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The relationship between CEO-employee pay ratio and
company's ESG performance

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Abstract

This thesis explores the relationship between CEO employee pay ratio and company Environmental, Social, and Governance (ESG) performance. Drawing on theoretical frameworks such as agency theory and signalling theory, the thesis examines the underlying mechanisms driving motivations and behaviours of CEOs and companies in relation to ESG initiatives.

First, it is argued that well-compensated CEOs are more competent and capable of driving both financial performance and sustainability efforts. Second, organisations utilise signals such as high CEO pay and ESG performance to increase company reputation. Third, companies with substantial financial resources are better positioned to invest in ESG initiatives and comprehensive reporting, enhancing their sustainability performance.

The research employs a mixed-methods approach, combining quantitative analysis of ESG scores and CEO pay ratio data with insights from the literature. The findings indicate a small positive correlation between CEO-employee pay ratio and ESG performance. The findings provide valuable insights for policymakers, investors, and corporate leaders, highlighting the strategic importance of integrating ESG metrics into executive compensation packages to achieve sustainable and responsible business practices.

Kurzfassung

Diese Arbeit untersucht die Beziehung zwischen dem Verhältnis von CEO-Vergütung zu Mitarbeitergehältern und der Unternehmensleistung im Environmental, Social, and Governance (ESG) Bereich. Basierend auf theoretischen Rahmenwerken wie der Prinzipal-Agent-Theorie und der Signaling-Theorie untersucht die Dissertation die zugrunde liegenden Mechanismen, die die Motivationen und Verhaltensweisen von CEOs und Unternehmen in Bezug auf ESG-Initiativen antreiben.

Erstens wird argumentiert, dass gut bezahlte CEOs kompetenter und fähiger sind, sowohl den finanziellen Unternehmenserfolg als auch die Nachhaltigkeitsbemühungen voranzutreiben. Zweitens nutzen Organisationen Signale wie hohe CEO-Gehälter und ESG-Bewertungen, um das Unternehmensimage zu verbessern. Drittens sind Unternehmen mit erheblichen finanziellen Ressourcen besser in der Lage, in ESG-Initiativen und umfassende Berichterstattung zu investieren, wodurch ihre Nachhaltigkeitsleistung verbessert wird.

Die Arbeit verwendet einen Mixed-Methods-Ansatz, der quantitative Analysen von ESG-Scores und dem Verhältnis von CEO-Vergütung zu Mitarbeitergehältern mit Erkenntnissen aus der Literatur kombiniert. Die Ergebnisse zeigen eine kleine positive Korrelation zwischen dem Verhältnis von CEO-Gehalt zu Mitarbeitergehältern und der ESG-Leistung eines Unternehmens.

Die Ergebnisse liefern wertvolle Erkenntnisse für Entscheidungsträger, Investoren und Unternehmensleiter und unterstreichen die strategische Bedeutung der Integration von ESG-Metriken in Vergütungspakete für Führungskräfte, um nachhaltige und verantwortungsvolle Geschäftspraktiken zu erreichen.

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1. Introduction

In recent years, the integration of environmental, social and governance (ESG) metrics into companies' strategies has gained popularity, reflecting a broader shift towards sustainable and responsible business practices. This thesis explores the relationship between CEO-employee pay ratio and ESG performance by providing an analysis of the factors driving this relationship, drawing on theoretical frameworks such as agency theory and signalling theory, and investigating this relationship with the help of data analysis (Tsang et al., 2022) (Przychodzen & Gómez-Bezares, 2021).

Sustainability in business has evolved in recent years. Initially, the main focus was on maximising shareholder value, often at the expense of broader social and environmental considerations. However, increasing awareness of climate change, and negative externalities led to a shift in public perception and an increase in demand for corporate responsibility. Today, stakeholders are increasingly trying to hold companies responsible for their business practices and adopt sustainable practices that balance economic growth with social equity and environmental management (Markevich, 2009) (Linnenluecke & Griffiths, 2010) (Gómez-Bezares et al., 2019).

One way of addressing these growing demands is by integrating ESG metrics into the company strategy. ESG performance is increasingly considered a critical factor influencing a company's reputation and long-term financial success. Companies that excel in ESG practices are often viewed as more adaptable and innovative, providing them with a competitive advantage. This shift has significant implications for how executive compensation is structured to align their goals with organisational ESG goals (Tsang et al., 2022).

Using theoretical frameworks such as agency theory, signalling theory, and resource-based perspectives, the paper aims to illuminate the relationship between CEO compensation and ESG performance.

Agency Theory provides understanding for the conflicts of interest that arise when

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CEOs prioritise their own goals over those of shareholders. By aligning CEO compensation with ESG performance, companies can mitigate these conflicts and incentivise CEOs to pursue sustainable practices that benefit both shareholders and broader stakeholders (Eisenhardt, 1989).

Signalling theory argues that companies use various signals to communicate their value and stability to investors. High CEO compensation can serve as a signal of strong leadership and strategic direction, while robust ESG disclosures signal a commitment to ethical practices and long-term sustainability. This dual signalling can enhance the reputation of a company and attract investment (Zerbini, 2017).

The ability of a company to pay high salaries to its executives often reflects its financial health and the availability of resources. These available financial resources can be used to invest in both competitive executive pay and ESG initiatives, which in turn increases the ESG score of the said companies. (Gómez-Bezares et al., 2019).

This thesis uses a mixed methods approach, combining quantitative analysis of ESG scores and CEO-employee pay ratio data with insights from the literature. The quantitative analysis will involve a correlation analysis and a stepwise regression model to assess a possible relationship between CEO-employee pay ratio and ESG performance, while the qualitative component will investigate the literature to provide a deeper theoretical understanding.

This research contributes to the growing body of literature on ESG and corporate governance by providing empirical evidence on the relationship between the CEO-employee pay ratio and ESG performance. By highlighting the strategic importance of aligning CEO incentives with ESG goals, the study aims to provide a deeper understanding of the impact of incentives for CEOs balanced with ESG considerations.

2. Sustainability

In 1970, Milton Friedman argued against the notion of “social responsibilities of business,” emphasising that businesses themselves, as entities, cannot bear responsibilities; only individuals can. He argues that the primary responsibility of business executives is with their employers and shareholders, which is typically to maximise profits within the bounds of the law and ethical norms. Although corporate executives, as individuals, may choose to engage in socially responsible actions, this is done in their personal capacity, not as a function of the business. He underscores that the social responsibilities attributed to companies are more accurately the personal responsibilities of the individuals within them. The argument ultimately suggests that conflating personal social responsibilities with those of businesses leads to a misunderstanding of the fundamental principles of a free-enterprise system and will put businesses engaged in them at a competitive disadvantage (Friedman, 1970).

In the absence of solid and enforceable environmental policies, rapid urban and industrial growth can cause severe environmental degradation. With the previous approach of growing now and cleaning up later no longer seeming viable, consumers and companies start moving towards more sustainable business practices (O’Connor, 1996).

Throughout the past decades, key stakeholders have continued to apply increasing pressure on businesses to transform their operations away from environmental degradation intertwining environmental protection with human rights (Council of Europe, 2020). Fifty years later, sustainability has transformed from a niche to a business practice that companies use as a unique selling point and to increase their prices on average around 75-80% (Kearney, 2020). In 2020 the European Union approved a wide range of environmental policies aiming to transform Europe, culminating in achieving Climate Neutrality by 2050 (European Commission, 2021). How did society get there?

The concept of sustainable development has emerged as a key framework within the realms of business, economics, and environmental studies. The term "sustainable development" was first introduced in 1980 in the World Conservation Strategy created by

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the International Union for Conservation of Nature and Natural Resources with the advice, cooperation, and financial assistance of the United Nations Environment Programme and the World Wildlife Fund and in collaboration with the Food and Agriculture Organisation of the United Nations and the United Nations Educational, Scientific, and Cultural Organization. (IUCN, 1980). One of the prominent parts within this framework is the "Triple Bottom Line", a concept that transcends the conventional singular focus on profit by advocating for a more comprehensive assessment of an organisation's performance. The Triple Bottom Line approach encompasses three interrelated dimensions: economic, social, and environmental, signifying a holistic perspective that evaluates an entity's impact on people, the planet, and prosperity (Correia, 2019). In their words,

"For development to be sustainable it must take account of social and ecological factors, as well as economic ones" (IUCN, 1980, p. 18)

As the global discourse on sustainability intensified, the Triple Bottom Line concept has gained substantial traction, serving as a catalyst for transformative strategies that aim to harmonise long-term viability with social and environmental well-being (Correia, 2019).

The Brundtland Report, officially known as "Our Common Future", was published in 1987 by the World Commission on Environment and Development. It is renowned for its definition of "sustainable development" which has become foundational in environmental and policy circles. According to the report, sustainable development is

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland Commission, 1987, p. 43)

This concept continues to emphasise the importance of balancing economic growth with environmental protection and social equity, ensuring that progress does not deplete the resources and opportunities available to future generations (Brundtland Commission, 1987).

Linnenluecke and Griffiths, 2010 highlight a significant shift in organisational theory. They argue that sustainable practices are now essential for environmental and social stewardship and for enhancing an organisation's resilience and competitive edge. This marks a notable change from the time when sustainability was once seen as a marginal issue. It has now become a key element in strategic business planning and operations. Integrating sustainability into an organisation's core culture indicates a deep change in

corporate values. This aligns making a profit with a commitment to ecological and social responsibility. The path toward sustainability is to reinvent modern business strategies and redefine what it means to be successful in the 21st century (Linnenluecke & Griffiths, 2010).

Faber et al. define sustainability as a multifaceted concept transcending simple environmental preservation. In this context, sustainability is understood as the capacity of an organisation to maintain and develop its operations and strategies over time in a manner that harmonises Environmental, Social, and Governance (ESG) responsibilities. It is not merely about the conservation of resources, but encompasses the dynamic balance between the development and welfare of current and future generations. This definition integrates the idea of sustainability as a process rather than a fixed state, reflecting the need for adaptive and evolving approaches in business practices (Faber et al., 2005). This aligns with the definition of the 1980s World Conservation Strategy report. They also highlight the importance of setting clear and contextually relevant goals, whether they are relative or absolute, and acknowledge the need for these goals and practices to be responsive to changing environmental, societal, and economic conditions (Faber et al., 2005).

The Sustainable Development Goals (SDGs) of the United Nations are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. These 17 interlinked goals provide a comprehensive framework for addressing the complex challenges facing the world, including those related to environmental, social, and economic sustainability. The SDGs guide governments and companies to align their strategies and operations with global sustainability objectives. By setting clear goals and indicators, the SDGs help clarify what sustainability means in practice, offering a shared vision to achieve a sustainable future for all (Arora & Mishra, 2019).

In applying these concepts holistically to the economy, the circular economy emerged. It is a model of production and consumption that involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible. In this model, the life cycle of products is extended, reducing waste to a minimum. When a product reaches the end of its useful life, its materials are kept within the economy wherever possible. These can be used productively again and again, thus creating additional value. This approach contrasts with the traditional linear economy, which has a "take, make, dispose" production model. The circular economy emerges as a transformative model that addresses the limitations of the traditional linear economy by fostering sustainable business practices. It emphasises the reduction of resource input

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and waste, emission mitigation, and energy efficiency through closed-loop systems. This paradigm shift is based on innovation across product life cycles, business models, and industrial processes, encouraging companies to rethink and redesign how value is created and delivered. Integrating circular economy principles aligns with sustainability goals, offering a pathway for businesses to simultaneously achieve economic, environmental, and social objectives. By adopting circular economy strategies, companies can mitigate their environmental impact and uncover new opportunities for growth and competitiveness, contributing to a more sustainable and resilient economy (George et al., 2015). (Suchek et al., 2021).

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The common thread between these definitions is the recognition of the interplay of economic, social, and environmental factors, or ESG, in business practices. Over time, the focus has changed from profit maximisation to a more holistic approach that seeks to ensure the long-term viability of businesses while positively contributing to society and the environment. This evolution reflects a broader societal shift towards sustainability and responsible stewardship, redefining the meaning of sustainable success in the business world. Given the long history of companies focussing on financial accounting practices, it is apparent that they are common place, regulated, and taught in universities. ESG metrics, on the other hand, are more nebulous and measurement is often ambiguous (Bongermino & Romagnoli, 2025).

ESG performance is becoming increasingly important in influencing investment decisions. This is highlighted by a growing body of research (Whelan et al., 2021). Approximately 85% of chief investment officers now regard ESG factors as crucial in their investment decisions, and many are willing to pay a premium for companies that successfully integrate ESG initiatives with their financial performance. This shift is indicative of a wider trend in which investors are not only seeking financial returns, but also prioritising sustainability (Gelb et al., 2023). Transparency in ESG reporting allows stakeholders to see the genuine efforts a company is making towards sustainability, which can significantly improve its reputation. This is particularly important in an era where consumers and investors are increasingly informed and concerned about corporate practices (Tamasiga et al., 2024). By improving reputation, ESG activities can help to create long-term value despite their short-term cost. Businesses that are regarded as ESG leaders are frequently recognised as more innovative and forward-thinking (Tahmid et al., 2022).

General frameworks such as The Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB) are widely used by companies to measure and report their ESG performance. According to the practical guide on sustainability reporting, GRI offers a comprehensive approach covering a wide range of sustainability issues, helping companies communicate their ESG impacts to stakeholders. SASB similarly helps organisations to report their ESG objectives. By integrating these standards, companies can provide a holistic view of their ESG performance. This helps investors and other stakeholders by providing transparency and comparability (Global Reporting Initiative & Sustainability Accounting Standards Board, 2021).

2.1.1. The E in ESG: Environmental Sustainability

The Environmental component of ESG focusses on a company's impact on the natural environment. This includes how a company manages its resources, its carbon footprint, waste management, and overall sustainability practices. Measurement of the environmental aspect involves several key metrics and methodologies, which are often derived from academic research and industry standards (Clément et al., 2023).

Carbon Footprint and Greenhouse Gas (GHG) emissions are measured through Scope 1, 2, and 3 Emissions. These are direct and indirect emissions from a company's operations. Scope 1 emissions are direct emissions from directly owned or controlled sources, Scope 2 covers indirect emissions from the generation of purchased electricity, and Scope 3 includes all other indirect emissions that occur in a company's value chain (Clément et al., 2023). Carbon intensity measures the amount of carbon dioxide emissions per unit of revenue or production. It helps to understand the efficiency of a company in managing its carbon emissions relative to its economic output (Jámbor & Zanócz, 2023).

One of the metrics used is the total **Energy Consumption**, tracking the total amount of energy used by a company, including electricity, fuel, and other energy sources. It is noteworthy here that there is a difference between energy and electricity. Similarly to carbon intensity, energy intensity can be used to measure the amount of energy consumed per unit of revenue or production. The amount of energy coming from renewable sources is also a relevant metric, including wind or solar energy (Pillai et al., 2024).

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Water Usage and Management plays an important role in assessing environmental sustainability of an organisation. The total volume of water withdrawn from all sources, including surface water, groundwater, and municipal water supplies, can be measured and evaluated. By dividing this measure by an appropriate activity unit such as revenue or units of goods sold, the intensity of water use can be established. Another relevant metric can be the percentage of recycled and reused water within company operations (Sojamo & Rudebeck, 2024).

Waste generated includes all types of waste produced by the company, such as hazardous and non-hazardous waste. By integrating advanced waste management strategies, such as minimising hazardous waste and optimising recycling processes, companies can demonstrate their commitment to sustainable practices and improve their standing in ESG assessments. According to Albitar et al. (2024), effective waste management practices are closely linked to a company's level of eco-innovation and overall ESG performance. This holistic approach to waste management underscores the importance of innovation and responsible resource use in achieving high ESG performance (Albitar et al., 2024).

Biodiversity and Land Use are critical components of ESG measurement, reflecting a company's impact on natural ecosystems and its efforts to mitigate environmental damage. According to the MSCI ESG Ratings Methodology, companies are evaluated based on the potential impact of their operations on biodiversity and their management practices to address these impacts. This includes evaluating policies and disclosures related to biodiversity, the implementation of programmes and structures to protect natural habitats, and performance metrics that track the effectiveness of these initiatives. By focussing on biodiversity and land use, companies can demonstrate their commitment to preserving ecosystems and reducing their environmental footprint, which is essential to achieve high ESG scores and foster sustainable business practices (MSCI ESG Research LLC, 2023).

Frameworks and Methodologies for Measuring Environmental Impact

Life Cycle Assessment (LCA) is a vital tool in the ESG measurement framework, as it provides a holistic view of a company's environmental impact across the entire lifecycle of its products. LCA helps companies identify and quantify the environmental impacts associated with each stage of a product's life, from raw material extraction to disposal. This comprehensive approach enables companies to pinpoint areas where they can reduce their environmental footprint, thus improving their ESG scores. By integrating LCA into

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their sustainability strategies, companies can make informed decisions that improve resource efficiency, minimise waste, and promote sustainable practices (Clément et al., 2023).

Environmental Management Systems (EMS), particularly ISO 14001, play a significant role in enhancing a company's ESG performance. The adoption of ISO 14001 EMS is linked to improved environmental practices, which are crucial to achieve high ESG scores. The ISO 14001 standard provides a structured framework for managing environmental responsibilities, ensuring compliance with regulations, and promoting continuous improvement. By implementing ISO 14001, companies can systematically address environmental impacts, reduce waste, and optimise resource use. This not only helps in meeting regulatory requirements, but also improves transparency and accountability, which are key components of ESG performance. Integrating ISO 14001 EMS with an ESG framework can further amplify these benefits, demonstrating a company's commitment to sustainability and responsible business practices (Kong et al., 2024).

Third-party audits and certifications, such as those provided by organisations like Carbon Trust or the Forest Stewardship Council (FSC), can also help to provide reliability to the process of assessing ESG scores, as well as providing reliability to the final scores. Companies that undergo third-party verification of their ESG reports tend to perform better, showing higher quality and more accurate ESG scores. These audits help to ensure that the reported data are measured and verified in a standardised way, reducing the risk of inaccuracies and green washing. Certifications from reputable organisations can help signal the commitment of companies to ESG practices and increase stakeholder trust in them (Del Giudice & Rigamonti, 2020).

The Environmental component of ESG encompasses a range of methodologies that assess a company's impact on the natural environment. By measuring carbon footprint, energy consumption, water use, waste management, and biodiversity, companies can recognise areas for improvement and implement strategies to improve their sustainability practices. Using frameworks such as LCA and Environmental Management Systems ensure comprehensive and transparent reporting. Independent audits and certifications further validate these efforts, contributing to higher ESG scores and creating stakeholder trust. In this way, companies can demonstrate their commitment to environmental stewardship and responsible resource management (Pillai et al., 2024) (Clément et al., 2023) (Global Reporting Initiative & Sustainability Accounting Standards Board, 2021) (Del Giudice & Rigamonti, 2020).

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2.1.2. The S in ESG: Social Sustainability

The Social component of ESG focusses on a company's impact on society, including its relationships with employees, customers, suppliers, and the community (Dmuchowski et al., 2023).

Employee Relations and Labour Practices play a crucial role in a companies social sustainability. The Employee Turnover Rate measures the rate at which employees leave the company. By comparing these rates with other companies in a similar sector, they help provide information on employee satisfaction and organisational stability (Clément et al., 2023). Companies are assessed for their efforts to promote diversity and inclusion within the workplace. This includes metrics such as the percentage of women and minorities in leadership positions (Jámbor & Zanócz, 2023). Health and Safety involves tracking workplace injuries, illnesses, and fatalities. Companies with robust health and safety programmes tend to have lower incident rates (Pillai et al., 2024).

Companies are evaluated based on their commitment to the protection of **Human Rights**, including policies against child labour, forced labour, and discrimination. Community Engagement assesses a company's involvement in community development and philanthropy. It includes contributions to local communities, volunteer programmes, and partnerships with non-profit organisations (BSR, 2019) (Jámbor & Zanócz, 2023).

Customer satisfaction is measured through surveys and feedback mechanisms to gauge customer satisfaction and loyalty. Companies are also evaluated on their ability to ensure the safety and quality of their products and services. This includes tracking product recalls and compliance with safety standards (Jámbor & Zanócz, 2023) (Qualtrics, 2025).

Supply chain diversity assesses the diversity of a company's suppliers. This can include the percentage of spending on minority-owned and women-owned businesses. Companies can be evaluated on their efforts in ensuring fair labour practices within their supply chains. This includes audits and certifications verifying compliance with labour standards (Gujar, 2020)s (Jámbor & Zanócz, 2023).

Frameworks Methodologies for Measuring Social Impact

There are a variety of methodologies to assess the social impact. Social audits involve evaluating a company's social practices and policies to ensure compliance with ethical standards. Certifications such as SA8000 provide a framework for assessing social performance (Katz, 2014). Surveys and feedback mechanisms are used to collect input from employees, customers, suppliers, and community members. This helps companies understand the social impact of their operations and identify areas for improvement (Prayson & Rowe, 2017). Independent assessments by third-party organisations, such as the Fair Labour Association or the Ethical Trading Initiative, provide an objective evaluation of a company's social practices. These assessments improve credibility and transparency (Hatanaka et al., 2005).

The Social component of ESG encompasses a wide range of metrics and methodologies that assess a company's impact on society. By evaluating employee relations, human rights, community engagement, customer relations, and supply chain management, companies can identify areas for improvement and implement strategies to enhance their social performance. Using methodologies such as social audits, certifications such as SA8000, stakeholder surveys, and adherence to standards like GRI and SASB ensures comprehensive and transparent reporting. Independent evaluations by third-party organisations further validate these efforts, contributing to higher ESG scores and fostering trust among stakeholders. Through these measures, companies can demonstrate their commitment to social responsibility and ethical business practices.

2.1.3. The G in ESG: Governance Sustainability

The Governance component of ESG encompasses the structures, policies, and practices that ensure that a company is managed responsibly and ethically. Effective governance is crucial to maintain investor confidence, ensure regulatory compliance, and promote long-term sustainability (Hatanaka et al., 2005).

Board Composition is of relevance for the governance assessment of an organisation. The independence of the board assesses the proportion of independent directors on the board. Independent directors are crucial in providing impartial oversight and reducing potential conflicts of interest (Clément et al., 2023). In addition, the diversity of company board members, including gender, ethnicity, and professional background, is assessed. Diverse boards are associated with better decision making and better corporate performance

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(Pal & Rastogi, 2024).

Executive Compensation like the CEO-employee pay ratio can be used to assess a company's governance performance and compares the CEO's compensation with the median salary of the company's employees. It provides information on income inequality within the organisation and reflects the company's commitment to fair compensation practices (Pillai et al., 2024). Companies are assessed on how much executive compensation is tied to performance metrics. This alignment ensures that executives are incentivised to create long-term value (Wendt, 2021).

Shareholder Rights evaluate the rights of shareholders to vote on key issues, such as board elections and executive compensation. Strong shareholder rights are indicative of good governance practices (Mallin & Melis, 2012). In addition, the number and nature of shareholder proposals can provide insight into the level of shareholder engagement and the responsiveness of the company to shareholder concerns (Ertimur et al., 2010).

Companies are evaluated on the accuracy, completeness, and timeliness of their financial **Disclosures**. High-quality financial reporting is essential to maintain investor trust and regulatory compliance (Tsang et al., 2022). The extent and quality of a company's ESG disclosures can also be assessed. Companies that voluntarily disclose ESG information can gain advantages, such as better access to finance, lower cost of capital, greater customer and employee satisfaction, and an increased public perception (Tsang et al., 2022).

Risk Management assesses the effectiveness of the company's risk management framework, including the identification, assessment, and mitigation of risks. Effective risk oversight is crucial to ensuring long-term sustainability of the company (Bank of Greece & Kalfaoglou, 2021). Companies are evaluated on the robustness of their compliance programmes, including the adherence to legal and regulatory requirements. Strong compliance programmes help prevent misconduct and ensure ethical business practices (Elizabeth Pollman, 2019).

Frameworks and Methodologies for Measuring Governance Impact

Governance ratings and indices, such as the MSCI Governance Metrics and others, provide assessments of a company's governance practices. These ratings are based on a range of governance metrics and are used by investors to evaluate governance risk (Pillai et al., 2024). The International Organization for Standardization (ISO) also provides audits and

2.2. Ambiguity of Sustainability

certificates to validate a company's governance practices. These audits improve credibility and ensure compliance with governance standards (Gipper et al., 2024). Surveys and feedback mechanisms can be used to collect input from shareholders, employees, and stakeholders. Through this, companies can understand the impact of their governance practices and identify the possible improvements (Kumar et al., 2024).

The Governance component of ESG is essential to ensure that companies are managed responsibly and ethically. Effective governance practices, such as board independence and diversity, performance-based executive compensation, strong shareholder rights, and transparent financial and ESG reporting, are crucial to maintaining investor confidence and regulatory compliance. In addition, robust risk management and compliance programmes help prevent misconduct and ensure long-term sustainability. By adhering to established standards and methodologies, companies can demonstrate their commitment to good governance, thus improving their overall ESG performance and fostering trust between stakeholders.

2.2. Ambiguity of Sustainability

Sustainability in business and organisational management, as well as in colloquial use is often surrounded by a mist of ambiguity. This is due to the complex nature of sustainability and the diverse ways in which it can be interpreted and implemented within different contexts. Alblas et al., 2014 delves into this complexity, particularly in the realm of new product development within manufacturing companies. The incentives and forces driving sustainability in a company can be unclear or absent. This lack of clarity can arise from the broad scope of what sustainability encompasses, ranging from environmental to social and economic dimensions. The challenge is that, while the concept of sustainability is widely recognised and advocated, specific goals and objectives can vary greatly between organisations and industries. This variability can lead to situations where companies find it difficult to identify and prioritise sustainability goals that align with their corporate strategy and operational capabilities (Alblas et al., 2014).

Several contextual factors significantly influence a company's approach to sustainability. The level of **Customer demand** for sustainable products or services plays a crucial role. This demand can drive organisational actions, and companies often use market research or trend analysis to gauge expected demand. The actual market performance of sustainable

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products also provides feedback, which can reinforce or undermine sustainability practices. **Competitors'** sustainability initiatives can influence firm sustainability practices. Successful early adopters who profit from sustainable products can force a company to adapt its practices, while slow movers can present an opportunity to gain competitive advantage.

Environmental and social laws and regulations are critical contextual factors. Compliance with these regulations often serves as a baseline for sustainability practices within firms. **Pressure from community and environmental stakeholders**, such as through activism or negative publicity, can compel firms to improve their sustainability efforts. **Supplier** sustainability practices can significantly affect a firm's ability to implement sustainable product designs. A complex supply chain or suppliers resistant to sustainability improvements can pose substantial challenges (Alblas et al., 2014).

This ambiguity can lead to "greenwashing". Due to increasing awareness of environmental concerns, consumers are increasingly demanding sustainable products. Organisational change to incorporate all the necessary measures to create these is outpaced by demand. Communication about environmental practices is not bound by such sluggishness and can outpace integration of actual measures. Therefore, companies have been observed to communicate about the environmental benefits of their product, before they are supported by their organisational ESG performance (De Freitas Netto et al., 2020).

Ambiguity is inherently present in sustainability research and application. Partially this is due to the generalisability of the concept, but the need to embed it into a variety of specific organisational contexts. While the aforementioned metrics can give indications on what to measure, each organisation needs to decide based on their context what measures are most valuable to further their sustainability agenda. This ambiguity needs to be acknowledged and frameworks created that help overcome it (Lazurko et al., 2023). In addition, organisational culture plays an important role in the adoption and integration of sustainability initiatives. It is not enough to create incentive systems promoting sustainability; rather, ESG need to be embedded within an organisation to be successful. This entails the integration of ESG practices into the core values and beliefs of an organisation (Fietz & Günther, 2021).

2.3. How ESG can create Value

After arguing that companies are increasingly implementing ESG initiatives, exploring the evolution of sustainability within an economic context, and showcasing different ways

2.3. How ESG can create Value

of measuring them, it is important to explore how these initiatives can generate value for companies.

The COVID-19 pandemic has significantly accelerated the focus on ESG issues, emphasising its role in maintaining long-term business stability. Investors increasingly see companies with high ESG performance as better equipped to handle ambiguity and maintain long-term growth (Matthew Bell, 2021). Companies with competent CEOs who invest heavily in ESG initiatives tend to outperform their competitors. This competitive advantage is likely related to the improved operational effectiveness and reputation caused by ESG policies, which in turn attract more investors and increase shareholder value (Yoon, 2024). Incorporating ESG practices into business strategy greatly improves an organisation's reputation. Strong ESG performance can improve shareholder trust. This positive perception is not only limited to investors; it extends to customers, employees, and other stakeholders, all of whom increasingly value corporate responsibility and sustainability (Narula et al., 2023).

ESG efforts can **drive growth** by attracting new customers and expanding into new markets. Customers view companies with strong ESG initiatives more favourably, which increases market share and customer loyalty. This is especially noticeable in sectors like food and beverage and clothing where customers are highly concerned about social and environmental issues (Boufounou et al., 2023). Furthermore in order to gain access to resources and approval, improved relationships with local communities and authorities are important. ESG initiatives can showcase to these stakeholders that the organisation has long-term interest and can help to facilitate. Companies with weak ESG proposals are more likely to receive unfavourable treatment from regulatory bodies, as these companies are seen as higher risk and less compliant with environmental and social regulations (Pillai et al., 2024) (Oliver Yébenes, 2024). Companies with high ESG ratings often enjoy better community relations, which can lead to smoother operations and fewer disruptions. For example, mining companies with strong ESG practices are more likely to secure the necessary social licences to operate, reducing the risk of community opposition and project delays (Wells et al., 2020). Furthermore, ESG initiatives can open up new market opportunities by aligning with the growing consumer demand for sustainable products. Companies that prioritise ESG issues will be more suited to enter markets where sustainability is a purchase consideration. This not only stimulates top-line expansion but also strengthens the company's competitive posture worldwide. (Boufounou et al., 2023).

2. Sustainability

ESG initiatives can lead to **cost reduction**. By implementing energy-efficient processes and technologies, organisations can cut their energy usage, which will result in cheaper operating expenses and utility bills. This is particularly relevant in industries with high energy demands, where even small improvements in efficiency can result in significant cost savings (Kandpal et al., 2024). In addition to energy efficiency projects, initiatives that reduce waste are an essential part of ESG strategies helping to minimise production costs. Strong ESG performance combined with innovation can result in a reduction in the overall waste generated by businesses and an increase in material reuse and recycling. (Albitar et al., 2024). Not only reducing disposal costs but also minimises the need for raw materials, further lowering production expenses. This idea is put into practice by the circular economy model, which places a strong emphasis on resource reuse and waste minimisation. Companies can develop closed-loop systems that increase resource efficiency and reduce waste by implementing cost-effective strategies, which ideally will save money and promote sustainability (Kandpal et al., 2024). Furthermore, companies that invest in sustainable practices are better positioned to benefit from government incentives and subsidies (S. Chen et al., 2023).

Strong ESG performance can **minimize regulatory and legal interventions**. Companies that actively manage ESG concerns are less likely to be subject to fines, penalties, or other legal proceedings. This enhances the company's perception. Companies with ESG policies are more suited to follow environmental rules, thereby avoiding expensive legal conflicts and fines. (Clementino & Perkins, 2021). Companies with strong ESG performance often experience less regulatory intervention since they are better positioned to incorporate environmental and social responsibility policy. In sectors with strict environmental rules, where non-compliance can result in major financial and reputation harm, this is especially pertinent (S. Chen et al., 2023). Furthermore, investors perceive companies with high ESG ratings as having a lower risk associated with an investment decision in them (David F. Larcker et al., 2024). Strong ESG performance can improve the reputation of a company, making them more attractive for investors and other stakeholders that are prioritising sustainability and other ESG considerations (Malaka et al., 2024).

ESG practices can **boost employee productivity** primarily through the prioritisation of social criteria such as fair labour practices and diversity. Companies dedicated to these values are more likely to have effective and motivated employees. Strong ESG performance, especially in social spheres, results in increased degrees of employee satisfac-

2.3. How ESG can create Value

tion and involvement of them in their respective companies. This can be attributed to employees feeling appreciated and respected in an environment that supports well-being and diversity (Barrymore & Sampson, 2021). Companies with ESG practices are more likely to invest in employee development and well-being, leading to enhanced productivity. These investments in human capital not only improve individual performance, but also foster a culture of continuous improvement and innovation (Petreski et al., 2024).

Additionally, Chen finds that companies with ESG practices integrated attract and retain top people more successfully. This stems from the fact that potential employees evaluate organisations and are more likely to join them, if their values match their own. (J. Chen, 2024). Diversity and inclusion initiatives can, as part of a wider ESG strategy, lead to a more dynamic and innovative workforce. Diverse teams bring a variety of perspectives and ideas, which can enhance problem-solving and drive creativity. This diversity not only improves productivity, but also contributes to a more resilient and adaptable organisation (Wang et al., 2024) (Michalski, 2024). These practices also contribute to higher employee retention and lower turnover costs, as employees are more likely to stay with companies that demonstrate a commitment to their well-being and values (Lee et al., 2023).

Lastly, ESG initiatives can **optimize investment and capital expenditures**. Firms with strong ESG performance often have better access to capital, as they are considered less risky by investors. Companies with high ESG ratings often enjoy better financing conditions as investors are increasingly factoring ESG criteria into their risk assessments. This reduced perceived risk translates into lower interest rates on loans and bonds, as well as more favourable terms for equity financing (Friede et al., 2015). Furthermore, companies with an increased focus on ESG are more likely to draw money from an increasing pool of socially conscious investors ready to contribute to organisations with high ESG performance. Using this financial flow, sustainable projects and ideas can be found and financed, therefore increasing the long-term value and competitiveness of a company (Sciarelli et al., 2021). The cost of funding may decrease as a result of this expanded investor base and heightened investor confidence. Companies are seen as more reliable and less likely to default, if they can showcase high ESG ratings. Resulting in reduced time and effort to gain access to funding (Palmieri & Geretto, 2023).

In conclusion, integrating ESG initiatives into corporate strategy creates substantial value for firms through several mechanisms. First, ESG efforts drive growth by attracting new customers and expanding into new markets, facilitated by improved relationships

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with regulators and communities, leading to increased customer loyalty and market share (Boufounou et al., 2023). Secondly, ESG initiatives reduce costs by improving energy efficiency and reducing waste, which reduces operational expenses and benefits from government incentives (Kandpal et al., 2024) (Albitar et al., 2024) (S. Chen et al., 2023). Third, strong ESG performance minimises regulatory and legal interventions, saving costs and improving the company’s reputation through compliance and positive regulatory relationships (Clementino & Perkins, 2021) (S. Chen et al., 2023). Fourth, prioritising social criteria such as fair labour practices and diversity boosts employee productivity, leading to higher retention and lower turnover costs (Barrymore & Sampson, 2021) (Petreski et al., 2024). Lastly, ESG initiatives optimise investment and capital expenditures by improving access to capital and securing better financing terms, since firms with strong ESG performance are viewed as less risky by investors. These benefits underscore the strategic importance of ESG in driving long-term value creation (Friede et al., 2015) (Sciarelli et al., 2021).

3. Theoretical Foundations

In order to better understand how organisations can create the appropriate environment to facilitate the integration of ESG initiatives, one needs to understand incentives. It is crucial to dive into the underlying mechanisms that drive them. The following theories show how conflicts between different parties can arise, establishing the

need for incentives to realign their goals. First, the theory that explains the origins of these conflicts and the role of incentives in resolving them is explored. Subsequently, a theory is introduced that helps to understand the mechanism by which expectations can lead to motivation. Third, a theory focussing on individual motivation is introduced. Lastly, effective incentives and their limitations are discussed. These theories should provide the building blocks needed to gain deeper insight into how incentives function and subsequently analyse how they can contribute to the mechanisms underlying the relationship between CEO-employee pay ratio and a company's Environmental, Social and Governance (ESG) performance. The final part of the chapter provides the foundations for signalling theory.

"Economists in building up a theory have often omitted to examine the foundations on which it was erected."

(Coase, 1937)

3.1. Agency Theory

Coase, 1937 introduces the concept of transaction costs. These are costs necessitated by economic exchange, including, but not limited to, the cost of information, organisation, and enforcement of contracts (Coase, 1937).

In the 1950s and 1960s the field of agency theory was starting to be developed with important contributions on risk sharing by Arrow, 1964. In other works around this time, he explored how risk is shared between individuals with different risk preferences, illuminating the role contracts can play in distributing that risk between different agents (Arrow, 1964).

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Jensen, 1976 formalises the principal-agent problem. This problem can be stated as follows. An organisation or principle is made up of multiple agents. In order to function, the organisation needs to relegate specific responsibilities and decisions to individual agents. The principle has certain goals to achieve. However, the agent also has individual goals that it wants to achieve. This misalignment of goals is, in essence, the principal-agent problem (Jensen, 1976).

In the following decade, the principal-agent problem gained popularity and became a growing topic of discussion in academic research. Eisenhardt, 1989 introduces the principal-agent problem, as focussing on two key problems. The first problem is the agency problem, which occurs when the principal and the agent have different goals and it is difficult or costly for the principal to check if the agent is acting in their best interest. The second problem is the sharing of risks, where the principal and the agent have different attitudes towards risk, which causes them to prefer different actions. The theory examines how to create the most efficient contract between the principal and agent, considering factors such as self-interest and risk aversion, organisational conflicts, and the availability of information (Eisenhardt, 1989). This problem can lead to inefficiencies and waste of resources through a number of different mechanisms:

Information Asymmetry exists in reality due to incomplete information on held by the principal and the agent. One party possesses more relevant information than the other party. Due to this information gap, the principal can sometimes not ensure that the agent acts in their best interest (Mishra et al., 1998).

Adverse selection is the use of asymmetric information by one party, usually to gain an advantage. This usually occurs before or during the creation of a contractual agreement. An example would be the inability of a consumer to adequately gauge the quality of a product or service due to a lack of insight into the specifics of the said product or service. This is especially true for services, as the outcome cannot be observed until the service has already been delivered, whereas a product can be, to some extent, examined beforehand. Usually, this problem is solved by the introduction of signals. If one party offers a superior product or service, it can signal this to the consumer by providing additional information (Mishra et al., 1998).

Moral hazard also arises due to incomplete information. However, in contrast to adverse selection, it manifests itself after the contractual agreement is in place. In context

3.2. Expectancy Theory

of the principal-agent problem, the agent can affect the principal by taking or not taking certain actions, and therefore assuming additional risk for the principal. In the context of employment, an employee can assume additional risk in his actions, knowing that he has limited responsibility compared to the company. Another example would be insurance. Once an insurance contract is in place, there is a limited incentive to protect the insured object. This problem can be solved by introducing incentives to align the actions of the agent to lead to the by the principal desired outcomes (Mishra et al., 1998).

Monitoring Costs occur when the principal tries to mitigate unwanted behaviour by the agent by monitoring his activities. This can be done by observing, collecting, and analysing the agents' behaviour through means such as reporting mechanisms, regular check-ins or performance metrics. However, this incurs additional costs and the trade-off between costs and benefits should be closely monitored (Strausz, 1997).

Eisenhardt, 1989 also addresses the general applicability of the principal-agent problem and its importance across both macro-level concerns, such as regulatory regulations, and micro-level actions like blaming and impression management. Compensation systems, business acquisitions, diversification plans, board dynamics, ownership, and finance models inside companies have all been justified using this theory. This basic paradigm clarifies the conflicts and trade-offs resulting from agents acting on behalf of principals following their own interests. (Eisenhardt, 1989).

Given this versatile application in organisational settings, agency theory can be effectively extended to help align actors with organisational ESG goals. ESG initiatives often involve balancing diverse stakeholder goals, such as the pursuit of long-term environmental sustainability versus short-term financial gains, while also addressing different risk preferences, such as the risks of climate change or regulatory penalties. The principal agent dynamics present in ESG decision making, where stakeholders may push for sustainable practices and executives may prioritise profit, mirror the conflicts described in agency theory. This offers a valuable framework for analysing the tensions and decision-making processes that influence the successful integration of ESG goals within organisations.

3.2. Expectancy Theory

While the field of agency theory was developing, Vroom, 1964 published his theory on what cognitive antecedents result in motivation. Motivation is related to how our thoughts, beliefs, and mental processes inform and shape our actions. The motivational framework

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explains how individuals make decisions based on their expectations of desired outcomes, arguing that motivation results from three key components: expectancy, instrumentality, and valence (Vroom, 1994).

Expectancy is that one's work will produce the intended performance level. Stated differently, it is the assurance that a person has about their ability to reach a particular target through their efforts (Vroom, 1994).

Instrumentality is the conviction that reaching the intended performance would produce particular results or benefits. Shows the expected probability that a certain performance will lead to a certain outcome (Vroom, 1994).

Valence refers to an individual significance they put onto anticipated advantages or outcomes. It signifies the attractiveness or desirability of the reward, here it is noteworthy that this can vary between individuals (Vroom, 1994).

According to Vroom, motivation is the product of these three factors. If an individual believes that their effort will lead to good performance (high expectancy), that this performance will be rewarded (high instrumentality), and that the reward is valuable (high valence), the individual will be highly motivated to act (Vroom, 1994).

Lyman W. Porter and Edward E. Lawler, 1968 enhanced Vroom's theory by building on his research and expanding it with aspects like job satisfaction, perceptions of intrinsic and extrinsic incentives, abilities, and the perception of their place and function within the organisation. Their model argues that the correlation between effort and performance is not direct, but is mediated by these factors. They highlighted the significance of perceived fairness and equity in the incentive system, which could influence an individual's motivation and job satisfaction (Lyman W. Porter & Edward E. Lawler, 1968).

Expectancy theory can be efficiently used to synchronise stakeholders' incentives with organisational objectives, including ESG goals. Expectancy theory underscores the importance of harmonising effort, performance, and incentives to enhance motivation. In the realm of ESG, this entails ensuring stakeholders that their sustainability initiatives will yield measurable performance enhancements, which will be recognised in ways they deem valuable. By establishing incentives that explicitly connect ESG performance with favourable results, organisations can encourage people to choose long-term sustainability in conjunction with short-term financial benefits. This alignment is essential to reconcile varied objectives and accommodate differing risk preferences, including those associated

with climate change or regulatory compliance. Expectancy theory can support in developing incentive systems that incorporate ESG factors into the decision making processes (Syed, 2017).

3.3. Self-Determination Theory

Self-Determination Theory (SDT), aims to illuminate human motivation. Individuals are motivated by a desire to grow and achieve personal fulfilment through their efforts. SDT identifies three basic psychological needs that are essential for motivation:

Autonomy - The need to feel in control of one's own behaviour and goals.

Competence - The need to learn to master and feel effective in one's activities.

Relatedness - The need to feel connected to others (Ryan & Deci, 2022).

The foundation for SDT was established in the 1970s and 1980s, however, earlier research helped to build the foundations. The research on intrinsic motivation, particularly Deci's work in the 1970s, concentrated on the ways in which external rewards can undermine intrinsic motivation. This led to the development of Cognitive Evaluation Theory, one of SDT's mini-theories. In the development of SDT, the concept of organismic integration was essential, as it underscores the innate human inclination to integrate experiences and behaviours into a coherent sense of self. The idea of organismic integration was crucial in the evolution of SDT since it emphasises the natural human tendency to combine experiences and actions into a logical sense of self. The concentration of the theory on internalisation reflects this idea. Three basic psychological needs, autonomy, relatedness, and competency, essentially formed the basis of SDT. For general health and psychological growth, these are essential. Abraham Maslow's and Carl Rogers's work finally shaped SDT's emphasis on self-actualization and the realisation of human potential. (Ryan & Deci, 2019).

SDT distinguishes between **intrinsic motivation**, which comes from within and is driven by personal satisfaction and interest, and **extrinsic motivation**, which is driven by external rewards or pressures. Individuals are more inclined to be intrinsically motivated when these fundamental requirements are met, resulting in increased engagement, creativity, and overall well-being (Ryan & Deci, 2000).

It is necessary to understand SDT to develop effective incentive systems. Intrinsic motivation can be improved by incentives that promote autonomy, competence, and

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relatedness, resulting in a more sustained and meaningful engagement. For instance, employees' motivation and performance can be substantially enhanced by offering them opportunities for professional development, enabling them to participate in their work processes, and cultivating a supportive team environment. Incentives that undermine these requirements, such as rewards that appear manipulative or overly controlling management practices, can result in disengagement and decreased intrinsic motivation. Consequently, SDT offers valuable insight into the development of incentive structures that not only promote performance, but also promote overall well-being and satisfaction. (Forner et al., 2020).

By understanding and applying these three theories: Expectancy Theory, Agency Theory, and SDT, incentives can be designed more effectively, as they each address different aspects of motivation and behaviour in organisational settings (Eisenhardt, 1989) (Vroom, 1994) (Ryan & Deci, 2000).

Particularly in organisational environments, agency theory is crucial in illuminating the conflicts of interest that can arise when agents - CEOs or managers - prioritise their own goals over those of the principals - shareholders. Properly structured incentives can align the interests of agents with those of the principals. This can promote better decision making to achieve organisationally desired outcomes. This theory can help to understand the necessary mechanisms for designing executive compensation packages that align with shareholder interests (Eisenhardt, 1989).

Expectancy theory explains how people's motivation is influenced by expectancy, valence, and instrumentality. Aligning these three elements will allow an incentive to ensure that employees feel that their efforts will produce the desired results, thus enhancing their motivation and performance (Vroom, 1994).

SDT provides insights into intrinsic and extrinsic motivation by focussing on the psychological needs for autonomy, competence, and relatedness. Through using SDT incentive systems can be designed to offer external rewards, but also support intrinsic motivation of employees resulting in higher job satisfaction and productivity. SDT is particularly useful for designing incentives that foster a supportive and motivating work environment (Ryan & Deci, 2000).

3.4. Effective Incentives

Roberts, 2010 Kalev et al., 2006 Westphal and Zajac, 1994 discuss the potential drawbacks of incentives. John Roberts argues that the problem is not in the distinction between well-designed and poorly designed incentive structures. Rather, the problem lies in the strength of the incentives. He argues that people will respond equally well to poorly designed and well-designed incentives. In arguing this, a few assumptions are implied. Firstly, people who are subject to incentives cannot distinguish between good and bad incentives or if they are indifferent. Secondly, organisations or people designing incentives cannot differentiate between good and bad incentives. Here, it can be argued that the designer of the incentive structure is not aware of the difference between ineffective and well-designed incentives. If they were, there would be no reason to implement a badly designed one. Roberts argues that powerful yet poorly directed incentives have been a key factor in causing the worldwide economic downturn (Roberts, 2010). He continues to say:

"The basic fact is that designing useful incentives inside organisations is very complicated and designing ones that are both useful and strong is often impossible." (Roberts, 2010, p. 126)

But why is it challenging to design useful incentives?

3.4.1. Bounded Rationality

Herbert A. Simon introduced the concept of bounded rationality. It challenges the conventional belief that human decision making is entirely rational (Selten, 1990). Instead, it suggests that people are limited in their cognitive capacity including finite time, limited knowledge, and cognitive processing capability. Individuals frequently "satisfy," or pursue solutions that are satisfactory in light of their constraints, rather than optimising. Bounded rationality recognises that decision-makers employ heuristics, which are basic, efficient rules, or mental shortcuts, to navigate complex environments. It helps to integrate psychological insights into economic models. Therefore, when designing incentives, it is impractical or even impossible to anticipate every potential scenario or outcome and how the incentive might influence behaviour (Thorstad, 2024).

Incentive structures are typically based on assumptions about rational behaviour, where individuals are expected to respond predictably to rewards and penalties. However, "bounded rationality" posits that the context in which decisions are made and the limited

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cognitive resources of individuals frequently influence their responses (Macartney et al., 2015). For example, a complex incentive scheme can cause decision makers to simplify their decisions in a way that contradicts the intended results (Thorstad, 2024). This lack of predictability is even further increased given the constant stream of new information and environments. (Gabaix & Laibson, 2005).

Additionally, incentives should be designed with the diverse motivations and preferences of individuals in mind, as they are not always consistent with economic rewards. Incentives are perceived and acted on in significant ways by psychological factors, including intrinsic motivation, social norms, and perceived fairness. These factors introduce additional complexity, which complicates the development of incentive schemes that are universally effective in various contexts and populations (Gabaix & Laibson, 2005).

A prime example of this is the introduction of subsidies for electric vehicles (EVs). They are a frequently used policy instrument to encourage the implementation of more environmentally friendly transportation alternatives. These incentives, which can include tax credits, rebates, and grants, are intended to reduce initial and ongoing expenses for EVs, thus increasing their attractiveness to consumers. The objective of these subsidies is to improve air quality and reduce greenhouse gas emissions by increasing the number of EVs on the road (Kosiorek, 2019). However, given the concept of bounded rationality, which acknowledges the cognitive limitations and imperfect information under which individuals operate, these policies could also lead to unintended consequences.

A decrease in available funds for road maintenance and construction is a significant unintended consequence of EV subsidies. For example, in California, the majority of road maintenance expenditures are funded by a gas tax (Yee, 2019). The consumption of gasoline decreases as more consumers transition to EVs, resulting in a decrease in the income from the gasoline tax. This can lead to deterioration of road conditions and increased maintenance costs over time, as a consequence of the funding shortage for road infrastructure projects (Gabriel Petek, 2023). Thus, policymakers must investigate alternative financing mechanisms to ensure that road infrastructure can be adequately maintained in the event of a decline in petrol tax revenues.

The environmental impact of cobalt extraction, a critical component in the production of EV batteries, is another unintended consequence of the increased adoption of EVs. Significant environmental degradation, such as habitat devastation, soil and water

pollution, and adverse health effects on local communities, is related to cobalt mining. The discharge of harmful environmental pollutants during the extraction process can have long-term health and ecological consequences (Kosiorek, 2019). This emphasises the trade-offs associated with promoting EVs as an environmentally friendly choice for transportation, as the environmental advantages of reduced tailpipe emissions must be balanced against the environmental costs of battery production and the unintended consequences of incentive structures.

In conclusion, the concept of bounded rationality helps to understand the limitations in the design of incentive structures. Policymakers and organisations should adopt a more iterative and adaptive approach to incentive design, continually incorporating feedback and iteration. Simultaneously, unintended consequences should be monitored and, if the need arises, adjusted. In doing so, they can develop stronger and more resilient incentive mechanisms that more effectively align agents with organisational goals (Basov, 2003).

3.5. Signalling Theory

Companies use different signals to effectively communicate their value and stability to investors, thereby mitigating information asymmetry. For example, companies often signal their financial health through dividend policies; consistent or increasing dividends can indicate management's confidence in future earnings, reassuring investors about the company's profitability (Fathi et al., 2024). The hiring of reputable executives can signal strong leadership and strategic direction, reassuring investors about the company's growth potential (Kamp & Graf-Vlachy, 2024). Furthermore, engaging in transparent reporting and CSR initiatives can improve the credibility of a company, signalling to investors that it is committed to ethical practices and long-term sustainability. These strategic signals help shape investor perceptions and can significantly influence investment decisions (Fatima & Elbanna, 2023).

The evolution of signalling theory is rooted in the principles of evolutionary biology, particularly in the context of communication among species. Initially proposed by Amotz Zahavi, the theory emphasises that certain signals have evolved as reliable indicators of an individual's fitness or quality, particularly in scenarios where the interests of sender and receiver may diverge. This is encapsulated in Zahavi's "handicap principle," which posits that costly signals, such as the extravagant plumage of male birds, serve as honest indicators of genetic fitness, as only the fittest individuals can afford to produce and

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maintain such traits (Zahavi & Zahavi, 1999).

Over time, signalling theory has evolved from its biological origins. Finding applications in social and economic contexts. In particular, addressing the challenge of information asymmetry in an organisational and personnel economics context. Michael Spence in his work on job market signalling uses theory to argue that individuals or organisations with more information can convey their quality or intentions to those with less information through credible signals (Spence, 1973).

This concept has implications for labour markets, where potential employers must assume the abilities of candidates. They do so by interpreting a signal such as an educational background, showcasing an applicant's productivity and competence (George A. Akerlof, 1970). The theory has since been expanded to a broader organisational context, illustrating how companies signal their quality to consumers and investors through branding, warranties, and corporate governance practices (Connelly et al., 2011). Research has shown that effective signalling not only mitigates adverse selection, but also enhances market efficiency by allowing informed parties to distinguish between high- and low-quality offerings (Bergh et al., 2014). Furthermore, the application of signalling theory in strategic management has been extensively documented, highlighting its relevance in understanding competitive dynamics and organisational behaviour in environments characterised by uncertainty and incomplete information (Bergh et al., 2019).

4. CEO compensation, incentives and the mechanisms tying them to company ESG performance

In order to understand the influence of the CEO-employee pay ratio on company ESG performance, the potential underlying mechanisms will be explored in the following chapter. However, since the CEO-employee pay ratio is mainly driven by fluctuations in CEO compensation rather than employee wages (J. Chen, 2024), the following chapter will focus primarily on CEO compensation. This will provide understanding of the underlying mechanisms mainly responsible in driving the CEO-employee pay ratio and aid in providing hypotheses on the interaction between the ratio and company ESG performance.

Companies are increasingly incorporating ESG metrics into executive compensation packages, reflecting a change in how corporate success is evaluated. In 2023, approximately 75% of S&P 500 companies have incorporated some form of ESG metrics into their executive pay structures, a notable increase from previous years (Tonello, 2024). The strategic direction of companies is influenced by these incentives. By embedding ESG metrics, companies promote accountability among executives and signal to stakeholders their commitment to sustainable practices. Over half of S&P 500 companies now use at least one ESG metric in their compensation plans, with a growing emphasis on human capital management and diversity initiatives (Hamilton et al., 2022).

Strong ESG practices can improve a firm's reputation, attract investment, and ultimately contribute to long-term financial success (Wang et al., 2024). Companies with higher sustainability ratings outperformed their competitors in stock market performance, indicating that robust ESG policies can produce stronger financial results. The relationship, among other factors, has led boards to include ESG measures in CEO compensation, motivating executives to emphasise sustainability and profitability (Eccles et al., 2014). Firms that include specific ESG metrics, such as emissions reductions, in

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their compensation packages tend to achieve better ESG outcomes, including measurable decreases in CO2 emissions (Cohen et al., 2023).

Merriman et al., 2016 argue that the impact of incentives on sustainable behaviour in employees within an organisation is multifaceted and complex. Employee participation in environmental objectives is influenced by incentives, especially considering the role of explicit organisational values for sustainability and the complementarity of environmental objectives with financial goals (Merriman et al., 2016).

Incentives play an important role in influencing employee behaviour toward sustainability. Interestingly, the effectiveness of these environmental objectives is improved if they are used in conjunction with financial objectives. Focussing on sustainability in organisational values does not significantly increase employee engagement in environmental goals. There is an underlying bias among employees toward financial performance, which can overshadow their engagement in sustainability efforts. Implying that even with incentives in place, employees can still prioritise financial goals unless environmental goals are presented in a way that aligns or enhances these financial objectives (Merriman et al., 2016).

The design of these incentives typically includes a combination of quantitative and qualitative metrics. Effective incentives for ESG include clear and measurable goals related to environmental impact, social responsibility, and governance practices. For example, companies can set goals to reduce carbon emissions, improve workforce diversity, or improve community engagement. However, many organisations struggle to implement these metrics (Maria Castañón Moats & Christopher Hamilton, 2022). It is important to balance immediate performance metrics with long-term sustainability objectives, suggesting that a hybrid approach can better align executive actions with the strategic vision of the company (Lundin et al., 2023). Furthermore, the weight of ESG metrics in compensation packages is crucial (Ellerman et al., 2021).

Companies must ensure that the metrics they use are both accurately measurable and conducive to their strategic goals. The difficulty is to strike a balance between measurable goals that CEOs can actually achieve and the complexity of ESG measurements. (Tonello, 2024). Traditional performance measurements, which usually focus on short-term monetary results, such as revenue growth or profit margins, differ from these incentives. Instead, ESG incentives are linked to long-term performance, structured to align executive

behaviour with broader social and environmental goals (Hamilton et al., 2022) (Gelb et al., 2023). Companies that incorporate sustainability metrics into their executive compensation structures can improve both their reputation and financial performance. Companies with higher sustainability ratings outperformed their competitors in stock market performance, indicating that ESG policies can produce stronger financial results. The relationship, among other factors, has led boards to include ESG measures into CEO compensation, motivating executives to emphasise sustainability and profitability (Eccles et al., 2014).

4.1. How CEOs influence Companies

One of the individuals with the greatest influence on the strategic direction of companies, particularly in the realm of ESG matters, is that of the CEO. This is well documented in the academic literature (Sang et al., 2024) (Brahma & Economou, 2024) (Nam et al., 2024) (Cai et al., 2024). They play an essential role in shaping an organisation and their practices. Their personal characteristics and career concerns can significantly impact ESG performance. CEOs with increased career concerns tend to stifle ESG performance, with the amount of shares a CEO is holding and political affiliations moderating this relationship negatively in Chinese A-share companies (Ma et al., 2024). This implies that CEOs who prioritise their career development may put immediate financial benefits ahead of long-term sustainability targets, therefore, undermining ESG projects. Garcia-Blandon et al., 2019 analysed the performance of the best-performing CEOs in financial and ESG dimensions and found a strong negative correlation between financial performance and ESG performance, suggesting that focus on one may distract from the other (Garcia-Blandon et al., 2019).

The academic background of senior executives also plays a crucial role in influencing ESG practices. Cai et al., 2024 demonstrated that while certain academic backgrounds can positively influence ESG practices, others may have a negative impact. Specifically, executives with backgrounds in environmental sciences or sustainability are more likely to prioritise ESG initiatives, whereas those with purely financial or business backgrounds might focus more on immediate financial performance (Cai et al., 2024). Moreover, CEO experience — especially if it relates to ESG projects — has been demonstrated to greatly improve company ESG performance. CEOs with rich experience in these areas drive corporate ESG innovation and alleviate financing restrictions, thus promoting better ESG

4. CEO compensation, incentives and the mechanisms tying them to company ESG performance

outcomes. This suggests that CEOs with a varied and relevant background are more suited to include sustainability into the strategy of the company (Sang et al., 2024).

As argued above, the role that the CEO's characteristics play in the effectiveness of ESG initiatives is significant (Ma et al., 2024) (Cai et al., 2024) (Sang et al., 2024). Finkelstein, 1992 framework identifies four different types of CEO power supporting in the understanding of how a CEO is able to exert such influence over an organisation (Finkelstein, 1992):

Structural Power is derived from the formal position of the CEO within the organisational hierarchy. It includes the authority granted by the CEO's role, such as decision-making rights and control over resources. Structural power is often associated with the dual role of a CEO, where they serve as the chair of the board, as well as, fulfilling their role as CEO, thereby consolidating their control over the strategic direction of the company (Finkelstein, 1992).

Ownership Power comes from the CEO's ownership stake in the company. CEOs who hold significant shares or are company founders have increased interest in the company's success. This can be seen as an incentive to align their interests with those of shareholders. Ownership power can improve the influence of a CEO on corporate decisions, as their financial stake provides him with both motivation and leverage (Finkelstein, 1992).

Expert Power is based on the knowledge, skills and expertise of the CEO. A CEO with a strong background in the industry or specialised knowledge can influence decisions through their perceived competence and ability to solve complex problems. This type of power is often related to the tenure and experience of the CEO in the field (Finkelstein, 1992).

Prestige Power results from the CEO's standing and reputation both inside the company and outside. A CEO with a great reputation can draw on business talent, relationships, and valuable resources. This power is often connected with the CEO's educational background, past achievements, and his network (Finkelstein, 1992).

Building on this understanding of CEO power, Sanjukta and Economou expand on how CEO power influences various aspects of corporate strategy (Brahma & Economou, 2024).

CEO Power and Firm Performance: CEOs with significant decision-making power can make quick and significant decisions that can improve performance and the future strategic direction of an organisation. Companies with strong CEOs often have more variation in performance results, indicating that these executives are better able to take advantage of opportunities than their less powerful counterparts (Adams et al., 2003). However, this variability also suggests that CEOs with high power will not only use that to enhance an organisation's performance. When CEOs put their own interests ahead of shareholders', this concentration of power can also result in harmful self-serving behaviours. Excessive CEO influence has been linked in studies to unfavourable business outcomes, including decreased profitability and unfavourable market responses to strategic decisions. Organisations with powerful CEOs frequently have lower credit scores and higher capital costs, suggesting that executive behaviour and shareholder value are not aligned (Bebchuk et al., 2011). Although powerful CEOs can be catalysts for growth and innovation, their unbridled influence can also jeopardise company stability and shareholder confidence. To maximise their potential and reduce related dangers, CEO power must be balanced with efficient governance (Brahma & Economou, 2024).

CEO Power and Executive Compensation: Powerful CEOs often possess the ability to shape their compensation packages, which can lead to remuneration levels that do not accurately reflect the firm's performance. This phenomenon exacerbates the principal-agent conflict, where the interests of executives diverge from those of shareholders. Bebchuk and Fried argue that the "managerial power" approach reveals how CEOs can leverage their influence on boards to secure favourable pay arrangements, often resulting in excessive compensation that lacks a direct correlation with company success (Bebchuk & Buffett, 2004). Companies with powerful CEOs tend to have lower sensitivity to pay-performance, meaning that increases in CEO pay do not align with improvements in firm performance, which can dilute shareholder value (Jensen, 1976). When CEOs have significant control over their pay structures, they can prioritise personal financial gain over long-term health of the company, leading to decisions that are not in the best interest of shareholders (Bertrand & Mullainathan, 2001). This underscores the importance of robust governance mechanisms to mitigate risks associated with concentrated executive power and ensure that compensation practices align more closely with firm performance (Brahma & Economou, 2024).

CEO Power and Firm Risk-Taking: Powerful CEOs can affect a company's risk-

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taking practices, revealing a complicated tension between organisational stability and ambition. A company's long-term performance may be threatened if its CEO takes excessive risks in pursuit of personal goals. Although a certain amount of risk-taking might prove beneficial and result in significant returns. Organisations with powerful CEOs typically take more risks, especially in competitive markets, which could result in organisational instability (Sheikh, 2019). This was evident in the case of the subprime mortgage crisis, where powerful CEOs made aggressive lending decisions that ultimately resulted in detrimental losses for their companies (Lewellyn & Muller-Kahle, 2012). Powerful CEOs may also exhibit risk aversion, especially if their personal wealth is directly related to the performance of the company, leading them to avoid high-risk projects or decisions (Pathan, 2009). Although powerful CEOs can drive innovation and growth by taking measured risks, their unregulated ambitions can result in choices that jeopardise the health of the company, underscoring the need for efficient governance systems to strike a balance between risk and reward (Brahma & Economou, 2024).

CEO Power on Other Corporate Strategies: The influence of CEO power extends significantly to strategic decisions, including mergers and acquisitions, innovation, and corporate governance practices. Research indicates that powerful CEOs can drive bold strategic initiatives, leveraging their authority to pursue aggressive growth through acquisitions. The power of the CEO can lead to increased acquisition activity, although this often comes with risks, as such decisions may not always align with shareholder interests and can cause value destruction if not executed properly (Derek Oler et al., 2010). Furthermore, the effectiveness of innovation initiatives can be heavily influenced by CEO vision; a study by Chen and Shi highlights that optimistic CEOs, when paired with cautious CFOs, can enhance merger success rates by balancing risk and strategic foresight (G. Chen & Shi, 2019). However, the impact of CEO power is not uniform; it is moderated by the governance structures in place. To ensure that strategic decisions are taken in the best interests of the company and its stakeholders, strong corporate governance can act as a check on the CEO's goals balancing their power (Finkelstein, 1992). Therefore, strong governance is necessary to limit the authority of powerful CEOs and ensure that their decisions are aligned with the long-term health of the company, not only due to, but also because these individuals can be the source of important strategic decisions within the organisation (Brahma & Economou, 2024).

4.2. Incentivising CEO's Competency

It is important for the company to choose a suitable candidate and to incentivise them effectively, given the amount of power they as individuals have within the organisation. A well-compensated CEO is often seen as a catalyst for better firm performance. Financial or other incentives aimed at top executives can align their interests with those of the organisation (Cook et al., 2023) (Philipp O'Connor et al., 2021). Al-Shammari, 2021 argues that compensation plays an essential role in incentivising CEOs' ability to influence the firm's performance. Agency theory suggests that CEOs may not always act in the best interests of shareholders due to differing goals and risk preferences. Aligning CEO pay with shareholder interests can help reduce these conflicts by encouraging CEOs to take actions that improve company performance. By tying compensation to performance, agency costs are reduced and CEOs are motivated to act in ways that benefit shareholders. In the context of CEO compensation, expectancy theory suggests that linking financial incentives with firm performance can increase a CEO's motivation to improve company results. Performance-based compensation can, therefore, drive CEOs to take calculated risks that can potentially improve firm performance (Al-Shammari, 2021).

Research consistently shows that higher salaries are effective in attracting high-performing CEOs. Gabaix and Landier, 2006 argue that the substantial increase in CEO pay over recent decades is a rational response to the growing market value of firms. Due to the growing value and complexity of companies, attracting top-level managerial talent capable of handling larger, more complex organisations has become a necessity (Gabaix & Landier, 2006). Similarly, Gavett, 2015 highlights that competitive compensation packages are essential in attracting competent executives who can significantly influence firm performance. Arguing that the market for CEO talent is highly competitive and driven by the need to align executive incentives with shareholder interests (Gavett, 2015). However, high salaries are not only about attracting talent, but also about retaining leaders who can foster a productive and engaged workforce, thereby contributing to overall firm performance. Together, these results show that companies employ increased compensation as a strategic tool to recruit and retain top-performing CEOs who can propel their organisations to success (Hendriks et al., 2023).

Higher CEO pay can be associated to increased sustainability performance. CEOs are more likely to prioritise ESG issues in their strategic planning and decision-making processes when they get compensation based on their performance in meeting predeter-

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mined ESG goals. CEOs are more likely to prioritise long-term sustainable practices that benefit the business and its stakeholders in addition to immediate cash rewards due to this alignment of multiple incentives. (Ademi & Klungseth, 2022). Which is in line with the previously discussed agency theory and expectancy theory. Ioannou and Serafeim, 2015 also emphasise that firms with higher CEO pay tied to corporate social responsibility (CSR) metrics tend to have better sustainability performance. This is because well-designed compensation packages that include sustainability goals can drive CEOs to integrate these considerations into their overall corporate strategy, ensuring that sustainability becomes a core component of company operations and culture. By linking higher pay with sustainability performance, companies can attract and retain top executive talent who are not only capable of driving financial success, but are also committed to achieving long-term sustainable outcomes (Ioannou & Serafeim, 2015).

However, even though the literature reviewed so far can be seen to argue for a positive relationship between CEO pay and ESG performance, other arguments suggest that higher CEO pay can sometimes hinder rather than improve a company's ESG results. One mechanism through which this occurs is the potential for symbolic compliance. CEOs may focus on meeting specific ESG metrics to secure their bonuses, leading to superficial actions that do not result in substantive long-term improvements in ESG practices (Homroy et al., 2023).

Kalev et al., 2006 provide an examination of diversity initiatives within organisations. They argue that many diversity programmes are designed more to protect companies from legal liability than to establish diversity and inclusion. These programmes often result in symbolic compliance, where organisations implement policies and training sessions that appear to address diversity issues but fail to bring about substantive change. Mandatory diversity training, grievance systems, and job tests can sometimes backfire by reinforcing biases rather than eliminating them. For diversity initiatives to be effective, they must be integrated into the organisational culture and supported by leadership commitment rather than being treated as mere formalities (Kalev et al., 2006).

Westphal and Zajac, 1994 research focuses on the symbolic adoption of long-term incentive plans (LTIPs). They are intended to align CEO interests with those of shareholders, but can be adopted in a manner that is more symbolic than substantive. They found that many organisations adopt LTIPs to signal to shareholders and the market that they are committed to aligning executive compensation with company performance.

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However, these plans are often not fully implemented or used minimally, which means that the intended alignment of interests is not achieved (Westphal & Zajac, 1994).

This symbolic adoption is particularly prevalent in companies with powerful CEOs and those with poor prior performance. In such cases, the adoption of LTIPs serves more as a tool to legitimise their efforts to shareholders and external observers than as a genuine effort to improve governance and performance. This decoupling of formal adoption from actual implementation allows companies to appear compliant with best practices in executive compensation without making the necessary substantive changes (Westphal & Zajac, n.d.).

Early adopters of LTIPs are more likely to use these plans to align CEO and shareholder interests. In contrast, later adopters can adopt LTIPs primarily for their symbolic value, to gain legitimacy and defend themselves against criticism without committing to real changes (Westphal & Zajac, n.d.). As most serious ESG incentive plans include long-term components, they are intended to ensure that executives focus on sustainable practices that benefit the company and its stakeholders over the long term. However, if these plans are adopted primarily for their symbolic value - to signal to shareholders and the public that the company is committed to ESG principles — without genuine implementation, the intended effects are not likely to benefit the company. This symbolic adoption can lead to superficial compliance, where executives meet the minimum requirements to secure their bonuses without making meaningful changes to improve ESG performance (Cucari et al., 2023).

Aligning CEO compensation with ESG goals does not always correlate with improved financial performance of an organisation. Although ESG-linked pay can improve ESG scores in organisations with appropriate governance in place, it does not necessarily improve profitability. This misalignment can create tension between short-term incentives and long-term sustainability goals, potentially undermining genuine ESG efforts. ESG-linked compensation helps company's to achieve higher ESG ratings, however, it might not positively impact financial performance or share price (Cohen et al., 2023).

CEOs may prioritise particular ESG goals in order to serve specific incentives, which could result in short-term improvements in ESG scores at the expense of long-term sustainability or financial health. Furthermore, businesses continue to be reluctant to fully include ESG metrics in executive pay. Which can result in superficial compliance rather than substantive change. This reluctance can stem from the difficulty in measuring ESG

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outcomes and the fear of not meeting financial performance expectations. Consequently, while ESG-linked compensation has the potential to drive better ESG performance, it requires careful design and implementation to ensure desired outcomes while avoiding the pitfalls of symbolic compliance (Philipp O'Connor et al., 2021).

In conclusion, one of the potential mechanisms through which CEO compensation can influence increased ESG performance is that organisations buy competency. Competitive compensation packages attract and retain high-performing CEOs (Al-Shammari, 2021). Incorporating sustainability metrics into CEO compensation encourages CEOs to prioritise sustainable practices, which benefits both the company and its stakeholders (Flammer et al., 2019). Better ESG performance can lead to better financial results, improve company reputation, and stakeholder trust, while contributing to greater social and environmental goals (Ademi & Klungseth, 2022). However, higher CEO pay could also lead to lower ESG performance. It can result in symbolic compliance, where CEOs focus on meeting specific ESG metrics to secure bonuses, leading to superficial actions rather than substantive improvements (Homroy et al., 2023). Secondly, excessive CEO pay can signal poor governance, prioritising executive interests over those of shareholders and stakeholders, which can eliminate shareholder trust and lead to unsuccessful ESG initiatives (Cucari et al., 2023).

4.3. Signalling and Company Reputation

Signalling theory can be used to illuminate companies' approach to CEO selection and compensation, particularly in conveying information about their strategic intentions and organisational quality. For example, when a company hires a CEO with a strong track record or a prestigious background, it sends a signal to investors and stakeholders about its commitment to high performance and effective leadership. This is evident in cases where firms select CEOs from well-regarded competitors or those with notable achievements, as these choices can improve the company's reputation and attract investment. In addition, the high-paying packages often associated with CEOs can also serve as a signal. High pay is often interpreted as an indication of the expected contribution of the CEO to the company's success. For example, research suggests that boards of directors can justify substantial CEO salaries as necessary to attract top talent, thus signalling to shareholders that the company is serious about its growth and competitive positioning (Besharat et al., 2024). However, this practice can be detrimental, especially during times of financial difficulty or public scrutiny, where excessive pay can lead to negative perceptions and

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decreased trust in the brand (Harris, 2006).

In addition, disparities in pay between the CEO and other executives can signal succession planning intentions. Suppose that a company maintains a significant pay gap. In that case, it may indicate that the board is preparing for a future leadership transition, suggesting that the current CEO is viewed as a strong leader whose performance warrants such compensation. This use of signalling theory in executive compensation highlights the complex interaction between governance decisions and stakeholder perceptions, ultimately influencing corporate strategy and market behaviour (Essman et al., 2021).

Organisations can also utilise signalling to convey their commitment to sustainability and ethical practices, thus reducing information asymmetry between themselves and their stakeholders. Organisations often face scrutiny regarding their ESG performance, and effective signalling can enhance their reputation and stakeholder trust. For example, high-quality ESG disclosures serve as signals that indicate a firm's commitment to sustainable practices, which can attract investors and customers who prioritise corporate responsibility (Friske et al., 2023). This is particularly relevant in markets where stakeholders are increasingly concerned about environmental and social impacts, as companies that transparently report their ESG initiatives can differentiate themselves from competitors and mitigate the potential risks associated with negative perceptions (Zhang et al., 2024).

The credibility of these signals is crucial. Organisations that participate in voluntary sustainability reports often face initial scepticism from investors, as the costs associated with such reporting can be substantial. However, over time, as firms refine their reporting practices and demonstrate tangible outcomes from their ESG initiatives, the perceived reputability of these signals tends to increase, leading to enhanced firm value. Initial costs may transform into long-term benefits as stakeholders learn to interpret and value these disclosures (Friske et al., 2023). Companies with strong ESG performance often exhibit higher levels of transparency and accountability (Eccles et al., 2014).

In addition to improving reputation, signalling through ESG practices can also alleviate financing constraints. Companies with robust ESG profiles are often viewed more favourably by investors and creditors, leading to better access to capital (Whelan et al., 2021). This is because high ESG ratings signal lower risk and better management practices, which can reduce the perceived cost of capital for these firms. Thus, effective signalling not only fosters trust, but also enhances financial stability, allowing organisations to

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invest further in sustainable initiatives (Christensen et al., 2022).

A strong corporate reputation, built through consistent and credible ESG disclosures, can act as a mediator in the relationship between ESG practices and firm performance. Companies that successfully signal their commitment to ESG can cultivate a positive reputation, which in turn attracts more stakeholders and improves overall performance (Maaloul et al., 2023).

Having established that a high-paying CEO and solid ESG disclosures can serve as effective signals to attract long-term investors, an intriguing question emerges: Do organisations typically rely on a single signal or do they employ multiple indicators to communicate their value?

Although a high salary for a CEO might suggest strong leadership and potential for high returns, ESG disclosures can reflect a commitment to sustainable practices and ethical governance. Therefore, organisations can strategically combine these signals to create a more comprehensive narrative that appeals to a wider range of investors, ultimately improving their attractiveness in the competitive market landscape. This multifaceted approach could provide a more nuanced understanding of the overall health and future prospects of the organisation.

Companies with higher CEO pay tend to perform better in terms of stock market returns, as investors interpret this as a sign of strong future performance (Whelan et al., 2021). Companies use high CEO compensation as a signal of quality and a commitment to excellence (Sandberg & Andersson, 2022). This initial use of signalling through compensation can create a culture in which the organisation is more inclined to adopt additional signalling strategies, particularly in areas such as ESG (Zerbini, 2017) (Edmans, 2017). Companies that prioritise ESG initiatives often highlight these efforts in their communications, paralleling how they promote their executive talent. The signalling efforts of a high-paid CEO can extend to the firm's ESG commitments, as both are perceived as indicators of a well-managed organisation (Eccles et al., 2014). This unification not only enhances corporate reputation but could also help to incite trust among stakeholders, ultimately contributing to long-term success (Cohen et al., 2023) (Eccles et al., 2014).

4.4. Resource Availability

The ability of a company to pay high salaries to its executives often reflects its financial health and the availability of resources. This financial capital not only allows for competitive compensation but also enables companies to allocate resources toward various initiatives, including ESG practices. In contrast, companies with limited financial resources may struggle to invest in executive compensation and ESG disclosures.

High CEO compensation is frequently associated with companies that have substantial revenues and profits. For example, the Equilar 100 report highlights that median total compensation for CEOs at large US companies reached approximately \$23.7 million in 2023, reflecting a significant increase in pay driven by stock awards and overall company performance (Amit Batish, 2024). This correlation suggests that companies capable of offering high salaries are often able to successfully navigate competitive markets while generating sufficient profits to support expenditures (Bouteska & Mefteh-Wali, 2021).

Sustainability reporting has become an essential practice for organisations that want to communicate their ESG performance to stakeholders. However, the process of preparing these reports is resource intensive and requires significant investments beyond the mere financial capacity and manpower. Companies must navigate complex frameworks and complete questionnaires, which requires a well-coordinated effort between various departments (Global Reporting Initiative & Sustainability Accounting Standards Board, 2021) (PricewaterhouseCoopers, 2024).

Sustainability reports can adhere to established standards such as the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB). These frameworks require organisations to collect and analyse a wide range of data, including metrics on carbon emissions, resource usage, and social impact (Richard Threlfall et al., 2020). The reporting process involves not only the aggregation of quantitative data, but also qualitative assessments, which can be labour intensive and time-consuming. Conducting a materiality assessment to identify the most relevant ESG issues for stakeholders requires extensive stakeholder engagement and internal discussions (Brightest, 2022).

Companies with robust financial resources are better positioned to invest in ESG practices and their measurement. Firms with higher levels of CEO compensation often exhibit stronger ESG performance, as these organisations can allocate funds toward

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sustainability initiatives, comprehensive reporting, and stakeholder engagement (Zerbini, 2017). Examples for this include companies such as Microsoft and Apple, which are known for their substantial executive pay packages, also score higher than industry averages in ESG disclosures and sustainability efforts, demonstrating a commitment to responsible corporate governance (Amit Batish, 2024) (Sustainalytics, 2024a) (Sustainalytics, 2024b) (S&P Global Inc., 2024a) (S&P Global Inc., 2024b).

In contrast, companies facing financial constraints can prioritise immediate operational needs over long-term investments in ESG. Limited resources can hinder a company's ability to participate in comprehensive ESG reporting or implement sustainable practices, as these initiatives often require upfront investment and ongoing commitment. For instance, smaller firms or those in financially precarious positions may struggle to meet ESG standards, leading to a lack of transparency and diminished stakeholder trust (Zhang et al., 2024).

To effectively manage sustainability reporting, companies must allocate substantial resources. This includes the hiring of specialised personnel, such as sustainability reporting managers and data analysts, who have the experience to interpret complex data and ensure compliance with reporting standards (Global Reporting Initiative & Sustainability Accounting Standards Board, 2021). In addition, organisations often invest in software tools and systems to streamline data collection and reporting processes. These tools facilitate the integration of ESG data into existing management systems, but also come with significant costs (Guterman, 2024).

The need for external verification of sustainability reports adds another layer of resource demand. Many companies engage third-party auditors to validate their ESG disclosures, ensuring credibility. This external scrutiny not only improves the reliability of the reports, but also requires additional financial and human resources. Illustrating that having the financial means to implement sustainable practices is insufficient; organisations must also invest in the infrastructure necessary for effective reporting (Hazaea et al., 2022).

Empirical studies highlight the resource-intensive nature of sustainability reporting. 96% of G250 companies, the world's 250 largest companies engage in sustainability reporting, but many struggle with the complexities involved, particularly in data collection and stakeholder participation (Richard Threlfall et al., 2020). In contrast, smaller firms or those with limited resources often face challenges in meeting reporting standards. These

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companies may lack the necessary personnel or technological infrastructure to compile comprehensive sustainability reports, leading to potential gaps in transparency and stakeholder trust. This disparity underscores the importance of resource allocation in achieving effective sustainability reporting (Richard Threlfall et al., 2020) (PricewaterhouseCoopers LLP., 2023).

Essentially, companies that are able to offer high CEO compensation have access to significant financial resources at their disposal (Bouteska & Mefteh-Wali, 2021). This makes them better positioned to invest in resource-intensive ESG reporting (Zerbini, 2017).

5. Data Analysis and Results

While the literature analysis focused on CEO compensation, the dataset and the following data analysis utilises the CEO-employee pay ratio. This is done for two main reasons. First, the CEO-employee pay ratio is mainly driven by variation in CEO compensation rather than employee wages (J. Chen, 2024). Therefore, investigating CEO compensation in the literature review helps illuminate the underlying mechanisms driving the CEO-employee pay ratio. Second, using the CEO to median employee pay ratio in the analysis captures more nuances of an organisation's compensation structure than focussing merely on CEO pay. It serves as an indicator of governance, affecting employee morale and productivity, and is relevant to ESG metrics, providing a more complete understanding of how compensation practices influence the ESG performance of an organisation (Johnson, 2022).

5.1. Methodology

The data for the CEO-employee pay ratio stem from a database detailing compensation data of more than 3000 companies, including the Russell 3000 and SP 500 indices. This data was then merged with a dataset that contains additional details, such as employee counts and share price, on the companies. Lastly, to assess a company's total Environmental, Social, and Governance (ESG) score an open source database published by ESG Enterprise was added. All data is from 2023.

After the datasets were merged, the intersection of these datasets was extracted, 503 observations remained with 27 missing values for employee counts, share price, and country. Manual imputation was used due to the ease of availability of the information and the low number of missing variables. Based on the literature, appropriate variables have been chosen to be included in a regression model. Especially important is the industry variable, as different industries will have different salary standards. Then a correlation analysis was performed. Finally, a stepwise regression was used to investigate the relationship between CEO-employee pay ratio and company ESG performance.

5. Data Analysis and Results

5.1.1. Measures

The total ESG score of a company is the dependent variable and used to showcase the ESG performance of an organisation. The score is normalised and ranges between 0 and 3,000. The higher the score, the better the company's ESG performance. The total ESG score consists of three pillars: Environmental, Social, and Governance, each responsible for 0 - 1,000 in the total ESG score. More than 50 company-level ESG measures make up 10 categories that form the final score. Additionally controversies are viewed as undermining factors for ESG performance and therefore lower the ESG score of a company (Enterprise, 2024).

In the sample the mean is a score of 1,033.4 with a standard deviation of 202.9, a min of 600 and a maximum of 1,536.

	Percentiles	Smallest		
1%	601	600		
5%	643	600		
10%	682.5	600	Obs	530
25%	901	600	Sum of weight	530
50%	1100		mean	1033.391
		Largest	Std. dev	202.9326
75%	1161	1475		
90%	1242	1528	Variance	41181.62
95%	1292	1533	Skewness	-.5680368
100%	1433	1536	Kurtosis	2.623356

Table 5.1.: Total ESG score

The Environmental category assesses a company's performance in reducing its environmental impact, focussing on metrics such as resource use, emissions, and innovation. This includes evaluating efforts to minimise material, energy and water use, as well as initiatives to reduce emissions and develop eco-friendly products and technologies. The Social category measures a company's effectiveness in managing its workforce, respecting human rights, and contributing to the community. Key aspects include job satisfaction, workplace safety, diversity, respect for human rights, and community engagement. Lastly, the Governance category examines a company's commitment to best practices in corporate

governance, including management structure, shareholder rights, and corporate social responsibility (CSR) strategies (Enterprise, 2024). Figure 5.1 shows the distribution of ESG scores per category. It is noticeable here that the spread in the environmental category is higher than in the other two. The variance in the Social category is fairly low, with a bulk of the observations in this dataset between 250 and 400. However, outliers do exist on either side. The Governance Score throughout the sample includes more variance with a median of around 300.

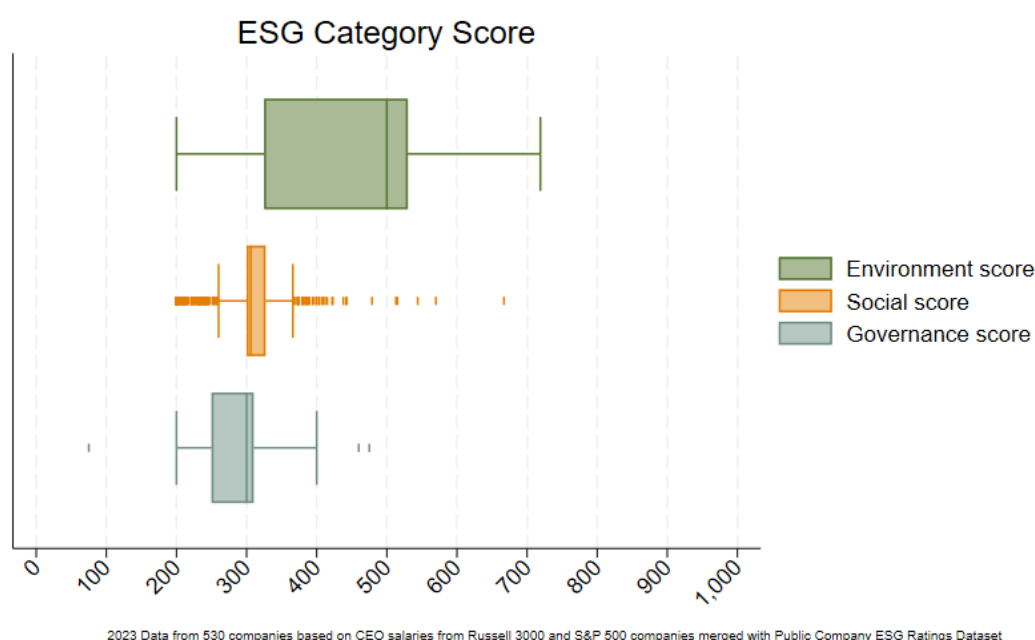


Figure 5.1.: Boxplot showing ESG Score per category.
Figure generated by the author using Stata.

The independent variable is the CEO-employee pay ratio. This is the ratio between the CEOs' salary and the median workers' salary. Figure 5.2 shows a box plot of the ratio of CEO pay to median worker pay. The mean is 307.1 indicating that in the given sample the average CEO receives a salary that is 307.1 times higher than the median workers. This substantial disparity highlights the significant income inequality between top executives and average employees. The standard deviation is 475.6 indicating high variability. The minimum is 1 and the maximum is 6,474.

In the dataset, the mean median pay for the worker is \$86.920. In comparison, the

5. Data Analysis and Results

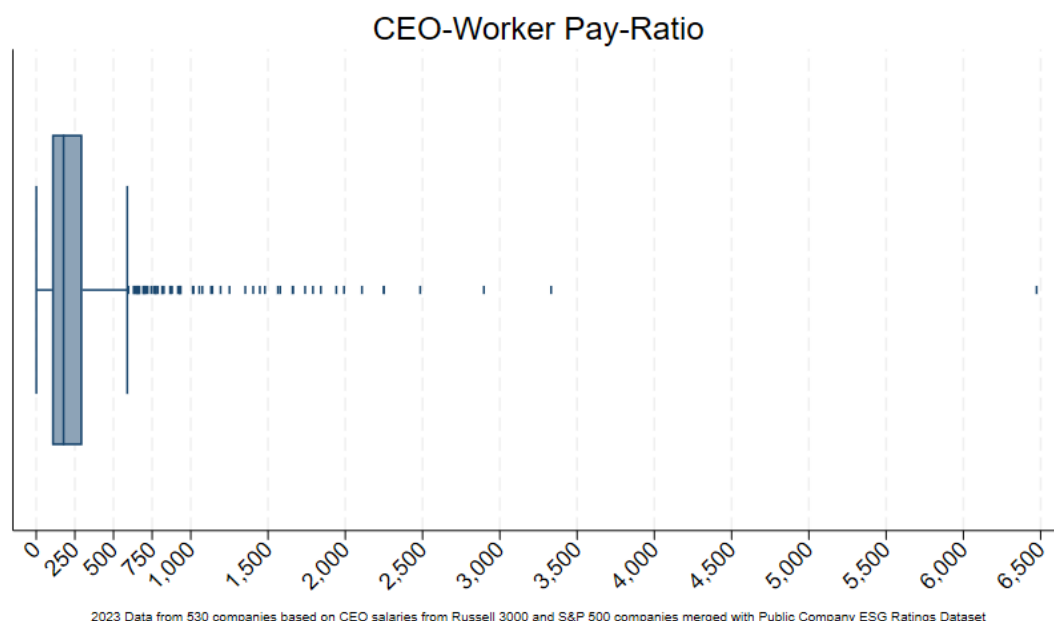


Figure 5.2.: Boxplot showing CEO-employee pay ratio.

Figure generated by the author using Stata.

median annual salary for a worker in the United States was \$50,310 in 2023 (Guzman & Kollar, 2024). Due to the fact that well-performing listed companies comprise the sample, it is expected that the average median salary in the sample is higher than the median salary in the United States. Figure 5.3 shows a box plot with the median pay of the worker per company. The highest median worker salary is paid by Alector, agios Pharmaceuticals, Allogene Therapeutics, Alphabet, and Meta. The companies paying the highest median salaries are, therefore, within the health care industry and the information technology industry.

The average CEO salary in the dataset is \$16,400,000, with a minimum CEO salary of \$132,152 and a maximum salary of \$296,000,000. Figure 5.4 shows this distribution in the dataset. Notably, the highest-paid CEOs are Peter Kern from Expedia with a total compensation of \$296 million, Andrew Jassy from Amazon with a total compensation of \$212 million, and William McDermott from Service Now with a total compensation of \$165 million.

Figure 5.5 shows that companies have a wide range of employee counts in the dataset,

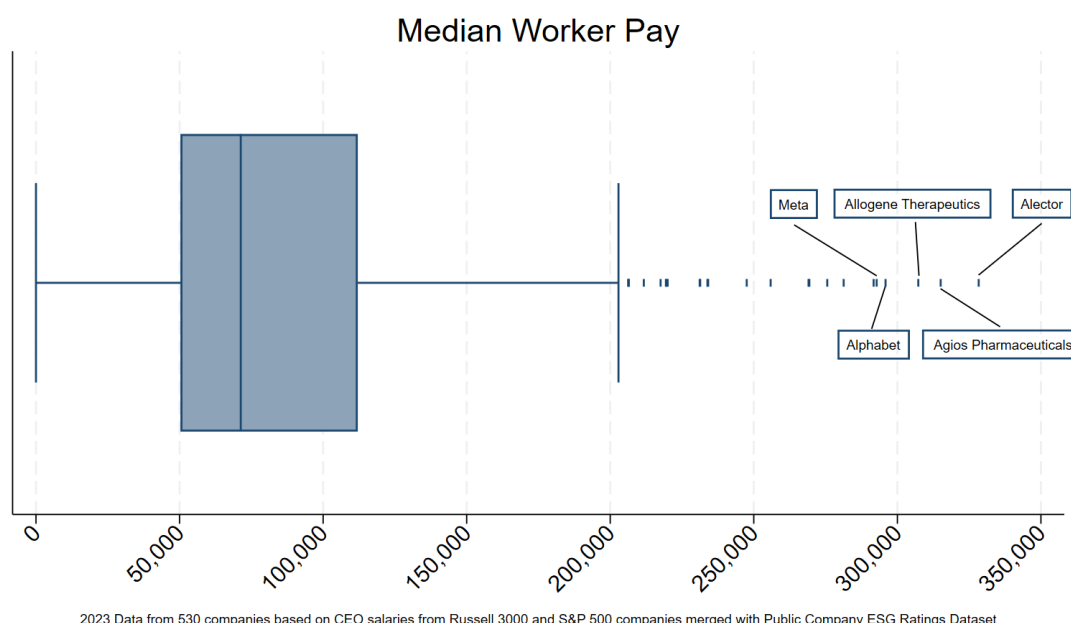


Figure 5.3.: Boxplot showing median worker pay per company.

Figure generated by the author using Stata.

with the smallest company having 45 employees and the largest company, Walmart, having 2,100,000 employees. The mean employee count is 48,764.06. The median employee count is 16,650. The dataset also shows significant variability in the number of employees, with a standard deviation of 132,364.4, indicating a high degree of dispersion around the mean. The percentiles further illustrate this spread, with the first percentile at 186 employees and the 99th percentile at 440,000 employees.

Figure 5.6 provides an overview of the industries of the dataset used to segment it according to the Global Industry Classification Standard.

The **communication industry** includes companies that provide essential services for information exchange, including telecommunications, media, and advertising. Notable companies include News Corporation, T-Mobile US, Inc., and Meta Platforms, Inc.

The **consumer discretionary industry** includes businesses that offer non-essential goods and services, such as Ford Motor Company, McDonald's Corporation, and Starbucks Corporation.

5. Data Analysis and Results

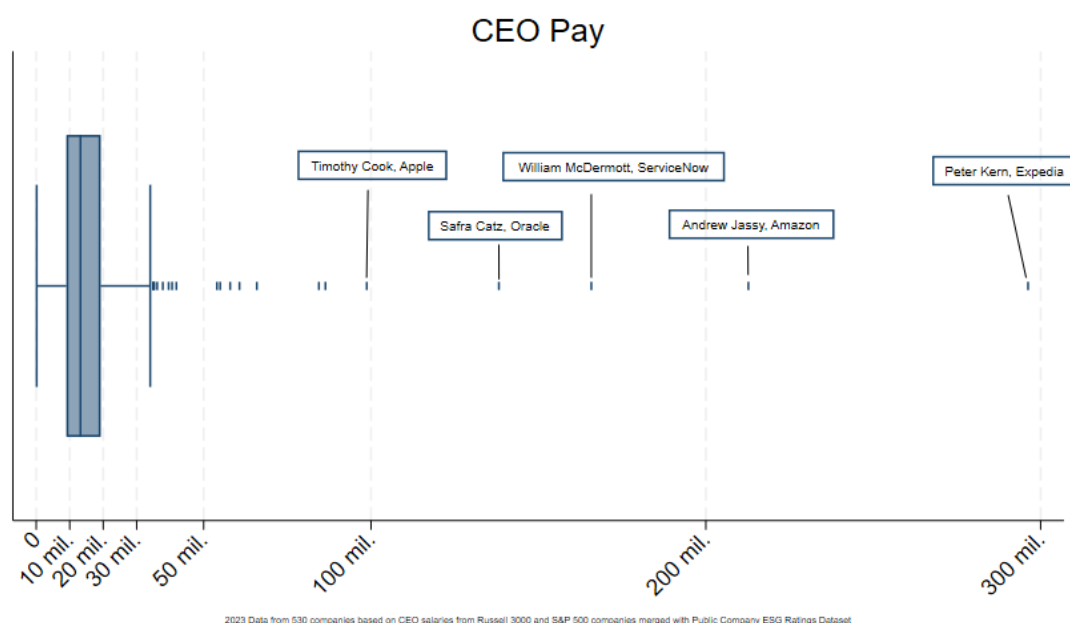


Figure 5.4.: Boxplot showing CEO pay per company.
Figure generated by the author using Stata.

The **consumer staples industry** consists of companies that produce essential products, such as food, beverages, and household items. Examples include Philip Morris International Inc., The Estee Lauder Companies, Inc., and Walmart Inc.

The **energy industry** involves the production and sale of energy, including fossil fuels and renewables. Key players include Chevron Corporation, ConocoPhillips, and Valero Energy Corporation.

The **financials industry** comprises firms that provide financial services, such as banking, insurance, and investment management. Notable companies include Capital One Financial Corporation, U.S. Bancorp, and Marsh McLennan Companies, Inc.

The **health care industry** includes companies that provide medical services, manufacture medical equipment, and develop pharmaceuticals. Examples are HCA Healthcare, Inc., Zoetis, Inc., and Agilent Technologies, Inc.

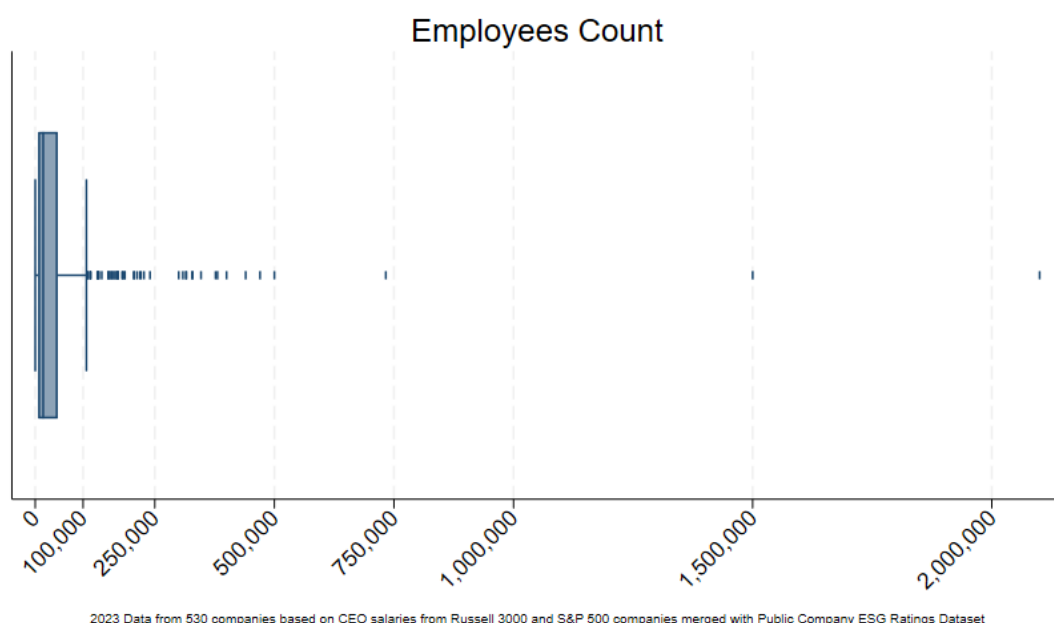


Figure 5.5.: Boxplot showing employees per company.
Figure generated by the author using Stata.

The **industrials industry** encompasses companies involved in manufacturing and infrastructure, such as Raytheon Technologies Corp., Union Pacific Corporation, and United Parcel Service, Inc.

The **information technology industry** includes companies that develop and sell software, hardware, and IT services. Examples for these companies are Microsoft Corporation, Adobe, Inc., and Visa, Inc.

The **materials industry** involves companies that produce raw materials that are used in manufacturing and construction, such as United States Steel Corporation, Linde Plc, and PPG Industries, Inc.

The **real estate industry** includes companies that develop, manage and sell properties, such as Simon Property Group, Inc., CBRE Group, Inc., and Prologis, Inc.

Lastly, the **utilities industry** comprises companies that provide essential services such as water, electricity, and natural gas. Examples include Exelon Corporation, American

5. Data Analysis and Results

Water Works Company, Inc., and CMS Energy Corporation.

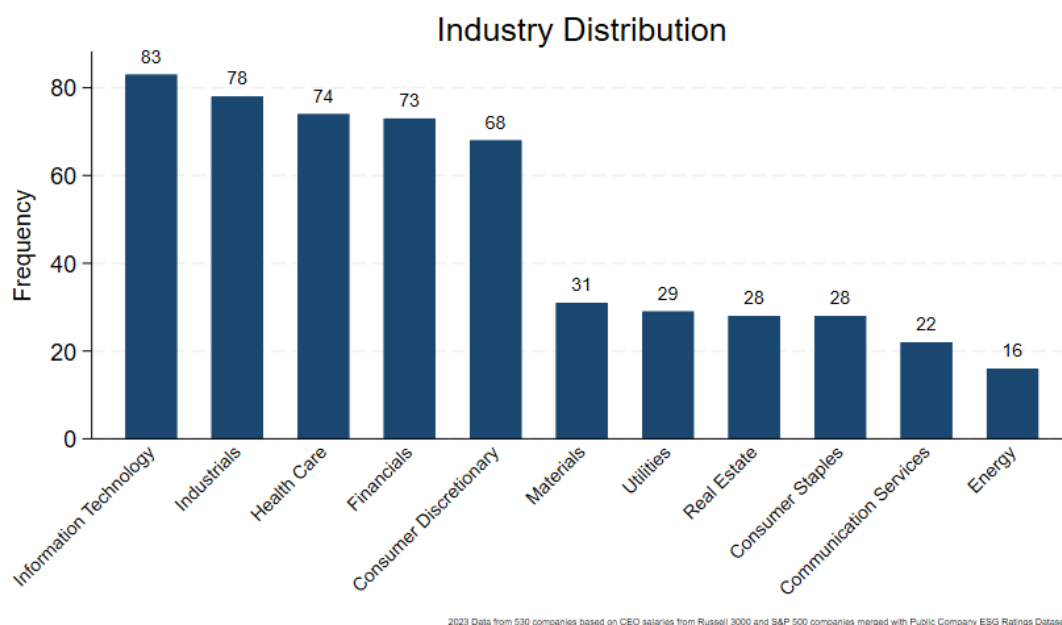


Figure 5.6.: Bar graph showing industry distribution.
Figure generated by the author using Stata.

The total ESG scores across these 11 industries in Figure 5.7 reveal a range of mean scores from approximately 960 to slightly above 1,200. The Communication Services industry has the lowest median total ESG score of 960. Following this, the discretionary consumer industry has a median score of around 1,000.

The median ESG scores for the Financial, Health Care, Information Technology, Real Estate, and Industrials industries are all around 1,100. This indicates a relatively consistent level of overall ESG performance in these sectors. The Consumer Staples, Materials and Energy industries have slightly higher total ESG scores, averaging around 1,150. This suggests that companies in these sectors may be placing greater emphasis on their ESG initiatives.

In terms of variability, the Consumer Discretionary and Industrials industries exhibit the highest spread in total ESG scores. In contrast, the Consumer Staples and Energy industries show the lowest spread in total ESG scores. However, it is important to note

that both industries still have some outliers.

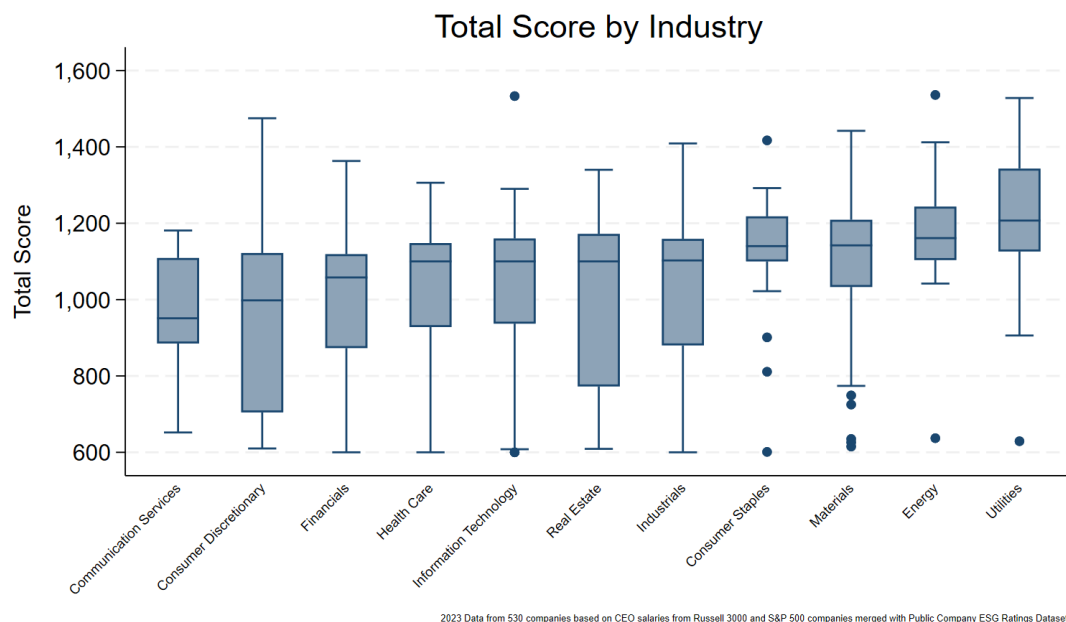


Figure 5.7.: Box plot showing the total ESG score per industry.

Figure generated by the author using Stata.

The dataset shows a significant concentration of companies in the United States, 96% of the total sample with 511 out of 530 companies. This dataset is heavily skewed towards US-based companies, reflecting the country's large number of publicly listed firms. Other countries represented in the dataset include Ireland with 9 companies (1.70%), Bermuda and the United Kingdom each with 3 companies (0.57%), Switzerland with 2 companies (0.38%) and the Cayman Islands and the Netherlands each with 1 company (0.19%). These countries contribute only a small fraction to the overall sample.

Overall, it is observable that while some companies excel in environmental sustainability, others lag significantly behind. The environmental part of ESG scores show the highest variance, but also the highest median within the sample. This could be due to the fact that environmental scores are less ambiguous and clear measurements, frameworks and improvement plans based on more objective measures such as Scope 1, 2 and 3 emissions can be implemented. Whereas, the social scores are measured by more subjective practices, such as employee well-being. The Communication Services industry has the lowest median

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total ESG score of 960, indicating that companies in this sector may have more room for improvement in their ESG practices. In terms of variability, the Consumer Discretionary and Industrials industries exhibit the highest spread in total ESG scores. Indicating a wide range of performance within these sectors, some companies excel in their ESG efforts while others lag behind. The Consumer Staples and Energy industries show the lowest spread in total ESG scores, suggesting greater uniformity in ESG performance among companies in these sectors. The data highlight the varying levels of commitment and performance in different industries in terms of ESG practices. Although some sectors demonstrate consistent and high levels of ESG performance; others show significant variability, indicating opportunities for improvement.

5.2. Correlation Analysis

A correlation heat map is a visual tool that shows how different variables relate to each other. It uses colours to represent the strength and direction of these relationships. The correlation heat map for the dataset used is shown below.

In the correlation matrix, a strong correlation between employees and the CEO-employee pay ratio is apparent. This is expected since the more employees a company has, the higher the CEOs salary on average (Zandi et al., 2019). Supporting this reasoning is a correlation between CEO salary and number of employees. This is not shown in the correlation matrix; the correlation for this was calculated separately and shows a strong correlation of 0.3130. Larger firms tend to have more complex operations and greater responsibilities for their CEOs, which justify higher compensation (Przychodzen & Gómez-Bezares, 2021). Investors often expect higher compensation for CEOs of larger firms as a result of the increased complexity and scale of operations (Rouen, 2017). In addition, effective corporate governance can influence the relationship between employee numbers and CEO compensation (Hendriks et al., 2023).

The correlation matrix indicates a strong positive correlation between the Consumer Discretionary and CEO-employee pay ratio, as shown by the various industries represented in the sample. Companies include the McDonald's Corporation, the Starbucks Corporation, and the Ford Motor Company. An explanation for this could lie in the following factors.

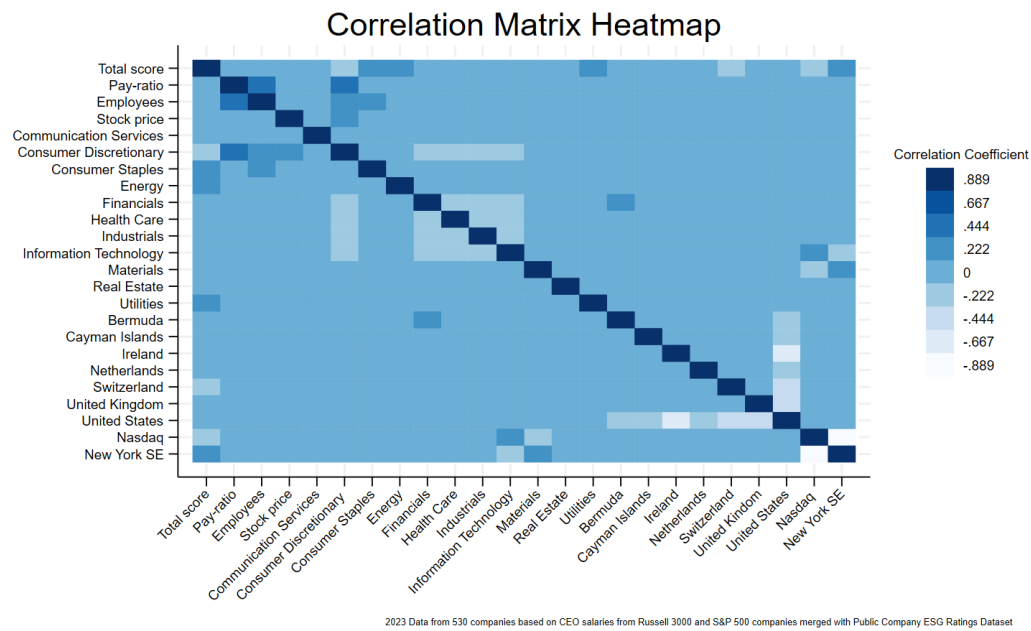


Figure 5.8.: Heatmap showing the correlation matrix.

Figure generated by the author using Stata.

Companies in the Consumer Discretionary sector, such as those in retail, automotive, and hospitality, often have large and complex operations. This complexity requires highly skilled and experienced CEOs, which can lead to higher CEO compensation. Larger firms with more complex operations tend to have higher CEO-employee pay ratios due to the increased responsibilities and skills required. The pay disparity can be related to firm performance and investor expectations, particularly in growth-orientated sectors such as Consumer Discretionary (Rouen, 2017). Competition is fierce in this sector and companies may adopt compensation policies that reward CEOs for achieving strategic goals and maintaining competitive advantage. Hendriks et al., 2023 argues that CEO compensation policies are shaped by various factors, including firm size and governance structures, which are particularly relevant in competitive industries (Hendriks et al., 2023).

Consumer Discretionary also exhibits a positive correlation between it and employees count and stock price. Companies in this sector often experience growth during economic expansions. This growth leads to increased hiring to meet consumer demand, resulting in a higher number of employees. Companies in this sector tend to expand their workforce during periods of economic growth, which positively impacts their stock

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prices due to increased operational capacity and revenue potential (Jill Guericke et al., 2014). Consumer discretionary companies are often seen as indicators of economic health, as their performance is closely tied to consumer spending. When consumer confidence is high, these companies tend to perform well, leading to higher stock prices (Elena Ferrer et al., 2012). This relationship between the number of employees and stock prices in the Consumer Discretionary sector can also be driven by the operational scale and efficiency of these companies. Larger workforces can improve productivity and service delivery, leading to better financial performance and higher valuations of stocks (Black, 2015).

Finally, we also observe a negative correlation between Consumer Discretionary and total ESG score. This could stem from the fact that consumer discretionary goods are, by definition, non-essential goods. The negative correlation between the Consumer Discretionary sector and total ESG scores can be attributed to several factors.

Consumer discretionary goods often include high-end products, durable goods, and automobiles, which typically have a greater environmental impact. These products require significant production resources and often result in higher carbon emissions (Hogenmuller et al., 2024). Non-essential goods often face less regulatory pressure to improve ESG performance compared to essential goods, leading to lower ESG scores (Choi & Lee, 2024). Companies in the Consumer Discretionary sector often face significant cost pressures to remain competitive. Although cost efficiency can drive some environmental improvements, it can also lead to compromises in other areas of ESG, such as labour practices or community impact (Giese et al., 2021).

In contrast, Consumer Staples displays a positive correlation with the CEO-employee pay ratio in this sample. Applying the same reasoning as before, this could stem from the fact that these items are a necessity; therefore, they are produced as efficiently as possible, displaying a lower environmental impact. Notably, we also see a correlation between consumer staples and employees. However, there is no correlation between Consumer Staples and the CEO-employee pay ratio.

The Energy industry shows a slight positive correlation with the total ESG score. Many energy companies are investing in renewable energy sources and technologies to reduce their carbon footprint. This includes solar, wind, and bioenergy projects, which improve their environmental scores. They also often participate in community development and social investment programmes. These initiatives can include improving local infrastructure,

5.3. Stepwise Regression

education, and healthcare, which positively impact their social scores. Energy companies are increasingly adopting these practices to meet regulatory requirements and stakeholder expectations (Yucel & Yucel, 2024).

The industry utilities show a positive correlation with total ESG scores. Utilities are often subject to stringent environmental regulations and standards. Compliance with these regulations can lead to higher ESG scores as companies invest in cleaner technologies and sustainable practices (Mio et al., 2023). Many utility companies are actively pursuing sustainability initiatives, such as transitioning to renewable energy sources and improving energy efficiency (Fometescu et al., 2024). Investors, customers, and regulators increasingly demand transparency and accountability in ESG practices. Utilities, being essential service providers, are under significant pressure to meet these expectations, which can improve their ESG performance (Rădulescu, 2021). They also often make long-term investments in their infrastructure that coincide with ESG goals. These investments can improve their ESG scores over time (Friede et al., 2015).

Switzerland shows a slight negative correlation with total ESG scores. However, since the frequency of observation is low, interpretability is not given here.

Nasdaq shows a negative trend, while the New York stock exchange shows a positive correlation with total ESG scores.

5.3. Stepwise Regression

A stepwise regression was used, which removes , step by step, if their p-values were greater than 0.05, indicating they were not significantly contributing to the model until no further improvement of the model is possible. The final model includes only the statistically significant variables.

The model starts with the CEO-employee pay ratio as the dependent variable, the independent variables are total ESG score, industries, countries, employee count, stock price and exchanges. For the purposes of the model the categorical variables have been encoded and treated as categorical variables in the regression. Table 5.2 shows the steps of the Wald test leading to the final model. If the p-value is below a certain threshold (0.05), the null hypothesis is rejected and the parameter is removed.

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p = 0.9145	= 0.0500	Removing Netherlands
p = 0.7103	= 0.0500	Removing Ireland
p = 0.6490	= 0.0500	Removing Employee count
p = 0.6359	= 0.0500	Removing Financials industry
p = 0.4887	= 0.0500	Removing Real Estate industry
p = 0.2186	= 0.0500	Removing Industrials industry
p = 0.3411	= 0.0500	Removing Health Care industry
p = 0.2336	= 0.0500	Removing Stock price
p = 0.1697	= 0.0500	Removing Information Technology industry
p = 0.1461	= 0.0500	Removing Cayman Islands
p = 0.0981	= 0.0500	Removing Materials industry
p = 0.1005	= 0.0500	Removing United Kingdom
p = 0.1122	= 0.0500	Removing United States

Table 5.2.: Wald test stepwise model

After removing all the variables, the **Final Model** is calculated and a model summary can be seen in Table 5.3.

Number of Observations	530
F-statistic	11.01 (p-value = 0.0000)
R-squared	0.1287
Adjusted R-squared	0.1170
Root MSE	190.7

Table 5.3.: Final stepwise model results summary

The F-statistic indicates the overall significance of the model. A p-value of 0.0000 suggests that the model is statistically significant but is suspicious as it is too low. R-squared represents the proportion of variance in the dependent variable (total ESG score) explained by the independent variables. Here, 12.87% of the variance is explained by the model. The adjusted R-squared adjusts the R-squared value for the number of predictors in the model. It is slightly lower than R-squared, indicating a modest fit.

Table 5.4 shows the detailed results of the stepwise regression analysis, focussing on the relationship between the total ESG score and various predictors. Each row provides the coefficient, standard error, T value, p value, and 95% confidence interval for the predictors included in the model.

5.3. Stepwise Regression

Total ESG score	Coefficient	Std. err.	t	P> t	95% conf.int.	
Pay ratio	.051	.019	2.67	0.008	.014	.089
Industry						
Consumer Discretionary	-111.87	27.51	-4.07	0.000	-165.92	-57.82
Consumer Staples	89.30	37.48	2.38	0.018	15.67	162.93
Energy	141.38	48.92	2.89	0.004	45.28	237.48
Utilities	169.49	37.03	4.58	0.000	96.74	242.23
Country						
Switzerland	-370.75	135.62	-2.73	0.006	-637.18	-104.32
Exchange						
NEW YORK STOCK EXCHANGE, INC.	49.26	17.61	2.80	0.005	14.67	83.85
Constant	982.92	15.25	64.43	0.000	952.95	1012.89

Table 5.4.: Final stepwise model results

Key predictors such as the CEO-employee pay ratio, industry categories (e.g. Consumer Discretionary, Consumer Staples, Energy, Utilities), country (Switzerland) and exchange (New York Stock Exchange) are listed with their respective statistical values. The constant term is also included, indicating the baseline level of the total ESG score when all predictors are zero.

Pay ratio	
Coefficient:	0.051465
Std. Err.:	0.0192605
T-value:	2.67
P t :	0.008
95% CI:	[0.0136274, 0.0893026]

Table 5.5.: Pay ratio detail

Taking a closer look at the variables in the results in Table 5.4, we can find the variable **CEO-employee pay ratio**, which represents the ratio between CEO pay and median worker pay in Table 5.5. A slight positive and significant coefficient suggests that the ratio between CEO pay and median worker salary increases as the total ESG score increases. The effect is statistically significant at the 1% level. The coefficient of 0.0516, with a p-value of 0.009, indicates that there is a correlation between an increase in the CEO-employee pay ratio and an increase in the total ESG score.

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Consumer Discretionary		Consumer Staples	
Coefficient:	-111.8727	Coefficient:	89.29924
Std. Err.:	27.51351	Std. Err.:	37.4791
T-value:	-4.07	T-value:	2.38
P> t :	0.000	P> t :	0.018
95% CI:	[-165.9235, - 57.82191]	95% CI:	[15.67083, 162.9276]
Energy		Utilities	
Coefficient:	141.3787	Coefficient:	169.4867
Std. Err.:	48.91939	Std. Err.:	37.03085
T-value:	2.89	T-value:	4.58
P> t :	0.004	P> t :	0.000
95% CI:	[45.2756, 237.4818]	95% CI:	[96.73892, 242.2345]

Table 5.6.: Industry detail

Table 5.6 suggests that being in the **Consumer Discretionary** industry can be interpreted with a decrease in total ESG score compared to the baseline industry. The dataset is divided into 11 industries; 68 companies within the sample used are categorised as Consumer Discretionary.

Table 5.6 indicates that companies in the **Consumer Staples** industry can be associated with an increase in the total ESG score. Twenty-eight companies within the sample used are categorised as Consumer Staples.

Table 5.6 show that occupying the **Energy** industry can be interpreted as associated with an increase in the total ESG score. Sixteen companies within the sample used are categorised as within the Energy industry.

Table 5.6 signify that being in the **Utilities** industry can be associated with an increase in the total ESG score. Twenty-nine companies within the sample are part of the Utilities Industry.

The results of the model in table 5.7 suggest that **Switzerland** is associated with a decrease in total ESG scores. However, this interpretation cannot be given validity since there are only two observations within the sample, as discussed earlier.

5.4. Interpretation of Results based on Literature Review

Switzerland	
Coefficient:	-370.7545
Std. Err.:	135.6214
T-value:	-2.73
P t :	0.006
95% CI:	[-637.1853, -104.3237]

Table 5.7.: Country detail

NEW YORK STOCK EXCHANGE, INC.	
Coefficient:	49.25856
Std. Err.:	17.60634
T-value:	2.80
P t :	0.005
95% CI:	[14.67057, 83.84654]

Table 5.8.: Exchange detail

The results in table 5.8 of the model used indicate that being listed on the **New York Stock Exchange** is associated with a significant increase in the total ESG score. Within the sample, 346 of the 503 observations are listed on the New York Stock Exchange.

In general, the stepwise regression analysis has identified several significant predictors of the total ESG score within the model and the dataset, including the pay ratio, industry, country, and exchange. The model explains a modest portion of the variance in the total ESG score, and the significant predictors provide information on the factors that influence the total ESG score in this context.

5.4. Interpretation of Results based on Literature Review

The stepwise regression suggests a positive relationship between the CEO-employee pay ratio and the company's total ESG score. Within the sample and model, a higher CEO-employee pay ratio is associated with better ESG performance. With a coefficient of 0.0516 the effect is small, but significant at the 1% level, suggesting a robust relationship. This is in line with the literature review suggesting three potential underlying mechanisms:

CEO Competence: A high CEO salary could be indicative of a particularly competent CEO who is capable of driving both financial performance and sustainability efforts

5. Data Analysis and Results

(Gómez-Bezares et al., 2019).

Reputation Signalling: Firms with highly paid CEOs may place a greater emphasis on their reputation and with it their signals to investors. A high sustainability score can improve the company's image and public perception (Tom Gosling et al., 2021).

Resource Availability: Companies that can afford to pay their CEOs highly may have more resources at their disposal compared to their competitors, enabling them to invest more in sustainability initiatives (Sustainalytics, 2022).

Capable CEOs are likely to have the skills and vision necessary to implement effective ESG strategies that can enhance the overall sustainability performance of the company. Larger companies with more employees often exhibit higher salary differentials due to the increased responsibilities and skills required (Przychodzen & Gómez-Bezares, 2021).

Companies may use well-paid CEOs as a signal for strong leadership and strategic direction (Sandberg & Andersson, 2022). Organisation utilising this signal are more inclined to adopt additional signalling strategies, particularly in areas such as ESG to strengthen their reputation (Zerbini, 2017) (Edmans, 2017). Companies with more shareholder-friendly corporate governance are more likely to provide compensation related to CSR activities, which in turn improves firm social performance (Hong et al., 2016).

The ability of companies to highly pay their CEOs may indicate that they have more resources at their disposal compared to their rivals, enabling them to invest more in sustainability initiatives (Sustainalytics, 2022). Firms with higher levels of CEO compensation often exhibit stronger ESG performance due to their ability to invest in sustainability initiatives, comprehensive reporting, and stakeholder engagement (Cohen et al., 2023). Companies such as Microsoft and Apple, known for their substantial executive pay packages, also scored higher than industry averages in ESG disclosures and sustainability efforts, demonstrating a commitment to responsible corporate governance (Amit Batish, 2024).

The stepwise regression also highlights significant industry-specific effects on ESG performance. The negative coefficient for the discretionary consumer industry suggests that companies in this sector tend to have lower ESG scores. This could be attributed to the higher environmental impact of consumer discretionary goods, which often include high-end products, durable goods, and automobiles that require significant resources for production and result in higher carbon emissions. Additionally, the non-essential nature

5.4. Interpretation of Results based on Literature Review

of consumer discretionary goods means that they face less regulatory pressure to improve ESG performance compared to essential goods. Cost and efficiency pressures in this competitive sector can also lead to compromises in areas of ESG such as labour practices or community impact (Giese et al., 2021) (Boufounou et al., 2023).

In contrast, the positive coefficients for the Consumer Staples, Energy, and Utilities industries indicate that companies in these sectors tend to have higher ESG scores. Consumer Staples companies, which produce essential goods, often have lower environmental impacts and are produced as efficiently as possible. Energy companies are increasingly investing in renewable energy sources and technologies to reduce their carbon footprint, participate in community development, and adopt strong governance practices. Similarly, utilities are subject to stringent environmental regulations and standards, actively pursue sustainability initiatives, and make long-term investments in infrastructure and technology that align with ESG goals (MSCI, 2024) (D'Amore et al., 2023).

Geographic and exchange-specific effects could also influence company ESG performance. The negative coefficient for Switzerland suggests that companies based in Switzerland tend to have lower ESG scores, although the low frequency of observations limits the interpretability of this result. Khurshid and Islam, 2024 argues that regional differences, such as those observed in Switzerland, can affect ESG scores due to varying regulatory pressures and stakeholder expectations (Khurshid & Islam, 2024). The positive coefficient for the New York Stock Exchange indicates that companies listed on this exchange tend to have higher ESG scores. Peliu, 2024 argues that higher regulatory and stakeholder expectations for transparency and accountability in ESG practices contribute to higher ESG scores for companies listed on major exchanges such as the New York Stock Exchange. Forming a compelling argument for why a positive coefficient was observed in the analysis (Peliu, 2024).

The complex relationship between organisational compensation and sustainability outcomes could emerge due to a variety of different underlying mechanisms. The regression indicates a small but significant positive relationship between the CEO-employee pay ratio and the total ESG score. Reasons for this could be CEO competence, organisational reputation signalling or simply resource availability. Industry-specific effects further illustrate how the nature of a company's operations can impact its ESG performance, with sectors like Consumer Staples, Energy, and Utilities showing higher ESG scores due to their focus on essential goods, renewable energy investments, and regulatory compliance.

5. *Data Analysis and Results*

Geographic and exchange-specific effects also play a role, with companies listed on major exchanges such as the New York Stock Exchange demonstrating higher ESG performance. In general, these findings emphasise how different factors can influence a company's ESG performance and the need for more research to explore the underlying mechanisms driving these relationships between different industries and regions.

5.5. Limitations

The analysis of the relationship between the CEO-pay ratio and company sustainability performance has several notable limitations that must be considered to fully understand the context and implications of the findings.

First, the limited sample size of 530 observations may not be representative of the broader population of companies. This relatively small sample size can make it more difficult to detect true effects. Additionally, 96% of the sample is made up of companies from the United States. This geographic concentration limits the generalisability of the findings to a global context, as it does not account for regional differences in corporate governance, regulatory environments, and cultural attitudes toward executive compensation and sustainability.

Secondly, the small observable effect size indicates that the CEO-pay ratio explains only a modest portion of the variance in sustainability performance. The R-squared value of 0.1287 suggests that only about 12.87% of the variance in the total ESG score is explained by the model. This implies that there are many other factors that influence sustainability performance that are not captured in this analysis. These could include industry-specific practices, company size, market conditions, and other aspects of corporate governance and strategy that were not included as control variables in the model.

The use of a stepwise regression model also presents limitations. Stepwise regression is an iterative method that adds or removes predictors based on specific criteria, such as p-values. Although this approach can help identify significant variables, it also increases the risk of overfitting. Overfitting occurs when the model fits the sample data too closely, capturing noise rather than the underlying relationship. This can result in a model that performs well on the sample data but poorly on new unseen data. Furthermore, stepwise regression does not account for the potential multicollinearity between predictors, which can inflate the variance of the coefficient estimates and make the model less reliable.

Another limitation is the potential for an omitted variable bias. While the analysis includes several variables, there may be other relevant factors that were not considered. For example, the analysis does not account for the potential impact of external economic conditions, such as market volatility or economic recessions, which could influence both CEO compensation and sustainability performance. Furthermore, the model does not consider the potential role of corporate culture, or the specific sustainability initiatives undertaken by companies, all of which could significantly impact ESG scores.

Lastly, the use of open source ESG ratings from ESG Enterprise, while providing a standardised measure of sustainability performance, may have limitations. ESG ratings have an element of subjectivity and can vary depending on the methodology and criteria used by the rating agency. The normalization of ESG scores to a range between 0 and 3,000, while useful for comparison, can oversimplify the complex nature of sustainability performance.

In conclusion, while the analysis provides valuable insight into the relationship between the CEO-pay ratio and company sustainability performance, these limitations highlight the need for caution in interpreting the results. Future research should consider larger and more diverse samples to provide a more comprehensive understanding of this relationship.

6. Conclusion

The relationship between CEO-employee pay ratio and Environmental, Social, and Governance (ESG) performance is complex and could be rooted in various theoretical frameworks and empirical evidence. This paper explored the dynamics between CEO-employee pay ratio and a company's ESG scores, drawing on agency theory, signalling theory, and resource-based perspectives in an attempt to provide a better understanding of this relationship. Three potential reasoning have been explored.

Companies with a high-paying CEO can attract the best talent, leading to better sustainability performance. Highly compensated CEOs are likely to be more capable of driving both financial performance and sustainability efforts. This is supported by the empirical evidence presented in this thesis, which shows a positive correlation between CEO pay and ESG performance. Competent CEOs are better equipped to implement effective ESG strategies, which can enhance the overall sustainability performance of the company. (Gabaix & Landier, 2006) (Gavett, 2015) (Hendriks et al., 2023) (Flammer et al., 2019) (Ademi & Klungseth, 2022) (Ioannou & Serafeim, 2015).

Companies use various signals, such as high CEO compensation, the hiring of reputable executives, and transparent disclosures about ESG, to communicate their value and stability to investors. This aims to mitigate information asymmetry, improve corporate reputation, and attract investment. High CEO compensation can also serve as a signal of strong leadership and strategic direction, while ESG disclosures show a commitment to ethical practices and long-term sustainability. This dual signalling can improve the reputation of a company and result in a competitive advantage (Spence, 1973) (Zerbini, 2017) (Gabaix & Landier, 2006) (Bebchuk & Buffett, 2004) (Eccles et al., 2014) (Fathi et al., 2024) (Hong et al., 2016) (Cook et al., 2023).

High CEO compensation is often associated with companies that have substantial financial resources, enabling them to provide the capital needed to invest in ESG initiatives. Companies with higher levels of CEO pay tend to exhibit stronger ESG performance,

6. Conclusion

as they can allocate funds towards sustainability efforts, comprehensive reporting, and stakeholder engagement. Companies capable of offering competitive executive compensation are also able to prioritise and invest in ESG practices. Effective sustainability reporting and ESG performance require significant resource allocation, including financial capacity, specialised personnel, and appropriate technological infrastructure. Companies with robust financial resources could be better positioned to manage the complexities of ESG reporting and implement successful sustainable practices. In contrast, companies with limited resources may struggle to meet ESG standards, leading to potential gaps in transparency and stakeholder trust (Gabaix & Landier, 2006) (Amit Batish, 2024) (Cohen et al., 2023) (Gómez-Bezares et al., 2019) (The SASB Foundation & The Global Reporting Initiative, 2021) (PricewaterhouseCoopers, 2024) (Sustainalytics, 2022) (Richard Threlfall et al., 2020).

Although some pitfalls of incentive systems have been highlighted, by aligning CEO incentives with ESG goals, companies can mitigate agency conflicts and incentivise CEOs to pursue sustainable practices that benefit both shareholders and broader stakeholders. This alignment can be achieved through the integration of ESG metrics into executive compensation packages, ensuring that CEOs are rewarded for their contributions to sustainability. All while continuously monitoring the effectiveness of incentive systems and being aware of potential unintended consequences (Eisenhardt, 1989) (Jensen, 1976) (Flammer et al., 2019) (Cohen et al., 2023) (Roberts, 2010) (Kalev et al., 2006) (West, 2001) (Whelan et al., 2021).

A correlation analysis and stepwise regression were employed to empirically explore the topic. The analysis revealed a small but significant effect of the CEO-employee pay ratio on company ESG scores, with a coefficient of 0.0516, based on the dataset used.

The analysis also highlights industry-specific effects on ESG performance within the sample used. For example, companies in the Consumer Discretionary sector tend to have lower ESG scores, which could be attributed to the greater environmental impact of consumer discretionary goods and the non-essential nature of these products (Hogenmuller et al., 2024) (Choi & Lee, 2024). In contrast, companies in the Consumer Staples, Energy, and Utilities sectors tend to have higher ESG scores, reflecting their focus on essential goods, renewable energy investments, and regulatory compliance (Gómez-Bezares et al., 2019) (Yu & Su, 2024) (Mio et al., 2023) (Fometescu et al., 2024) (Friede et al., 2015). These industry-specific insights underscore the importance of considering particularities

each sector when designing executive compensation packages and ESG strategies.

Geographic and exchange-specific effects could also play a role in a company's ESG performance. Although the sample distribution is not suitable to indicate clear relationships, the results could be first indications that could warrant further study (Khurshid & Islam, 2024). Companies listed on major exchanges such as the New York Stock Exchange, within the sample used, tend to have higher ESG scores, likely due to higher regulatory and stakeholder expectations of transparency and accountability in ESG practices (Sustainalytics, 2022) (Peliu, 2024).

Although this thesis provides insight into the relationship between CEO-employee pay ratio and ESG performance, further research is needed to explore the underlying mechanisms driving these relationships across different industries and regions.

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A. Appendix

A. Appendix

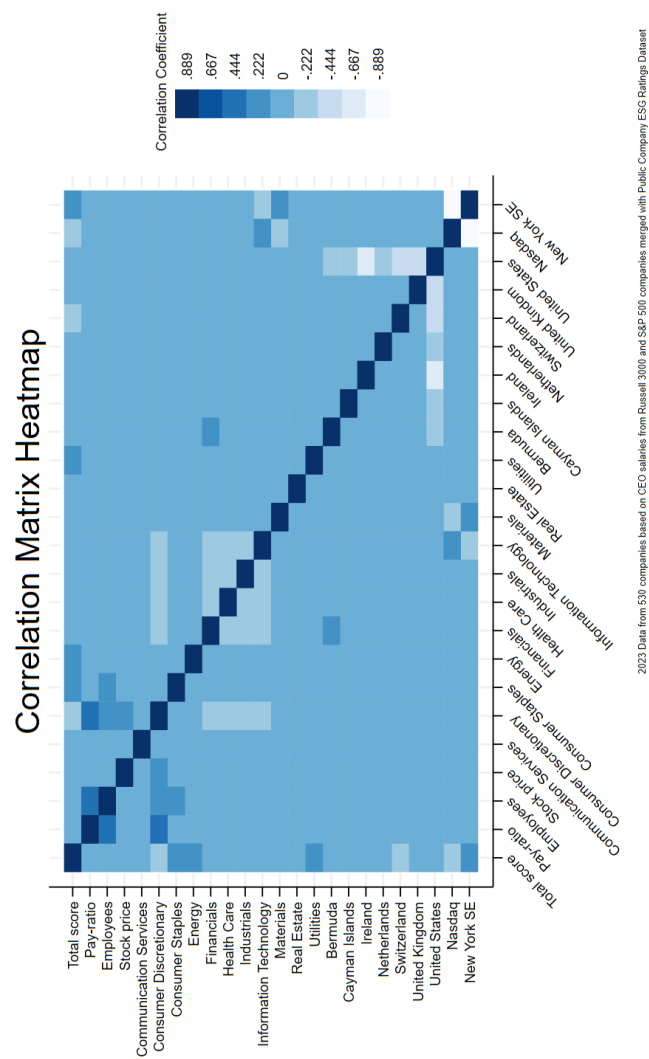


Figure A.1.: Figure 4.1 Heatmap showing the correlation matrix. Figure generated by the author using Stata.