and do not receive help on prioritizing targets, but have to maximize in different dimensions to please various stakeholders (e.g., shareholders, society, environment). Based on my interviews, managers currently have to cope with this complexity of goals.

In addition, I want to understand whether companies have the same goals for all managers because organizational goals improve overall performance (Obloj and Sengul, 2020). In fact, it is essential for some companies to show unity and have the same ESG goals for all employees (6/15). However, some companies focus purely on financial goals (3/15), and some have heterogeneous ESG goals per department (3/15) or individual ESG goals (3/15). Therefore, the expected unity of goals does not apply in practice. This is in contrast to findings by Spierings, who highlights that shared goals increase the collective effort below the management board level (2022).

ESG share in bonus

For all companies, the exact share of ESG for the STI and LTI can be calculated only seldom and is still relatively low compared to financial KPIs. This is due to the complex compensation systems with a multiplier or the fact that ESG criteria are also part of segment-specific goals that are not disclosed. Most companies in the sample integrate ESG factors as part of the bonus multiplier. This also aligns with the investors' view on ESG because ESG criteria modify the financial performance rating. Other companies allocate a share of the bonus to ESG goals, from 30% up to 75% depending on the system and the department[20] and average around 30%. Here, figures from compensation reports are below the answers from my interviewing partners, signaling that the ESG share in compensation is perceived to be higher than it is. Because of the relatively small share, one can question whether companies integrate ESG for signaling and legitimacy reasons. For example, the result of a survey in the United States is that "responding to investor expectations" is the most popular answer why to include ESG in compensation (Spierings, 2022, p. 8).

In addition to the mentioned dimensions for the different archetypes, I identify specifications that are valid throughout the four archetypes. First, employees tend to be rather extrinsically motivated for ESG targets due to the predominant integration of ESG into STI, underlining a determined behavior. To a lesser extent, the topics of ESG are connected to intrinsic motivation and long-term orientation. Second, the goal-setting and monitoring process is not standardized for ESG issues throughout the archetypes. Apart from the official legal process, the goal-setting process is mainly organized by the sustainability department (6/15), the CEO office, each business unit itself, human resources, or the strategy department by proposing dedicated ESG goals. These goals are discussed with the management board to be approved within the official voting process in the annual meeting. In all companies, there is a quarterly reporting mechanism to track the annual progress of each company for both the financial and non-financial KPIs, including ESG. Also, the monitoring process is predominately organized by the sustainability department, but most interviewees mention that they only observed the outcome instead of developing concrete actions to achieve dedicated targets. This is because, in most companies, clear ESG targets are not determined and published. Third, company-wide strategies are mostly defined with a pure focus on environmental aspects (8/15), some with a focus on environmental and social aspects (2/15), or generic ESG (2/15).

[20]Taking into account specific segment-specific ESG-related targets, real figures below 30%.

Overall, ESG strategies focus strongly on environmental targets–social aspects also play a role. In contrast, governance aspects are subordinate (except for the financial industry, where governance aspects are more relevant). Most companies (40%) define their ESG KPIs based on their ESG strategy. For some, this is a medium (35%) or no connection at all (25%) to the strategy because companies pick KPIs based on the easiness of quantification. The derivation of ESG KPIs would increase internal and external credibility. These findings are supported by other researchers: Many companies mention ESG goals but disclose them in their compensation without mentioning the concrete achievements (Bebchuk and Tallarita, 2022). The interviewees confirm that not all ESG targets from the strategy are incorporated into compensation schemes yet.

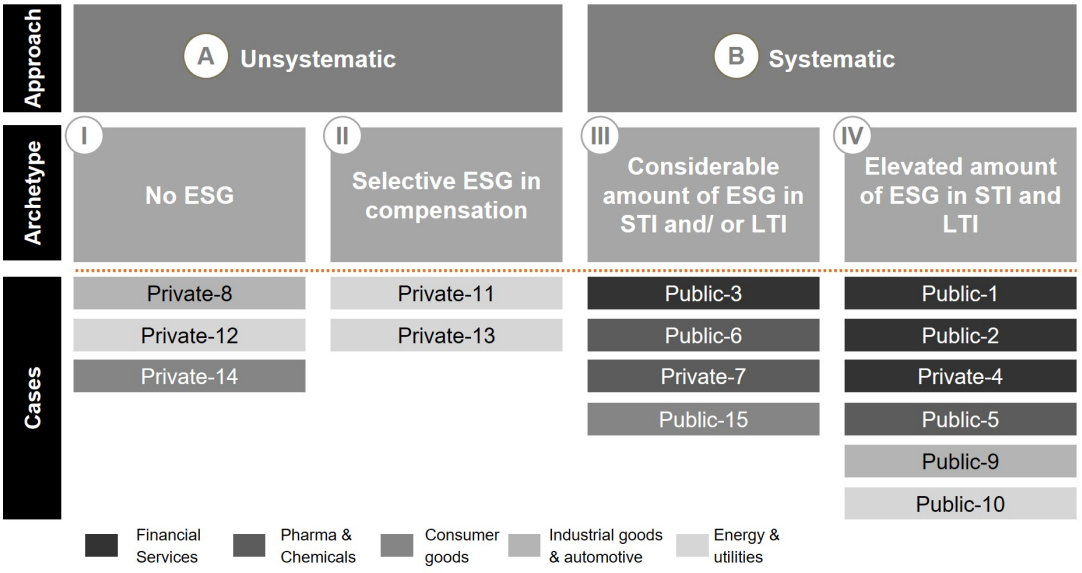
Overall, I identify ESG as a very relevant topic within compensation, as companies are starting to integrate these goals or have already done so. This is also in line with existing research (Velte, 2016, Mahoney and Thorn, 2006) and the alignment incentive and signaling theory for postulating the importance of ESG.

I assign the cases to the corresponding approach and consider industry specifics (see Figure 2.5. I identify that the financial industry has higher regulations; these companies are also placed in archetypes III and IV. Based on my limited sample, I cannot derive other industry specifications. Still, especially companies from the industrial goods and automotive sectors are focusing on environmental aspects and the concern of being accused of green-washing (*Public-10*). Generally speaking, public companies have a more systematic approach than private companies. The higher pressure from investors and higher regulatory requirements can explain this.

2.4.3 Strengths and Weaknesses of the Archetypes

The four archetypes are associated with advantages and disadvantages, which I describe in the following. On the one hand, there are many strengths associated with each approach. The archetype with no ESG-based compensation (I) clearly focuses on one goal: financial performance, which is easy to measure and relies on existing data collection efforts. Thus, low monitoring costs are associated with it. For the other three archetypes (II-IV), A medium to high awareness of ESG is perceived and integrated into compensation. Companies following these archetypes can rapidly increase the level of their ESG targets (e.g., decrease CO_2 emissions).

FIGURE 2.5: Case Allocation into ESG Framework



Notes: This Figure demonstrates my sample allocation process within the framework (own creation).

For laggard companies with selective ESG in compensation, Companies can focus on a small number of KPIs, some related to ESG, but most focus on environmental aspects. This is reflected in relatively lower monitoring costs than archetypes III and IV.

For ambitious and pioneer companies (III, IV): The existing compensation system for these two archetypes shows some maturity and experience. Hence, companies can flexibly refine their system to change practices. Further, by following these approaches, companies integrate ESG targets into compensation based on the company-wide ESG strategy. This strengthens the companies' credibility of "acting green." Moreover, a certain level of integration of STI with ESG targets increases awareness throughout the company. Ambitious companies have a considerable number of ESG in STI and LTI. Their systematic approach focuses on a significant amount of ESG KPIs in their compensation system, covering a broad range of E, S, and G aspects, essential for internal and external credibility for investors. Also, the comprehensive system can be externally audited. Pioneer companies have an elevated amount of ESG in STI and LTI: This very systematic approach also has an elevated amount of ESG in STI and LTI. Based on the positive external perception of this comprehensive system, companies with this approach have a competitive advantage, e.g., as an employer and for investments, based on my interviews. This well-defined and detailed system can be externally audited. Transparency is important because

it creates trust within a company and strengthens solidarity. Even though the comparability between these two archetypes is higher, the systems still cannot be easily compared.

On the other hand, there are also weaknesses connected with each approach: The approach of denier or beginner companies is associated with low ESG integration throughout the organization, little awareness, and low ESG publicity. Besides, it is also more challenging to transform ESG-related aims into personal actions since there is a lack of integration into the compensation system. However, primarily, several private companies do not intend to integrate: "We as a family company are traditionally involved in social aspects, but we are doing good without talking about it" *(Private-12)*. The biggest weakness of all the others (II-IV) is the high effort of target-setting, monitoring, and evaluating the integrated ESG targets. These tasks have very high monitoring costs *(Public-6)*. The second most significant problem is data availability - a lot of precise and diverse data is needed for some years to establish KPIs that can be developed for the LTI (e.g., for CO_2 emissions, *(Public-5)*). Past data has to be analyzed for the development and definition of KPIs. Defining the assessment basis to generate KPIs valid in one or two years is difficult. Furthermore, challenges are associated with industry and company peculiarities, such as production-intense companies or conglomerates. Due to the complexity of the systems, it is difficult to calculate the percentage of ESG in total compensation. Moreover, there is a risk of decreasing the intrinsic motivation of employees. If intrinsic motivation is transformed into extrinsic regulation (to follow ESG-related behavior), it decreases employees' motivation to act ESG-conform because it does not get rewarded (Shenaq, 2021).

Laggard companies need resources to define the systematic future approach for ESG integration in compensation. The current status of this approach reveals a lower integration of ESG in compensation, and the selected KPIs can appear random. For both systematic approaches (III, IV), trade-offs among targets are needed (focus on E, S, G or ESG, number, and character of KPIs) as well as the decision between the integration into STI and LTI (or both); This is associated with very high monitoring costs. This complex system can also cause green-washing danger because paper doesn't blush. There is limited flexibility since ESG targets are derived from the company-wide strategy, which is newly defined every three to five years. To implement this approach successively, the company needs high acceptance from employees for ESG goals. Social acceptance among the workforce is critical.

2.4.4 Insights and Key Trends

Based on the within-case analysis and the triangulation of information, I derive key trends for integrating ESG into compensation. Most companies aim to adjust further and develop their integration level based on regulatory changes and industry advancements driven by peers. This aligns with results focusing on the United States, where companies follow a "wait and see" approach (Ellerman et al., 2021), and there is no clear right or wrong because integration is a "journey." According to Eisenhardt (1989a), one can derive propositions from qualitative research, which I entitle in the following as key insights.

(1) Not all companies aim to integrate ESG into compensation

I expect from the literature that private companies also aim to integrate ESG within their compensation. However, most private companies incentivize based on financial goals because of the high development and set-up costs for an adjusted compensation system. Some private companies do not aim to integrate ESG goals into their compensation system, for example: "We as a family company are traditionally involved in social aspects, but we are doing good without talking about it" *(Private-12)*. Hence, the institutional context matters, including cultural and regulatory factors and corporate values (Winschel, 2021).

(2) There is a shift in ESG integration from STI to LTI

Currently, most companies have ESG criteria integrated into the STI (11) vs. LTI (8) due to limited availability and resource-intensive data preparation. Companies have a trend and desire towards integration into the LTI, but only if data is available for the goal-setting and monitoring process. If a company only recently started collecting CO_2 emissions, it cannot derive three-year goals. One needs an appropriate time horizon and backward-looking data to implement stringent and challenging targets for a defined set of years. "We want to establish the ESG accounting further, but currently, there is a high manual effort. In the LTI multiplier, there is no systematic consideration yet. We must work on that" *(Private-15)*. The integration into the LTI could also increase employees' intrinsic motivation. Furthermore, empirical studies also emphasize that integrating ESG targets into the LTI positively influences ESG activities. The effect is even more substantial for more significant pay differences (Ji, 2015).

(3) The definition of the right goals is impossible

There is a dilemma for companies whether to include one or multiple goals. Based on my sample, I analyzed that currently, companies have very different compensation systems with

many goals. Hence, there is a trend toward increasing the number of KPIs, with the danger of losing concentration on the relevant ones and accepting low performance due to information overload. This also aligns with the increased monitoring costs (Cohen et al., 2022). Based on my interviews, I found out that companies aim to have the compensation scheme externally audited to counteract the risk of green-washing and increase the independence and credibility of the report with higher comparability among companies. The right portion of the substantial ESG goals is relevant for doing so.

(4) The right choice of KPI is challenging

The selection of KPIs embodies another complex decision of companies. Currently, mostly quantitative KPIs are in place due to higher acceptance, especially for auditing. However, a trend exists to define useful KPIs with a qualitative character. This, however, is connected to the problem of monetizing KPIs, which means, for example, weighting an environmental KPI to a financial KPI. The challenge is determining clear, attainable, and comparable KPIs that fit a company's strategy, ideally integrated into the operation. In this context, the principal intends to set ESG-oriented targets with a broad or narrow focus on one component and minimize the conflict of interest of stakeholders. My results show a disparity between the ESG strategy and the extent to which ESG criteria are integrated into compensation.

(5) ESG in compensation: Green-washing or truthful operation

Companies face the danger of green-washing. To offset this danger, three activities are relevant: First, companies must have a good fit of the ESG strategy and department, e.g., for materiality with a specific and applicable strategy. The compensation scheme should reflect the key targets of the ESG strategy and preferably have, if possible, a high overlap to increase credibility externally and among the employees. Second, the level of integration along the management levels plays a significant role. Once a company has ESG targets deeply integrated down to tariff employees, the relevance increases, and employees perceive the topic with more attention because their bonus is linked to ESG goals. This also resonates with the desire to have ESG goals integrated long-term to foster self-determined behavior intrinsically. Third, systematic monitoring, as proposed by Mio et al. (2015), also increases the credibility of selected KPIs in compensation along a company. A periodic reevaluation of goals supports the effectiveness.

2.4.5 Guideline for Companies

For companies, I compiled the following guidelines consisting of three steps. A company needs to 1) define the status quo of the compensation system, 2) identify potential gaps and estimate the effort; and 3) decide how it aims to adjust the current system.

First, evaluate the status quo of the current ESG-based compensation and identify your company as one of the archetypes. The framework and assorted strengths and weaknesses enable companies to define their status quo based on the archetypes (I to IV). Relevant dimensions are the integration into STI and LTI, the level of integration, the selection of ESG KPIs, and the share of ESG. The depth of integration describes the level of managers who are also ESG-based incentivized. The focus of KPIs reveals whether KPIs concentrate on environmental, social, or governance factors. Some companies only state a generic description. A company's managers can categorize themselves into archetypes I to IV.

Second, define the gap from one archetype to the other. With an increase in the importance of ESG, there is a trend towards more ESG integration. But how do I decide whether I want to move towards the right and strengthen my ESG level within compensation? One has to consider monitoring costs, the possibility of defining new KPIs, the reasoning to counteract green-washing, and the cultural perception of employees to assist companies in deciding on adjustments. First, one needs to make a trade-off in terms of resources: As each adjustment of a system costs money, one needs to conclude whether the money should flow into an improved system, increasing monitoring costs (e.g., for employees) or be spent on another project (e.g., ESG-related project such as sustainable sourcing). Also, one must compare the resources needed to develop a competitive advantage. Second, one needs to decide whether the company can collect sufficient data to define (more) relevant ESG targets which are a good fit for the strategy and represent an addition to the existing ones. Hence, these additional targets, whether integrated into the STI or LTI, should be monitored to represent a solid management control instrument. Some general important key takeaways in terms of KPIs for companies are also to determine a precise ESG strategy for the company; derive ESG targets to be included in compensation; detail metrics (basis of assessment, method, marks, and achievements) and a time frame in correspondence to the variable pay and disclose a company's performance on ESG targets in respect to ESG goals. KPIs should be challenging and in line with the department's business strategy. Structure and control mechanisms need to be put in place.

Third, decide whether including additional ESG targets aims to symbolize ESG or improve ESG performance and is of intrinsic motivation. A company should hesitate to have more targets to ensure the focus and credibility of the current ones to counteract the perception of green-washing. Even though a high level of integration of ESG targets into compensation fosters trustworthiness among employees, incentives should be set carefully. Incentivizing certain ESG targets can trigger the danger of decreasing intrinsic motivation in general. To adjust a company's system, additional KPIs should be determined with sufficient data availability and fit the strategy and business very well to have acceptance from employees.

2.5 Discussion and Conclusion

This study explores to what extent German public and private companies have ESG criteria included in their compensation systems and the depth of ESG integration across hierarchy levels. Using multiple case studies, I derive a comprehensive framework to determine the status quo and present shortcomings and challenges. Therefore, I can answer and give insights on my research question *"How do companies integrate ESG criteria in German compensation systems along management levels?"*. My framework rests on multiple cases from different industries in German companies for 2021. It distinguishes between an unsystematic and a systematic approach to ESG integration into compensation schemes for the STI and LTI. The unsystematic approach describes two archetypes: no ESG integration is desired (I) and selective ESG in compensation (II). The systematic approach reveals two archetypes: A considerable amount of ESG in STI and LTI (III) and an elevated amount of ESG in STI and LTI (IV). Companies have heterogeneous compensation systems, mostly using any criteria of the ESG spectrum; as private companies are not obliged by law, some wish not to include ESG in their compensation. The majority includes ESG criteria in STI and some companies in STI and LTI. However, the recommended share of 30% ESG[21] is not been achieved yet. Hence, bonuses are not *green* in the sense of sustainability. This underlines that the topic of ESG is mainly externally motivated and rewarded. Companies consider ESG KPIs, but the actual and measurable focus is on environmental targets due to the inconsistency and availability of data. However, public companies tend to have a more advanced level of integration, whereas not all private companies desire to integrate ESG within their systems.

[21] Recommendation of the advisory board of the Sustainable Finance of the German Government.

Downsides with the integration of ESG into compensation can also be associated with an increasing demand for ESG metrics, resulting in the potential danger of "creating illusory and distracting hope for stakeholder welfare" (Bebchuk and Tallarita, 2022, p. 5). Therefore, companies pledge significant improvements in ESG, but the actual performance lags; this relates to legitimacy theory. Demonstrating ESG commitment and signaling advancements can also indicate improvements without real effects. Hence, too much ESG integration within the compensation system is undesirable for managing stakeholders' expectations. This can lead managers to favor some goals over other counterproductive possible outcomes (Bebchuk and Tallarita, 2022) and a potential loss in productivity. One also has to wait on whether proxy advisors place higher requirements on public companies on ESG-based incentives, caps, and thresholds.

2.5.1 Academic and Practical Implications

Based on my analyses, I contribute my framework and key insights to the existing ESG compensation literature. My contribution focuses on the transparency of compensation schemes and presents the status quo of ESG integration along compensation schemes (Flammer et al., 2019, Cohen et al., 2022, Mahoney and Thorn, 2006). First, I present a comprehensive overview of how companies integrate ESG into their compensation schemes, which follows external pressure from regulation, society, and employees (stakeholder theory). Thus, I add transparency to the *how* by detailing and evaluating the approaches and archetypes by revealing the potential change from intrinsic motivation, e.g., environmental goals, to extrinsic motivation. I summarize the main findings and derive key insights.

Thus, I add to legitimacy theory since integrating ESG into compensation, given the current low share, can signal ESG commitment or substantial change (Hahn et al., 2010). However, there is higher credibility if integration into middle managers is extended. Higher complexity also makes it more challenging to coordinate and integrate goals (Zhou, 2013). Moreover, disclosing ESG into business, particularly compensation goals, increases the complexity and coordination effort of goals, allowing for a further discussion of prioritizing financial and non-financial goals (Zhou, 2013).

I formulate managerial implications for stakeholders: Managers, investors, and regulators. For sustainability, strategy, and human resources managers, these findings indicate the relevance of developing a thorough ESG strategy and how to integrate ESG into compensation schemes. The

framework provides insights into the design and discussion material for ESG-related debates, such as developing qualitative KPIs as required by the Shareholder Rights Directive II. My guidance for managers consists of three steps: Determine the current status of the ESG-based compensation and define the goal and potential gaps for the final decision of possible adjustments.

For investors, ESG is still considered a stimulus for investment decisions. However, investors must thoroughly examine and understand the system to assess the scheme, the actual share, and the depth of ESG integration. Yet, it remains challenging to compare systems due to different models of integration (STI and LTI, multiplier, different shares, and parts of ESG). Therefore, investors can now assess the relevant archetype based on the dimensions. ESG integration in compensation is a control element to assess ESG advancement, giving investors a good indication.

These findings prompt regulators to promote ESG in compensation disclosure further. Currently, there is no clear path regarding the reporting method of compensation schemes or auditing requirements regarding, e.g., the amount and character of ESG goals. Based on the high commitments of the European Green Deal (Commission, 2022), explicit compensation regulations should come in place to increase comparability. Therefore, the Financial Stability Board Task Force on Climate-related Financial Disclosures derived a best practice on disclosing and integrating ESG-related compensation for companies (TEG, 2019). However, regulators should focus on consistent and stringent integration and a lucid disclosure of financial and non-financial requirements within compensation.

2.5.2 Limitations and Further Research

Despite the comprehensive research, this paper has some limitations. First, there are shortcomings based on the sample because this paper considers a selection of public and private companies. Due to the character of a qualitative study, the study uses a small sample. However, confirming these findings with a broader, e.g., regional range, such as Europe, would be interesting. Second, there is no superior solution or clear right or wrong in integrating ESG criteria. Most importantly, this study does not assess the impact of ESG integration into compensation on ESG performance or financial performance. As pointed out, ESG and financial performance are not necessarily win-win phenomena (Hahn et al., 2010), but this relationship has been analyzed by certain other researchers such as Flammer et al. (2019). Third, ESG regulation and compensation systems are situated in a dynamic environment. Whereas the study focuses on

regulations and compensation schemes for 2020 and 2021, new compensation schemes can be agreed upon by the annual general meetings of companies in May every year. Hence, a longitudinal study could observe the changes, potentially with new regulations, systems, and another regional focus.

These mentioned limitations are the starting point for further research, either by adjusting the sample (regional focus, size, characteristics) or using a different research method (such as empirical research) to further assess the impact of ESG on compensation.

3 | The NFRD and its Effects on ESG Practices

More regulation, more impact? The effect of mandatory sustainability disclosure on incentives and real environmental outcomes

This study analyzes the implications of the European Non-Financial Reporting Directive (NFRD), 2014/95/EU, on introducing ESG-based compensation and its impacts on real ESG effects for EU companies. To assess the effectiveness of the directive, we employ a differences-in-differences (DiD) approach and analyze European listed companies controlled with US companies. In addition, we use a staggered DiD method focusing on European companies to evaluate real effects. First, we confirm that EU companies tend to introduce ESG-based compensation due to the NFRD from 2017 onward. Second, we derive that companies with ESG-based compensation significantly progress on their decarbonization by reducing their real CO_2 emissions. Contrarily, this trend cannot be observed for the ESG and environmental scores, which have a negative relationship. We add to the literature on the effects of sustainability disclosures and ESG-based compensation, focusing on the European context. Our paper has manifold implications for regulators and shows the importance of ESG in accounting, legitimizing the focus on ESG compensation schemes for practitioners. Regulators like the European Commission learn from these long-term findings to integrate these into subsequent sustainability directives.

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Status: Working Paper[23]

[22] Author contributions: AK developed the research idea, the literature review, and the writing of the paper. AR led the data collection and supported the analysis.

[23] Full paper presentation at the 8th Reward Management Conference. This paper is in collaboration with Prof. John Dumay (Macquarie Business School, Sydney/ Australia).

3.1 Introduction

"Climate change is widely regarded as one of the most vexing societal challenges of our time" (Downar et al., 2021, p. 1137). Numerous guidelines by the UN, the EU, and the Global Reporting Initiative (GRI) have been established to curtail climate change. Thus, the ongoing debate on sustainability has brought the topic to the top of the agendas of different regulators, such as the European Commission (Ottenstein et al., 2022, Cuomo et al., 2022, Christensen et al., 2021). Sustainability reporting directives aim to "mitigate information asymmetries between the firm and its investors" (Christensen et al., 2021, p. 1187) to ultimately help companies to "legitimize their operations" and demonstrate "that they take actions to offset the perceived social problems with their business model." As such, the European Non-Financial Reporting Directive (NFRD) requires large listed firms in the European Union (EU) to compile non-financial reports from 2017 onward and stretch the requirements from not only decarbonization targets to a broader set. These criteria span the environmental, social, and governance (ESG) measures. Companies' ESG performance is highly driven by managers, who are extremely motivated by compensation (Agarwal, 2010). The NFRD is likely to have a positive impact on companies' implementation of ESG-based compensation because it increases pressure on firms to perform well in ESG areas and improves transparency in disclosing ESG information, making it easier for shareholders to monitor performance and making ESG-linked targets more credible for compensation contracts (Cohen et al., 2022, Grewal et al., 2019, Hazarika et al., 2022). The interplay of ESG and compensation becomes central to this paper.

Existing literature on sustainability reporting and ESG-based compensation is twofold. First, research has demonstrated that mandatory sustainability reporting positively impacts reporting and ESG performance. It improves the quality, quantity, and detail of non-financial reporting, increasing the transparency of ESG reporting (Ottenstein et al., 2022), defined as first-order consequences. Further, research reveals a somewhat mixed effect of the NFRD on second-order effects, for example, on ESG performance in the form of ESG activities (Fiechter et al., 2022). As part of the latter, this paper utilizes compensation as a channel, given its influence on companies (Agarwal, 2010). We aim to understand whether the NFRD is an instrument to provoke legitimacy (Callan and Thomas, 2014), as firms demonstrate their sustainable orientation without actions, or whether companies are triggered to improve their ESG mechanisms by integrating

ESG into their compensation systems as companies "respond[s] to the CSR Directive by engraining CSR into its infrastructure" (Fiechter et al., 2022, p. 1530).

Second, nowadays, companies integrate ESG criteria into their compensation systems (Flammer et al., 2019) to signal their commitment to ESG (Grabner et al., 2020) and align managers' incentives with stakeholders' goals[24]. Compensation is considered powerful and most motivational (Agarwal, 2010), and can steer management's attention by allowing for more control (Read, 2005). In 2021, the usage of ESG key performance indicators (KPI) in compensation has grown to over 30 percent globally based on the Global ISS Executive Compensation Analytics database. Thus, integrating ESG criteria into compensation is considered "one of the most significant changes in executive compensation in over a decade" (Ellerman et al., 2021, p. 4).

Moreover, different researchers confirm the positive effect of ESG-based compensation on ESG indicators, business practices, and environmental performance (Flammer et al., 2019, Velte, 2016, Adu et al., 2021). Past research has also shown that organizational change needs to be accompanied by adopting compensation schemes because compensation can affect behavior and is required to change an organization successfully (Wruck, 2000) e.g., by "developing a culture of sustainability inside the organization" (Herremans and Nazari, 2016, p. 8). As existing research focuses on single-country settings (especially the UK, e.g., Downar et al. (2021)) and mostly general scores (Baraibar-Diez et al., 2019), which are partially irrationally calculated (Derchi et al., 2021), this paper formulates broader assertions for the EU and focuses on real effects. Since the NFRD is a critical turning point for sustainability (Cupertino et al., 2022), it is important to assess its impact on companies' behavior (Grewal et al., 2019).

We analyze the effect of the NFRD on introducing ESG criteria in compensation schemes and its implications on real effects (such as the reduction of CO_2 emissions) for European countries, extending the literature on the long-term effects. Hence, with this paper, we answer the two research questions: *"Do companies aspire to ESG-based compensation after the introduction of the NFRD? And does ESG-based compensation lead to better ESG performance?"*

To assess the effectiveness of the directive, we employ a DiD approach and use European listed companies (2011-2021, eligible for the NFRD) as the treatment group and control with US companies in a year- and company-fixed effect model. The US is an appropriate control group for two reasons: First, Ioannou and Serafeim describes the US as the "cleanest" control group

[24]Throughout this paper, we refer to ESG-based compensation.

(Ioannou and Serafeim, 2017, p. 17) due to the absence of sustainability disclosure in the analyzed period. Second, this analysis should be consistent with previous studies, which relied on US data because of the availability of comparable financial and ESG data and the economy's size (Fiechter et al., 2022, Cuomo et al., 2022, Ioannou and Serafeim, 2017, Christensen et al., 2021)[25].

Subsequently, we use a staggered DiD approach only with European companies (Baker et al., 2022). Here, treated companies introduce ESG-based compensation after the NFRD from 2014 onward because companies were able to react starting in 2014 despite the introduction in 2017. The control group consists of European companies that, until 2021, never had ESG criteria in their compensation schemes. The model also assesses for industry-year-fixed effects and a comprehensive set of control variables (see 3.1.). First, we consider the ESG and environmental scores in our model as dependent variables. Second, we use real effects data such as CO_2 emissions and carbon intensity[26]. We utilize the latest available data set from *Refinitiv* for 2011-2021, a trustworthy database platform for ESG data (Baraibar-Diez et al., 2019, Fiechter et al., 2022). This enables us to consider lagged ESG data (up to three years) to observe the long-term effects of ESG (Ottenstein et al., 2022, Cuomo et al., 2022).

First, we confirm that EU companies integrated ESG more often into their compensation system from 2017 onward than US companies. This aligns with previous research and shows that firms aim to protect their legitimacy (Fiechter et al., 2022).

Second, we derive that companies with ESG-based compensation tend to pay more attention to their ESG initiatives, as they average a higher overall ESG performance. However, our findings on ESG scores and real effects for companies with ESG-based compensation form a fragmented picture: Contrary to existing research, ESG-based compensation significantly negatively influences companies' ESG and environmental scores. Our results also contain findings with a positive relationship for CO_2 emissions and carbon intensity for different time horizons. These findings corroborate the inconclusive literature that ESG-based compensation does not unconditionally and directly lead to improved ESG performance of companies (e.g., Flammer et al., (2019)).

This study develops the most recent data set for this geographical sphere and forms a relevant contribution to the ESG literature. First, we add a holistic understanding on the European level

[25] Given the regulatory setting, we cannot ultimately eliminate the effect of the general ESG push in the EU on the treatment group (e.g., Fiechter et al., (2022), see limitations).
[26] Emissions scaled per revenue.

to the literature on sustainability disclosure by demonstrating that the NFRD initiates companies to integrate ESG into their compensation systems. Second, with this update to US-based studies, the findings on real effects also provide insights and show how ESG-based compensation triggers companies to improve their environmental performance by significantly reducing their carbon emissions in the EU. Regulators such as the European Commission can benefit from the results for further sustainability disclosures such as the Corporate Sustainability Reporting Directive (CSRD), namely that disclosure impacts companies' reflection on their compensation policies and real ESG effects.

The remainder of this paper is structured as follows: First, we review the relevant literature, then explain the empirical approach and present the sample. Subsequently, the empirical findings are presented, and practical implications are derived. The paper concludes with the contribution and pathways for further research.

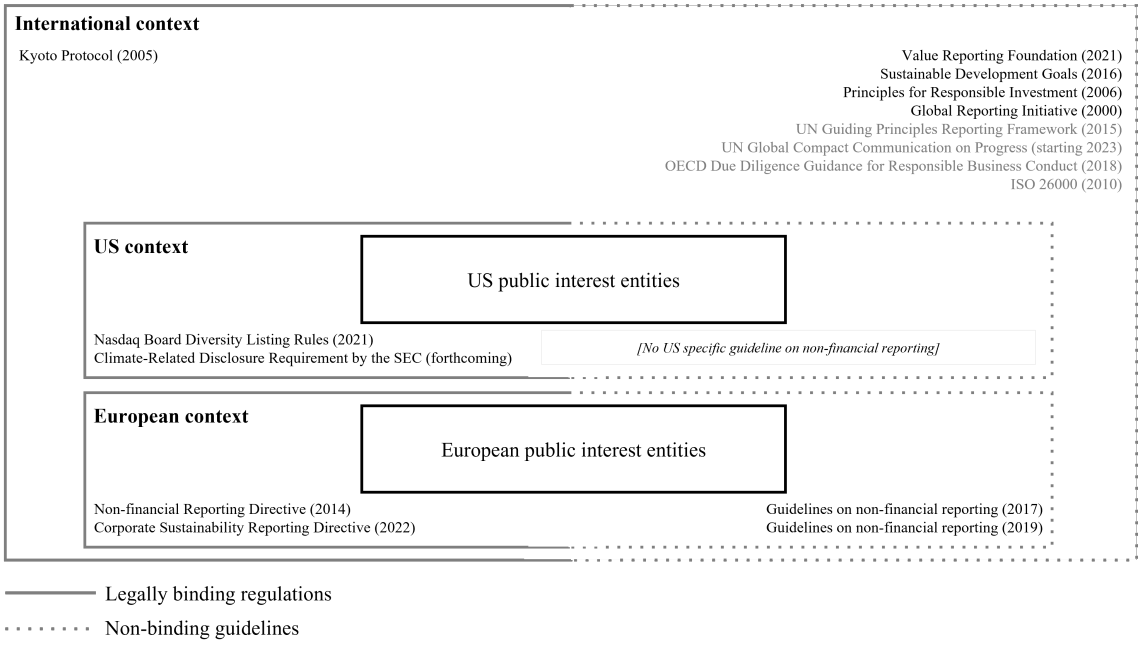
3.2 Literature Review and Hypotheses Development

3.2.1 Regulatory ESG context in the EU and the US

Regulatory requirements for companies are divided into two levels. The international and supranational levels, illustrated in the following Figure, have legally binding and non-obligatory regulations. First, the Kyoto Protocol, signed in 1997 and coming into force in 2005, is one of the pioneering international policies aiming for emission reduction, which is later more broadly formulated for sustainability (Haque and Ntim, 2018). Further, there are numerous global sustainability initiatives (e.g., UN's Sustainable Development Goals, 2030 Agenda for Sustainable Development), but also reporting initiatives (e.g., The Principles for Responsible Investment, the GRI) to integrate ESG components into companies' businesses and to provide guidelines on managing sustainability-related actions. The GRI, to mention just an example of the numerous evolving sustainability reporting standards, also emphasizes the urge within compensation policies to "describe how the remuneration policies for members of the highest governance body [...] relate to their objectives and performance in relation to managing the organization's impacts on the economy, environment, and people" (Global Sustainability Standards Board, 2021, p. 30).

On the international level, most initiatives are not mandatory and are considered "partially ineffective in their mission to properly convey the full truth behind sustainable corporate behaviors" (Landeros, 2023, p. 1).

FIGURE 3.1: Sustainability Disclosure Effects for the US and Europe



Notes: This Figure illustrates the legal context for the international context as well as the United States and Europe (own creation).

Second, on the supranational, respectively country level, the United States (US) regulatory situation is less strict concerning ESG disclosure. The Securities and Exchange Commission has only now proposed rules requiring companies to state ESG-related information, for example, about a company's behavior regarding climate risks and targets (U.S. Securities and Exchange Comission, 2022a). Reasons for the hesitation are recumbent, especially in the shareholder primacy and potential public regulation skepticism (Ho, 2022). In the US, a shareholder attitude is still predominant even though associations like the *Business Roundtable* have been active for more than 50 years and postulate to "share a fundamental commitment to all of our stakeholders" (Uchiyama, 2023, p. 2). A shift from shareholder-oriented attitudes toward stakeholder-oriented can be observed. However, one still expects a relatively lower ESG dominance, as the role of other stakeholder groups, such as the society, is still less emphasized in this model (Uchiyama, 2023). Previous research also highlights that greater ESG attention for European countries is prevalent due to higher corporate social performance scores (0.63 EU to 0.43 US), based on the

stakeholder-oriented perspective and ESG sensitivity in Europe (Ioannou and Serafeim, 2012, Cohen et al., 2022).

3.2.2 Context of the NFRD

Departing from international guidelines and policies, supranational regulations at the European level seek to extend the existing regulations such as the NFRD, the CSRD, and additional Guidelines on Non-Financial Reporting (e.g., from 2017 and 2019). Directive 2014/95, passed in 2014, requires large, publicly listed companies within the EU, including the European Economic Area, to publish information regarding their ESG activities and increase comparability among corporates. The NFRD became effective by transitioning into national law on the 31st of December 2016. It requires public interest entities with more than 500 employees and 40 million euros in net turnover or 20 million assets to report for the financial year 2017 onwards. Moreover, it stresses double materiality because it highlights that outside-in risks of sustainability issues can affect the company, and inside-out threats emphasize the company's impact on society and the environment (Hahnkamper-Vandenbulcke, 2021).

The NFRD does not only aim for higher transparency on ESG-related initiatives but also on second-order real effects. Article 3 highlights that "disclosure of non-financial information is vital for managing change toward a sustainable global economy" and "helps [...] measuring, monitoring, and managing [... companies'] performance and their impact on society" (Directive 2014/95/EU, p. 330). These regulations centered on the NFRD's principles not only stress the urgency of and interest in the ESG activities of companies but also place the EU at the forefront of sustainable business conduct, motivating the contents of this study.

Among these ESG activities, integrating ESG criteria into compensation systems is a recent measure to improve companies' ESG performance (Flammer et al., 2019). Compensation schemes grant managers a fixed salary and short- and long-term bonuses. Most companies' compensation systems mainly focus on financial key performance indicators (KPIs), but in the last years, ESG KPIs are also been integrated (Maas and Rosendaal, 2016, Flammer et al., 2019). Compensation is used to steer the attention of management towards clear goals (Read, 2005), such as on ESG. Compensation policies, however, differ among countries; for example, Germany requires companies only to disclose transparency on fixed salaries and short- and long-term incentives.

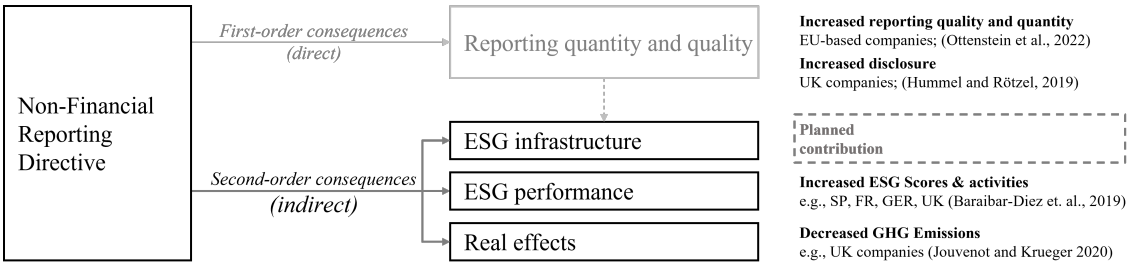
It is of higher interest to look at the short- and long-term effects of the NFRD on compensation on a supranational level.

The NFRD is central to this paper; however, provided steady amendments, e.g., in the form of the 2017 and 2019 Guidelines on non-financial reporting, learnings, especially long-term effects, from existing sustainability directives, are valuable for future policies (Hahnkamper-Vandenbulcke, 2021). As the European Commission is revising the CSRD, the successor of the NFRD, and extends the applicability to small- and medium-sized companies, learnings from prior sustainability regulation should be integrated, especially in the long-term and on real effects (La Torre et al., 2018).

3.2.3 Effects of Sustainability Disclosures

There is contradictory evidence on the implications of reporting requirements in general. For example, there is mixed empirical evidence on the effects of financial disclosure (Hummel and Rötzel, 2019). For sustainability disclosure regulations, the situation is similar: Whereas Ioannou and Serafeim (2017) find a positive result in sustainability reporting and socially responsible managerial practices, other researchers do not see a significant relationship between such as Chauvey et al. (2015). Reasons might be misinterpretation and the lack of sanctions in case of non-compliance (Hummel and Rötzel, 2019). Most research focuses on the effects of the change in ESG reporting (Hummel and Rötzel, 2019) and greenhouse gas (GHG) emissions (Chen et al., 2018, Downar et al., 2021, Jouvenot and Krueger, 2019), as highlighted in this Figure.

Figure 3.2: Literature Overview of Effects from Sustainable Disclosure (EU)



Notes: This Figure presents the current state of research on the impact of sustainable disclosure in the European Union based on Ioannou and Serafeim (2017).

Ioannou and Serafeim (2017) differentiate the consequences of sustainable disclosure regulation into direct effects (reporting quality and quantity) and indirect effects (real effects, ESG performance, ESG infrastructure).

Other researchers also concentrate on specific regions, especially the United Kingdom (UK), such as Hummel and Rötzel (2019) and Downar et al. (2021) or on the US (Tomar, 2022), specific regulation such as the NFRD (Ottenstein et al., 2022, Fiechter et al., 2022) and the Companies Act 2006 Regulations 2013 (Tomar, 2022, Downar et al., 2021) as well as specific industries such as industrial facilities (Tomar, 2022) and the mining industry (Christensen et al., 2017). "To summarise, these studies do not rely on large datasets, focus on single countries, do not compare regions, do not find strong results, do not focus on both social and environmental performance, or do not address the Directive" (de Villiers and Dumay, 2023, p. 6).

Sustainability reporting, in particular the reporting on the company level, aims to reduce information asymmetries of the firm and investors (Christensen et al., 2021). Ottenstein et al. (2022) find a positive effect on the number of firms reporting concerning the NFRD. Fiechter et al. (2022) identify a positive trend of ESG activities, especially for companies with low levels of ESG reporting. They analyze a large set of second-order effects, including the CSR infrastructure, a variable based on a CSR committee, training, and compensation, and find related improvements. ESG-based compensation can improve the credibility of disclosures (Grabner et al., 2020). Thus, this is relevant as proficient ESG performance is associated with countries with a higher level of ESG contracting (Pawliczek et al., 2021). "Suggesting that ESG contracting serves as a pathway to facilitate improvement in ESG performance" (Pawliczek et al., 2021, p. 1).

Companies aim to achieve and protect their legitimacy to reduce the risk of sanctions and conform to the expectations of shareholders, institutions, and society's needs. Thus, companies adopt ESG measures into essential sections of their corporate strategies (Ioannou and Serafeim, 2012). Neo-institutional theory (NIT) builds upon the institutional theory, suggesting that a company's engagement with social and environmental performance results from political, economic, and social institutional forces (Ntim and Soobaroyen, 2013). Firms can follow institutional and regulative pressure symbolically to obtain their institutional legitimacy, e.g., through superior sustainability disclosures (Scott, 2005, Adu et al., 2021), which do not necessarily create a substantial impact on ESG performance (Adu et al., 2021). Companies tend to react quickly to mandatory reporting changes, especially with simple and feasible mechanics to appease stakeholders.

In line with Hazarika et al. (2022), we propose that the directive has a positive impact on companies' implementation of ESG-based compensation due to two reasons: Firstly, the directive

increases pressure on firms to perform well in ESG areas, leading to a greater need to incentivize managers to focus on ESG. Secondly, the directive improves transparency in disclosing ESG information, making it easier for shareholders to monitor performance and making ESG-linked targets more credible for compensation contracts. Therefore, it is likely that firms without previous attention to non-financial metrics will consider adopting ESG-based compensation. Disclosing nonfinancial information, such as ESG activities, can positively impact a company's perception and performance. It enhances transparency, accountability, and credibility, making the company more attractive to investors and customers (Cohen et al., 2022). This suggests that increased pressure to disclose non-financial information is associated with increased adoption of ESG-based compensation. The equity market generally views disclosure as a benefit for companies with strong nonfinancial performance and disclosure, while companies with weak performance may incur costs (Grewal et al., 2019). Disclosure and accountability are key in improving a company's ESG reputation (Cohen et al., 2022). We argue that firms adopting ESG-based compensation after the directive are likely doing so in response to it, making it a plausible event to analyze the causal effect.

Following Adu et al. (2021), NIT is applied to this study, building upon its key advantages. Due to the multi-dimensionality of the study, it enables the concurrent evaluation of economic- and symbolic-based theoretical implications in line with a substantive impact (Adu et al., 2021, Haque and Ntim, 2018). As Adu et al. (2021) point out, symbolical conformance with regulative requirements might thus not lead to substantive improvements in GHG reduction performance or overarching sustainable business practices, such as the integration of ESG into compensation systems. To achieve the latter, substantial effort is required over a long time. Hence, companies might comply with the NFRD because of legitimacy reasons "because other companies do" (La Torre et al., 2018, p. 602).

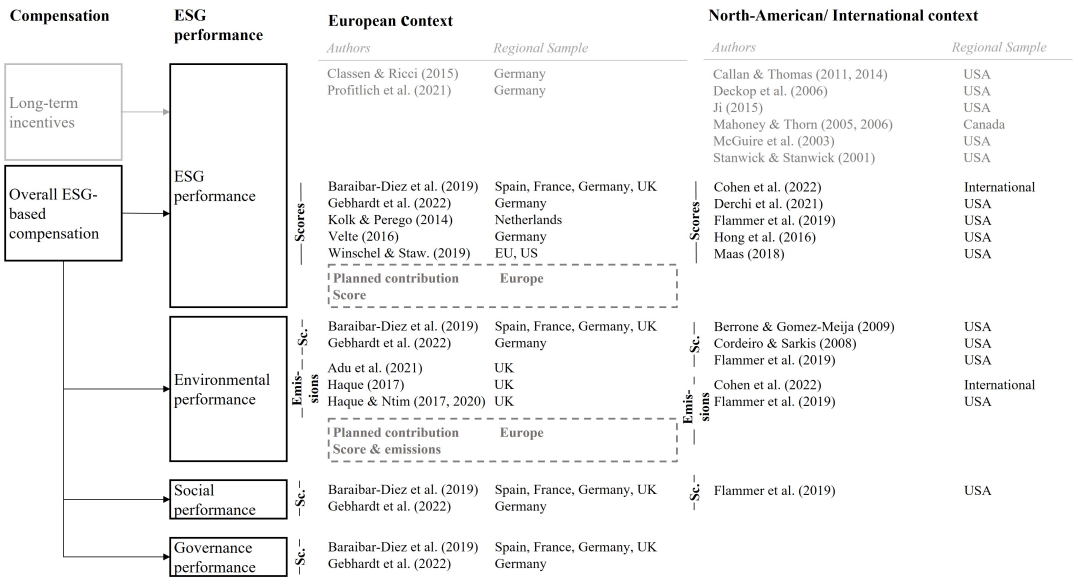
In summary, mixed empirical evidence exists on whether sustainability regulation impacts companies' ESG infrastructure. Hence, the question arises whether companies' ESG disclosure is only symbolic of achieving legitimacy by the public or whether it is driven by intrinsic motivation (Zajac and Westphal, 2004). Companies are confronted with this trustworthiness issue because it is difficult to identify the character of the ESG commitment. A potential way for firms to follow the external pressure is to increase their commitment, e.g., in ESG infrastructure in ESG-based compensation. We develop the hypothesis to evaluate the effect of the NFRD on the introduction of ESG-based compensation in European countries:

Hypothesis 1: Sustainability reporting regulation enlarges the number of companies with ESG-based compensation.

3.2.4 ESG-based Compensation and Real Effects

The interplay of ESG-based compensation and real effects is a developing research area. So far, most research focuses on the impact of ESG-based compensation on ESG performance and the long-term orientation of companies (Flammer et al., 2019) as well as financial (Velte, 2016, Baraibar-Diez et al., 2019) and operating performance (Flammer and Bansal, 2017) and market value creation (Haque and Ntim, 2020, Flammer and Bansal, 2017, Flammer et al., 2019). We focus on compensation as a channel in the NFRD context building up on calls by researchers on the analysis of ESG outcomes (Arvidsson and Dumay, 2022, Cuomo et al., 2022). Other channels such as risk, firm value (Albuquerque et al., 2019) are already analyzed. Given its importance and influence on managers' behavior to steer executives' decisions (Sarhan and Al-Najjar, 2022), compensation is crucial to examine.

FIGURE 3.3: Literature Overview of ESG-based Compensation



Notes: This Figure illustrates the research gap for this Essay based on the presented overview of the literature on ESG-based compensation for the EU and the US (own creation).

The research on the impact of ESG-based compensation on ESG performance can be divided into the European and North American contexts and the general ESG, environmental, social, and governance performance as outlined in this Figure. The empirical research primarily focuses

on a one-country setting (Velte, 2016) and mostly general scores (Baraibar-Diez et al., 2019), disclosing a concrete research gap for a European setup. The EU is among the most vital regions economically and a forerunner in terms of ESG (Gebhardt et al., 2022). Findings are diverse while pointing towards a positive link. However, a few mostly older studies state that ESG-based compensation does not generally lead to an improved ESG performance (Maas, 2018, Stanwick and Stanwick, 2001, McGuire et al., 2003).

For European companies, most research is focused on the UK due to the high data availability (Adu et al., 2021). Based on research from Velte (2016) and Baraibar-Diez et al. (2019), ESG scores and ratings are improving due to ESG-based compensation for Germany, Spain, France, and the UK. Studies show improved corporate sustainability (Profitlich et al., 2021) and corporate social performance (Claassen and Ricci, 2015). For companies in the UK, there is evidence that ESG-based compensation also yields better environmental performance (Adu et al., 2021) and an increase in carbon reduction initiatives (Haque, 2017). Baraibar-Diez et al. (2019) and Gebhardt et al. (2022) find this improvement also for companies' social and governance performance in the Spanish, French, British, and German contexts. The context of the UK, for example, "CSR committee is the trigger in environmental and corporate governance scores" (Baraibar-Diez et al., 2019, p. 1470) and, therefore, differs from other countries. However, an overarching analysis of European companies of real effects does not exist yet (Gebhardt et al., 2022, Grewal et al., 2019). As the EU is positioned among the economically strongest areas worldwide and second in international trade, it is natural to follow the multi-national call with this regional and institutional setting, as the effects are also of interest for investors (Gebhardt et al., 2022).

In comparison, most US research is performed on *S&P 500* companies. Similarly, ESG-based compensation reveals a positive ESG performance (Derchi et al., 2021, Cohen et al., 2022), increased ESG initiatives (Flammer et al., 2019, Hong et al., 2016), a better CSR engagement (Flammer et al., 2019) and overall more responsible companies (Mahoney and Thorn, 2006). Flammer et al. (2019) and Cordeiro and Sarkis (2008) also identify a reduction in emissions, hence a better environmental performance for US companies complying with ESG criteria in compensation systems.

From a Principal-Agent perspective, one expects owners (principals) to limit diverging interests of executives (agents) arising from the separation of control (Jensen and Meckling, 1976), e.g., by financial incentives tied to firm performance goals of financial and non-financial nature, such

as ESG. Thus, compensation contracts linked to ESG can reinforce the executives' motivation to strive for sustainable corporate development, e.g., emissions reduction, thereby achieving legitimacy (Callan and Thomas, 2014). The optimal contracting theory suggests that executive compensation is a method to address agency problems by aligning the interests of managers and shareholders through effective contracts (Bebchuk et al., 2002). Therefore, the findings of the theory indicate that there is a significant and favorable correlation between executive compensation and company performance (e.g., Bebchuk et al. (2002), Jensen and Meckling (1976), Ntim et al. (2015)).

Therefore, we aim to understand whether ESG-based compensation individually improves companies' real ESG and environmental performance. The increased usage of ESG metrics in compensation and the evaluation of corporate social performance call for this analysis, exploring the relationship with companies' ESG performance in the form of the ESG score (Cohen et al., 2022):

Hypothesis 2: Companies with ESG-based compensation have a higher overall ESG performance.

The environmental footprint is currently at the heart of a company's ESG strategy due to the frightening threats from climate change (Adu et al., 2021), serving as symbols for investors to indicate future risks (Cohen et al., 2022). As environmental reduction initiatives are associated with high financial costs, lowering financial performance in the short-term, executives accurately perform a cost-benefit analysis before investing in environmental strategies (Haque, 2017). However, incentives can be used to steer executives' attention, which is especially effective in the context of GHG emissions (Cohen et al., 2022) and enables companies to enhance legitimacy (Adu et al., 2021), resisting the high pressure of stakeholders. Baraibar-Diez et al. (2019) states that ESG-based compensation encourages executives' attention to environmental performance in the longer term. Empirical findings on the effect of ESG-based compensation and environmental outcomes differ: For example Cordeiro and Sarkis (2008) find a significant environmental improvement for US companies for specific industries and circumstances. Otherwise, many studies find a positive relationship between ESG-based compensation and specific environmental activities (e.g., green innovations) and ESG scores (Baraibar-Diez et al., 2019, Flammer et al., 2019, Gebhardt et al., 2022). Following the majority, we expect a positive outcome on the environmental performance of companies in the form of the environmental score.

Hypothesis 3a: ESG-based compensation has a positive effect on the environmental performance of companies (environmental score).

Hypothesis 3b: ESG-based compensation has a positive effect on the reduction of CO_2 emissions of companies.

We expect a reduction of carbon intensity as Adu et al. (2021), Flammer et al. (2019) and Cohen et al. (2022).

Hypothesis 3c: ESG-based compensation has a positive effect on the carbon intensity of companies.

3.3 Methodology

3.3.1 Data and Sample

Main Data

Our sample period starts in 2011 to allow for analysis before the NFRD and lasts until 2021 to capture time-lagged results (Fiechter et al., 2022). We use 2017 as the entry-into-force year due to the transformation of regulation into national law. Within the legal context, the sample consists of European firms that fulfill the NFRD requirements (more than 500 employees, 40 million Euros in net turnover or 20 million assets, and are headquartered in the EU) in 2017, which is the first financial year firms need to comply with the NFRD. This paper focuses on the NFRD to analyze its long-term effects on ESG performance, and therefore, we utilize lagged data. A European-wide regulation on legislation on ESG-based compensation is nonexistent. Also, in single countries, there are only ESG-based compensation motivation statutes, thus allowing for a cross-national analysis (Baraibar-Diez et al., 2019).

Figure 3.4: Sampling Process

Selection criteria for sample (number of companies)	EU	US
Overall applicable sample		
EU public interest companies, with headquarters in EU + UK	9,344	n/a
S&P 500	n/a	500
Validity of compensation structure		
Thereof companies affected by the Directive	830	n/a
Thereof companies with ESG-based compensation for time period	295	444
Thereof companies with consistent compensation policy	239	435
Final sample	**239**	**435**

Notes: This Graph illustrates the various criteria and data availabilities used to determine the sample for the EU and the US (own creation).

Our panel data is retrieved from *Refinitiv*, formerly known as *Thomson Reuters ASSET4*, which includes a comprehensive ESG database used by ESG-researchers (Baraibar-Diez et al., 2019, Fiechter et al., 2022, Haque, 2017). We filtered for NFRD requirements for European and US companies, particularly the *S&P 500 index* (Hummel and Rötzel, 2019, Grabner et al., 2020). Our analysis is constructed around the binary variable of ESG-based compensation,

which equals 1 if such guideline is in place, 0 otherwise, and is defined as whether a "company [has] an extra-financial performance-oriented compensation policy" including "remuneration for the CEO, executive directors, non-board executives, and other management bodies based on ESG or sustainability factors" (Refinitiv, 2023). EU and US companies without reasonable ESG-based compensation information and companies without continuous data availability for the dependent and control variables are excluded from our sample (see Figure 3.4).

A complete overview of used variables can be found in Tables A.1 and A.2. Provided the topic, a sufficient level of ESG data has been available in the last years and drives the need for this paper, considering the short- and long-term impact of ESG. In line with other research, we use the following control variables (Fiechter et al., 2022, Ottenstein et al., 2022, Gebhardt et al., 2022): We control for *Firm size* since larger companies have more resources for ESG initiatives and tend to have higher publicity (Velte, 2016). Besides, we control for *Leverage* and, therefore, companies' financing potential of ESG activities (Cohen et al., 2022). *Return on assets (ROA)* measures a company's profitability, but the relationship between more profitable companies and environmental performance is inconclusive (Baraibar-Diez et al., 2019). Moreover, companies' growth opportunities are captured by *Tobin's Q* (Gebhardt et al., 2022). We also control whether companies have a *CSR Sustainability Committee* (Adu et al., 2021) and whether *CSR Reporting* is in place (Derchi et al., 2021), which are both binary variables. Including these two, most studies find a positive impact in improving ESG performance and reducing the information asymmetry between companies and society. Given the changing setup, to assess H2 and H3, we add another set of control variables (Tables A.1 and A.2). To avoid unobserved heterogeneity, we include year- and company- as well as industry[27] fixed-effects for the analysis following Fiechter et al. (2022) to control for time-specific, time-invariant, unobservable company and industry characteristics, respectively.

For hypothesis 2 on-ward, we use the overall holistic *ESG Combined Score* and the individual ESG category scores provided by *Refinitiv* as dependent variables, which is a data-driven comparative ranking of relative ESG performance, accounting for industry metrics and reducing the size and transparency biases (Baraibar-Diez et al., 2019). In addition, we examine the relationship of ESG-based compensation with environmental performance because this aspect is most relevant in the ESG context for companies (Adams and Frost, 2008). Due to the direct link to climate change (Trumpp and Guenther, 2017), we use the clearly defined and measurable KPI

[27] We apply the Global Industry Classification Standard for an aggregated sector level.

of *CO_2 emissions* (Adu et al., 2021, Flammer et al., 2019), which has proven to be relevant such as for the GRI (Iwata and Okada, 2011). Specifically, we use *Carbon intensity*, the natural logarithm of CO_2 emissions for Scope 1-2 to revenue because larger companies typically emit higher emissions to control for production-level variance and carbon-intensity (Cohen et al., 2022, Cordeiro and Sarkis, 2008). Following existing literature, we winsorize the continuous variables at the 1^{st} and 99^{th} percentile to reduce the effects of outliers (Adu et al., 2021, Cohen et al., 2022).

Treatment and control group

For H1, our control group consists of companies based in the US similar to Ioannou and Serafeim (2017) and Christensen et al. (2021), because no market-wide sustainability disclosure was introduced. Furthermore, these companies provide sufficient country-level financial and ESG data coverage, ensuring matching quality and availability (Cuomo et al., 2022). Fiechter et al. (2022) also employed the US and underpinned the correctness by additional inter-European checks, ensuring a qualitative and clean control group. Furthermore, this analysis should be consistent with previous studies dealing with the effects of the NFRD. These studies also rely on US data for the control group (Fiechter et al., 2022, Cuomo et al., 2022, Ioannou and Serafeim, 2017, Christensen et al., 2021). Moreover, according to *The World Bank*, the value of the gross domestic product of the EU and the US are similar in size (World Bank, 2023). Still, provided the regulatory setting, we cannot ultimately eliminate the effect of the general ESG push in the EU on the treatment group (e.g., Fiechter et al., (2022)). However, de Villiers and Dumay (2023) find that, e.g., the environmental performance of companies in the US is not worse than in the EU, although there was less pressure on ESG, especially during the Republican era.

For hypothesis H2 onward, the focus is on the indicator of whether a company introduced ESG-based compensation. We analyze only European firms and differentiate into companies with ESG-based compensation introduced in 2014 or later (treated firms) and companies without such a policy (control group). Within the staggered setup for the treated firms, years before the introduction belong to the pre-intervention period and years after to the post-intervention period.

3.3.2 Descriptive Statistics

Eventually, we arrive at 435 US and 239 EU companies for each observation year. Tables 3.1 and 3.2 show the distribution per country of the sample, the UK[28] and Germany represent the highest share, which is in line with the relative economy relevance based on GDP, as smaller companies have smaller stakes. The whole range of industries is covered by treatment and control groups for Panel A and B (see Table 3.2). Fewer observations exist for smaller industry sectors, which aligns with the literature (Ottenstein et al., 2022). For cross-industry analysis, we divide the industries into carbon-intense (Energy, Industrials, Materials, and Utilities) and carbon-less-intense industries (remaining) as well as high- and low-exposure companies depending on their pre-policy ESG performance (Fiechter et al., 2022, Jouvenot and Krueger, 2019).

Table A.4 presents the correlation matrix and demonstrates that most variables have a small correlation (smaller than 0.3). Only *CSR Committee* and *CSR Reporting* are strongly correlated, which is plausible provided the greater CSR attention of companies. Table A.3 shows the descriptive statistics of the dependent and independent variables for the EU and the US before and after the NFRD. EU companies tend to be slightly smaller in size *(total assets)* and profitability *(ROA)* as well as financing potential *(leverage)*. *CSR Committees* and *CSR Reporting* mechanics are more integrated after 2016 and are more prevalent in the EU (see Tables A.5 and A.6). For Panel B, we also compare the treated with the non-treated group (see Table A.7). Interestingly, treated firms have a higher ESG combined (60.2) and environmental score (61.7) with a broad set of observations (standard deviation of 15.3) in comparison to not-treated firms (52.1 and 52.0). For real effects, treated firms have, on average, higher CO_2 emissions; this also holds when considering a company's revenue but lowers the discrepancy.

[28] Companies are included since they have to comply with the regulation until the calendar year 2020.

Table 3.1: Descriptive statistics: Country Distribution

	Panel A (n=8,030)		**Panel B (n=2,390)**	
Country	***Treated***	***Not-treated***	***Treated***	***Not-treated***
Austria	3.74%		3.57%	3.94%
Belgium	1.02%		0.89%	0.79%
Czech Republic	0.67%		0.89%	0.79%
Denmark	5.08%		3.57%	6.30%
Finland	6.44%		5.36%	8.66%
France	8.47%		16.96%	2.36%
Germany	12.90%		12.50%	13.39%
Greece	0.67%		0.00%	1.57%
Hungary	1.02%		0.89%	1.57%
Ireland; Republic of	4.75%		4.46%	3.15%
Italy	5.42%		5.36%	4.72%
Luxembourg	0.67%		0.00%	0.79%
Netherlands	1.02%		0.89%	1.57%
Poland	2.38%		0.00%	3.15%
Portugal	0.67%		0.00%	1.57%
Spain	7.45%		8.93%	6.30%
Sweden	10.18%		8.04%	14.17%
United Kingdom	27.48%		27.68%	25.20%
United States		100.00%		
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Notes: This Table shows the descriptive statistics of Panel A and Panel B per country for treated and not-treated companies.

Table 3.2: Descriptive statistics: Industry Distribution and Classifications

	Panel A (n=8,030)			**Panel B (n=2,390)**		
Industry	***Treated***	***Not-tr.***	***Comb.***	***Treated***	***Not-tr.***	***Comb.***
Comm. Services	10.20%	5.98%	7.68%	8.04%	10.24%	9.21%
Consumer Discr.	12.59%	11.49%	11.93%	9.82%	12.60%	11.30%
Consumer Staples	8.50%	6.21%	7.13%	14.29%	6.30%	10.04%
Energy	0.68%	4.60%	3.02%	1.79%	0.00%	0.84%
Financials	13.61%	13.33%	13.44%	8.93%	18.11%	13.81%
Health Care	7.14%	12.41%	10.29%	2.68%	11.02%	7.11%
Industrials	25.17%	13.10%	17.97%	25.89%	26.77%	26.36%
Information	6.12%	15.17%	11.52%	7.14%	5.51%	6.28%
Materials	10.88%	5.06%	7.41%	12.50%	9.45%	10.88%
Real Estate	1.70%	6.44%	4.53%	1.79%	0.00%	0.84%
Utilities	3.40%	6.21%	5.08%	7.14%	0.00%	3.35%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
Industry intensity						
Carbon-intense	40.14%	28.97%	33.47%	47.32%	36.22%	41.42%
Carbon non-intense	59.86%	71.03%	66.53%	52.68%	63.78%	58.58%
Partition						
ESG high	48.96%	52.53%	50.40%	40.18%	60.63%	51.05%
ESG low	51.04%	47.47%	49.60%	59.82%	39.37%	48.95%

Notes: This Table shows the descriptive statistics of Panel A and Panel B per industry for treated and not-treated companies.

3.3.3 Research Design

Our research design employs a DiD design for both analyses, a similar approach to Ottenstein et al. (2022) and Fiechter et al. (2022) to recognize causal effects and ensure no endogeneity problems. First, we estimate the difference of the changes in the outcome variable, the number of companies with ESG-based compensation over time after the introduction of the NFRD, and

the average treatment effect on the treated without unobserved heterogeneity (Cunningham, 2021). This design removes unit-specific effects, and the repeated observations on both groups can also neglect selection bias and time effects—the introduction of the NFRD functions as a quasi-natural experiment to derive an incremental effect. After the NFRD was published, EU companies introduced ESG-based compensation more than in the US in the analyzed period: From 2016 until 2021, there is an increase of companies with ESG-based compensation in the US of 5 percentage points (6 percentage points to 2014) and in the EU of 23 percentage points (28 percent points to 2014).

We use 2014 as the base year because the disclosure was published in the middle of 2014, and 2017 is the entry into force year, whereas Fiechter et al. (2022) use 2013 as a base year and Ottenstein et al. (2022) use 2016. This paper stands out due to the extended period; we can derive long-term effects with lagged variables. The interaction term, the DiD estimator, is *After X EU*, differentiating between EU-treated and the US-control firms, with firms- (i), year- (t), and industry-fixed (j) effects. Given that ESG-based compensation policy is a binary variable, we use a logistic model. The coefficient β_0 represents the intercept of the equation, and ϵ is the unobserved error term. We estimate the equation (1):

$$ESGbComp_{ijt} = \beta_0 + \Sigma\beta_1 After_t + \Sigma\beta_2 EU_i + \Sigma\beta_3 (AFTER_t x EU_i) + \Sigma\beta_4 \ Controls_{\ ijt} + \Sigma\beta_{ijt} \ Fixed \ Effects_{ijt} + \epsilon_{ijt} \quad (3.1)$$

Both variables *After* and *EU* are assimilated in the equation because *After* is collinear with year-fixed effects and *EU* with company-fixed effects. We cluster robust standard errors at the company level to mitigate the influence of within-cluster correlation (Ottenstein et al., 2022). We are interested in the coefficient on the interaction term β_3, but it is barely interpretable provided the logistic model. If the coefficient is statistically significant and positive, the chance of having ESG-based compensation is higher in the EU than in the US.

Second, for H2 onward, we use a staggered DiD-similar approach within the same legal context. This method gained importance in accounting research lately (Baker et al., 2022). Since introducing ESG-based compensation is not an external shock but a company's internal decision, we are aware that this is not a clean DiD setup (Baker et al., 2022). We used the publication in

2014 as the beginning of our design to understand the real effects of ESG-based compensation. Therefore, we can consider all observations despite the different timing of the treatments. Hence, the intercept term varies for each cross-sectional unit, and the expected outcome change varies across time. The treatment timing differs between companies, and there is no unanimous pre- and post-period.

Here, α_i is the individual fixed effects changing across companies, and λ is the (industry) time fixed effects, which outline effects of the treatment group and the time-period (Baker et al., 2022). The staggered treatment estimate is δ^{DD}, which represents a "weighted average of all possible two-group/two-period DiD estimators in the data" (Goodman-Bacon, 2021, p. 254), similar to the previous indicator for treatment. For later analysis, we also add industry-fixed effects. Here, the introduction of ESG-based compensation differentiates the treatment group from the control group. Dependent variables are the ESG score, the single sub-dimension for the environmental score, and the CO_2 emissions and carbon intensity. Within this context of ESG performance, we used lagged data of up to three years following the research of Baraibar-Diez et al. (2019) and Mahoney and Thorn (2006), due to the delayed materialization of sustainable compensation schemes (Velte, 2016). We use the DiD method with regression models to test our hypotheses H2-3 (Angrist and Pischke, 2009).

$$ESG\ Score_{ijt} = \alpha_i + \lambda_{jt} + \delta^{DD} ESG\ Compensation_{ijt} + \Sigma\beta_1\ Controls_{\ ijt} + \epsilon_{ijt} \tag{3.2}$$

3.4 Results

3.4.1 Empirical Results

In Table 3.3, the enforcement analyses for the base scenario (1) and the scenarios with specific fixed effects (2-5) show a significant positive trend. All the results, including control variables, are highly significant and positive at the 1 percent level. We interpret the odds ratio because the combination of the logit function and DiD is hardly interpretable[29]. Hence, for the base scenario, it is 5.9 times more likely to introduce ESG-based compensation for the EU companies

[29]The odds ratio is the measure of association for a case-control study, and the magnitude demonstrates the strength of association.

Table 3.3: Results Enforcement A.1

	Base	**Firm FE**	**Firm-Year FE**	**Ind. FE**	**Ind.-Year FE**
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
After x EU	**1.78*** **	**1.27*** **	**0.73** **	**1.90*** **	**1.91*** **
	(12.22)	**(3.74)**	**(2.05)**	**(12.48)**	**(12.47)**
Control	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	Yes	No	No
Year FE	No	No	Yes	No	Yes
Industry FE	No	No	No	Yes	Yes
N	6,265	2,796	2,796	6,265	6,265
Adj. R-squared	0.16	0.49	0.58	0.22	0.23

Notes: Empirical results A.1: This Table shows the baseline and differences in fixed effects (company, industry, and year fixed effects). The dependent variable is the ESG-based compensation policy. Control corresponds to the Log of total assets, ROA, leverage, Tobin‘s Q, CSR Committee, and CSR Reporting. T-statistics are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

due to the NFRD. This is also true for the fixed effect regressions, with the highest odds ratio of 6.7 for industry (4) and industry-year (5) fixed effects and firm (2) and firm-year fixed effects (3), with 3.6 and 2.1, respectively. Thus, we can corroborate the effectiveness of sustainability regulation, particularly of the NFRD, on ESG infrastructure adjustments such as incentivizing ESG criteria.

For the subsequent analyses, an overall beneficial consequence of ESG-based compensation cannot be observed (Table 3.4 with company-year and industry-year fixed effects). Regarding H2, one can observe a negative treatment effect for the ESG score with highly significant results and odds ratios of -3.0 to -3.8. We reject H2 and contradict the existing literature that ESG-based compensation does not improve the ESG score of a company (e.g., Baraibar-Diez et al., (2019)).

The environmental performance (H3a) results also display a significant negative treatment effect (-2.5 odds ratio) for the entire time frame; hence, H3a is also rejected. Contrary to the scores, we find support for hypotheses on carbon emissions (H3b) and partially for carbon intensity (H3c). As expected, there is a negative treatment effect for both CO_2 emissions and carbon intensity. Total emissions coefficients are significantly negative from year one onward, with values of -265,260 up to -713,318 for 3-year lagged data. When scaled at revenue, only the result for 3-year lagged data is significant at -41.25. Hence, emissions materialize immediately, whereas carbon intensity decreases with delay. Thus, we can confirm findings from research with positive effects

of ESG-based compensation on carbon reduction (Haque, 2017, Adu et al., 2021, Cohen et al., 2022). The tendency of the results does not change for company-fixed and industry-fixed effects.

Across the two setups, several control variables are significant. The significance and magnitude of control variables vary with the dependent variables. Governance characteristics mostly positively influence the treatment effect, but firm characteristics provide an overall somewhat fragmented picture. Whereas for the first model, due to its DiD setup, it remains challenging to evaluate the predictive power, for the second model, it is quite considerable. The values of R^2 are between 0.2 and 0.5 but are lower for emissions, underlining the variance in data.

3.4.2 Supplementary Analyses

Social and Governance Performance for Panel B

Similar to the effect of companies with ESG-based compensation on environmental performance, researchers find inconsistent results on the social dimensions of companies: Whereas Mahoney and Thorn (2006) find no significant relationship, Claassen and Ricci (2015) state a positive influence on social initiatives, Baraibar-Diez et al. (2019) on social scores, supported by Flammer et al.(2019) with positive effects for for employees and customers. Social performance tackles customer and employment perspectives, with partially counteracting targets (Gebhardt et al., 2022). Hence, we use the human rights indicator to cover both perspectives. We find inconsistent and inconclusive results with positive and negative treatment effects for both social score and human rights, as seen in Table A.12. Thus, we cannot confirm a positive relationship between ESG-based compensation and a company's social performance.

Research on ESG-based compensation and governance is least developed since a company's governance is mainly observed within a company through internal systems and a firm's culture (Cohen et al., 2022). Governance metrics are preferably used as a mediating variable in research such as the CSR committee (Baraibar-Diez et al., 2019, Velte, 2016). For governance performance and board gender diversity, we observe a positive relationship (Table A.12). However, statistical significance is only provided for board gender diversity with a 1-year lag. Thus, we assume that ESG-based compensation solely does not lead to a better governance performance of companies.

Table 3.4: Results Real Effects - ESG Performance: Empirical results B.1

	ESG Combined Score			**Env. Score**			**CO_2 Total**			**CO_2 Total/ Revenue**		
	(1y-lag)	*(2y-lag)*	*(3y-lag)*	*(1y-lag)*	*(2y-lag)*	*(3y-lag)*	*(1y-lag)*	*(2y-lag)*	*(3y-lag)*	*(1y-lag)*	*(2y-lag)*	*(3y-lag)*
ExCompP	**-2.91****	**-3.18****	**-3.56****	**-1.63**	**-2.26***	**-2.23***	**-239.40***	**-420.39****	**-722.81****	**-7.83**	**-20.49**	**-38.03***
	(-1.24)	(-1.37)	(-1.43)	(-1.29)	(-1.21)	(-1.20)	(-126k)	(-187k)	(-355k)	(-15.85)	(-14.80)	(-19.42)
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind. FE	No	No	No	No	No	No	No	No	No	No	No	No
N	1,829	1,631	1,438	1,829	1,631	1,438	1,611	1,453	1,302	1,611	1,453	1,302
R-squared	0.32	0.28	0.23	0.25	0.25	0.24	0.04	0.04	0.07	0.06	0.06	0.05
#Company	229	227	226	229	227	226	225	223	224	225	223	224

Note: Empirical results B.1a: This Table shows regression results, including company-year-fixed effects for the ESG performance, environmental score, and carbon emissions. The dependent variable is the ESG-based compensation policy and contains all control variables of Table A.1. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

	ESG Combined Score			**Env. Score**			**CO_2 Total**			**CO_2 Total/ Revenue**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExCompP	**-2.99****	**-3.21****	**-3.80****	**-1.89**	**-2.85****	**-2.95****	**-265.26****	**-448.96****	**-731.32****	**-15.52**	**-25.67**	**-41.25****
	(-1.25)	(-1.40)	(-1.48)	(-1.28)	(-1.23)	(-1.23)	(-125k)	(-187k)	(-347k)	(-17.40)	(-15.60)	(-20.21)
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	No	No	No	No	No	No	No	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,829	1,631	1,438	1,829	1,631	1,438	1,611	1,453	1,302	1,611	1,453	1,302
R-squared	0.33	0.29	0.24	0.25	0.26	0.26	0.06	0.06	0.09	0.08	0.08	0.07
#Company	229	227	226	229	227	226	225	223	224	225	223	224

Note: Empirical results B.1b: This Table shows regression results, including industry-year-fixed effects for the ESG performance, environmental score, and carbon emissions. The dependent variable is the ESG-based compensation policy and contains all control variables of Table A.1. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Cross-industry

We check for different industries to capture industry-specific developments (e.g., energy prices) and differentiate between carbon-intense companies and carbon-less-intense companies, as outlined by Nguyen (2018). Carbon-intense companies are, for example, the "biggest greenhouse gas emitters or energy consumers" (Nguyen, 2018, p. 70). We expect companies from the carbon-intense subset to introduce more ESG-based compensation to signal their ESG commitment. Contrary to findings from Maas (2018), that mainly "sin" industries use targets, we cannot confirm that carbon-intense companies introduce ESG-based compensation more (see Table A.8, columns 1 and 2). However, with a p-value of 0.15, carbon-intense companies introduce ESG-based compensation at 2.5 more.

Contrary, for our subsequent analyses (Panel B), we find stronger gravity with higher significant treatment effects for ESG performance, environmental performance, and carbon emissions for carbon-intense industries (Table A.13). Interestingly, negative treatment effects are larger for environmental performance, even though these companies have higher emission reductions, questioning the credibility of standardized scores. For companies associated with less carbon-intense industries, the magnitude of the coefficient is tremendously smaller and mostly insignificant (Table A.14). We also alternate the control variables and identify low positive insignificant coefficients.

The differentiation between carbon-intense and carbon-less-intense companies for both analyses reveals no strong trends. Thus, industry classification does not give any inference about whether companies introduce ESG-based compensation or about real effect improvements.

High- and low exposure partition

Based on the generated average ESG scores before the NFRD, we can generate a mean ESG score for the entire sample. We differentiate the sample into high- and low-exposure groups depending on the firm's score. For our first analysis, we can confirm that companies with a high ESG score tend to introduce ESG-based compensation 2.8 more (see Table A.8, columns 3 and 4). However, for H2, companies with higher ESG scores do not yield significant results. Companies with lower ESG scores reveal different results: Whereas they have lower treatment

effects for the environmental score and carbon emissions (2-year and 3-year lag data), carbon intensity shows higher reductions for them (Tables A.15 and A.16).

Other clusters for Panel B

Out of brevity, we only concisely describe another way of differentiating groups, such as along their amount of CO_2 emissions. We find that more polluting companies reduce their emissions tremendously. These results are also highly significant, whereas the magnitude for less polluting companies is smaller and only significant for 2-year and 3-year lagged variables. No results can be derived by building two clusters based on the board structure (unitary or two-tier board). Furthermore, by clustering on the size of companies, large firms reduce more strongly and show significant results, accompanied by high despite insignificant Research and Development (R&D) expenses. Smaller firms do not show significant results.

3.5 Discussion

Panel A: Enforcement

Various stakeholders, including regulators, investors, and financial analysts, assess businesses' social and environmental impacts on a global scale (Redd, Julius and Halliday, Stacey, 2021). As a result, companies face increasing pressure to disclose their social and environmental impact, even when reporting is voluntary. However, there are ongoing concerns about greenwashing and inconsistent and unreliable disclosures. In response, the NFRD was implemented, and hence, understanding the impact and effectiveness of this directive on ESG performance is crucial, as with the growing demand for sustainability disclosure regulations, given the EU's large population and economy.

Although the NFRD does not require companies to have ESG-based compensation, our results indicate that sustainability reporting matters. Based on the odds ratio interpretation, companies are 5.9 times more likely to integrate ESG-based compensation within the EU due to the NFRD for the Post-Directive period. This result is robust to alternating fixed effects and control variables. Moreover, this is consistent with findings from Fiechter et al. (2022) and Tomar (2022), as disclosure is an instrument for companies to signalize their commitment to ESG to address

societal expectations and norms. Our research confirms that companies reduce information asymmetry and demonstrate their genuine commitment to addressing greenwashing, as expected by the neo-institutional theory. This could be due to pressure from stakeholders or their own belief in the importance of sustainability. By actively incentivizing managers on ESG, companies align managers' incentives with stakeholders' goals for a more ESG-friendly company orientation. Provided the powerful and motivational aspect of compensation, companies use this mechanism to steer management's attention more towards the ESG performance of companies (Agarwal, 2010, Read, 2005). They legitimize their operations and show that they are actively mitigating negative impacts, elaborating the NIT theory (Christensen et al., 2021). Based on existing research (Hazarika et al., 2022), we find that introducing sustainability disclosure such as the NFRD leads to an increased usage of ESG-based compensation. This supports the idea that the institutional environment, particularly disclosure, plays a significant role in determinants of (ESG) pay in addition to, for example, the size of companies and the legal origin of countries.

Companies integrate ESG into their businesses, particularly into compensation, and for example, to benchmark their ESG performance to peers (Tomar, 2022, Jackson et al., 2020). Moreover, a more substantial ESG commitment can lead to a competitive advantage and differentiation strategy (Cuomo et al., 2022). Companies that directly respond to the NFRD by changing their compensation policies may also be more motivated to enhance their ESG performance.

Panel B: Negative treatment effects - real environmental outcomes

Our findings do not allow us to derive that companies with ESG-based compensation have a better ESG performance, but in fact, to varying treatment directions depending on the individual indicator. Treated firms have, on average, a better ESG performance before the NFRD, with both groups improving scores with non-treated firms at a more substantial increase. This is plausible, as treated firms generally have a more robust ESG attitude and, therefore, a better ESG performance (Scott, 2005, Adu et al., 2021). The findings support the optimal contracting theory's claim that ESG-based compensation and ESG performance have a positive and strong relationship. This adds to the theory's validity in explaining ESG topics and demonstrates its effectiveness.

Regarding environmental performance, particularly real effects, we find negative treatment effects for the change in carbon emissions and carbon intensity. This aligns with research (Adu et al., 2021, Cohen et al., 2022, Flammer et al., 2019) and demonstrates that ESG-based compensation motivates managers to invest in emissions reduction and translates into actual carbon reduction measures. This contrasts findings with a negative relationship in carbon reduction (Haque, 2017, Haque and Ntim, 2020). Despite the negative treatment effect on the environmental score, we find a negative significant treatment effect for CO_2 emissions and partially for carbon intensity (only significant at three years).

Our results support previous research that has found a positive relationship between external pressures and carbon emission reduction measures (Berrone and Gomez-Mejia, 2009, Haque, 2017, Haque and Ntim, 2020). Unlike previous studies that only focused on process-oriented environmental activities, our study found that firms implemented substantial improvements in carbon reduction (Haque and Ntim, 2018). However, these improvements were only evident with a three-year time lag. As this might be the more explicit measure and considering that treated firms have higher carbon emissions, these results partially link to the findings in existing research querying substantial improvements. Hence, companies should focus on actively improving their performance rather than engaging in greenwashing, aligning with the efficiency view of NIT (Adu et al., 2021). This is particularly important when considering specific sub-indicators of ESG performance, as these cannot be easily manipulated with symbolic measures. The results are consistent with previous research that shows long-term incentives benefit companies' long-term success (Maas and Rosendaal, 2016). Thus, as companies immediately reduce their emissions and confirm existing findings (Haque, 2017, Adu et al., 2021, Cohen et al., 2022), carbon intensity only materializes in the longer term.

One potential explanation for the contrasting results we found is that other factors may be more effective than management incentives in promoting sustainable development (Gebhardt et al., 2022). It is also important to consider the introduction of the NFRD regulation, which has been found to have a stronger direct positive impact on companies with higher exposure to ESG issues. These companies may have had no ESG-based compensation in place initially but have increased their ESG performance faster due to the regulation. Furthermore, the findings suggest

that the benefits of incentives as a reliable indicator of sustainable business practices may also be limited (Fiechter et al., 2022).

Panel B: Negative treatment effects - ESG, individual scores

In contrast, we find negative treatment effects on ESG, environmental and social performance, and human rights. Existing literature finds a positive relationship between ESG-based compensation and ESG performance (Cohen et al., 2022, Derchi et al., 2021, Flammer et al., 2019, Gebhardt et al., 2022, Velte, 2016). Our findings contradict the positive expected relationship with the environmental score (Gebhardt et al., 2022). However, we support Baraibar-Diez et al. (2019) who do not identify a significant positive relationship, especially for German companies, which form a large share of the sample. Moreover, Cordeiro and Sarkis (2008) deduce that the positive relationship only holds for absolute firm performance. Still, both ESG and environmental scores are benchmarked scores (Refinitiv, 2022) and can, therefore, also explain the deviations.

Chatterji et al. (2016) and Kotsantonis and Serafeim (2019) mention concerns around scores due to flaws in benchmarking, inconsistent imputation, and hence, limited verifiability (Derchi et al., 2021). ESG scores and ratings should be thoughtfully interpreted when used for actual ESG performance (Chatterji et al., 2016) because missing data can distort results (Sahin et al., 2022). Moreover, once an incentivized target might be hit, a manager might focus on other initiatives.

There are two reasons for the gap between our results and the existing literature: First, ESG compensation can consist of a broad range of KPIs. It is difficult for managers to simultaneously follow several, even contradicting, goals. Usually, in compensation systems, a few narrowed KPIs are integrated, such as emissions reduction, among the most used KPIs. This explains why emission reduction shows a significant relationship ("what gets measured, gets managed"), whereas ESG scores are usually not used. The scores focus on a comprehensive set of KPIs, which are comprehensively not integrated (Bebchuk and Tallarita, 2022). Second, companies' data is still partially inconsistent, especially when scores are not reliable yet, as they are subject to constant adjustments. However, the Sustainability Accounting Standards Board is an example of such standards foster and forward the measurement, monitoring, and integration of ESG data and

subsequent performance. It allows managers to identify inefficiencies and derive improvements for their own business and standards (Bochkay et al., 2022).

Panel B: Insignificant effects - social and governance metrics

Although the positive findings on social performance are statistically insignificant, their trend confirms existing literature (Baraibar-Diez et al., 2019, Flammer et al., 2019, Gebhardt et al., 2022). Alternating signs of human rights performance do not allow for conclusive results, which might be due to only limited application among companies (Derchi et al., 2021). These deviations arise because there are more explanations than ESG-based compensation for sustainable business conduct (Gebhardt et al., 2022).

In line with research (Baraibar-Diez et al., 2019, Gebhardt et al., 2022), we also find a beneficial effect of ESG-based compensation on the governance performance of companies. However, the missing significance can be explained by low usage and the limited influence of these KPIs.

These findings corroborate the symbolic view of NIT to signal enhanced sustainable business conduct without significant ESG improvements (Adu et al., 2021). We conclude with the dualism of findings from ESG-based compensation with the DiD analyses: Firms incorporate ESG-based compensation due to direct and external pressure (Haque, 2017), but the adoption can be symbolic or substantial.

Nevertheless, we confirm that companies are addressing information asymmetry and showing genuine commitment to counter accusations of greenwashing, as expected based on the neo-institutional perspective. Companies that directly respond to the directive by changing compensation policies may be more motivated to improve ESG performance.

3.6 Additional Analyses and Checks

3.6.1 Parallel Trends Assumption

Among the underlying assumptions is the parallel trend development before the NFRD for both the US and the EU groups. Hence, there should be no external interaction before the NFRD between the control and the treatment groups or between one another. We define 2014 as the base year because, in June 2014, the NFRD was published since the compensation structure can only be changed for the next (financial) year. Hence, Figure A.5 underlines that the treated and controlled firms developed in a parallel manner before the publication of the law in 2014. From 2017 onward, there was an increase in European firms with ESG-based compensation. Compared with our control group, there is an increase of 349 percent for 2021 for treated firms and only 59 percent for the control group, which aligns with previous empirical literature (Ottenstein et al., 2022, Gulenko, 2018).

In addition, we analyze the persistence of treatment effects in line with previous research (Pawliczek et al., 2021). For simplicity reasons, we construct a variable for each year four years before and after the NFRD (e.g., Year +1). Then, we interact these timing variables with treatment firms. Table A.9, column 1 shows the coefficients, and column 2 shows the odds ratio. The coefficients' odds ratio before the NFRD should be close to zero. Even though they are, in this case, significant, the size of the coefficient does not harm the experimental setup. The statistically significant and large odds ratios, e.g., for Year+3 of 41.1, help to validate the design. Despite the staggered DiD approach, we demonstrate the validation of PTA for ESG and environmental performance and emissions graphically. In line with Downar et al. (2021) treatment effects close to zero in the pre-period confirm the PTA. Moreover, we confirm the parallel trends assumption for our staggered DiD setup graphically with Figure A.6 for the *ESG Combined Score, the environmental score, carbon emissions,* and *carbon intensity.*

3.6.2 Additional Analyses for Panel A

Alternative Policy Variable

As a robustness check to minimize internal validity bias, we are substituting our dependent variable ESG Compensation Policy with another *Refinitiv* based KPI called *Sustainability Compensation Incentive*. The binary variable equals 1 if the senior executive's compensation is linked to CSR, Health and Safety, or Sustainability targets. The interrelationship is also confirmed (see Table A.10, column 1), transferring the agency theory to the level below the management board. With the alternative variable, it is 8.1 more likely to introduce ESG-based compensation, a strong association.

Alternating years

To exclude further effects before enforcing the directive, we drop the years 2015 and 2016 to check for effectiveness (see Table A.10, column 2). These two years represent the transition years. However, with an odds ratio of 3.9, the significant association remains. Moreover, we do a placebo test with the pseudo-adoption year of 2016. Initial results are confirmed with an odds ratio of 2.7 at the 1 percent level (Table A.10, column 3) and show no evidence of changes. After that, and in line with Chen et al. (2018), we adjust the official enforcement year to 2016. Furthermore, we delete the enforcement year 2017 completely. The odds ratio of 2.3 is still significant at the 5 percent level (Table A.10, column 4). Taken together, the results suggest that the NFRD expedites ESG-based compensation.

Composition of groups

In the chosen research design, having a stable composition of treatment and control groups is relevant. Therefore, we use repeated cross-sectional data. In addition, we use entropy balancing to reduce model dependence by reweighting the covariate moments of all the control variables for the US and EU observations to make both groups more comparable—the odds ratio of 6.1 underlines our derived conclusions.

3.6.3 Additional Analyses for Panel B

Alternative dependent variable

For the environmental validity, we substitute the variable *CO_2 emissions* with *Waste* and find a negative coefficient significant for 2-year and 3-year lagged data. This corroborates the real effects on environmental consequences and further shows that the reduction only materializes with time.

Standard errors clustering

As demonstrated in Table A.11, we also adjust the standard errors on different dimensions. Whereas robust standards errors are significant, this drops once clustering at the company, industry, and country levels. The significant odds ratio of 2.1 for robust standard errors underlines our results. When we cluster the standard errors at the country, industry, or firm level, the same ratio but with less significance at p=0.13 emphasizes the tendency of our results. For our additional analyses, we also alter the standard error level from company to industry level and find that our results are robust to the variations.

3.7 Conclusion, Contribution, and Limitations

3.7.1 Conclusion

Despite the widespread adoption of mandatory sustainability reporting measures in several countries, little research has been conducted on its impact (Gulenko, 2018). Thus, we aim to examine the effects of the NFRD on whether firms introduce ESG criteria into their compensation systems and their related ESG performance in this quasi-natural experiment.

First, our findings indicate that the NFRD has resulted in improvements. Specifically, the NFRD has increased the number of companies with ESG criteria in compensation systems. Even though the NFRD does not require companies to have ESG-based compensation, our findings confirm the results of the existing literature that sustainability reporting matters (Fiechter et al., 2022, Cuomo et al., 2022). The integration of ESG into compensation in the stakeholder context emphasizes the aim to steer managers' behavior toward ESG compliance based on ESG incentives. Additionally, we found that incorporating ESG criteria into compensation practices plays a moderating role in the influence of the NFRD on socially responsible practices among EU companies. Disclosure regulation improves metrics used for performance evaluation. We expect future ESG KPIs advancements, which also allow for a higher number of companies with ESG-based compensation and a more realistic reflection (Cuomo et al., 2022).

Second, the varying relationships between individual ESG indicators and scores, using ESG-based compensation as a channel, reveal a fragmented picture of improving ESG performance. For ESG and environmental scores, a negative treatment direction is revealed, which might seem counterintuitive. This discrepancy can be attributed to either the fact that these scores are based on benchmarks rather than true performance or the significant number of participants from Germany in the sample. Hence, actual performance is even more relevant, and we find a statistically significant negative relationship between carbon emission reduction and carbon intensity. Therefore, we demonstrate that companies tend to invest in actual carbon reduction measurements, which materialize in the longer term.

The results indicate that the NFRD only partially improves companies' ESG performance. The directive can be considered a cause to consider ESG initiatives but is not yet effective. Future directives need to set requirements on a higher level. Based on Leong and Hazelton (2019), directives need to consist of specific requirements such as industry-specific targets, relevant sanctions, and efficient monitoring mechanisms (e.g., by auditors). In conclusion, the NFRD can be viewed as a catalyst for further ESG improvements (Fiechter et al., 2022). Our findings still support the role of the European Commission as a regulator in driving and standardizing ESG disclosure in EU-based companies.

3.7.2 Theoretical and Managerial Implications

With our paper, we respond to several calls from academia to understand the effects of sustainability reporting on company-wide policies and real effects (Christensen et al., 2021, Ottenstein et al., 2022, Ioannou and Serafeim, 2017). Especially Johansen points out the attempt that "regulatory decisions [are] based on evidence about the effects of policy options" (Johansen, 2016, p. 8). We contribute to the literature on sustainability disclosure, demonstrating that the NFRD initiates companies to integrate ESG into their compensation systems. At this moment, the findings on real effects also provide insights and show that ESG-based compensation triggers companies to improve their environmental performance by significantly reducing their carbon emissions. Our holistic analysis adds to the extant literature on ESG-based compensation with a broader focus and a more long-term analysis of the EU (Fiechter et al., 2022, Ottenstein et al., 2022).

Second, integrated ESG-based compensation has a positive effect on carbon reduction, and this is policy-relevant because officials should consider mandatory climate-related disclosures necessary to proceed in closing the gap to the 1.5-degree target (Jouvenot and Krueger, 2019). The NFRD is broadly formulated but has manifold implications that are relevant for the European Commission to consider for subsequent sustainability directives. The CSRD proposal, introduced in April 2021, aims to expand the requirement for non-financial reporting to include small companies and places a greater emphasis on double materiality and is scheduled to be implemented from the financial year 2023 (Commission, 2021). As suggested by Ottenstein et al. (2022), the CSRD might be especially challenging for firms with lower sustainability reporting levels and

smaller firm sizes. In line with our research, explicit voluntary reporting guidelines should amend the directives. We build upon NIT theory that voluntary disclosure of ESG commitments and the introduction of ESG-based compensation are mechanisms to demonstrate companies' ESG commitment. Due to the increased scope, many companies with ESG-based compensation are expected despite their voluntariness. The significance of this issue is growing due to the upcoming CSRD, which might convert formerly voluntary best practices into mandatory requirements (e.g., mandatory external limited assurance) (Ottenstein et al., 2022).

Nevertheless, these findings are also relevant for other authorities because the effectiveness of the NFRD shows that introducing such sustainability directives could also improve the ESG performance of different regions, such as the US or Asia.

The findings have practical implications: As we demonstrate the importance of ESG, a higher level of transparency of companies is needed for the company itself for better integration into business decisions and compensation systems, but also for investors. In the context of financial scandals and market instability, a higher level of transparency on compensation fosters trust (Mio et al., 2015). Using hard and quantifiable targets positively impacts ESG performance compared to soft and qualitative targets (Derchi et al., 2021, Maas and Rosendaal, 2016). However, a firm should use actual outcomes instead of scores, and ratings provided the divergence of results for higher credibility (Berg et al., 2022). Companies must carefully select and integrate a wide range of ESG KPIs because highly focused KPIs might not reflect stakeholders' interests and only focus on a narrow subset (Bebchuk and Tallarita, 2022). However, a biased selection of easy-to-achieve KPIs ("cherry-picking") focusing on specific ESG aspects might not improve ESG performance (Van Zanten and van Tulder, 2021). Thus, companies should view ESG as an integrated concept and stipulate a holistic integration into their compensation systems.

3.7.3 Limitations and Future Research

The study also has limitations: We use a specific sample restricted to large, listed European (and US) firms, mainly driven by data availability of *Refinitiv*. Data on specific metrics (e.g., emissions) are incomplete, which reduces the overall sample. Relying on ESG scores causes bias but embodies the most effective measurement of ESG performance nowadays.

At the moment of writing this paper, it is not possible to determine the share of ESG-based incentive components for a comparison between companies. We cannot connect concrete ESG targets in the short- and long-term bonus with the outcome of this specific target nor with the concrete level of detail, which calls for further research. Therefore, evaluating the composition and structure of ESG within compensation and its influence on actual ESG outcomes reveals another differentiated understanding of the topic. Moreover, we cannot preclude that, for example, the introduction of international guidelines such as the Sustainable Development Goals were differently perceived by companies in the EU and the US and might have impacted specific behavior.

Further, we do not focus on the country-specific level since additional laws amend the European regulations and transfer them into national law. We add a holistic understanding on the European level. However, country-specific regulations on sustainability could affect ESG requirements and performance but have also not been considered in the past, with similar regulatory research settings (Fiechter et al., 2022, Ottenstein et al., 2022). Instead, we use fixed effects (Ottenstein et al., 2022). For the CSRD, it is possible to conduct analyses based on the European Commission's requirement to review the standards every three years. This review considers new developments, including international standards and the increased range of companies the NFRD covers, and allows for a more holistic picture when analyzing companies' ESG performance and actual outcomes.

4 | Corporate Voting: PAs and the Usage of ESG-based Compensation

Are Proxy Advisors biased towards ESG? An analysis of voting decisions in European countries

The growing popularity of low-fee mutual- and exchange-traded funds (ETFs) pressures institutional investors to keep corporate governance costs low and raises Proxy Advisors' (PA) power to provide low-cost recommendations for annual general meetings (AGM). Moreover, the rising concern about growing executive compensation and the request for ESG-friendly corporate management raise the attention on the interplay with PAs, becoming increasingly central in European countries. However, PAs' attitude toward these decisions at AGMs has not been fully explored yet; in particular, literature on the European context is scarce. Based on data from the largest and most powerful PA, the *Institutional Shareholder Services* (*ISS*), in conjunction with data from *Refinitiv*, we determine factors influencing *ISS*' recommendations, their power to sway institutional investors, and *ISS*' considerations of ESG-based compensation in their recommendations. First, we find that PAs refute the widespread criticism of a one-size-fits-all approach in the EU but consider company- and country-specific factors such as shareholder protection level. Second, PAs review compensation agenda items and favor those of firms having compensation contracts that include ESG-related performance targets. Thus, PAs play an important economic and reliable role as information intermediaries in the EU. This work contributes to the literature on determinants of shareholder voting outcomes and the role of PAs in the public policy debate in conjunction with ESG.

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Status: Working Paper[31]

[30] Author contributions: AK developed the research idea, the literature review, and the writing of the paper. JG led the data collection and supported the analysis.

[31] Full paper presentation at the 18th IAEE European Conference.

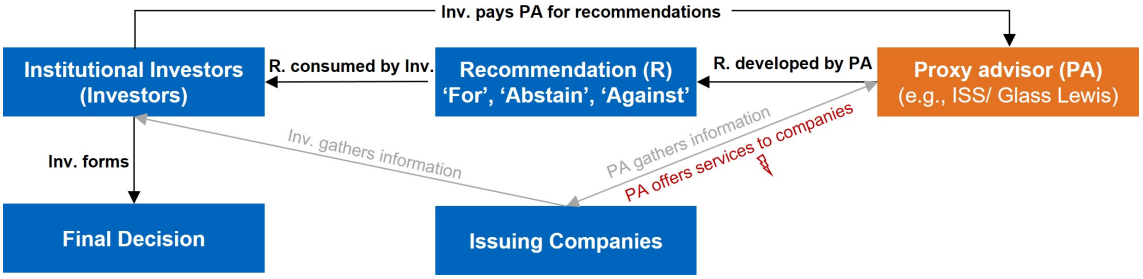
4.1 Introduction

As much as 26.5 trillion US Dollars of assets are under management in the European Union (EU) (Mcintyre et al., 2022) of which institutional investors own 71% and retail investors 29% (Broadridge and PricewaterhouseCoopers, 23.09.2020). Simultaneously, the high investment amounts of institutional investors, the internationalization of capital markets, and the great popularity of low-cost mutual funds and ETFs with growing investment volumes at 15% worldwide in the last ten years (Kaczmarski et al., 2023) lead to a race to keep overhead costs reasonably low. During AGM, institutional investors are legally obliged to comply with their fiduciary duties by voting (Bebchuk et al., 2017). They vote in 92% of the cases setting the tone in AGMs, whereas retail investors vote in only 28% of the cases (Broadridge and PricewaterhouseCoopers, 23.09.2020). For this reason, institutional investors shifted towards strategic voting to improve corporate performance and the value of their portfolios (European Securities and Markets Authority, 2012, Dubois, 2011). Given the tremendous amount of agenda items, PAs come into play due to their cost advantage while not fulfilling any legal obligations towards the companies (Choi et al., 2009). PAs support institutional investors in their fiduciary role by providing recommendations on each agenda item. PAs have a growing influence (Ertimur et al., 2013), resulting in an intensely politicized debate about the "Grey eminence behind the Annual General Meeting" (Ehrhardt, 2019). Just recently, *ISS* supported a resolution from climate activist shareholders at "TotalEnergies to align itself to the Paris Agreement goal of keeping global warming below 2 degrees Celsius", demonstrating their ESG mindset (Reuters, 2023). Thus, the growing influence of institutional investors transmitted to PAs with their impact on eventual voting outcomes and ESG relevance in this interplay motivates this study.

As Ertimur et al. (2013) point out, PAs serve as information intermediaries. They gather, process, and distribute governance-related information to lower the costs of capital market participants to enable informed decisions, as demonstrated in Figure 4.1 (i.e., transaction costs). However, despite the high demand for PAs, they have to cope with pressure from different sides in corporate voting: First, institutional investors demand reliability from PAs' recommendations to follow their fiduciary duties while remaining profitable (Bebchuk et al., 2017). Second, there are calls by the regulator for more transparency because of the unregulated market and potential

agency conflicts (European Securities and Markets Authority, 2022a). Third, the PA industry is characterized by criticism, such as using a one-size-fits-all approach (using a tick mark list) and the presence of conflicts of interests (Ertimur et al., 2013). Fourth, increasing executive compensation in the context of the financial crisis is alarming, especially in the interplay with ESG criteria towards greenwashing (Popli, 2022). Finally, there has also been an increasing debate on the role of PAs in the broader promotion of ESG goals, especially in the media (e.g. (Temple-West, 2023)).

FIGURE 4.1: Operating Mode of PAs



Notes: Based on Ertimur et al. (2013), this Figure illustrates the functioning of PAs within the framework of AGMs and institutional investors (own creation).

PAs, a legal phenomenon from the United States (US), are mainly researched locally in the US, offering a dispersed and obscure image of the focal phenomenon in the EU. Hence, it remains uncertain whether US findings can be transferred to the supra-national region of the European Union due to different levels of investor protection and the rule of law systems (Hitz and Lehmann, 2018, Djankov et al., 2008, Porta et al., 1998). In line with the paper focusing on the EU of Hitz and Lehmann (2018), our paper tackles the call by the European Securities and Markets Authority (ESMA) due to a lack of experience in the European capital market with PAs (European Securities and Markets Authority, 2012) and academic bodies for the European context. In addition to Hitz and Lehmann (2018), who focus on descriptive findings, weuse a more recent data set and analyze the role of ESG compensation practices. The call for market-wide feedback from October 2022 asks for evidence on the Shareholders Rights Directive (SRD) II and on the predominant Best Practices Principles, including the "monitored self-regulation," established by the PAs themselves to report findings to the European Commission (Davis and Sergakis, 26.01.2023, p. 1).

This study extends three research streams on the economic role of PAs in corporate voting and the literature on corporate sustainability: First, researchers evaluate the determinants of PAs' recommendation process (Ertimur et al., 2013, Hitz and Lehmann, 2015), but an understanding of the European market is missing. Second, the swaying power of PAs demonstrates a relevant research field since it describes the extent to which institutional investors follow recommendations by *ISS*, which is especially relevant due to the previously mentioned dramatically rising investment volumes at institutional investors in recent years (Larcker et al., 2015, Choi et al., 2008) and is considered obscure in the EU. Third, the potential influence of ESG on PAs' recommendations has gained additional attention, especially since executive compensation and ESG are highly consequential topics, where wrong decisions can lead to substantial destruction of value (Johnson et al., 2019). Given the efficiency of shareholder voting on corporate policies (Copland et al., 2018), voting can foster ESG throughout the business with the help of compensation policies. Recently, investors penalized management boards "because they were dissatisfied with their commitment to sustainability aspects" due to a lack of sustainability consideration within the compensation system (Gebhardt et al., 2022, p. 2), highlighting the strong relevancy of ESG for market participants. Bringing together compensation and ESG concerning PA's work is new.

Given these critical academic debates, we answer the following research question: *"Do PAs consider ESG and idiosyncratic factors when formulating their corporate voting recommendations for European countries?"* We approach the research questions with two steps: First, we evaluate if PAs consider company and country idiosyncrasies and assess whether companies have ESG integrated into their compensation schemes. Second, we estimate the swaying power of PAs for all proposals and compensation proposals.

We combine data of the most significant and potent and researched PA (Dey et al., 2022, Hayne and Vance, 2019, Albuquerque et al., 2020), the *Institutional Shareholder Services* (*ISS*), on voting recommendations with ESG compensation and enrich the data set with a comprehensive set of the company- and country-specific variables from *Refinitiv*. The sample consists of 2,396 European observations of proposals from 2013 to 2021 from different industries.

We find that PAs do not follow a one-size-fits-all approach in the EU but consider company- and country-specific regulatory factors such as shareholder protection level and legal systems'

financial transparency. Our results show that PAs' swaying power is more extensive for compensation proposals (17.92 %) than for general proposals (7.00%). 55% of the companies change their compensation plans after an *Against*[32]. As such, the higher swaying power can affect firm value more strongly (Ertimur et al., 2013, Larcker et al., 2015). Most importantly, PAs significantly vote *For* on agenda items of companies with remuneration contracts with ESG-linked performance goals. As only PAs have the capacity for analyzing compensation proposals in depth, PAs' impact is high, as confirmed by the existing research (Ertimur et al., 2013, Hayne and Vance, 2019).

This work contributes to the literature on corporate voting and PAs' role in European countries' public policy debate (Hitz and Lehmann, 2015, 2018, Koch et al., 2021). We extend the literature by emphasizing the critical role of ESG in conjunction with compensation for proxy voting.

We add to the current policy debate by showing that PAs' influence on shareholder voting is vital in the EU but below the level in the US. Further, given the high swaying power, regulators should monitor the conception of PAs' recommendations and the reliance of institutional investors more closely. Our results show that the reliance of institutional investors on PAs' recommendations can also be seen as a convergence of ESG preferences for PAs and shareholders.

The remainder of this paper is structured as follows: In Section II, we review the relevant literature. Section III outlines the empirical approach and the sample construction. In Section IV, we present the empirical findings and derive practical implications, which are discussed in Section V. Lastly, Section VI concludes with the contribution of this study and offers pathways for further research.

4.2 Literature Review and Hypotheses Development

4.2.1 Corporate Voting: PAs and Institutional Investors

Within corporate voting, institutional investors and PAs play the most important roles. Institutional investors are pressured to increase their commitment to shareholder engagement by the

[32] *For* refers to voting in line with the proposed agenda item of the management, whereas *Against* refers to disagreement.

ESMA and vote compulsory on different agenda items such as the approval of remuneration policies, financial reporting, and director elections (Bebchuk et al., 2017). PAs offer various services to companies, but the provision of recommendations of AGMs outlines the most important one due to their cost advantage and economies-of-scale effect. Services are usually sold on a subscription fee to institutional investors (Choi et al., 2009).

Besides, some PAs offer consultancy services, e.g., governance research, individual voting guidelines for investors, and voting logistics (Hitz and Lehmann, 2015), leading to a so-called conflict of interest (Choi et al., 2009). The offerings vary from providing research to unthinkingly and even automated voting. The consumption of the provided recommendations now depends on the institutional investor because some use the recommendations as a complementary information source, as issue spotting for *Against* recommendations, or as the only information source (Sarro, 2020).

As Ertimur et al. (2013) points out, PAs serve as information intermediaries. They gather, process, and distribute governance-related information to lower the costs of capital market participants to enable informed decisions (i.e., transaction costs). PAs decrease information and monitoring costs for institutional investors with large portfolios with companies from various countries (European Securities and Markets Authority, 2012). Even though PAs offer relevant services, they are targeted by a lot of criticism for being too "powerful" (Choi et al., 2008, p. 650,). PAs do not fulfill any legal obligation, have no financial stake, and have no considerable regulation.

Different types of institutional investors allow for varying levels of dependency and reliance on PAs. Index funds, for example, aim to keep the governance costs low and, hence, typically rely more on PAs' recommendations. Other funds might focus on longer time horizons (mutual funds), social or governmental goals (pension funds), or ask specifically for more ESG research (ESG funds) (Coffee Jr et al., 2016, Winegarden, 2019, Matsusaka and Shu, 2021).

We only consider management proposals throughout the paper in line with research (Sauerwald et al., 2018) because they embody the majority of votes on AGMs, as shareholder proposals are seldom approved (Calluzzo and Dudley, 2019).

Researchers describe the PA market as highly unregulated and not competitive due to high market entry barriers (Choi et al., 2008). Two prominent players, *ISS* and *Glass Lewis*, dominate the market with a combined market share of 97% in the United States and 96% in the EU (Copland et al., 2018, Hitz and Lehmann, 2018). For this reason, *ISS* have a higher market coverage and is considered more influential due to its higher swaying power (Copland et al., 2018, Choi et al., 2009). It is regarded as the leading European PA (European Securities and Markets Authority, 2012) also due to recent solid growth of 16% in employee numbers (Growjo, 10.04.2023). Based on subscriptions in the US, mutual funds use the services of *ISS* (63%) more than *Glass Lewis* (28%) (Shu, 2022).

4.2.2 Regulatory Environment

PAs existence and European research are in a rather infant stage. They first emerged in the US due to a regulation amendment by the U.S. Securities and Exchange Commission (SEC) in 2003 to make shareholder engagement more efficient. There is only a short history of regulation in the EU: Only in 2012 an "Action Plan" was launched by the ESMA to spot deficits in corporate governance and, hence, pressured to increase shareholders' engagement in, e.g., the design of compensation policies (European Securities and Markets Authority, 2012). Further, in 2017, the SRD II claimed PAs to disclose their code of conduct, e.g., information sources, methodologies, and potential conflict of interests, which was to be translated into national law by 2019 as per EU Directive 2017[33]. Thus, the SRD II requires PAs only to increase disclosure but not restrict or influence their behavior (Heinen and Koch, 2018). The "Call for Evidence" of 2022 aimed to evaluate the effectiveness of the directive and further underlines the critical and hot regulatory debate, motivating this paper. Furthermore, the directive also addressed the urge to improve the transparency on the ESG performance of companies (European Securities and Markets Authority, 2022a). The technical advisory board of the ESMA, the Security Markets Shareholder Group (SMSG), also strengthens the voluntary approach in their latest feedback for higher transparency and highlights prospective regulations for ESG (European Securities and Markets Authority, 2022b). Thus, and the EU being among the economically most vital regions, it seems natural to explore this multi-country setting in more detail (Gebhardt et al., 2022).

[33] Directive 2017/828EU of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement (text with EEA relevance).

4.2.3 Theoretical Underpinning

PAs are considered "outside agents" or "information intermediaries" and have the "role of middleman" in the voting setup of shareholders-only listed companies. They are "between the information seeker and the sources of information in the market for information" (Rose, 2012, p. 4). Their relationship heavily relies on the principal-agent literature (Eckstein, 2017). Given the cost advantage of PAs (Sauerwald et al., 2018), institutional investors partially delegate decision-making to the agent (Eckstein, 2017) by not sharing the risk (Belinfanti, 2008).

The agents' work, the recommendations by PAs, cannot be genuinely observed by the principal, the institutional investors, leading to a potential "moral hazard" problem (Eckstein, 2017, p. 3). Possible monitoring is only loosely done by the regulator (Eckstein, 2017) and is very costly, almost impossible due to the impracticability of measuring PAs' impact on firm value (Eckstein, 2017). If institutional investors could assess the quality of PAs' recommendations, they would not need their services. The quality of recommendations can vary due to missing accountability towards companies (Klöhn and Schwarz, 2013), resulting in an "agents watching agents" dilemma (Black, 1991, p. 1). Therefore, PAs are considered "de facto corporate governance regulators" (Eckstein, 2017, p. 13), but are PAs really so powerful and shape the corporate governance of companies?

4.2.4 Compensation and ESG

The excessive rise of executive compensation, also after the financial crisis, increased the level of corporate governance laws such as the Say-on-Pay (SOP) regulation (Hitz and Lehmann, 2015). This regulation allows shareholders to vote on compensation matters at AGMs (Lieder and Fischer, 2011). Executive compensation aims to align shareholders' and executives' interests (Cabezon, 2020). As a result, compensation is also considered a steering instrument in terms of corporate governance to influence managers' decisions (Sarhan and Al-Najjar, 2022) and incentivize managers to act more sustainably (Cohen et al., 2022).

There is an ongoing debate on the factors that influence improved ESG performance of companies, of which compensation is considered to be one (e.g., Flammer et al., 2019). A central

development in corporate governance is integrating ESG criteria into the short- and long-term incentives of especially executives, in addition to financial criteria. Thus, the term "CSR contracting" is shaped by Flammer et al. (2019, p. 1097) and in the following used as ESG-based compensation. Institutional investors such as Allianz Global Investors, among the most prominent European asset managers, require companies to have ESG-based compensation systems and, otherwise, vote against SOP proposals (Einig, 2022). ESG is often considered to have a material impact (Johnson et al., 2019), and *ISS* updated their voting guidelines again on ESG topics for the 2023 AGM season (Lehman and Castillejos, 2022). From a neo-institutional theory perspective, external pressure can stimulate organizations to take symbolic measures to advance a company's reputation; this is also true for the ESG context (Bernard et al., 2022). Hence, Bernard et al. (2022) points out that "the symbolic role of proxy voting in the legitimization process of ESG integration has not been thoroughly investigated," and this study uses this as a starting point. Especially in highly consequential topics such as executive compensation and ESG, wrong decisions could substantially destroy value (Johnson et al., 2019). The ESMA questions whether more offerings regarding ESG heat up the discussion (European Securities and Markets Authority, 2022a), motivating this paper to thoroughly understand the interplay with ESG.

Possessing a lot of information can be influential in promoting sustainability throughout business decisions (Rose, 2012). Do PAs as information intermediaries play a role in that game and can accelerate the distribution of such information (Eccles et al., 2012)? Based on the increasing power of PAs, it is crucial to understand how they vote on ESG-related issues and whether they can provoke sustainability in companies (Gebhardt et al., 2022).

4.2.5 Criticism on PAs and Hypotheses Development

Despite the already mentioned but almost immeasurable conflict of interest for *ISS* (Eckstein, 2017), criticism is expressed on a potential one-size-fits-all approach of PAs, neglecting company- and country-specific information (European Securities and Markets Authority, 2022a). This approach refers to "box-ticking," which means that the PA does not consider company-specific circumstances by saving costs by streamlining their own research processes (Hitz and Lehmann, 2018, Hayne and Vance, 2019). Then, a PA always recommends *Against* a specific issue neglecting

company-specific details (Iliev and Lowry, 2015). The standardized approach potentially also leads to more standardization in compensation plans. This, however, is crucial because it can result in sub-optimal systems and, finally, in lower market values (Jochem et al., 2021, Cabezon, 2020) and hence, to higher amounts of compensation at the economic detriment of shareholders (Cabezon, 2020). A potential "moral hazard" dilemma can occur at the expense of the principals and institutional investors. PAs could offer "worse" in the sense of vague, not individualized recommendations or PAs because they offer poorly researched recommendations to minimize their own costs. This is supported by missing oversight and regulation in the EU. However, at least in Germany, *ISS* corporate governance ratings correlate with *ISS* recommendations, underlining a standardized, systematic approach (Hitz and Lehmann, 2015). Another US study contradicts the criticism above and finds other factors determining the recommendation, such as low abnormal returns, the level of compensation, the ownership structure, and the market value of equity (Ertimur et al., 2013). In 2018, Hitz and Lehmann found that PAs consider company- and country-specific factors for European companies, representing the only EU-focused study. Given the stated power and potential consequences in this Princpal-Agent dilemma, it is especially relevant for institutional investors to know whether European PAs account for proposals' conditions. At this moment, we formulate the following hypothesis on PAs approach:

Hypothesis 1: PAs are employing a one-size-fits-all approach for European companies.

Following up on the mentioned criticism of PAs being too powerful, the exact influence is almost incalculable despite the growing literature (Sauerwald et al., 2018). Literature states that PAs substantially impact management proposals (Ertimur et al., 2013, Larcker et al., 2015). The so-called *Swaying Power* measures the extent to which, in case of an *Against* recommendation by *ISS*, shareholders dissent the proposals (Hitz and Lehmann, 2015).

This effect is stronger during the "busy season" (Calluzzo and Kedia, 2021). In this period in April and May, institutional investors follow an *Against* recommendation of *ISS* by 10 % more than otherwise. Researchers calculate different levels of reliance depending on the period and the country setup: For example, in the US, the swaying power measures between 6.4-29.5% (Choi et al., 2008, Alexander et al., 2010), but most papers estimate the swaying power to be at 15-25% (Ertimur et al., 2013, Alexander et al., 2010, Calluzzo and Kedia, 2021). However, Choi et al. (2009) argues that there is a general overstatement of the swaying power because

it remains difficult to differentiate between causality and correlation, and the actual swaying power only amounts to 6-10%. Malenko and Shen (2016) employ a method with a cutoff on *ISS* voting recommendations and find a voting dissent effect of 25%.

The EU has a different institutional context since these countries follow a stakeholder model in their corporate governance, and companies have less expertise with proxy voting (Hitz and Lehmann, 2015). The level of swaying power is smaller in the EU, also as fewer institutional investors follow PAs recommendations than in the US (Cucari et al., 2020) due to large block holders who rely less on external research (Sauerwald et al., 2018). For Europe, the swaying power amounts to 5.6% (Sauerwald et al., 2018) to 8.9% (Hitz and Lehmann, 2018). We build upon the latest result as the latter uses the most similar sample. In Germany, the swaying power increased based on research from 9.6-12.2% until 2015 (Koch et al., 2021), which is in line with the increased importance of PAs lately (Cucari et al., 2020). Hence, as expected by the ESMA "proxy advisory is growing in prominence" (European Securities and Markets Authority, 2012, p. 16).

Hypothesis 2a: The relationship between *ISS* recommendations against management and the percentage of votes for proposals is negative and stronger than 8.9% for all agenda items.

PAs give recommendations for different kinds of proposals, such as routine agenda items and also compensation items. As the latter are more controversial, the recommendations of *ISS* are more important and, thus, have more significant effects (Iliev and Lowry, 2015). When looking at compensation-related proposals only, the swaying power amounts to 11.3% for *ISS* in the US (Ertimur et al., 2013). *ISS* is considered more critical towards board- and compensation proposals, as in Europe, they reject 14.9% of management proposals and even 28.8% of compensation proposals (Hitz and Lehmann, 2018). As outlined, proxy voting pushed the standardization of compensation plans and decreased differentiation by 25%. Effects are sub-optimal compensation systems and even a decrease in market value (Cabezon, 2020). Given the adverse effects, it is essential to understand the behavior of PAs on general versus compensation proposals.

Hypothesis 2b: The relationship between *ISS* recommendations against management and the percentage of votes for compensation proposals is significantly more negative than for all agenda items.

Regarding the interplay of ESG factors and compensation with PAs, a comprehensive picture of research does not exist. Researchers criticize PAs for preferring ESG criteria by accepting the risk of destroying shareholder value (Matsusaka and Shu, 2021, Johnson et al., 2019, Winegarden, 2019). Lingnau et al. (2022) finds that in investments, a lack of sustainability can decrease a company's investment attractiveness, whereas a developed sustainability performance is rewarded. As PAs' guidelines on ESG issues are "very elastic and inconsistent" (Bernard et al., 2022, p. 1), this paper aims to understand whether the PAs' agents assess an established instrument of integrating ESG into business, ESG-based compensation. Therefore, we expect investors and PAs to consider ESG likewise.

Hypothesis 3a: PAs are biased towards ESG agenda items for European countries and especially value ESG-based compensation of companies more positively.

Depending on the origin and ESG attitude of institutional investors, they use their voting power more or less to positively influence the progress of ESG in companies. Given the limited level of research on PAs (Kock and Min, 2016), it is interesting to understand whether the predominant higher association with ESG for civil-law countries is also present for PAs (Dhaliwal et al., 2012), provided that PAs influence is considered more minor there (Sauerwald et al., 2018). Investors from civil-law countries (stakeholder-oriented, e.g., Germany and France) consider value maximization more broadly. Hence, they believe that creating stakeholder value ultimately benefits shareholder value (Pawliczek et al., 2021). Thus, better environmental performance is also proven to be more associated with civil-law countries (Bauer et al., 2022). A company's commitment to ESG depends on the legal origin and is typically higher in civil-law countries, indicated by better ESG scores (Bauer et al., 2022). These country-level specifications can also explain the variance between companies in ESG performance better than any other institutional factors (Liang and Renneboog, 2020). We expect ESG criteria to be more popular among countries that are more ESG-sensitive, such as European countries with a stakeholder-oriented model, than in the UK.

Hypothesis 3b: In civil-law countries, shareholders' votes are associated more positively with companies with ESG integrated into their compensation.

4.2.6 Research Gap

The study investigates whether PAs matter in corporate voting. Based on the hypotheses, we answer the following research question: *"Do PAs consider ESG and idiosyncratic factors when formulating their corporate voting recommendations for European countries?"* To examine the role of PAs, we conduct several empirical analyses. First, we evaluate if PAs consider company- and country-level factors. Second, we estimate the swaying power of PAs for all proposals and compensation proposals only. Moreover, we differentiate whether this tendency changes between civil- and common-law countries. Third, we assess whether PAs consider companies' compensation system, mainly when it contains ESG criteria.

4.3 Methodology

4.3.1 Data and Sample

As outlined, we use relevant voting data from *ISS-Voting Analytics-Company Vote Results Global* such as agenda item description, *ISS* recommendation (For/Against), and the final voting results (in percentage). Further, we extract compensation data from *ISS Incentive Lab Europe* on the company- and year-level to determine whether a company uses ESG in their compensation more accurately. For that, we use an individual approach: We search for ESG keywords (e.g., "climate," "people," "diversity," "CSR") in both the goal and performance metric variable type of each company and aggregate the goals to a company-year-level. We derive a binary ESG compensation variable for each company year, which we call *ESGComp*. We enrich our data set with control variables from *Refinitiv* for firm specifics. Country-specific control variables are added based on the literature (Djankov et al., 2008, Brown et al., 2014, Porta et al., 1998). Hence, the *ISS* agenda item-level data is enriched with company- and country-specific data (see Tables A.17 and A.18 for the variables' description). We focus on *ISS* data because Choi et al. (2008) find that *ISS* considers governance-related factors such as compensation more thoroughly.

We use the most recent data from January 1st, 2013, until December 31st, 2021. The following Figure shows how we combine the data from the different sources to form the final sample with 364,719 general agenda items and thereof 2,396 compensation agenda items with available data.

FIGURE 4.2: Sampling Process

	Selection process for Sample (January 2013 until December 2021)	Observations
ISS voting data *Source: ISS-Voting Analytics-Company Vote Results Global*	ISS voting data worldwide for given time period	2,519,284
	Thereof based in the European Economic Area and United Kingdom	803,145
	Removal of duplicates and missing data	371,888
	Removal of proposals of management dissent	364,719
	Overall European agenda item observations	364,719
	Thereof remuneration agenda items	43,500
ISS compensation data *Source: ISS Incentive Lab Europe*	Number of different performance goals available for given time period	28,268
	Aggregated number of observations with performance goals	2,957
	Removal of observations with missing data, observations remaining	2,396
Control variables *Source: Refinitiv*	Company- and country-level variables available	2,396
	Final joint sample of compensation agenda item observations	**2,396**

Notes: This Figure illustrates the process I use to obtain our sample (own creation).

4.3.2 Descriptive Statistics

Our data contains observations from various European countries and industries[34]. The sample is balanced country-wise and industry-wise (see Table 4.1).

Table 4.2 shows that most of the observations get approved as indicated by the mean of 96.63%, but there is a right skew of distribution due to the median of 99.77%. Hence, a few observations with a strong dissent of voting outcomes align with research (Malenko and Shen, 2016, Hitz and Lehmann, 2015). *ISS* recommend an *Against* vote in about 13.82% of all cases. When this happens, the average dissent (opposition to management) is at 10.45% in comparison to only 2.24% when *ISS* recommend the agenda item. In other words, when *ISS* recommends an *Against* vote, shareholders are more likely to vote against management by about 8.21%. This effect is particularly strong for compensation proposals with 18.33%. Shareholders are,

[34]We utilize the *Refinitiv* Business Classification for industries.

Table 4.1: Descriptive statistics: Country and Industry Distribution

Country	Obs.	Percentage	Sector	Obs.	Percentage
United Kingdom	986	33.34%	Industrials	599	20.26%
Switzerland	649	21.95%	Financials	417	14.10%
France	295	9.98%	Cons. Cyclicals	410	13.87%
Italy	173	5.85%	Basic Materials	380	12.85%
Sweden	152	5.14%	Technology	289	9.77%
Norway	99	3.35%	Healthcare	279	9.44%
Belgium	98	3.31%	Cons. Non-Cycl.	232	7.85%
Netherlands	91	3.08%	Energy	154	5.21%
Spain	82	2.77%	Utilities	152	5.14%
Germany	71	2.40%	Real Estate	45	1.52%
Jersey	62	2.10%	**Total**	**2,957**	**100.00%**
Luxembourg	53	1.79%			
Denmark	52	1.76%			
Ireland	35	1.18%			
Portugal	27	0.91%			
Finland	23	0.78%			
Isle of Man	7	0.24%			
Austria	2	0.07%			
Total	**2,957**	**100.00%**			

Notes: This Table shows the descriptive statistics for the regression, differentiated into countries and industries.

in general, more skeptical towards these agenda items. *ISS* recommend more often an *Against* (16.32%); hence, the average dissent is higher at 24.00%. It has to be noted that a "dissent above 20% is viewed as an indication of substantial dissatisfaction", potentially resulting in a "change of compensation practices" (Malenko and Shen, 2016, p. 4). There are more *ISS For* than *ISS Against* recommendations, with 312,329 versus 50,390. To have a balanced sample of agenda items of *ISS For* and *Against* recommendations, we weigh the *ISS Against* recommendations with the factor 6.2. We test the correlation coefficients of all our Equations for multicollinearity with a generalized variance inflation factor version (see Table A.19). The tests did not reveal anomalies. We exclude seven outliers with Cook's distance approach (Cook, 2000).

4.3.3 Research Design

Two models are central to this paper to answer the research question; a detailed variables' description can be found in Tables A.17 and A.18. First, we analyze variables that might predict the probability of a *For* decision. In line with other researchers, we use a logistic

Table 4.2: Descriptive Statistics: Voting Outcomes

Percentage of Votes in Favour						
	All European Proposals			**Compensation Proposals**		
	N	*Mean*	*Median*	*N*	*Mean*	*Median*
Overall	364,719	96.63	99.77	2,396	91.34	5.64
ISSFor	314,329	97.76	99.87	2,005	94.33	96.54
ISSAgainst	50,390	89.55	93.87	391	76.00	78.25
Swaying Power	8.21%			18.33%		

Notes: Descriptive statistics: Voting outcomes based on *ISS* recommendations. The swaying power is calculated based on the means. For general proposals: 8.21% = (1-0.8955) - (1-0.0.9776) and for compensation proposals: 18.33% = (1-0.9433) - (1-0.7600).

regression considering non-linear distributions (Choi et al., 2008, Ertimur et al., 2013). The variable *ISSrec* amounts to 1 in case of a *For* recommendation by *ISS*, 0 otherwise for *Against*. Furthermore, the binary variable *ESGComp* indicates (equal to 1) whether a company considers ESG in their compensation system and *Pressure* whether the AGM was held in the busy season (Calluzzo and Kedia, 2021). *ExecComp* takes the natural logarithm of the senior executive compensation of the corresponding company. *FreeFloat* shows the percentage of shares available for trading in the market. Further, we add two profitable variables: *ROA* measures the net income over total assets for one year, and *FiveYrCAGRDPS* measures the average return of total dividends of the last five years. The *GScore* shows the level of a company's systems and processes. In line with research by Hitz and Lehmann (2015), institutional differences of the countries are recognized (Table A.22): We consider the legal system and investor protection in the form of the *Anti-Self-Dealing Index* (Djankov et al., 2008) and the level governance quality as *Accounting Enforcement Index* (Brown et al., 2014). Moreover, we add countries' legal origin as a categorical fixed variable (Porta et al., 1998). To answer the question of how *ISS* formulates their recommendation, we perform the logistic regression for H1. For H3a, we omit the last two variables, thereof i refers to the firm and t to the date of the proposal:

$$\begin{aligned} ISSFor_{it} = \beta_0 + \beta_1 ESGComp_{i,t} + \beta_2 ExecComp_{i,t} + \beta_3 FreeFloat_{i,t} + \beta_4 ROA_{i,t} + \\ \beta_5 FiveYrCAGRDPS_{i,t} + \beta_5 GScore_{i,t} + \beta_6 Pressure_{i,t} + \beta_7 CompCommEx_{i,t} + \\ \beta_8 SelfDealingIndex_i + \beta_3 AccEnfRatio_9 + \epsilon_{i,t} \end{aligned} \quad (4.1)$$

We use a multiple linear regression with OLS, inspired by Hitz and Lehmann (2018), to analyze the relationship between shareholder dissent and *ISS* recommendation. The variable *ForPct* amounts to a number between 0 and 100 and shows the percentages of votes with a *For* vote. We apply this regression to all management and compensation proposals to determine *ISS*' impact. We use the following regression for our H2. In addition, for H3b, we also add the variables of *ESGCop* and *isCommon* (whether the company is situated in common-law countries) individually and their interaction term to the base Equation:

$$ForPct_{it} = \beta_0 + \beta_1 ISSrec_{i,t} + \beta_2 SelfDealingIndex_i + \beta_3 AccEnfRatio_i + \epsilon_{i,t} \quad (4.2)$$

Across the different Equations, we also use different company-, agenda item, industry-fixed, and country-specific effects, as indicated in the description of the results tables.

4.4 Results

4.4.1 Main Results

Decision making of ISS

Based on the different models, we find that a large set of control and categorical variables on the legal origin are significant. Therefore, we can derive that *ISS* consider company- and country-specific variables and can reject H1. Table A.20 with Equations 1-5 demonstrate a similar picture: *ExecComp* has a significant negative coefficient, meaning that a board with higher compensation is less likely to receive a *For* recommendation. In particular, a one-unit increase lowers the likelihood of a *For* by even 6.8%, underlining this variable's strong impact. This confirms existing research on the importance of board compensation (Ertimur et al., 2013).

The indication of whether a company's compensation system contains ESG criteria *ESGComp* is significantly positive, demonstrating that PAs read in-depth a company's compensation system and value the integration of ESG criteria. As this variable is central for H3, we also perform a Chi-squared and likelihood ratio test, which underlines the result. A 99.5% confidence interval around the variable ranges from 0.13 to 0.53, emphasizing that the effect is significantly positive. Additionally, based on a linear approximation equivalent to 0.08, the probability of a *For* increases by 8.22% at the slope's peak. Due to the logistic regression and the binary condition of our variable, the individual effect can be calculated as well and amounts to 8.15%, which is similar to the approximation[35].

The variables *FreeFloat, GScore, FiveYrCAGRDPS* and *Leverage* are positively significant. Thus, one percent higher Free Float increases the probability for a *For* recommendation by 0.55% at the highest slope, which aligns with research (Hitz and Lehmann, 2018). The *GScore* only has a small positive effect on the recommendation, underlining the findings by Daines et al. (2010). Despite the insignificance of *ROA*, the other profitability measure *FiveYrCAGRDPS* is significant. It shows that *ISS* considers company profitability over a medium time horizon, in line with research (Malenko and Shen, 2016, Aggarwal et al., 2014). As outlined by other researchers

[35] Proposed by the literature, we calculate the difference of outcomes by insert 0 and 1 for the binary variable of ESG compensation.

(Aggarwal et al., 2014), *Leverage* also increases the probability of a *For*, which might seem counterintuitive. Potentially, *ISS* considers associated risks rather positively by appreciating a company's discipline for healthy money management (Jensen, 1997).

On the contrary, the binary variables *Pressure* and *CompCommEx* are both significantly negative. If the AGM takes place during the busy season, it lowers the probability of a *For*, which stands in contrast to research by Calluzzo and Kedia (2021). Reasons could be that first, *ISS* has a relatively high false negative error rate (Iliev and Lowry, 2015) and second, *ISS* embodies the position of an "issue spotter" (Sarro, 2020, p. 2).

With Equation 5, we demonstrate that the categorical variable of the *Legal Origin*, particularly for French-, German-, and Scandinavian-grouped countries, are all significant (see Table A.20 for an overview). The variable *SelfDealing* is significantly positive, which means that *ISS* consider a country's level of shareholder protection and, so, are less skeptical when, for example, minority shareholders already enjoy a high level of protection. On the contrary, *AccEnfRatio* decreases the likelihood of a positive *ISS* recommendation. If a company discloses a lot of auditing information, it makes it easier for *ISS* to identify inconsistencies, leading to an *Against*. Therefore, a country's legal system and the level of shareholder protection influence *ISS*' recommendations.

The basic logistic model increases its explanatory power when adding specific fixed effects, especially company-fixed ones. Thus, *ISS* consider particular company- and country-specific factors in their recommendations and do not follow a one-size-fits-all approach for compensation data. Therefore, we can reject our first hypothesis, extending the existing research, which considers all agenda items on compensation-specific matters (Hitz and Lehmann, 2018). As laid out, PAs prefer remuneration contracts with ESG-linked performance goals. Depending on the control variables and fixed effects used, this effect ranges from 0.18 to 0.37 on a logit scale. Therefore, we confirm our H3a.

Impact of recommendations

We use similar variables for the second model and apply the Equation for two data sets to determine *ISS*' swaying power. First, we use all management proposals, and due to the linear regression (see Table A.21, Equation 6), coefficients can be interpreted directly. We find that *ISS* has a swaying power of 7.00% on all management proposals with a confidence interval of

6.81-7.19%. However, this result is smaller than the expected impact of more than 8.87% for the EU(Hitz and Lehmann, 2018), so we reject H2a. Assuming this and previous analyses are comparable, *ISS* has not gained or possibly lost influence in Europe.

Second, we only apply the regression to compensation proposals (Equation 7). Here, we find a swaying power of 17.92%, which is tremendously higher than for all proposals, confirming H2b. Compensation decisions can steer companies' direction and, with this, are considered more critical (Sarhan and Al-Najjar, 2022). Dey et al. (2022) confirms the higher swaying power for compensation proposals and further values the finding, as it "encourages companies to communicate with shareholders and consider their concerns when making corporate decisions, including those on compensation policies" (Dey et al., 2022, p. 32). The impact of recommendation is material because a proposal that is passed with a shareholder dissent of 20-30% is already considered critical and causes changes such as an adjustment of the compensation policy in 70% of firms (Malenko and Shen, 2016, Ertimur et al., 2013). Hence, the high swaying power for compensation proposals is a relevant finding. However, Choi et al. (2009) points out that the high swaying power could also be explained by the fact that *ISS* use factors that are important for shareholders. This should also be relevant as institutional investors can rely on *ISS*' recommendations.

The third model, which refers to Equation 8, differentiates between the effect of companies for common-law and civil-law countries with ESG-based compensation. The overall preference for compensation plans with ESG goals seems stronger in civil-law countries than those with a common-law system. The interaction effect of *ESGComp* and *isCommon* is significant and negative, showing that in a common-law country, *ESGComp* only seems to increase a *For* recommendation by 0.68%, much lower than the 2.78% in civil-law countries. Possible reasons include the difference in culture, the impact of strict, pro-ESG regulation in the EU (e.g., Green Deal, EU Taxonomy), the different levels of legal protections of investors, and a potential difference in investment horizons. Hence, we can confirm H3b. ESG compensation is considered more positive for civil-law countries. Given the findings from Sauerwald et al. (2018) that PAs work more efficacious in market-based countries, our result extends the literature on the implications of compensation systems. This is also relevant since in civil-law countries, ESG activities are

more crucial (Ioannou and Serafeim, 2012), and hence, the ESG performance of a company also has a more significant impact on financial performance.

ESG Proposals

There are only 171 ESG proposals among the sample, 74 in 2020 and 97 in 2021. *ISS* voted in favor of all proposals (100%), receiving an average of 98.84% and a median of 99.96%. Provided the small sample and the regional concentration, because 89% of the proposals are from Spanish companies, we will not use these data points to derive any conclusions on ESG proposals[36].

4.4.2 Robustness Checks

In terms of fit of the model, we use the McFadden's pseudo-R^2 and the Nagelkerke pseudo-R^2 which differ in range. The latter pseudo-R^2 amounts to 0.18 in our model, whereas other papers result in ranges of 0.04-0.15 (Calluzzo and Kedia, 2021, Malenko and Shen, 2016, Daines et al., 2010, Ertimur et al., 2013). In addition to the logistic regression, we also calculated the percentage of correctly predicted observations. We find that 72.79% are correctly predicted. The Breusch-Pagan and White's tests are applied to check for heteroskedasticity and show no anomalies for the models. Hence, we cluster heteroskedasticity-resistant standard errors at the firm level (Equations 6-7).

The correlation versus causation problem is predominant in PA's literature because it is difficult to differentiate between them. So, for example, Choi et al. (2009), Ertimur et al. (2013) and Hitz and Lehmann (2018) and recognize that they lack the capability to effectively tackling these concerns. Malenko and Shen (2016) alter the research design and include a cut-off rule for *ISS*' guidelines, and find a swaying power of 25%, similar to 24.7 % of Ertimur et al. (2013). Thus, the findings can demonstrate a causal relation.

One assumes correlation if PAs predict shareholders' voting behavior based on a shared information set, such as a company's performance or governance issues (Hitz and Lehmann, 2015). By doing so, we can isolate the effect of PAs' recommendations on shareholder voting behavior, independent of any firm-specific factors that may be driving both variables. This helps to provide a

[36]Country distribution: Spain: 151; UK: 11; France: 3; Portugal and Switzerland: 2; Poland 1.

more accurate estimate of the relationship between PAs' recommendations and shareholder voting. Therefore, we follow Hitz and Lehmann (2015) and consider firm-fixed effects to control for firm characteristics such as governance (*GScore*), compensation (*ExecComp*), leverage (*Leverage*) and financial performance (*ROA, FiveYrCAGRDPS*). We alter the set of control variables and fixed effects (Equations 1-4) to ensure the validity of the models. Therefore, the model of Equation 4 even demonstrates a pseudo-R^2 of 0.74. Further, Hitz and Lehmann states that for general proposals, PAs "drive shifts in voting results" and describe the relationship between recommendations and outcomes as correlations (Hitz and Lehmann, 2015, p. 27). They postulate "that *ISS* recommendations appear to affect voting outcomes beyond pure correlation" (Hitz and Lehmann, 2015, p. 29). The results have limitations and do not ascertain causal inferences, and we cannot exclude the strength of correlation in this context. Overall, by controlling for firm-fixed effects, we minimize the potential bias caused by endogeneity and provide more robust results in the analysis. Hence, given the relatively high and stable R^2 in line with the relevant corporate voting literature, the results of the analyses are meaningful.

4.5 Discussion

In our analysis across all models, we find that the PAs' recommendations influence the final voting outcome at AGMs of investors despite some other statically significant variables the most. *ISS* recommendations consider company- and country-specific factors. Hence, they are regarded as valuable and reliable. It remains unclear to what extent institutional investors consume and follow recommendations (Ertimur et al., 2013). In the principal-agent setup (Eckstein, 2017), the quality of the recommendation is considered one of the key factors influencing a potential conflict between institutional investors and PAs. Hence, as *ISS* consider, e.g., profitability and leverage, this can be interpreted as a favorable indication that *ISS* weighs idiosyncratic aspects to maximize shareholder value, underlying a valuable collaboration and principal-agent setup and a higher likelihood that institutional investors will follow the PA's recommendation.

Given the fact that PAs recommend voting *For* on ESG proposals and "the financial materiality of much ESG information" (Johnson et al., 2019, p. 1362), PAs should pay more attention to ESG-related proposals and the abundance of information. Given that ESG proposals' impact can harm the company, they should be analyzed carefully. PAs themselves do not have a stake in the company and might, therefore, not consider the negative externalities with the desired severity. The affirmative attitude towards ESG attitude can be due to the pressure from clients of institutional investors in the feedback process or because the strong ESG investors dominate the discussion (Matsusaka and Shu, 2021). It remains open whether PAs promote proposals from companies with ESG-based compensation due to ideological bias of altruism or the belief in shareholder-value maximizing from it, which needs a qualitative analysis. The benefits of ESG-based compensation could be efficiency improvements, reputation, and marketing effects for customers and employees but also less regulatory risk (Flammer et al., 2019). Moreover, the consent to ESG can also echo the central premise of a long-term value-increasing pursuit by preceding some short-term money return in favor of ESG (Hart and Zingales, 2017). Our results show that the reliance of institutional investors on PAs' recommendations can also be seen as a convergence of ESG preferences for PAs and shareholders.

In sum, the interplay of ESG in business decisions and compensation is a complex debate. Voting practices by PAs need to consider ESG factors in decisions because, e.g., compensation policies

can influence managers' behavior and positively impact a company's ESG performance. However, it triggers the question for PAs whether financial key performance indicators (KPIs) should be subordinated to ESG criteria. Thus, PAs should be more accurate and transparent in their guidelines on ESG topics and need to consider the material impact of their recommendations. This leads to the question of whether proxy voting is symbolic and used by institutional investors to please external stakeholders or is used meaningfully (Bernard et al., 2022).

Given the high swaying power, PAs are considered vital information intermediaries, potentially even as standard setters on corporate governance issues. Despite the expected increase of swaying power in the EU compared to the US (Hitz and Lehmann, 2018), we find a reduction of swaying power in the EU, which is still on a level below the US (Calluzzo and Dudley, 2019). For general proposals, it amounts to 7.00% and 17.92% for compensation proposals. There are multiple alternative explanations for that, but one is the increase of market share by the biggest competitor of Glass-Lewis (Hitz and Lehmann, 2018). Once *Glass Lewis* enters the market, it puts *ISS* under pressure and increases *ISS*' likelihood to recommend *Against* (Li, 2018). Furthermore, the ongoing criticism from regulatory bodies and the public can trigger institutional investors to reduce their reliance on *ISS* and adjust PAs role to an "issue spotter" (Sarro, 2020). Even though we ruled out that PAs follow a standardized approach, more regulation, e.g., higher transparency on methodology, could improve the credibility of PAs' recommendation (Córcoles, 2016).

PAs' recommendations for compensation proposals have a higher swaying power than for general proposals. A reason for that is the attention and criticism of compensation. Compensation plans converge to a standardized structure primarily due to institutional pressure (Cabezon, 2020). Once established, this could lead to greater voting coherence and more agreement of institutional investors with *ISS*. Companies change their compensation policies after receiving low support for their management proposals. PAs' voting behavior also affects companies' governance decisions, especially for compensation (Copland et al., 2018).

Moreover, our results align with comparative corporate governance literature, which stresses that corporate mechanisms are more effective when aligned with the country-level institutional context (Aguilera and Jackson, 2003). Hence, our findings emphasize the role of PAs in civil law countries and their higher ESG sensitivity. We stress that shareholders' voting behavior depends

more on specific country-level contexts and local conditions (Bebchuk et al., 2013, Sauerwald et al., 2018).

4.6 Conclusion, Contribution, and Limitations

4.6.1 Conclusion

This paper sheds light on the economic role and the decision-making process of PAs for AGMs and their interplay with institutional investors. We demonstrate that shareholders use the work of information intermediaries, particularly PAs, whose recommendations also vary with institutional differences in three ways. First, we demonstrate that PAs do not follow a one-size-fits-all approach but instead use various company- and country-specific factors. Second, we show that voting results correlate with PAs' recommendations; this association is stronger for compensation. Third, institutional investors rely more on PAs' recommendations once a company has a compensation system containing ESG criteria, implying that ESG expands its importance in the corporate voting setup. Based on these findings, PAs play an essential role in how institutional investors participate at AGMs and in the EU.

4.6.2 Theoretical, Regulatory and Practical Implications

So far, few studies on corporate voting have focused on regions outside of the US (Koch et al., 2021, Ertimur et al., 2013). Yet, we add to the existing European literature stream (Hitz and Lehmann, 2018, Koch et al., 2021). By using an extensive, novel data set, we add to the small debate in the EU by confirming findings of Hitz and Lehmann (2018) that PAs play a significant role in voting outcomes and add to the literature on determinants of shareholder voting outcomes (e.g., Hitz and Lehmann, (2015)). PAs are economically relevant. However, we find the swaying power smaller for general proposals and larger for compensation proposals only. Similar to Cabezon (2020), higher dissent in compensation proposals is alarming, as it leads to compensation standardization with the risk of lower market value.

As researchers identified a range of several factors influencing the recommendation process, such as the level of pay (Ertimur et al., 2013), governance ratings (Daines et al., 2010), the influence of "busy season" (Calluzzo and Kedia, 2021), so far only a positive attitude of PAs towards ESG proposals is found (Matsusaka and Shu, 2021). We extend the literature on corporate sustainability (Bernard et al., 2022) thematically by identifying the critical role of integrating ESG criteria into compensation systems. We find this to be a significant factor in PAs' decision-making process of recommendations.

Based on our findings on the swaying power and the consideration of firm- and country-level factors, PAs' opinions are central determinants for the outcomes of European voting decisions and on the development of governance mechanisms as outlined by Hitz and Lehmann (2015). Regulators should pay close attention to protect shareholders' interests. Given the duopoly of *Glass Lewis* and *ISS*, the PA market embodies a relatively unregulated and critical market that needs vigilance and monitoring. In line with the growing amount of ETFs and, therefore, the even higher demand for PAs recommendation, this could be an issue that needs to be investigated more closely in the near future. Thus, this evidence of PAs' role in the EU is necessary for further policy discussions (European Securities and Markets Authority, 2012).

Moreover, the constant engagement of PAs with stakeholders is desirable. As PAs always recommend a *For* vote for ESG-related proposals, one could also either reduce the fiduciary duties of institutional investors, given the overall high *ISS* support, or increase PAs' accountability that PAs have to consider the risk of value destruction through material ESG-related proposals more thoroughly. Besides, the higher swaying power on compensation-related proposals and the latest convergence of compensation due to shareholders' influence show a dangerous tendency toward lower firm value (Cabezon, 2020).

Furthermore, the topic of ESG embodies higher potential, as there is little attention on ESG-related issues despite the high concern from legal commentators (Sharfman, 2020). As criticism by the regulators in the US is increasing and PAs are even accused of publishing misleading information by not following ESG-related commitments, the ESMA should closely watch PAs' commitments, improve requirements on transparency, and monitor their implementation.

Our findings on corporate voting have two practical implications for institutional investors and companies. First, institutional investors should rely on PAs' recommendations when a fund's strategic orientation and interests are aligned since some ESG favorable decisions embody a trade-off with shareholder maximization. Therefore, they should be vigilant and monitor whether their voting guidelines align with PAs' guidelines, e.g., due to annual changes, including current issues. Hence, high transparency of PAs' voting guidelines is needed for institutional investors to assess the congruence of their own and PAs' motives (Hoepner et al., 2016).

Second, provided the strong influence of PAs on voting outcomes, at companies that aim to receive a *For* recommendation, compensation systems should be linked to ESG-related goals to increase the likelihood of approvals on AGMs. Since compensation is relevant in influencing business decisions, it supports the signaling power when considering ESG. Due to the limited analysis of PAs' voting behavior towards ESG, we recommend considering various factors when formulating a recommendation since ESG decisions are also material to a company and should not simply be approved. As this is also more relevant in ESG-near countries, we recommend institutional investors follow a comply-or-explain approach in case of dissent with ESG-related proposals to still foster ESG throughout businesses (Chuah et al., 2019).

4.6.3 Limitations and Future Research

As outlined by several researchers and addressed by this paper, endogeneity concerns, meaning that shareholders consider a similar set of information as PAs in their decisions and the scope of information usage, cannot be ruled out (Choi et al., 2009, Ertimur et al., 2013, Hitz and Lehmann, 2018).

Further, we are only able to evaluate the linkage to the fact that companies' compensation systems contain ESG criteria. This research does not thoroughly analyze the factors that would encourage or impede the successful consideration of ESG matters for proxy voting (Bernard et al., 2022). However, we cannot access the exact share of the bonus incentivized by ESG, which could further increase our research significance (Bebchuk and Tallarita, 2022). Hence, the extent of usage of PAs recommendations in the EU and the perception of ESG by institutional investors would be beneficial to determine, especially as they bear companies' risk. We pose the

question for further research: Do institutional investors see the need for change? Qualitative research could explore the role of ESG in interviews with a broad range of stakeholders, from the NGO to the institutional investors and the PAs themselves (Bernard et al., 2022). Among the important stakeholders are institutional investors. So, the research focus could be on their role and needs, who, in the end, also bear the financial risk and discuss their opinion about ESG-based compensation (Heinen and Koch, 2018). Moreover, the dynamics of PAs' guidelines and the advancements in ESG demonstrate a promising future research topic where annual developments happen (Global, 2022).

Moreover, the heated debate on the financial impact of ESG-related proposals could be analyzed more thoroughly through the performance channel. Since research shows a mixed picture of the effects of ESG-based compensation on financial performance, it would be interesting to explore what happens to shareholder value in this setup. As such, further empirical analysis of the market effects of including ESG factors in compensation in the European context would be an interesting research field.

Regarding limitations, we rely on *ISS* data from the two sources from *ISS* and *Refinitiv*, the most critical PA done by most researchers. Still, for future research, including *Glass Lewis* and smaller local providers could also add insights, which was out of the scope of this study. Based on the study from Koch et al. (2021) focusing on a specific PA in Germany, given the individual customers' characteristics and country-specific effects, the key preferences could differ among countries (Ioannou and Serafeim, 2012). Hence, a differentiation along countries or (carbon-intense) industries helps identify specific patterns that could be compared to regions not explored so far in this PA context, such as Asia, particularly China.

5 | Conclusion

5.1 Summary of Main Results

The three presented essays shed light on incorporating ESG criteria into compensation systems and its impact on companies' ESG performance. While progress has been made, there is still room for improvement in fully integrating ESG into compensation practices. My findings also highlight the challenges and potential drawbacks of ESG-based compensation but underscore the potential benefits of incentivizing ESG compliance and promoting socially responsible practices. Regulation, like the NFRD, plays a role in driving ESG integration, but further efforts are needed. As laid out by Malmi and Brown (2008), compensation is a powerful part of the "Management control systems package" for symbolization but also as a steering instrument to counteract climate change, and compensation is more than the *pure amount*. Moreover, ESG criteria also significantly impact corporate voting, with PAs giving them significant weight in their recommendations, especially during compensation-related AGMs. Overall, these essays contribute to understanding the complexities and opportunities in aligning compensation with ESG goals.

In **Essay I**, a framework is developed to assess the extent of ESG integration across different levels of management. The framework identifies four archetypes: no ESG integration, selective ESG integration, considerable ESG integration, and elevated ESG integration. Most companies include ESG criteria in their short-term or long-term incentives but have not yet reached the recommended 30% ESG share. Public companies tend to have a more advanced level of ESG integration compared to private companies. However, there are downsides to integrating ESG

into compensation, such as the potential for companies to create an illusion of progress without substantial performance improvements. Additionally, excessive ESG integration can lead to trade-offs and a loss in productivity. Furthermore, it is uncertain whether PAs will enforce more stringent requirements on public corporations concerning ESG-related incentives, limitations, and benchmarks. Thus, I elaborate on the legitimacy theory of integrating ESG into compensation systems.

In **Essay II**, our findings show that the NFRD has led to improvements, increasing the number of companies with ESG criteria in their compensation systems. Incorporating ESG criteria in compensation practices plays a role in the influence of the NFRD on socially responsible practices among EU companies. The relationships between individual ESG indicators and scores reveal a fragmented picture of improving ESG performance. There is a negative trend for ESG and environmental scores, possibly due to benchmarking or the large German sample. Companies are investing in carbon reduction, leading to a negative relationship between carbon emission reduction and intensity. This exemplifies the positive steps companies are taking to reduce carbon emissions. The NFRD partially improves ESG performance, but future directives should have higher requirements. Specific requirements, industry-specific targets, and efficient monitoring mechanisms are needed. The European Commission plays a role in driving and standardizing ESG disclosure in EU-based companies.

In **Essay III**, we find that PAs' recommendations significantly influence voting outcomes at AGMs. PAs like *ISS* are considered reliable due to their consideration of company- and country-specific factors. However, the extent to which institutional investors follow these recommendations remains unclear. PAs should pay more attention to ESG proposals, as they can impact companies' practices and governance decisions and also destroy value. The reliance on PAs reflects a convergence of ESG preferences for PAs and shareholders. PAs need to be more accurate and transparent in their guidelines on ESG topics and consider the material impact of their recommendations to keep monitoring expenses low. The reduction in PAs' swaying power in the EU may be due to market competition and regulatory pressures. However, PAs play a significant role, especially in civil law countries with higher ESG sensitivity, as shareholders' voting behavior also depends on specific country-level contexts.

5.2 Limitations and Avenues for Future Research

As ESG-based compensation is central to this paper, it also has limitations: Currently, it is impossible to determine how much importance is given to ESG factors in the short- and long-term incentives of companies' compensation systems. Linking specific ESG goals in incentives to the actual results achieved or the level of detail provided continues to be challenging. This calls for further research to evaluate the composition and structure of ESG within compensation. Thus, studying the relationship between ESG in compensation and actual ESG performance provides a more nuanced understanding of the subject.

Essay I and II have partially similar limitations. For both essays, it would be interesting to alter the sample size. Essay I has a small sample size, given the nature of qualitative research, as it only includes a selection of public and private companies; it would be interesting to expand the sample to include a broader regional range instead of just Germany, such as Europe. Essay II has a specific sample of large, listed European (and US) firms and incomplete data on metrics like emissions. Some companies are excluded from the analysis because they report incomplete or unavailable past data. However, this may change soon in other EU countries due to increasing reporting obligations or adding other regional data sources. Incorporating ESG targets in compensation systems and the impact of international guidelines like the Sustainable Development Goals also require further research.

Second, ESG regulation and compensation systems constantly evolve, so a longitudinal study observing changes in regulations, procedures, and regional focus would be beneficial, as country-specific regulations and their effect on ESG requirements are not considered.

I consider the relationship between ESG criteria in compensation systems and actual results in different legal and regional contexts a promising field of research to extend the existing knowledge of the management control systems (Malmi and Brown, 2008). Furthermore, it is crucial to emphasize the tangible impact and outcomes to provide a balanced view and counter the claims of greenwashing. The perspective of firm size could be critical in considering how companies integrate ESG criteria, as the resources available for this purpose might vary considerably. Uncertainty remains about whether small companies can adopt comprehensive ESG integration

approaches like ESG-based compensation. However, small private companies have the advantage of not needing to constantly justify their actions to capital market investors, allowing them to implement more rigorous approaches.

Additional investigation can be conducted to address the constraints identified in Essays I and II by using different research methods to study the composition and impact of ESG on compensation. After the effects identified in Essay II, the successor of the NFRD, the CSRD, allows for analyses every three years to review the European Commission's standards. Most importantly, the new regulation broadens the scope of companies, allowing for a more differentiated analysis of various factors driving ESG-based compensation and ESG performance. This considers new developments, international standards, and a wider range of companies, providing a more comprehensive evaluation of their ESG performance.

Lastly, **Essay III** acknowledges the concern of endogeneity, where shareholders and proxy advisors may consider similar information (Choi et al., 2009, Ertimur et al., 2013, Hitz and Lehmann, 2018). It suggests that further research is needed to determine the extent of PAs recommendations' usage and institutional investors' perception of ESG. Additionally, one can only assess the connection between companies' compensation systems and the inclusion of ESG criteria. Also, in this essay, it is impossible to ascertain the specific proportion of compensation based on ESG criteria. The limitations of this study include relying on *ISS* data, which, however, is the most relevant PA in the EU. Further research is needed to thoroughly analyze the financial impact of ESG-related proposals and the effects of ESG-based compensation on shareholder value. Additionally, more research is required to understand the factors affecting proxy voting on ESG matters, including the usage of PAs' recommendations and institutional investors' perception of ESG. The role and opinions of institutional investors on ESG-based compensation should also be explored, as well as the dynamics of PAs' guidelines and advancements in ESG.

A potential research opportunity could embody the analysis of *Integrated reporting*, as it combines financial and non-financial information in a comprehensive report. Enhanced manager compensation incentives can drive managers to allocate more effort towards producing quality integrated reporting, which, in turn, can boost the company's market value. It is best practice in ESG reporting, and such a report also provides a holistic view, helping stakeholders make

informed decisions. Thus, one could explore the interconnectedness and effects of ESG-based compensation more closely.

5.3 Concluding Remarks

This dissertation significantly contributes to the literature on ESG from different perspectives. The three essays cover diverse topics, contributing to several distinct streams of literature: ESG-based compensation and its effects on ESG performance, determinants of pay, consequences of disclosure, and corporate voting. Overall, the findings enhance the understanding of the role of ESG criteria in compensation, benefiting various stakeholders such as corporate decision-makers, shareholders, PAs, and policymakers.

This dissertation is distinctive due to its utilization of three complementary research methods. Each method has its benefits and limitations. The qualitative approach is suitable for describing the status quo and finding reasons for observations, but it may not work well for large samples (Essay I). The DiD design allows for cause and effect analysis but simplifies the real world (Essay II). The quantitative approach is best for identifying significant effects and general relationships, but it may be challenging to explain specific observations (Essay III). Despite their differences, all three methods confirm the importance of considering ESG in compensation in different setups.

Based on the dissertation's findings, it is evident that ESG criteria will continue to accelerate and augment its significance in compensation. In fact, given the current natural disasters and climate change discussions, ESG criteria will likely be fully integrated into compensation, irrespective of the size of the companies. They might be considered as important as financial performance KPIs.

Returning to the example of ABB mentioned earlier, the company's initial introduction serves as a relevant case study in this context. The case of *ABB* highlights the need for integrating not only environmental and social but also governance metrics into executive compensation practices to strengthen internal governance and overall ESG performance. The recent bribery allegations have shown that even ESG-responsible companies may have blind spots and need ongoing monitoring and evaluation. Incorporating all aspects of ESG, including governance,

is crucial in designing effective compensation systems. ESG integration in compensation is a continuing process that requires continuous improvement and adaptation.

With Essay I, I can confirm that *ABB* and numerous companies recognize and address the importance of ESG criteria in compensation. However, many of these companies still need to do more to meet external pressures, as highlighted in the analysis in Essays I and II. Additionally, the increasing regulatory changes further emphasize the need for companies to intensify their ESG activities. While it may be tempting for companies to emphasize integrating ESG into compensation less, this will not pay off in the longer term, as Essay II proves. In reality, these companies still need advancements, and they could greatly benefit from assistance in improving their ESG integration to improve employees' credibility and the company's ESG performance. Thus, companies with active participation from institutional investors in their AGMs can also benefit from focusing on ESG criteria. These factors can significantly enhance the appeal and desirability of these companies and keep monitoring expenses low (Essay III). Transforming a company's ESG performance from bad to good requires significant effort and time, potentially taking years. However, all companies are essential for the overall transformation of the economy in its decarbonization path, not just in specific industries. In conclusion, integrating ESG into compensation is a complex challenge that affects both ESG pioneers and ESG followers.

Appendix

Appendix to Essay I

Interview guide

Guideline of interviews

- **Objective of interview**: Understand the level of integration of ESG factors into compensation schemes from CEO to employees
- **Interview structure**
  - Introduction of the researcher, including academic background, practical experience, research interest, and objectives of the interview as well as interview operations (recording, anonymity)
  - Introduction of interviewee including academic background, practical experience, experience within the designated department including relation to ESG
  - Perception of ESG and its role within the company
  - Explanation of general compensation scheme and KPIs
  - Description of the role of ESG in compensation
  - Goal setting process
  - Monitoring and quantification of ESG-related goals
  - Assessment of current compensation scheme

Detailed interview guideline

Perception of ESG and sustainability within the company

- Where is your organizational unit located within the organization? Who is your responsible person on the executive board?
- How do you assess the perception of ESG within your company?
- What is the focus of the ESG strategy of your company in your words?
- What role does ESG generally play in terms of compensation? What has changed in recent years?

General compensation scheme and KPIs

- For the compensation of C-level-management, middle manager, and employees – which general components do you consider in your company?
- What are the relevant key performance indicators? How do you differentiate them for different levels?
- For the annual and multiyear bonus, what are the relevant indicators?
- What role does ESG compensation play in the short or long-term components?
- What have KPIs changed and why (e.g., any events, regulatory shifts)? What do you consider the biggest trigger for you?
- Do you differentiate the KPIs for different departments?

Description of the role of ESG in compensation

- For the C-management board: What are your ESG-/ CSR/ sustainability score factors? How do you weigh them? (e.g., only E, S, or G)?
- Do you directly link the ESG compensation goals to your ESG strategy?
- When talking explicitly about ESG in KPIs–do you also consider soft/ qualitative factors?
- Within the executive management board, are there any differences between CEO and CFO, etc.?

Goal setting process

- Who runs/ decides the coordination process, and how are KPIs defined?
- Usually, there are some conflicts between short-term and long-term goals. How do you handle them? Who decides?
- What role does the executive management scheme play for the level below?

Monitoring and quantification of ESG-related goals

- How do you monitor any ESG goals?
- Could you please describe how the managers perceived the integration? Was there any difference between C-, senior, and middle managers?
- From dialogues, do people feel they act "more green/ sustainable"?
- Is there also any feedback loop?
- Apart from compensation, do you set any incentives for your employees, e.g., sale of green products, incentives for car deals/ no car deals?

Assessment of the current compensation scheme

- How do you assess your system's current status and strengths and weaknesses?
- From your point of view, how is the ESG strategy currently reflected in your compensation schemes? Does it have the same focus?
- How do you assess your own company compared to industry peers? Is there any company you consider a role model in terms of integration?
- What are your plans to adjust your compensation scheme and factors in the next couple of years?

Data structure of Essay I for Compensation, Governance, and ESG

FIGURE A.1: Data Structure I/II

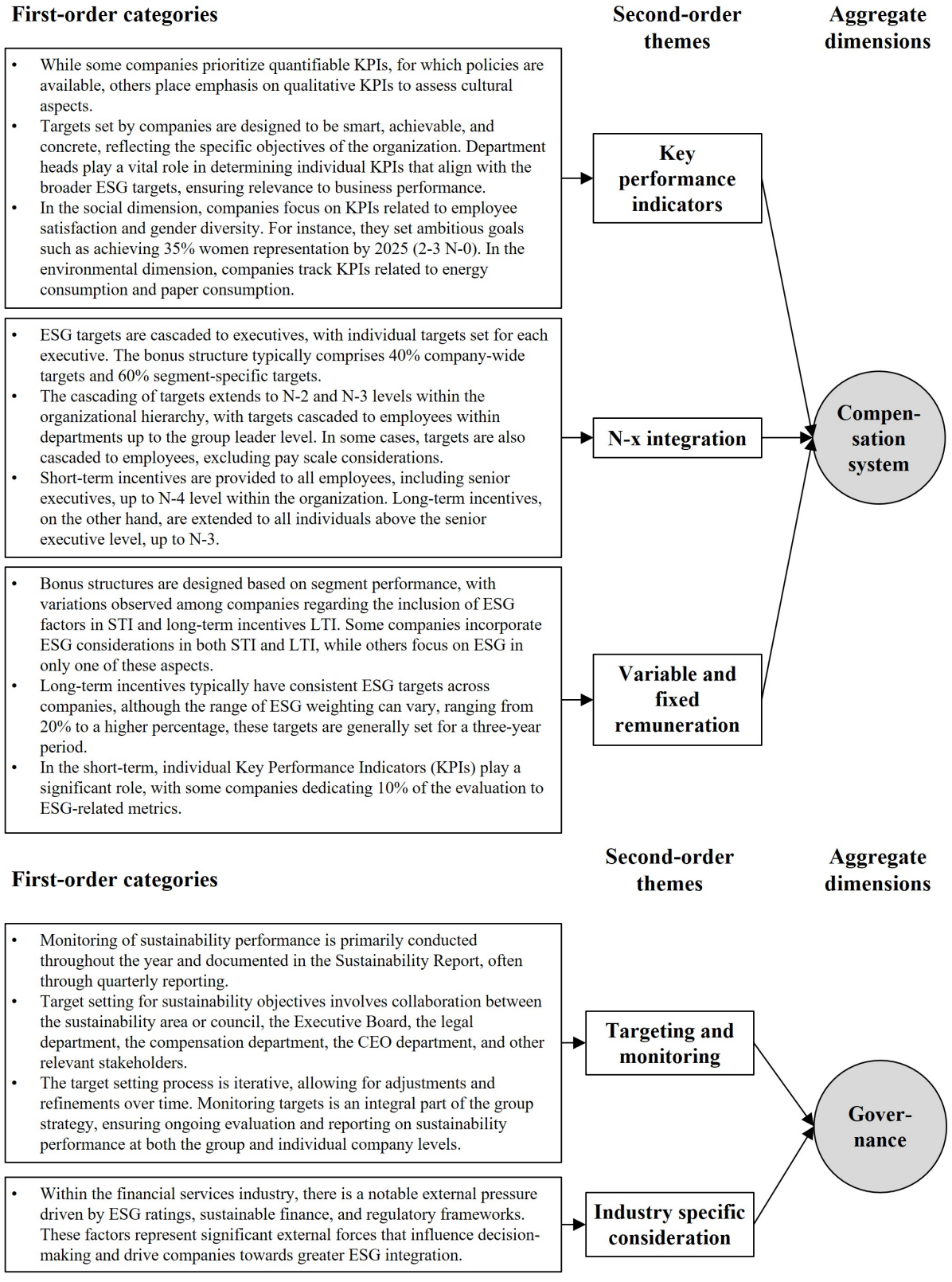


FIGURE A.2: Data Structure II/II

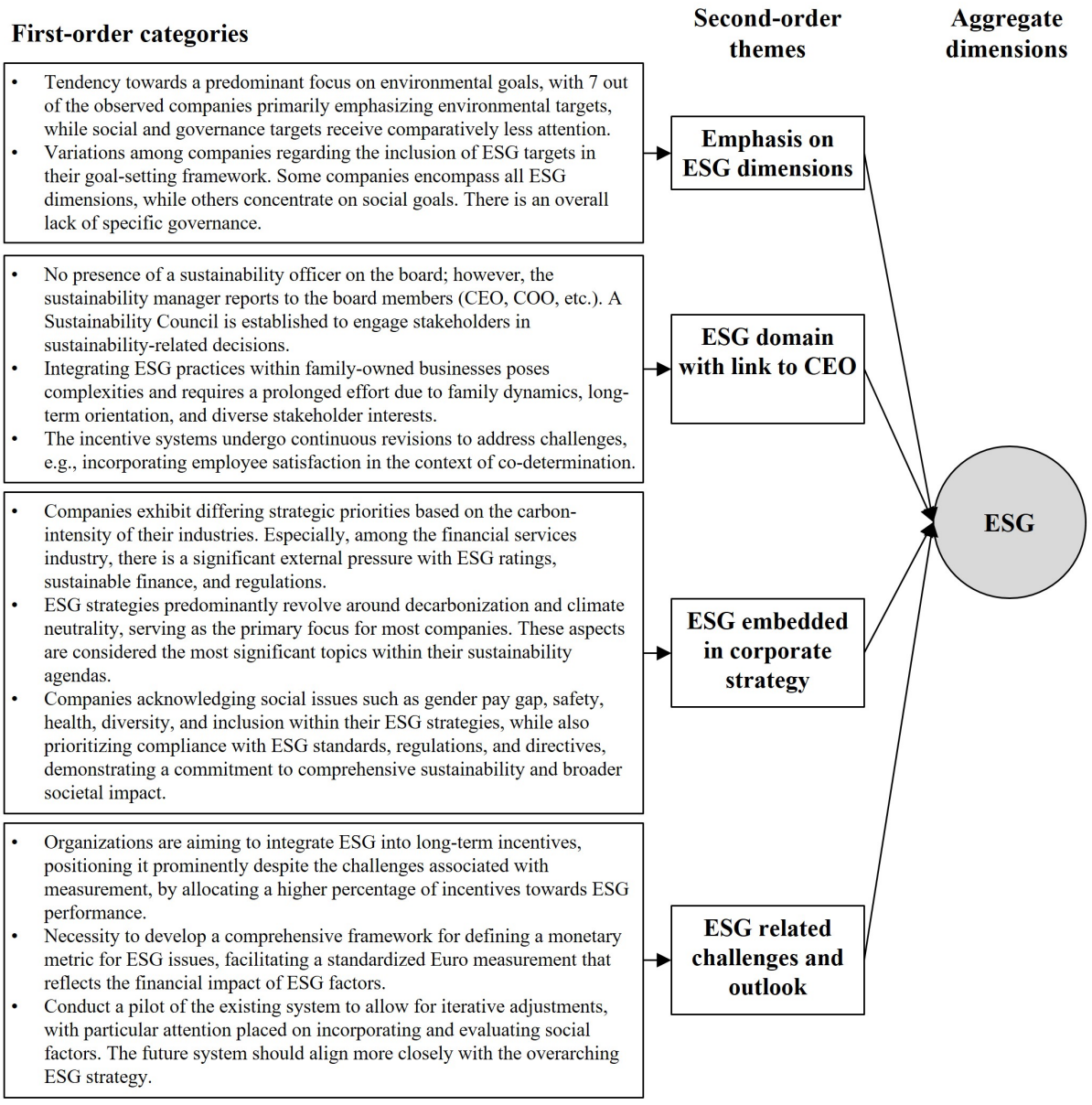


FIGURE A.3: Overview of codes I/II

Aggregate dimension: Compensation system	
2nd-order codes	**Selected evidence on 1st-order codes**
Key performance indicators	"Yeah, exactly. So the group and the team, they are mainly quantitative targets. When it comes to the individual, this is indeed, as you rightly said, it's more qualitative actually, because it's also, we describe the role ambition." (Public 13) "And the and within this variable part are just 50% are incentivized according to personal goals. That means there can be goals with an ESG character, but it doesn't have to be." (Private 11) "Overview of qualitative criteria - that's what we call them. So the 4 dimensions are customer satisfaction. Or advertised continuation of customer satisfaction at a high level. Then sustainability: anchoring sustainability in the DNA of the bank. Integrity: maintaining integrity 25%. And conversion of business models: progress in implementation also 25%. And that is then carried out." (Public 3)
N-x integration	"No, they are indeed individually different, depending on which department you are in. So in HR there are certainly different goals than now in finance, for example." (Private 14) "So the just N minus wouldn't always work, so I would actually say that it's N -3 roughly." (Public 10) "So the Long Term Incentive and the Short Term Incentive usually goes down to L-4 yes or L4." (Public 9)
Variable and fixed remuneration	"Yes, the variables are indeed considered under the purview of the management team, with a performance factor that incorporates several qualitative aspects. This performance factor is then used to further adjust the variable compensation, multiplying it by a factor between 0.9 and 1.1. These qualitative points are taken into account and factored into the final determination of variable compensation." (Private 15) "So we don't have any payments in between, but there is always an allocation, i.e. allocations take place annually and the payment is always made after 4 years, i.e. in the fifth year." (Public 10)

Aggregate dimension: Governance	
2nd-order codes	**Selected evidence on 1st-order codes**
Targeting and monitoring	"The objective was typically to define the guidelines top-down through the management team (What do we want to achieve?). However, in practice, the process within the company heavily relies on a dialogue format, where stakeholders collectively examine and identify the relevant topics." (Private 15) "So it works in such a way that we all have to report every quarter on where we stand with these goals in this scorecard and then let's say five weeks in advance I then contact those who manage the relevant sub-projects, and now Responsible Innovation, for example , we said." (Private 8) "So now we're basically going to do quarterly reporting, because it doesn't make any sense to report monthly, because the measurement systems for sustainability aren't nearly as elaborate as they were for hundreds of years, or how long has accounting been around, 200 years or what - no idea." (Public 6)
Industry specific consideration	"Let's put it this way, I think it's a trio for everyone, that's the whole issue of regulation. Of course we have to, this is also not an optional topic, but a must-subject, i.e. the ECB stress test next year, the whole implementation of the EU taxonomy in reporting, the Disclosure Regulation and so on...." (Private 4) "We have given the whole thing a weighting and now for the Long Term Award the issue of governance is actually still the most important at the moment. So what makes up 50% and the other 50% is divided between the topic of sustainable finance and social aspects." (Public 2)

FIGURE A.4: Overview of codes II/II

Aggregate dimension: ESG	
2nd-order codes	**Selected evidence on 1st-order codes**
Emphasis on ESG dimension	"We just have a score card, a sustainability score card, so that this score card is ultimately taken into account in all departments." (Public 10) "So the biggest focus so far is the issue of sustainability in the sense of sustainable business management and then also the climate goals." (Public 3) "And yes, we have, we don't say 20% or 33% E, 33% S, 33% G, but we simply say what are the key issues for us at the moment and what do we want to achieve? And then we discuss it and propose something and then the board decides about it." (Public 9)
ESG domain with link to CEO	"So we report into the CHRO and also our sustainability office." (Public 13) "I lead a responsibility board, where members of the board and board minus 1 participate, so to speak. And we have agreed on these goals together." (Private 8) "We have a specialist committee for sustainability, a Corporate Social Responsibility steering committee, which is also headed by the management. Well, there are also department heads there, HR for example." (Private 7)
ESG embedded in corporate strategy	"As mentioned, we have a climate strategy for 2030, where the overarching goal is to reduce CO2 emissions throughout the company. This strategy has implications for various aspects, including our fleet of company cars, in which I am involved from a professional standpoint." (Private 14) "Of course, we have interactions in almost all markets and we just want to make sure that from the point of view of sustainability, corporate social responsibility is also taken care of along the entire value chain, but also along the entire supplier chain." (Public 5) "Sustainability, gender-fair payment are becoming more and more important, and the requirements come from the CEO Office, because they have also become stronger at the European regulatory level, this requirement that we incorporate elements." (Public 3)
Outlook and implementation challenges toward ESG	"At our company, we have a Long-Term Incentive (LTI) program that extends to over three years, specifically focusing on a three-year time frame." (Private 15) "Yeah, at the moment that's what I'm trying to say, the integration of ESG targets is not done in a broad level. It is done let's say on a case by case level, if you may say." (Public 13) "Yes, I think that goes well with our culture at the moment, no. But I also believe that there will be further development and, for example, at the moment 20% of ESG is dependent on the long-term incentive, and I can well imagine that this will continue to increase." (Public 9) "Yes, exactly, and bringing that together more closely makes sense. Because it was always clear to me: in sustainability, if I really want to make a difference, I have to convert the currency, I have to convert the CO2 into euros." (Public 6)

Remaining case presentations

Public-2. This company is part of the financial industry and publishes specific ESG targets, stating the expected impact, mostly suggested by the company's sustainability committee or council. Public-2 has set a company-specific ambitious goal for sustainable investments and financial operations. Besides, there is a broad set of initiatives for the reduction of energy consumption (E), improvements in gender diversity and employee satisfaction (S), and industry-specific regulatory topics (G). Besides, the company considers climate risk management and ESG ratings in business decisions. For 2021, a new compensation scheme for the bonus components is introduced: In the STI, the biggest consideration is on segment-specific KPIs (50%), but also ESG-specific KPIs based on a segment-specific Balanced Score Card (25%), summing up to possible ESG-based 75% depending on the segment-specific goals. Whereas for the LTI, common ESG KPIs (33%) are important, the remaining share is determined by financial performance. 'Through our engagement in climate protection, it was clear that they wanted to link remuneration with the topic. Also, by looking at the benchmark, we identified that this will now be a critical topic by creating a strong link here to the financial results for the board members.' Currently, there is a focus on the G component (50%); also, due to high regulatory standards, social and environmental aspects equally embody the rest. The ESG-target-setting team manages and monitors the HR process based on collaboration with the Sustainability Council and the dedicated business teams. Depending on the business unit, goals differ and are cascaded from management board member to manager (until n-3). The company is confident about the current scheme in the future: "We want to set more ambitious target values and ensure that the ESG strategy reflects the development in our ESG matrices, such as climate risk management and sustainable supply chain."

Public-3. Public-3 is also part of the financial industry and publishes several non-financial reports with concrete ESG targets, such as Net Zero. According to the company, high regulatory compensation standards are only relevant because "remuneration was seen as one of the main levers for triggering the financial crisis because wrong incentives were given and short-term success was prioritized." "Sustainability is becoming increasingly important in compensation, but this is always a question of capacities." For Public-3, ESG is becoming a "must"- and

not a "can"-topic and considers itself in the beginner state. The company focuses on climate neutrality (E) and reducing the gender pay gap (S). Currently, the short-term bonus, applicable to everyone above non-tariff employees, consists of 40% company targets and 60% segment targets - this sum is then multiplied by a factor. This factor is equally based on a sustainability factor (ESG ratings (50%) and a qualitative assessment by the management board (50%, only E), customer satisfaction, integrity, and development of business models.[37] The LTI for the management board is mostly driven by the company performance (70%), segment-specific results (such as the sustainability strategy for a segment) count for 30%, and can contain quantitative and qualitative KPIs. The HR unit assesses goals whether they are "smart, concrete, and achievable" and works closely with the CEO's office and the legal department. Based on the experience in financial hard times, it is "difficult to determine for qualitative targets that they were extremely underperformed, also as they might be evaluated by analysts from outside." The company postulates, 'It's a bit of green-washing, I think it's maybe a bit more. But it's not really in the heart of the company's DNA yet.' However, for Public-3, it is important to have the employees' acceptance, which only allows small changes.

Private-4. This private company in the financial industry focuses on medium-sized clients and has a regional focus within Germany. ESG is part of the company's DNA, incorporated in various products. The ESG department directly reports to the CEO. For the company's steering, a company-specific "Balanced Score Card" is relevant for each department with different KPIs - one of the strategic directions is sustainability. There are common and department-specific quantitative KPIs (e.g., paper usage, women in leadership) that contribute to 50% of the STI; the remaining half is based on company performance. Only quantitative KPIs are used because the group strategy rejected qualitative KPIs. Department-specific goals are cascaded until the group leader based on the Balanced Score Card, complemented by individual target agreements. Corporate strategy is responsible for the target-setting and monitoring process with the corresponding department. "For us, sustainability is still a journey." However, one aims to assign a specific percentage to each (ESG) target in the future, but "we always have a lack between the strategy formulation and integration into Balanced Score Card."

[37] The only difference for the scheme of the management board is individual sustainable targets instead of the assessment (only E).

Public-6. Similar to Public-5, this company produces and distributes chemicals globally. According to the company, there is much ESG improvement potential along the value chain, such as environmental protection. The unit of ESG directly reports to the CEO and considers itself as a "conductor to provide impulses to other departments." Only the short-term incentive currently contains quantifiable environmental components, an individual performance multiplier based on a Sustainability Score Card. The company desires to change that to nine equally distributed targets along E, S, and G but needs consistent data availability. From their experience, "it is more important to specify targets and discuss them to create an impact for the fulfillment." Currently, the company plans to connect the LTI to the company's ESG performance based on the mid-term strategy. There are quantitative (focus) and qualitative (e.g., policy developed and approved) targets - suggested by the sustainability unit.

Private-8. The company is a leading global supplier of technology and services with several divisions, such as transportation and construction. The company's vision contains sustainability and social aspects, underlined by the accomplished achievement of a CO2-neutral business (Scope 1 and Scope 2 emissions). Some years ago, the decision was top-down; a corporate social responsibility council and the management set other initiatives. However, ESG does not play a substantial role in the compensation. Short-term bonuses, offered until team leaders, only contain quantifiable KPIs based on financial performance. A long-term bonus only for the management board is also determined by economic performance only. Based on the company's experience, there is a price markup once a company pursues a sustainable strategy. Therefore, ESG plays a significant role, but according to the company's statement, it is "not necessary to integrate them into our compensation scheme," which is also not planned shortly. "Because we are not listed as a private company, we have fewer incentives because ESG criteria are not reflected in the share price. ESG goals are still important to us, but we have fewer publication requirements, so we have no incentive to integrate." To conclude, the company states, "We are a very sustainable company, but we can do business sustainably without using ESG in compensation."

Public-9. This company is a global player in energy supply and solutions. Decarbonization is crucial for the company - sustainability is especially relevant for creating new products. Based on the annual fundamental analysis, decarbonization (E) has the highest priority, followed by

health, safety, diversity, and inclusion (S). The company annually defines a concrete sustainability strategic road map. The STI, for all employees above the tariff agreement (n-4), is determined by changing annual topics: Recently, 50% are health practices due to COVID-19, safety at work, and ESG achievements (focus on S). The other half are targets, chosen by the management board and the n-1 manager per each business unit, audited by an external auditor. The LTI, applicable to all managers above the tariff agreement (n-3), consists of 20% environmental components (e.g., the realization of climate disclosure, this year's CO2 emissions). "Here, we have a strong sense of togetherness! We decide our targets based on our ESG priorities and focus on implementing these small targets: decarbonization and improving workplace safety." All targets are quantifiable; however, some have a qualitative character (achievement of health policies). The sustainability unit is relevant in target setting and the quarterly monitoring process.

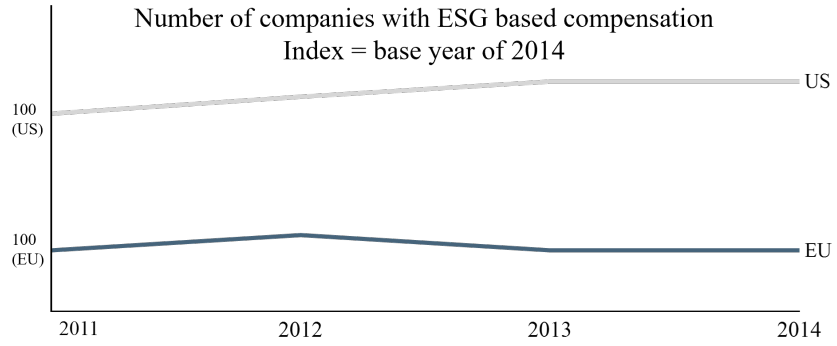
Public-10. The company is an automotive supplier and aims to achieve carbon neutrality along the value chain. Circular economy and emission-free mobility are central ESG topics for the company, integrated into the company-wide Sustainability Scorecard. The compensation system applies to all (senior) executives worldwide, depending on the level. On the one hand, the STI for each employee is based on individual performance, has an individual multiplier, and can contain ESG aspects, e.g., customer orientation. On the other hand, the LTI is based on common targets for the management board - thereof, the multiplier is defined as 50% by the sustainability score. These criteria are based on a Sustainability Score Card and do not change; only the value of targets (quantitative) differs, determined by the sustainability unit, and are externally audited. "For us, acceptance among employees is crucial because then we might be able to publish externally. We pushed that forward, but the workforce didn't accept it in the end, which doesn't help us as a company."

Private-11. The company is a privately held producer of agricultural vehicles for harvesting. Sustainability is part of product innovation and is currently the company's highest priority. The company offers an STI to employees, which can up to 50% consist of ESG components in individual targets with a focus on E and S components (e.g., emissions, safety at work). For Private-11, KPIs should be quantitative "to avoid randomness." "Such severe changes within the compensation scheme need extended time for family companies."

Private-14. Private-14 offers consumer goods focusing on design and production. Sustainability is crucial in production (materials usage, energy efficiency, disposal of products). Still, the company describes itself as "behind" and currently identifies the prospective topics (supply chain, compliance, circularity). Even though CO2 emissions have been measured for a while, the company did not set or publish reduction targets. The company has an STI only, determined solely by the profitability of the company. ESG targets are not included yet. However, the company aims to integrate and cascade them to the whole management team. "One of the owners also supports the ESG aspects. The change is not so easy. Which goals should we pick? How do we determine them?" The biggest concern is the accusation of "Green-washing," but the sustainability unit diligently prepares the potential integration for the next years.

Appendix to Essay II

FIGURE A.5: Graph of Number of Companies with ESG-based Compensation



Notes: This Figure shows the indexed development of the number of companies with ESG-based compensation for testing the parallel trends assumption.

TABLE A.1: Variables Description I/II

Variable	**Description**
Key variable for DiD	
ESG-based compensation	Indicator of extra-financial performance-oriented compensation policy for executives (CEO, executive directors, non-board executives, other management functions) based on ESG components 1 if extra-financial remuneration in place and 0 otherwise
Firm Characteristics	
TotalAssets	Log of total assets reported by the company
ROA	Net income available to common shareholders divided by the total assets for the same period
Leverage	Total liabilities divided by total assets
Tobin's Q	Company market value divided by book value
ESG Variables I	
ESG Combined Score	Score based on the reported information in the environmental, social, and corporate governance pillars with an ESG Controversies overlay
Environmental Score	Score measuring the company's impact on living and non-living natural systems, including air, land, and water, as well as complete ecosystems
CO_2Total	Total Carbon dioxide (CO_2) and CO_2 equivalents direct (scope 1) and indirect (scope 2) emission
CO_2Total/ Revenue	Total Carbon dioxide (CO_2) and CO_2 equivalents direct (scope 1) and indirect (scope 2) emission in tonnes divided by revenues
Waste	Log of total waste in tonnes produced by company per year
Social Score	Score measuring the company's capacity to generate trust and loyalty with its workforce, customers, and society through its use of best management practices
Governance Score	Score measuring the company's systems and processes, which ensure that its board members and executives act in the best interests of its long-term shareholders
Human Rights Score	Human rights category score measuring a company's effectiveness towards respecting the fundamental human rights conventions
Board Gender Diversity	The percentage of female board members

Table A.2: Variables Description II/II

Variable	**Description**
Covariates	
CSR Committee	The dichotomous variable is equal to unity if the company has a CSR committee or team and zero otherwise.
CSR Reporting	The dichotomous variable is equal to unity if the company reports its CSR initiatives and zero otherwise.
Total Assets	Natural logarithm of total assets of a company
Net Sales	Natural logarithm of net sales of a company
ROA	Net income divided by total assets
ROE	Net income divided by total equity
Tobin's Q	Natural logarithm of the market value of assets divided by replacement value of assets
MtB	Natural logarithm of market value divided by the book value per share
Asset Turnover	Ratio of net sales or revenue generated per average total assets
PPE	Net percentage of plant, property, and equipment tangible assets scaled by total assets
Debt to Assets	Ratio of total debt to total assets
Debt to Equity	Ratio of total debt to total shareholders' equity
Free Float	Natural logarithm of free float as a percentage of total shares
R&D	Total amount of expenses dedicated to research and development

Table A.3: Year Distribution for Panel A and B by Treatment

Panel A and B: Sample distribution by the year 2011-2021								
Year	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Panel A								
Treated firms	239	239	239	239	239	239	239	239
Not treated firms	435	435	435	435	435	435	435	435
Panel B								
Treated firms	112	112	112	112	112	112	112	112
Not treated firms	127	127	127	127	127	127	127	127
Year	**2019**	**2020**	**2021**	**Total**				
Panel A								
Treated firms	239	239	239	***2,629***				
Not treated firms	435	435	435	***4,785***				
Panel B								
Treated firms	112	112	n/a	***1,120***				
Not treated firms	127	127	n/a	***1,270***				

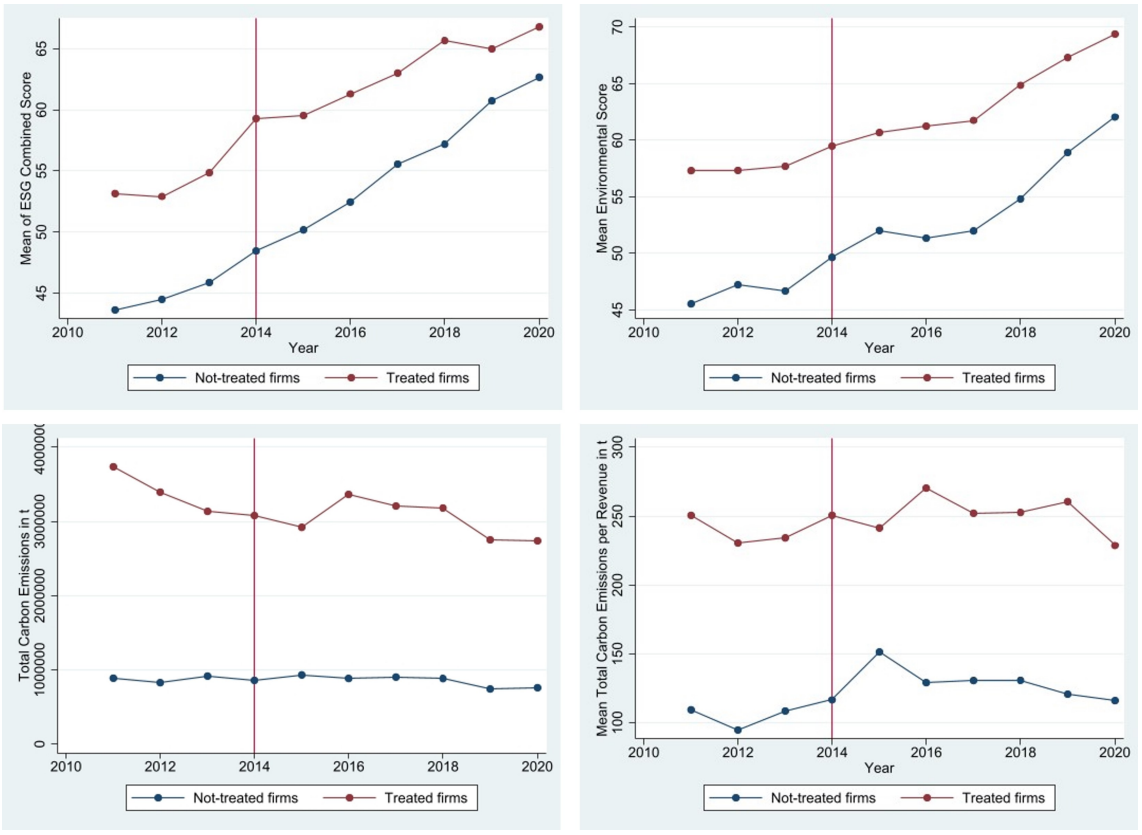
Notes: This table shows the descriptive statistics for the Panel distribution for both analyses.

Table A.4: Correlation Matrix for Panel A

Variables	**PolExC.**	**Log Assets**	**ROA**	**Leverage**	**Tob.Q**	**CSR Comm.**	**CSR Rep.**
Policy ExecComp.	1						
Log Assets	0.182*	1					
	0						
ROA	-0.037*	-0.308*	1				
	-0.002	0					
Leverage	0.036*	0.009	0.013	1			
	-0.002	-0.415	-0.309				
Tobin's Q	0.032*	-0.142*	0.289*	-0.003	1		
	-0.006	0	0	-0.811			
CSR	0.253*	0.245*	-0.081*	0.022	-0.021	1	
Comm.	0	0	0	-0.063	-0.065		
CSR Rep.	0.200*	0.188*	-0.063*	0.022	-0.044*	0.523*	1
	0	0	0	-0.066	0	0	

Notes: Correlation matrix for Panel A (* shows significance at p<.05).

FIGURE A.6: Graph of Relevant Variables



Notes: This Figure shows the development of the ESG and the environmental score as well as carbon emissions and intensity for testing the parallel trends assumption.

TABLE A.5: Descriptive Statistics for Panel A I

	EU before NFRD				**EU after NFRD**			
	Mean	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
PolExecC.	0.03	0.17	0.00	1.00	0.39	0.49	0.00	1.00
Log Assets	22.61	1.94	19.37	27.94	22.94	1.90	19.37	27.94
ROA	6.64	6.03	-6.44	29.52	6.06	5.90	-6.44	29.52
Leverage	103.22	157.59	0.00	1182.89	104.21	151.88	0.00	1182.89
Tobin's Q	1.39	1.25	0.06	10.81	1.50	1.41	0.06	10.81
CSR Comm.	0.67	0.47	0.00	1.00	0.78	0.42	0.00	1.00
CSR Report.	0.82	0.39	0.00	1.00	0.96	0.19	0.00	1.00

Notes: Descriptive Statistics for Panel A: Comparison of EU firms before and after NFRD

TABLE A.6: Descriptive Statistics for Panel A II

	US before NFRD				**US after NFRD**			
	Mean	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
PolExecC.	0.35	0.48	0.00	1.00	0.47	0.50	0.00	1.00
Log Assets	23.09	1.61	19.37	27.94	23.74	1.40	19.37	27.94
ROA	7.81	6.29	-6.44	29.52	8.32	6.79	-6.44	29.52
Leverage	111.00	169.42	0.00	1182.89	130.88	186.46	0.00	1182.89
Tobin's Q	2.17	1.97	0.06	10.81	2.29	2.09	0.06	10.81
CSR Comm.	0.61	0.49	0.00	1.00	0.69	0.46	0.00	1.00
CSR Report.	0.56	0.50	0.00	1.00	0.77	0.42	0.00	1.00

Notes: Descriptive Statistics for Panel A: Comparison of US firms before and after NFRD

Table A.7: Descriptive Statistics for Panel B I

	Treated firms (N=1,120)					*Not-treated firms (N=1,270)*				
Variables	*N*	*Mean*	*SD*	*Min*	*Max*	*N*	*Mean*	*SD*	*Min*	*Max*
ESG Performance										
ESG Combined Score	1,120	58.49	15.77	1.02	90.36	1,268	50.16	17.61	0.63	91.74
Environmental Score	1,120	60.43	24.09	0	97.30	1,268	50.31	24.89	0	99.05
Total CO2 Emissions	994	3620540	9883231	227	7.94e+07	1,002	878995	2078104	79.9	1.52e+07
Total CO2 Emissions per Revenue	994	279.13	723.07	0.012	6765.556	1,002	121.099	275.688	0.053	2594.73
Social Score	1,120	64.79	19.88	1.23	98.13	1,268	54.56	22.74	0.43	97.37
Human Rights Score	1,120	56.07	34.08	0	99.31	1,268	43.48	35.99	0	99.53
Governance Score	1,120	56.13	20.46	1.77	96.19	1,268	47.97	20.98	0.87	95.46
Board Gender Diversity	1,114	25.33	12.82	0	63.64	1,268	23.36	13.32	0	75
ESG Governance										
Committee	1,120	0.818	0.386	0	1	1,268	0.64	0.48	0	1
Reporting	1,120	0.954	0.211	0	1	1,268	0.859	0.348	0	1
Firm Characteristics										
Log(Total Assets)	1,118	22.882	1.813	19.427	28.232	1,261	22.869	1.995	19.26	28.232
ROA	919	6.159	5.747	-7.72	30.787	988	6.059	5.756	-7.72	30.787
Log(Tobin's Q)	1,104	0.155	0.73	-2.226	1.926	1,257	-0.023	0.792	-2.226	1.926
Asset Turnover	1,116	0.805	0.524	0.014	2.962	1,258	0.819	0.606	0.014	2.962
PPE	1,113	24.314	19.704	0.065	79.412	1,263	20.245	19.625	0.065	79.509
Total Debt to Total Assets	1,089	26.522	16.4	0	91.626	1,240	21.792	16.153	0	91.626
Log(FreeFloat)	1,120	4.297	0.371	2.47	4.605	1,260	4.169	0.445	2.47	4.605

Notes: Descriptive Statistics for Panel B: All variables are defined in the appendix. To smooth large outliers, all continuous variables are winsorized at the 1% (99%) level. As indicated, some observations are based on a smaller sample due to data availability. The overview contains alternative firm-level covariates.

Table A.8: Empirical Results A.2

	Carbon intense industries	**Less carbon intense industries**	**High ESG partition**	**Low ESG partition**
	(1)	*(2)*	*(3)*	*(4)*
After x EU	**0.93**	**0.40**	**8.08*** **	**0.05**
	(1.45)	**(0.87)**	**(11.24)**	**(0.10)**
Control	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No
N	1,062	1,734	3,770	1,748
Adj. R-squared	0.59	0.59	0.23	0.60

Notes: Empirical results A.2: This table shows results based on the differentiation into industries and ESG partition. The dependent variable is the ESG-based compensation policy. Control corresponds to the Log of total assets, ROA, leverage, Tobin‘s Q, CSR Committee, and CSR Reporting. T-statistics are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table A.9: Empirical Results A.3

	Timing Approach: Coefficient	**Timing Approach: Odds ratio**
	(1)	*(2)*
Year - 4	-2.95*** (-5.29)	0.052*** (-5.29)
Year - 3	-6.156*** (-4.79)	0.002*** (-4.79)
Year - 2	-1.69*** (-4.09)	0.19*** (-4.09)
Year - 1	-1.06*** (-2.73)	0.35*** (-2.73)
Year + 1	**0.74** (1.97)**	**2.10** (1.97)**
Year + 2	**2.22*** (5.32)**	**9.20*** (5.32)**
Year + 3	**3.72*** (7.80)**	**41.06*** (7.80)**
Year + 4	**6.24*** (9.90)**	**514.75*** (9.90)**
Treatment firms	7.58*** (3.29)	1961.54*** (3.29)
Control	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Industry FE	No	No
N (firm-years)	2,796	2,796
Adj. R-squared	0.54	0.54

Notes: Empirical results A.3: This table shows the results for the year coefficients, including company and year-fixed effects. The dependent variable is the ESG-based compensation policy. Control corresponds to the Log of total assets, ROA, leverage, Tobin‘s Q, CSR Committee, and CSR Reporting. T-statistics are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table A.10: Empirical Results A.4

	DV: Sustainable Compensation	**Delete 2015 and 2016**	**Pseudo adoption year 2016**	**Deleting 2017**
	(1)	*(2)*	(3)	(4)
After x EU	**2.09*** **	**1.36*** **	**0.99*** **	**0.843** **
	(11.24)	**(3.26)**	**(2.79)**	**(2.13)**
Control	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No
N	3,770	2,245	2,796	2,524
Adj. R-squared	0.30	0.57	0.58	0.57

Notes: Empirical results A.4: This table shows the baseline adjustments, including company and year-fixed effects. The dependent variable is the ESG-based compensation policy, substituted in column 1 with the sustainable compensation policy. Control corresponds to the Log of total assets, ROA, leverage, Tobin‘s Q, CSR Committee, and CSR Reporting. T-statistics are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table A.11: Empirical Results A.5

	Robust SE	**SE firm level**	**SE industry level**	**SE country level**
	(1)	*(2)*	*(3)*	*(4)*
After x EU	0.73 *	0.73	0.73	1.364
	(1.82)	(1.02)	(1.30)	(1.5)
Control	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No
N	2,796	2,796	2,796	2,245
Adj. R-squared	0.58	0.58	0.58	0.57

Notes: Empirical results A.5: This table shows the baseline adjustments with different standard errors, including company and year-fixed effects. The dependent variable is the ESG-based compensation policy. Control corresponds to the Log of total assets, ROA, leverage, Tobin‘s Q, CSR Committee, and CSR Reporting. T-statistics are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table A.12: Empirical Results B.2

	Social Score			**Human rights**			**Governance score**			**Board Gender Diversity**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExCompP	**-0.31**	**-1.29**	**-1.10**	**0.02**	**-2.97**	**-3.79**	**1.81**	**0.95**	**1.64**	**1.34**	**0.59**	**0.66**
	(-1.23)	(-1.24)	(-1.40)	(-2.41)	(-2.53)	(-2.78)	(-1.45)	(-1.63)	(-1.92)	(-0.95)	(-1.01)	(-1.08)
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind. FE	No	No	No	No	No	No	No	No	No	No	No	No
N	1,829	1,631	1,438	1,829	1,631	1,438	1,829	1,631	1,438	1,829	1,631	1,438
R-squared	0.48	0.44	0.39	0.37	0.34	0.31	0.32	0.32	0.31	0.42	0.36	0.29
#Company	229	227	226	229	227	226	229	227	226	229	227	226

Notes: Empirical results B.2: This table shows regression results, including company-year-fixed effects for the social and governance dimensions. The dependent variable is the ESG-based compensation policy and contains all control variables in Table A.1. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table A.13: Empirical Results B.3

	ESG Combined Score			**Env. Score**			**CO2 Total**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**-5.29*** **	**-4.01** **	**-3.63** **	**-3.61** **	**-4.71*** **	**-4.44*** **	**-500.25** **	**-778.69** **	**-1.199e+06** **
	(-1.67)	(-1.95)	(-1.77)	(-1.64)	(-1.53)	(-1.64)	(-244972)	(-340974)	(-594528)
Observations	815	728	643	815	728	643	749	676	602
R-squared	0.31	0.26	0.22	0.29	0.30	0.32	0.10	0.09	0.12
#Company	97	97	97	97	97	97	96	96	96

	CO2 Total/ Revenue			**Social Score**			**Human rights**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**-30.97**	**-40.91**	**-67.70** **	**1.02**	**-1.83**	**-3.26**	**2.14**	**-3.81**	**-8.04** **
	(-30.39)	(-26.37)	(-32.84)	(-1.85)	(-1.82)	(-1.98)	(-3.55)	(-3.56)	(-3.73)
Observations	749	676	602	815	728	643	815	728	643
R-squared	0.14	0.13	0.12	0.51	0.48	0.45	0.47	0.43	0.41
#Company	96	96	96	97	97	97	97	97	97

	Governance Score			**Board Gender Diversity**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**-0.05**	**0.70**	**2.31**	**1.28**	**0.42**	**1.20**
	(-1.86)	(-2.42)	(-2.82)	(-1.28)	(-1.39)	(-1.59)
Observations	815	728	643	815	728	643
R-squared	0.46	0.45	0.44	0.48	0.43	0.38
#Company	97	97	97	97	97	97

Notes: Empirical results B.3: This table shows regression results for companies from carbon-intense industries, including industry-year-fixed effects for the ESG performance, environmental score, and carbon emissions. The dependent variable is the ESG-based compensation policy and contains all control variables in Table A.1. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

TABLE A.14: Empirical Results B.4

	ESG Combined Score			**Env. Score**			**CO2 Total**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**-0.17**	**-2.02**	**-4.66***	**0.12**	**-0.42**	**-1.03**	**-86.80***	**-98498**	**-99900**
	(-1.72)	(-2.04)	(-2.57)	(-1.79)	(-1.85)	(-1.86)	(-48115)	(-61543)	(-64225)
Observations	815	728	643	815	728	643	749	676	602
R-squared	0.31	0.26	0.22	0.29	0.30	0.32	0.10	0.09	0.12
#Company	97	97	97	97	97	97	96	96	96

	CO2 Total/ Revenue			**Scocial Score**			**Human rights**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**0.56**	**-6.16**	**-6.76**	**-0.21**	**0.04**	**-0.43**	**-1.79**	**-3.11**	**-3.66**
	(-2.54)	(-4.80)	(-4.95)	(-1.68)	(-1.82)	(-1.79)	(-3.42)	(-3.81)	(-3.84)
Observations	749	676	602	815	728	643	815	728	643
R-squared	0.14	0.13	0.12	0.51	0.48	0.45	0.47	0.43	0.41
#Company	96	96	96	97	97	97	97	97	97

	Governance score			**Board Gender Diversity**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**4.28***	**1.74**	**-0.34**	**2.89****	**1.32**	**-0.86**
	(-2.48)	(-2.49)	(-2.82)	(-1.36)	(-1.38)	(-1.43)
Observations	815	728	643	815	728	643
R-squared	0.46	0.45	0.44	0.48	0.43	0.38
#Company	97	97	97	97	97	97

Notes: Empirical results B.4: This table shows regression results for companies from less carbon-intense industries, including industry-year-fixed effects for the ESG performance, environmental score, and carbon emissions. The dependent variable is the ESG-based compensation policy and contains all control variables in Table A.1. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

TABLE A.15: Empirical Results B.5

	ESG Combined Score			**Env. Score**			**CO2 Total**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**-2.41**	**-3.21**	**-4.57***	**-1.58**	**-1.93**	**-2.12**	**-466116**	**-773386**	**-1442000**
	(-2.04)	(-2.32)	(-2.61)	(-2.62)	(-2.62)	(-2.32)	(-321558)	(-582885)	(-1101000)
Observations	846	751	659	846	751	659	662	602	543
R-squared	0.59	0.56	0.50	0.38	0.36	0.35	0.09	0.08	0.14
#Company	114	112	111	114	112	111	110	108	109

	CO2 Total/ Revenue			**Social Score**			**Human rights**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**-22.78**	**-13.12**	**-2.53**	**-0.88**	**-2.19**	**-2.68**	**-0.39**	**-1.49**	**-2.99**
	(-30.10)	(-36.9)	(-49.14)	(-2.44)	(-2.53)	(-2.17)	(-4.29)	(-5.12)	(-4.73)
Observations	662	602	543	846	751	659	846	751	659
R-squared	0.12	0.14	0.12	0.66	0.65	0.61	0.56	0.53	0.51
#Company	110	108	109	114	112	111	114	112	111

	Governance score			**Board Gender Diversity**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**3.14**	**2.4**	**1.64**	**2.50**	**3.20***	**3.50***
	(-2.86)	(-3.58)	(-3.72)	(-1.63)	(-1.92)	(-1.95)
Observations	846	751	659	846	751	659
R-squared	0.48	0.47	0.44	0.50	0.47	0.399
#Company	114	112	111	114	112	111

Notes: Empirical results B.5: This table shows regression results for companies with high ESG exposure, including industry-year-fixed effects for ESG performance, environmental score, and carbon emissions. The dependent variable is the ESG-based compensation policy and contains all control variables in Table A.1. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table A.16: Empirical Results B.6

	ESG Combined Score			**Env. Score**			**CO2 Total**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**-1.25**	**-1.38**	**-2.08**	**0.01**	**-1.72***	**-2.00***	**-129055**	**-270.68****	**-393.07****
	(-1.27)	(-1.57)	(-1.66)	(-1.13)	(-0.96)	(-1.06)	(-102305)	(-123678)	(-185095)
Observations	983	880	779	983	880	779	949	851	759
R-squared	0.13	0.13	0.12	0.16	0.24	0.22	0.07	0.08	0.10
#Company	115	115	115	115	115	115	115	115	115

	CO2 Total/ Revenue			**Scocial Score**			**Human rights**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**-0.06**	**-26.06****	**-50.90*****	**2.13***	**1.27**	**0.31**	**1.45**	**-2.60**	**-4.33**
	(-15.16)	(-11.5)	(-17.76)	(-1.21)	(-1.29)	(-1.69)	(-2.93)	(-2.83)	(-3.59)
Observations	949	851	759	983	880	779	983	880	779
R-squared	0.13	0.11	0.12	0.46	0.43	0.36	0.35	0.34	0.32
#Company	115	115	115	115	115	115	115	115	115

	Governance score			**Board Gender Diversity**		
	(Lag 1-year)	*(Lag 2-year)*	*(Lag 3-year)*	*(Lag 1-year)*	*(Lag 2-year)*	*(Lag 3-year)*
ExComP	**1.70**	**0.68**	**2.07**	**1.99***	**0.29**	**-0.04**
	(-1.54)	(-1.84)	(-2.55)	(-1.19)	(-1.20)	(-1.46)
Observations	983	880	779	983	880	779
R-squared	0.39	0.40	0.39	0.51	0.47	0.42
#Company	115	115	115	115	115	115

Notes: Empirical results B.6: This table shows regression results for companies with low ESG exposure, including industry-year-fixed effects for ESG performance, environmental score, and carbon emissions. The dependent variable is the ESG-based compensation policy, containing all control variables in Table A.1. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Appendix to Essay III

Table A.17: Variables Description I

Variable Name	Full Name	Description	Source
ISS data			
ISSrec	ISS recommendation	Dummy variable indicating with one if ISS recommends to vote for a specific voting item, and zero otherwise	ISS Voting Data
Compensation data			
ESGComp	ESG-linked remuneration plan dummy variable	Dummy variable indicating with one if extra-financial performance-oriented compensation is based on ESG, and zero otherwise	ISS Incentive Lab Europe
ExecComp	Total Senior Executive Compensation	Natural logarithm of total senior executive compensation reported by the company	Refinitiv
Comp CommEx	Executives on the compensation committee	Dummy variable indicating with one if executives serve on the compensation committee, and zero otherwise	Refinitiv
Firm-specific data			
FreeFloat	Free Float / Public Float	Division of the number of shares available for trading in the open market (i.e., free float / public float) by the total number of shares outstanding	Refinitiv
ROA	Return on Assets	Net income divided by total assets	Refinitiv
FiveYr CAGRDPS	Compound annual growth rate of total dividends per share over the last five years	Average rate of return of total dividends per share paid out to shareholders over the last five years	Refinitiv
Leverage	Debt to Equity	Total liabilities divided by total assets	Refinitiv
GScore	Refinitiv Governance Score	Score measuring the company's systems and processes, which ensure that its board members and executives act in the best interests of its long-term shareholders	Refinitiv

Notes: This Table presents the description of variables of the *ISS*, compensation and firm-specific data.

Table A.18: Variables Description II

Variable Name	Full Name	Description	Source
Governance-related data			
Self Dealing	Anti-Self-Dealing Index	Score measuring the legislative protection of minority shareholders against the actions of insiders	Djankov et al. (2008)
AccEnf Ratio	Accounting Enforcement Index	Score measuring the strength of the local accounting and auditing regulations on a scale ranging from 0 to 56. Score attained at local level divided by maximum score of 56.	Brown, Preiato, and Tarca (2014)
Pressure	Pressure season	Dummy variable indicating with one if vote occurs in the main season (fourth week of April until end of May), and zero otherwise	Calluzzo and Kedia (2021)
French	French legal origin	Countries associated with French legal origin	La Porta et. al. (1998)
German	German legal origin	Countries associated with German legal origin	
Scandi-navian	Scandinavian legal origin	Countries associated with Scandinavian legal origin	

Notes: This Table presents the description of variables of the governance-related data.

Table A.19: Correlation Coefficients

	ISSr.	**E.Comp**	**ESGComp**	**FreeFl.**	**ROA**	**GScore**	**Press.**	**C.Com.**	**5YDPS**	**Lev.**	**SelfD.I.**	**A.E.R.**
ISSrec	1											
ExecComp	-0.07***	1										
ESGComp	0.05*	-0.12***	1									
FreeFloat	0.15***	0.19***	-0.17***	1								
ROA	-0.01	0	-0.01	0.06**	1							
GScore	0.08***	0.08***	0.16***	0.09***	-0.09***	1						
Pressure	-0.06**	-0.04*	0.09***	-0.07***	-0.01	-0.01	1					
CompCommEx	0.03	0.01	0.1***	0.08***	-0.04.	0.35***	-0.01	1				
FiveYrCAGRDPS	0.03	0.02	-0.08***	0.03	0.17***	-0.14***	0.01	-0.09***	1			
Leverage	0.06**	0.03	-0.02	0.03	-0.02	0.03	0.01	0.03	-0.03	1		
SelfDealingIndex	0.12***	-0.09***	0.13***	0.2***	0.06**	0.05*	0.06**	0.23***	-0.02	0.02	1	
AccEnfRatio	0.07***	-0.08***	0.03	0.17***	0.1***	0.07***	-0.03	0.22***	0.02	0	0.66***	1

Notes: This table shows the correlation coefficients: *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

TABLE A.20: Results Table for Equations 1-5

	Eq. (1)	**Eq. (2)**	**Eq. (3)**	**Eq. (4)**	**Eq. (5)**
Intercept	2.793***	17.569	18.094	17.650	1.290
	(0.519)	(1012)	(1692)	(3797)	(0.936)
ExecComp	-0.293***	-0.269***	-0.266***	0.027	-0.254***
	(0.030)	(0.034)	(0.035)	(0.065)	(0.033)
ESGComp	0.188*	0.336***	0.182**	0.368*	0.373***
	(0.076)	(0.082)	(0.088)	(0.159)	(0.078)
FreeFloat	2.463***	1.947***	2.186***	1.186	1.94***
	(0.182)	(0.188)	(0.196)	(1.012)	(0.183)
ROA	0.003	-0.006	-0.005		-0.002
	(0.004)	(0.003)	(0.004)		(0.003)
GScore	0.008***	0.011***	0.012***		0.010***
	(0.002)	(0.002)	(0.002)		(0.002)
Pressure	-0.364***	-0.132	-0.164**		-0.304***
	(0.073)	(0.075)	(0.08)		(0.071)
CompCommEx	-0.171*	-0.140	-0.13*		-0.238**
	(0.086)	(0.092)	(0.095)		(0.089)
FiveYrCAGRDPS	0.014***	0.009**	0.011***		0.012***
	(0.003)	(0.003)	(0.003)		(0.003)
Leverage	0.311***	0.333***	0.312***		0.345***
	(0.044)	(0.044)	(0.047)		(0.042)
SelfDealingIndex					3.276***
					(0.71)
AccEnfRatio					-2.23**
					(0.702)
French					0.904*
					(0.39)
German					1.607***
					(0.466)
Scandinavian					1.063**
					(0.388)
Industry FE	TRUE	FALSE	TRUE	FALSE	FALSE
Country FE	FALSE	TRUE	TRUE	FALSE	FALSE
Year FE	FALSE	FALSE	FALSE	FALSE	FALSE
Firm FE	FALSE	FALSE	FALSE	TRUE	FALSE
McFadden R2	0.111	0.116	0.151	0.486	0.090
Nagelkerke R2	0.244	0.253	0.317	0.738	0.203

Notes: Results table for Equations 1-5: This table shows regression results for equations 1-5 containing legal origin fixed effects. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table A.21: Results Table for Equations 6-8

	Eq. (6)	**Eq. (7)**	**Eq. (8)**
Intercept	93.536***	59.540***	63.446***
	(1.447)	(9.829)	(7.503)
ISSrec	6.998***	17.924***	17.704***
	(0.067)	(0.865)	(0.872)
AccEnfRatio	1.140***	20.938*	14.812
	(0.200)	(9.944)	(8.804)
SelfDealingIndex			4.558
			(3.605)
ESGComp			2.784***
			(0.733)
isCommon			-2.484
			(2.267)
isCommon:ESGComp			-2.103*
			(0.877)
Legal Origin FE	TRUE	TRUE	FALSE
Agenda Item FE	TRUE	TRUE	TRUE
Multiple R2	**0.182**	**0.330**	**0.331**
Adjusted R2	**0.181**	**0.326**	**0.327**
N	347,294	2,396	2,396

Notes: Results table for Equations 6-8: This table shows regression results for equations 6-8. Equation 6 considers all proposals; Equation 7 considers compensation proposals only. Standard errors are in parentheses. *,** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

Table A.22: Additional Information on Legal and Institutional Context

Country	**Accounting Enforcement**	**Anti-Self-Dealing**	**Legal Origin**
Ireland	41.0	0.79	1
UK	54.0	0.95	1
–Common	*47.5*	*0.87*	*1*
Belgium	44.0	0.54	2
France	45.0	0.38	2
Greece	26.0	0.22	2
Luxembourg	43.0	0.28	2
Netherlands	43.0	0.20	2
Portugal	29.0	0.44	2
Spain	42.0	0.37	2
–French	*38.9*	*0.35*	*2*
Austria	27.0	0.21	3
Germany	44.0	0.28	3
Switzerland	49.0	0.27	3
–German	*40.0*	*0.25*	*3*
Denmark	49.0	0.46	4
Norway	47.0	0.42	4
–Scandinavian	*48.0*	*0.44*	*4*
Total mean	***41.6***	***0.42***	-

Notes: Overview of the legal system and investor protection quality: Self-Dealing Index (Djankov et al., 2008); Accounting Index (Brown et al., 2014); Legal Origin (La Porta et al., 1998)

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