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EU Taxonomy and its relation to ESG Ratings: A Comparative Analysis of Aligned and Non-Aligned Firms

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Abstract English

This master thesis examines the impact of alignment with the EU taxonomy on companies' ESG (Environmental, Social, and Governance) ratings, taking into account various factors such as financial performance, industry classification, and geographical location. The analysis confirms that alignment with the EU taxonomy generally leads to higher ESG ratings, particularly in the environmental rating. Larger companies benefit more from alignment, while company type and geographic location significantly influence the relationship between alignment and ESG ratings. Companies within the European Union tend to achieve better ESG results due to the strict requirements. The analysis also points to challenges for larger companies in environmentally intensive industries that struggle to fully meet the EU taxonomy standards. This research builds on and extends the study by Dumrose et al. (2022) by examining the impact of the EU taxonomy on the consistency and reliability of ESG ratings within a single rating provider. Besides that, a text-based content analysis of companies' ESG reports illustrates how the EU taxonomy influences how companies report on their sustainability practices. The results show that companies that align with the EU taxonomy report their environmental and governance strategies in more detail. This alignment leads to greater transparency and comparability of sustainability reports. The research emphasises the importance of the EU Taxonomy as a framework for promoting sustainable business practices and improving ESG ratings, which benefits companies and investors alike.

Abstract Italian

Questa tesi di laurea magistrale esamina l'impatto dell'allineamento alla tassonomia dell'UE sui rating ESG (ambientali, sociali e di governance) delle aziende, tenendo conto di vari fattori come la performance finanziaria, la classificazione del settore e la posizione geografica. L'analisi conferma che l'allineamento con la tassonomia UE porta generalmente a rating ESG più elevati, in particolare per quanto riguarda il rating ambientale. Le società più grandi traggono maggiori vantaggi dall'allineamento, mentre il tipo di settore e l'ubicazione geografica hanno un'influenza significativa sulla relazione tra allineamento e rating ESG. Le aziende dell'Unione Europea tendono a ottenere risultati ESG migliori grazie ai requisiti rigorosi della tassonomia UE. Tuttavia, l'analisi evidenzia anche le sfide per le aziende più grandi che operano in settori ad alta intensità ambientale, che faticano a soddisfare pienamente gli standard della tassonomia. Questa ricerca si basa sullo studio di Dumrose et al. (2022) e lo amplia, esaminando l'impatto della tassonomia UE sulla coerenza e l'affidabilità dei rating ESG all'interno di un singolo fornitore di rating. Inoltre, un'analisi del contenuto testuale dei report ESG delle aziende illustra come la tassonomia UE influenzi il modo in cui le aziende rendono conto delle loro pratiche di sostenibilità. È emerso che le aziende che si allineano alla tassonomia UE riferiscono in modo più dettagliato e completo sulle loro strategie ambientali e di governance, portando a una maggiore trasparenza e comparabilità dei rapporti di sostenibilità. La ricerca sottolinea l'importanza della tassonomia UE come quadro di riferimento per la promozione di pratiche aziendali sostenibili e per il miglioramento dei rating ESG, a vantaggio sia delle aziende che degli investitori.

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List of Abbreviations

CapEx Capital Expenditure

CSRD Corporate Sustainability Reporting Directive

ESG Environmental, Social, and Governance

EU European Union

GRI Global Reporting Initiative

KPI Key Performance Indicator

NACE Nomenclature statistique des Activités économiques dans la Communauté Européenne

OLS Ordinary Least Squares

OpEx Operational Expenditure

SFRD Sustainable Finance Disclosure Regulation

SME Small and Medium-sized Enterprises

TRBC Thomson Reuters Business Classification

1 Introduction

Sustainability has become an important issue for businesses, governments, and individuals worldwide in recent years. Companies are now expected to be accountable not only for their financial performance. This growing expectation has led to the development and increasing importance of ESG (environmental, social, and governance) criteria. In recent years, ESG criteria have become essential in assessing how companies manage risks and opportunities related to environmental issues, social responsibility, and governance structures (Friede et al., 2015). These criteria are now at the center of business valuation. It offers a view that goes further than conventional financial metrics. Thus, ESG ratings are increasingly present in investment decisions, consumer behavior and regulatory policy (Eccles et al., 2014). In response to these trends, the European Union has made several efforts to promote sustainable economic activities. These efforts are supported by the EU taxonomy, which is an integral part of the European Green Deal. The European Green Deal, launched in December 2019, is a plan to make Europe climate-neutral by 2050. This plan is instrumental in leading Europe towards a more sustainable and environmentally friendly future. Its goal is to make sure that the EU does not produce more greenhouse gases than it can remove from the atmosphere (European Commission, 2019). The EU Taxonomy provides a standardised framework for identifying and categorising environmentally sustainable economic activities. The definition of standards is intended to prevent greenwashing and increase the transparency of sustainability reporting (European Commission, 2023). The taxonomy will help companies align their activities with sustainability objectives and make it easier to integrate these objectives into their business strategies. It also provides investors and stakeholders with a reliable framework to determine which activities are truly sustainable. Additionally, it will help to increase the accuracy of ESG ratings and support more informed financial and investment decisions (Eccles and Klimenko, 2019). Since the EU Taxon-

omy is relatively new, companies began aligning their processes with the EU Taxonomy criteria in 2021. In the following year large public-interest entities with more than 500 employees must disclose how their activities align with the taxonomy. And then by 2023, these companies were expected to provide more detailed reports on their compliance. This regulatory environment emphasises the growing need for businesses to adapt to these standards, reflecting the relevance of sustainability in modern business practices (European Parliament and the Council of the European Union, 2021, Article 10).

The implementation of the EU taxonomy is not without its challenges. While alignment with the taxonomy can improve a company's environmental rating in ESG ratings, there are significant practical barriers (Dumrose et al., 2022). For example, a study by PwC points to problems such as inconsistent data quality, difficulties in achieving comparable data, and incomplete adoption of the taxonomy criteria by companies (PwC, 2024). Despite these challenges, the consistency and standardisation offered by the EU taxonomy are expected to enhance the effectiveness of ESG ratings. For instance, Dumrose et al. (2022) found a positive correlation between adherence to the EU taxonomy and higher environmental ratings across different ESG rating providers. This correlation suggests that companies that follow more closely to the taxonomy achieve better Environmental (E) ratings (Dumrose et al., 2022).

Building upon the foundation laid by Dumrose, Rink, and Eckert (2022), this study extends their research by investigating the differences in ESG ratings between companies aligned with the EU Taxonomy and those that are not, as assessed by a single rating provider. The purpose of this additional level of analysis is to explore in more depth whether the alignment with the EU taxonomy leads to more consistent and favourable ESG ratings within the framework of a rating agency. Through focusing on a single provider, this extension attempts to isolate the impact of taxonomy alignment on ESG scores, providing a more detailed insight into the benefits

of taxonomy compliance. This approach allows for a detailed examination of how taxonomy alignment might affect the reliability of ESG ratings. It further provides evidence on whether alignment with the EU taxonomy can be a reliable measure of sustainability performance. The findings from this extended analysis will contribute to the ongoing discourse on the harmonization of ESG ratings and offer practical implications for companies, investors, and rating agencies.

With these insights this thesis tries to analyse how the alignment with the EU taxonomy influences ESG ratings to close a gap in understanding the relationship between regulatory frameworks and sustainable business practices. Therefore this thesis will have a deeper look in analysing whether companies that follow the taxonomy criteria achieve higher ESG ratings than those that do not. The central research question of this thesis results: ***How does alignment with the EU Taxonomy affect companies' ESG ratings?*** To explore this question, the thesis will investigate several key areas:

1. To what extent does alignment with the EU Taxonomy's eligible revenue criteria correlate with higher ESG ratings?

2. How do financial performance metrics, such as return on assets (ROA) and total revenue, interact with alignment with the EU Taxonomy to influence ESG ratings?

3. Does the impact of EU Taxonomy alignment on ESG ratings vary by industry and geographic location?

4. How do companies describe their compliance with the EU Taxonomy in public reports, and how do they perceive its impact on their sustainability practices?

1.1 Proceedings

This thesis begins by focusing on reporting standards. In Chapter 2, it discusses the relevance of sustainability reporting and the different methodologies behind ESG ratings. Chapter 3 provides an overview of the institutional context. It discusses how the European Union defines sustainability, focusing on the EU Taxonomy and its relevance for ESG ratings. In addition, it describes relevant regulations such as the Corporate Sustainability Reporting Directive (CSRD) and the Sustainable Finance Disclosure Regulation (SFDR).

Chapter 4 is dedicated to the literature review and presents studies on ESG ratings, the EU Taxonomy, and sustainability reporting. The study, which will be the base for the analysis, will also be described. Chapter 5 then describes the hypothesis development. It is based on findings from the existing literature and explains how the EU taxonomy could influence ESG ratings. Possible influencing factors such as financial performance indicators and sector affiliation are examined. Chapter 6 focuses on the research methodology. It describes the data collection process in detail, including the tools and techniques used. In addition, the sample of companies studied is analysed regarding their compliance with the EU taxonomy. The results of the quantitative analysis are presented in chapter 7. The hypotheses are tested and the relationship between compliance with the EU taxonomy and environmental ESG ratings is examined. Various statistical methods, including robust regression models, support the analysis. Chapter 8 compares the results of this research with previous studies to better understand how EU taxonomy alignment affects ESG ratings. It also discusses the implications of the findings for companies, investors, and policy makers. Chapter 9 analyses the research limitations and makes recommendations for future research areas. Chapter 10 concludes by summarizing the key findings of the study. It offers practical recommendations for companies and decision-makers and reflects on the broader implications of the findings for sustainable finance.

2 Reporting Standards

2.1 Sustainability Reporting

Sustainability reporting involves sharing detailed information about a company's ESG impacts. Contrary to financial reporting, which follows various accounting standards, ESG reporting practices are less defined or voluntary depending on the type of company. This can lead to inconsistencies in the report content or even to quality concerns about the information disclosed (World Economic Forum, 2020; Erkens et al., 2015). In spite of these challenges, sustainability reports are needed to inform stakeholders like investors, and customers about a company's ESG performance. Effective sustainability reporting can influence investment decisions, stakeholder trust, and regulatory compliance (Misiuda and Lachmann, 2022). These reports also help companies demonstrate their commitment to ESG principles by providing a structured framework for measuring and communicating a company's commitment to sustainable practices (Global Reporting Initiative, 2021b).

Sustainability reporting is governed by various international and regional frameworks that establish the guidelines for ESG disclosures. Although there is diversity, most companies rely on one of five main ESG reporting frameworks developed by prominent professional organizations. These include the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), the Carbon Disclosure Project (CDP), the International Integrated Reporting Council (IIRC), and the Carbon Disclosure Standards Board (CDSB) (Threlfall et al., 2020). Among these frameworks, GRI is notable because it is the preferred standard for about two-thirds of companies that use ESG guidelines (Threlfall et al., 2020). The GRI framework is known for its broad range of ESG topics, which provides standardised reporting across different industries (Global Reporting Initiative, 2021).

Through constant changes in the legal framework or regional requirements, sustainability reporting is being continuously developed. In Europe, this process is driven primarily by the newly introduced Corporate Sustainability Reporting Directive (CSRD). This requires many European companies to publish detailed information on their sustainability report (European Commission, 2021). The CSRD will be explained in detail in the next chapter. In the United States, the Securities and Exchange Commission (SEC) continues to press for more standardized climate-related disclosures. These regulations are designed to help investors gain access to reliable ESG information as it becomes increasingly important for making informed investment decisions (U.S. Securities and Exchange Commission, 2021). Companies use different methods for sustainability reporting based on what suits their goals and the expectations of their stakeholders. Some choose to create separate sustainability reports that focus only on ESG topics. Others prefer integrated reports, which combine financial and non-financial data to give a complete picture of the company's overall performance and sustainability practices. Additionally, many companies now include sustainability sections in their annual financial reports, showing how ESG factors are becoming part of their main business strategies (Threlfall et al., 2020).

A typical sustainability report provides an overview of a company's ESG performance and is structured to comply with legal requirements. The report usually begins with a summary highlighting its main achievements, objectives, and strategic initiatives. This is followed by a company profile that describes the company's mission, values, and governance structure (Global Reporting Initiative, 2021a). The environmental section is based on the European Sustainability Reporting Standards (ESRS) and covers topics such as energy consumption, greenhouse gas emissions, and resource management (European Parliament and the Council of the European Union, 2023). Social performance sections address labor practices, human rights, diversity, and community engagement. At the same time, governance aspects are also covered in line with

ESRS, fulfilling both EU regulatory expectations and stakeholder demands (Global Reporting Initiative, 2021b, GRI 401, 402, 405, 413)(European Parliament and the Council of the European Union, 2023).

The ESG objectives and targets demonstrate the company's commitment to continuous improvement. The report contains quantitative data that provides detailed information and is often validated by third parties to strengthen its credibility. Stakeholder engagement is summarised and shows how feedback influences the company's sustainability strategy. In addition, the report establishes a link between sustainability efforts and economic performance (GRI and SASB, 2021).

2.2 ESG Ratings

ESG ratings evaluate a company's performance across three dimensions: environmental, social, and governance. The environmental dimension rates a company's impact on the natural environment, concentrating on areas such as climate change mitigation, energy efficiency, resource management, environmental protection, and biodiversity conservation. The social dimension rates how a company maintains relationships with its employees, suppliers, customers, and communities. This includes labor practices, health and safety measures, and human rights policies. The governance dimension evaluates the quality and transparency of a company's management and governance structures, including board composition, executive compensation, shareholder rights, and ethical conduct (Clark et al., 2015, p. 11 ff.).

Various agencies employ distinct methodologies to calculate ESG ratings, involving data collection, scoring, weighting, and aggregation. Data collection involves gathering information from multiple sources, including public disclosures, regulatory filings, or news articles. Some agencies also engage directly with companies to obtain more detailed information (OECD, 2023;

Diligent Insights, 2023).

Predefined criteria for ESG factors can be used to evaluate a company's overall sustainability performance and business activities. These criteria can vary between different sectors to enable comparability. For example, environmental factors have a stronger weighting in sectors with a strong environmental impact. On the other hand, governance factors have a greater weighting in the financial sector as these have a lower environmental impact (OECD, 2023; Mayor, 2019). Individual scores for various ESG factors are aggregated into a composite score, representing the company's overall performance across all dimensions. Mathematical models and algorithms can be used to combine scores that reflect the weighted impact of each factor in this aggregation process (OECD, 2023; Diligent Insights, 2023).

While the general methodology for ESG ratings follows similar steps, some differences exist between rating agencies in topics like data sources, weighting criteria, and scoring models. There are several agencies like MSCI, Sustainalytics, Refinitiv or S&P Global calculating such ESG ratings. MSCI uses a rules-based methodology to score companies on an industry-relative scale, focusing on their exposure to ESG risks and how well they manage those risks compared to peers. MSCI's approach emphasises risk management and the financial implications of ESG factors. The ratings are derived from a range of publicly available data and proprietary models that analyse over 1,000 data points for each company. MSCI's system is adjusted in line with specific industries to reflect its unique risk profile (MSCI, 2023). Sustainalytics evaluates companies based on their exposure to material ESG risks and how well they manage those risks. The final risk rating is categorized into levels of negligible, low, medium, high, or severe risk, indicating the company's overall risk profile. Sustainalytics' methodology involves extensive data collection from company disclosures, regulatory filings, and direct engagement with companies. The evaluation considers the company's management of ESG risks and the impact of

those risks on its operations (Sustainalytics, 2023). The evaluation at Refinitiv is based on a large number of ESG indicators. This data is collected directly from various sources, such as databases, public announcements or companies. They are then weighted and evaluated based on their relevance to the industry. The large number of factors used in Refinitiv's weighting process attempts to provide a holistic assessment of a company. The data is updated regularly. The methodology used by Refinitiv attempts to minimize distortions in the ESG rating as far as possible and to enable a fair measurement (Refinitiv, 2024). S&P Global combines quantitative scores and qualitative measurements in its ESG Evaluation. This evaluation considers a company's ESG profile and preparedness for future risks, incorporating both current performance and forward-looking strategies. S&P Global's methodology involves analyzing a company's disclosures, conducting interviews with company management, and using proprietary models to assess ESG performance (S&P Global, 2023).

Although ESG ratings have been widely adopted by the investment industry, they have not been without their critics. In particular, the lack of comparability and consistency between the different agencies that issue the ratings has been criticised. Thus, each agency has its own styles and guidelines, applying different criteria and having different weightings, resulting in entirely different scores for one firm. This situation might create confusion among the investors and, in the long run, lead to a lack of confidence in these ratings (Berg et al., 2022).

In addition, most companies would be willing to spend more money on ESG reporting and improvements. This could lead to a higher rating for them. This is a disadvantage because small companies, who might perform well in terms of ESG content, may not have the means to demonstrate such efforts. Such disparities raise questions about the fairness and equity of ESG ratings (Drempetic et al., 2020).

(Chatterji et al., 2016) critiques whether ESG ratings effectively guide investment decisions to-

wards genuinely sustainable and ethical companies. They argue that high ESG ratings do not always correlate with positive social or environmental outcomes and that focusing on ratings might divert attention from substantive changes in corporate behavior. Nevertheless, ESG ratings help investors identify long-term risks because companies with low ratings are more prone to regulatory penalties, reputational damage, and inefficiencies, making them higher-risk investments. Understanding these risks enables investors to anticipate potential financial impacts (Edmans and Kacperczyk, 2022; Dong et al., 2022). Additionally, companies with strong ESG practices often see better financial performance due to operational efficiencies, innovation, and stronger brand loyalty (NYU Stern Center for Sustainable Business, 2021; European Commission, 2022b).

3 Institutional Context

3.1 European Green Deal

As already mentioned in the Introduction, the European Union launched the European Green Deal with the ambitious goal of becoming climate-neutral by 2050, making it the first climate-neutral continent. To achieve this, the EU aims to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels and plans to plant 3 billion additional trees by 2030 (European Commission, 2024b). Achieving this target will require major changes in several sectors, including energy, transport, agriculture, and industry. For instance, the EU wants to increase the use of renewable energy sources. This shift is essential to reduce the dependence on fossil fuels, which are a major contributor to greenhouse gas emissions. The transition to renewable energy will require large investments in infrastructure, such as expanding wind farms, upgrading power grids, and increasing energy storage capacity. This transition is needed to reduce emissions and improve energy security and clean, affordable energy (European Commission, 2019, Section 2.1.2). Further, the transport sector plans big changes as the EU aims to reduce carbon emissions from vehicles by promoting electric vehicles through expanded charging infrastructure and incentives. Additionally, the EU will invest in cleaner fuels and improve public transport and cycling infrastructure (European Commission, 2019, Section 2.1.5). The industrial sector will focus on modernisation and decarbonisation, especially in the steel, cement, and chemicals industries. The EU supports adopting cleaner technologies, increased energy efficiency, and circular economy practices to reduce waste and emissions (European Commission, 2019, Section 2.1.3). Finally, the Green Deal emphasises protecting nature and biodiversity, aiming to minimise waste, promote recycling, and restore ecosystems across Europe (European Commission, 2019, Section 2.1.7). The European Green Deal also positions the EU as a global leader

in climate action. EU leadership is essential to drive global action to meet the goals of the Paris Agreement, an international treaty to limit global warming (European Commission, 2019, Section 3).

Financing the Green Deal is another issue as there are major investments will be required. The European Green Deal Investment Plan aims to mobilise at least EUR 1 trillion in sustainable investment over the next decade. This includes funding from the EU budget, national budgets, and private investments. By aligning financial resources with sustainability goals, the EU is ensuring that the necessary funds are available to support the green transition (European Commission, 2020). The action plan for sustainable finance from 2018 is an ambitious step for EU investment. It aims to encourage private investments in environmentally friendly technologies and sustainable business practices. Public funds alone are not enough to achieve the goal of climate neutrality by 2050. The plan aims to involve the private sector to a greater extent (European Commission, 2018a). A central component of the action plan is the EU taxonomy. This sets out criteria for determining whether an economic activity is environmentally sustainable. The taxonomy is intended to help investors, companies, and political decision-makers identify activities that contribute to the EU's environmental goals. These include the reduction of CO2 emissions, adaptation to climate change, and the protection of biodiversity. Clear definitions and a common language are intended to prevent sustainability from being a pretense. At the same time, the intention is to secure that the investments actually support the environmental goals (European Commission, 2018b, Section 2.1). The action plan also requires institutional investors and asset managers to disclose how they integrate ESG factors into their investment decisions. This increased transparency should help investors to make more informed decisions. The plan also promotes the development of standards for green bonds. It introduces new benchmarks, such as the EU climate benchmarks and the Paris target benchmarks. These are intended

to provide guidance for portfolios that are aligned with the goals of the Paris Agreement (European Commission, 2018b, Section 2.5). Another focus of the action plan is the integration of sustainability into corporate governance. The reforms are intended to help ensure that companies provide detailed information on how sustainability aspects affect their business activities and finances (European Commission, 2018b, Section 4.2).

3.2 Corporate Sustainability Reporting Directive

Sustainability reporting allows companies to demonstrate the extent how they are meeting their environmental, social, and governance responsibilities. Access to transparent information on how companies fulfill their responsibilities and impacts is especially relevant for all stakeholders (European Commission, 2024a). To standardise and improve sustainability reporting, the Corporate Sustainability Reporting Directive (CSRD) was introduced in January 2023. This replaced the Non-Financial Reporting Directive (NFRD) with a broader target group. The objective now is to require all small, medium-sized, and large companies listed on EU-regulated markets to submit more detailed reports on their sustainability practices in line with EU standards. This will result in an increase in the number of companies subject to reporting requirements from approximately 11,700 to 50,000 by 2028 (European Parliament, 2022) (European Commission, 2022a, Article 2). Over the next three years, the CSRD will be implemented for different firms gradually: Large companies that are already required to submit sustainability reports in line with the NFRD standards will begin reporting for the 2024 financial year and publish their reports in 2025. Subsequently, other large companies with more than 250 employees, a turnover of EUR 40 million, or a balance sheet total of €20 million will be required to report from the 2025 financial year, with publication in 2026. Listed SMEs, small and non-complex credit institutions, and captive insurance companies will be required to report for the

2026 fiscal year, with publication in 2027. Furthermore, non-EU companies with subsidiaries or branches in the EU that employ more than 500 people or have a substantial turnover in the EU will also be required to comply with these reporting standards from 2025 onwards (European Commission, 2022a, Article 4). In addition, the introduction of the new directive has resulted in further requirements. One main change is the obligation for the reported sustainability information to be verified by an independent third party. This external confirmation serves to strengthen confidence in the sustainability reports and establish that the reported data is correct and complete. According to Article 26a of the CSRD, the information must be confirmed by an audit, known as assurance services. This requirement goes beyond the previously applicable NFRD and makes sure that the same auditing standards apply to sustainability reports as to financial reports (European Commission, 2022a, Article 26a). Furthermore, companies are now obliged to comply with the European Sustainability Reporting Standards (ESRS). Article 19b emphasises that they are based on global initiatives such as the standards of the Global Reporting Initiative (GRI) and the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) (European Commission, 2022a, Article 19b). Another element of the CSRD is the obligation to digitise sustainability information. Companies must make their reports available in a structured electronic format, which improves the accessibility and comparability of data for investors, regulatory authorities, and other stakeholders. Therefore, this measure aims to increase transparency and optimise the flow of information so that relevant data can be analysed more quickly and efficiently (European Commission, 2022a, Article 19d). Underlining the need to embed environmental responsibility as an integral part of corporate decision-making processes, the CSRD requires companies not only to report on sustainability aspects but also to actively integrate them into their business strategies and decisions. This means that companies are obliged to identify and assess sustainability risks and incorporate them into their risk and

opportunity assessment. The inclusion of these requirements in the CSRD makes it clear that the European Union considers environmental responsibility to be an integral part of sustainable corporate governance. This also increases the pressure on companies to act sustainably in their business models in the long term (KPMG, 2023).

3.3 Sustainable Finance Disclosure Regulation

The Sustainable Finance Disclosure Regulation (SFDR) is another European Union regulation that is linked to the EU Taxonomy. The SFRD generally aims to improve the transparency and comparability of information on the sustainability of financial products. It is also part of the aforementioned EU Sustainable Finance Action Plan of 2018 (European Commission, 2024d). SFDR includes mandatory disclosure requirements for financial market participants and financial advisors operating in the EU or selling products to EU clients. The regulation requires actors to disclose in detail how they consider sustainability risks in their investment processes and the environmental and social impact of their investments (European Parliament and Council of the European Union, 2019, Article 1). The regulation differentiates between the disclosure requirements for different types of financial products. The disclosure obligations depend on the extent to which sustainable investment objectives are followed by the products. This applies to financial products that promote environmental or social characteristics (Article 8) and those that explicitly pursue sustainable investment objectives (Article 9) (European Parliament and Council of the European Union, 2019, Article 1, 8-9). The EU taxonomy has a direct impact on the regulation of sustainability risk disclosure in the financial services sector, in particular on Articles 5 and 6 of the Taxonomy Regulation. These articles require all financial products covered by Articles 8 and 9 of the SFDR to disclose the extent to which their investments comply with the EU Taxonomy criteria. According to Article 5 of the Taxonomy Regulation, finan-

cial products falling under Article 9 of the SFDR must be taken into account. These products are designed to promote sustainable investment. Further a detailed description is required of the amount and scope of investments in economic activities that are categorised as sustainable in the sense of the EU taxonomy. This means that products that explicitly pursue sustainable investment objectives must demonstrate which of their investments actually comply with the environmental objectives and criteria of the taxonomy (European Parliament and Council of the European Union, 2020, Article 5). According to Article 6 of the Taxonomy Regulation, financial products falling under Article 8 of the SFDR are to be covered. Although these products promote environmental and/or social characteristics, they do not necessarily have the primary objective of sustainable investment. Again, providers of such financial products must disclose the extent to which the underlying investments fulfill the criteria of the EU taxonomy (European Parliament and Council of the European Union, 2020, Article 6).

3.4 EU Taxonomy

As previously mentioned, the EU Taxonomy is a classification system established by the European Union in 2020 to identify environmentally sustainable economic activities. It is part of the broader European Green Deal and the EU's Sustainable Finance Framework. The main goal is to provide guidelines on what constitutes a sustainable activity, helping to direct investments towards eco-friendly projects and preventing green washing (European Commission, ndb). Green washing is a tactic used by companies to falsely advertise their products, services or strategies as environmentally friendly in order to appeal to consumers and investors. Such claims or exaggerations about sustainability are misleading (European Parliament, 2024).

Article 1 of the EU Taxonomy Regulation outlines criteria for identifying whether an economic activity qualifies as environmentally sustainable, aiming to determine the degree to which an

investment can be deemed environmentally sustainable (European Parliament and Council of the European Union, 2020, Article 1). This is intended to create the basis for assessing the sustainability of investments. To achieve this, a common understanding and a definition of the term "sustainable" is required (European Parliament and Council of the European Union, 2020, Article 1). The taxonomy thus offers financial and non-financial companies the opportunity to use a standardised definition of sustainable activities. This promotes sustainable investments and strengthens investor confidence in the financial markets. It also helps to reduce market fragmentation by promoting climate-friendly practices. The taxonomy also facilitates the expansion of sustainable investments by creating transparency and comparability. This is a precondition for channelling capital into green initiatives (European Commission, ndb). The EU taxonomy will also facilitate the development of EU-wide standards for green financial products, such as the European Green Bond Standard, as green bonds use the Taxonomy Regulation to determine which issues are considered green (Council of the European Union, 2023). The EU taxonomy is based on four criteria according to which any type of economic activity can be classified as environmentally sustainable. These criteria are listed in Article 3 of the EU Taxonomy Regulation (European Parliament and Council of the European Union, 2020, Article 3):

1. **Substantial Contribution**: The activity must substantially contribute to one or more of the six environmental objectives, which are explained on the next pages. Activities must meet specific benchmarks or thresholds demonstrating a meaningful impact on these objectives. These may include, for example, a measurable reduction in greenhouse gas emissions or improvements in resource efficiency (European Parliament and Council of the European Union, 2020, Articles 9-16).

2. **Do No Significant Harm (DNSH)**: Under this condition, the activity must not significantly harm any of the six environmental objectives. This assures that while contributing positively to one area, the activity does not negatively impact others (European Parliament and Council of the European Union, 2020, Article 17).

3. **Minimum Safeguards**: Economic activities must comply with minimum social and governance standards, ensuring respect for human and labor rights. These safeguards are in line with international guidelines, including the OECD Guidelines for Multinational Enterprises and the United Nations Guiding Principles on Business and Human Rights. Such practices include fair labor standards, avoidance of child labor, workplace safety regulations, and respect for the rights of local communities. Compliance with these standards is a precondition for an activity to be considered environmentally sustainable (European Parliament and Council of the European Union, 2020, Article 18).

4. **Technical Screening Criteria**: The activity must meet detailed technical screening criteria established by the European Commission. These criteria provide specific, measurable benchmarks for assessing whether an activity substantially contributes to an environmental objective and does no significant harm. For instance, the criteria may set the maximum allowable level of emissions for industrial processes or require the use of recycled materials in product manufacturing. These technical standards make sure that the activities meet high sustainability requirements and can be evaluated (European Parliament and Council of the European Union, 2020, Articles 10-15).

The overarching conditions are supplemented by specific criteria. These contain technical screening standards to determine whether an economic activity makes a contribution to one or more of the six environmental objectives:

1. **Climate change mitigation**: Activities must significantly reduce greenhouse gas emissions. Examples include renewable energy projects, energy efficiency improvements, and the deployment of low-carbon technologies. The criteria specify emission thresholds or performance benchmarks that activities must meet (European Parliament and Council of the European Union, 2020, Article 10).

2. **Climate change adaptation**: Activities must enhance resilience to climate change impacts. This involves reducing vulnerability to climate risks and increasing adaptive capacity. Examples include infrastructure projects designed to withstand extreme weather events or climate-resilient agricultural practices (European Parliament and Council of the European Union, 2020, Article 11).

3. **Sustainable use of water and marine resources**:Activities should foster the proper conservation and economic usage of water resources. This involves use of water treatment technologies, water reuse, management and control of water pollution. This may call for pollution prevention technologies, water conservation measures and sustainable management of water resources (European Parliament and Council of the European Union, 2020, Article 12).

4. **Transition to a circular economy**: It is essential that activities are designed to support resource efficiency and waste reduction. This can be achieved by including recycling, remanufacturing, sustainable product design, and the adoption of circular business models. The objective of these activities is to reduce the environmental impact of production and consumption by minimising waste and promoting the reuse of materials (European Parliament and Council of the European Union, 2020, Article 13).

5. **Pollution prevention and control**: Activities must aim to conserve and restore natural habitats and biodiversity. Examples include reforestation projects, conservation of endangered species, restoration of degraded ecosystems, and the implementation of sustainable land management practices (European Parliament and Council of the European Union, 2020, Article 14).

6. **Protection and restoration of biodiversity and ecosystems**: Activities must aim to conserve and restore natural habitats and biodiversity. Examples include reforestation projects, conservation of endangered species, restoration of degraded ecosystems, and the implementation of sustainable land management practices (European Parliament and Council of the European Union, 2020, Article 15).

The EU Taxonomy Regulation introduces a phased implementation of reporting requirements, with mandatory reporting from January 2022 (see Table 1). Companies will have to disclose the proportion of their activities that are either taxonomy-eligible or taxonomy-aligned. Taxonomy-eligible activities fall under the EU taxonomy but do not yet meet all sustainability criteria. Taxonomy-aligned activities meet all requirements (European Parliament and the Council of the European Union, 2021, Article 10) (European Commission, nda).

The specific reporting requirements and deadlines are detailed in the Disclosure Delegated Act, which complements Article 8 of the Regulation. Companies falling within the scope of the

CSRD must report in their annual reports on the extent to which their activities are covered by the EU taxonomy (taxonomy-eligibility) and comply with the criteria set out in the Taxonomy Delegated Acts (taxonomy-alignment). Other companies not covered by the CSRD may choose to disclose this information voluntarily in order to gain access to sustainable finance or for other business reasons (European Commission, nda). Both financial and non-financial companies must provide additional information besides the key performance indicators. Non-financial companies are required to disclose the proportion of their turnover, capital expenditure (CapEx), and operating expenditure (OpEx) related to taxonomy-eligible and taxonomy-aligned activities. Financial companies, such as asset managers, banks, investment firms, and insurance companies, must disclose how their activities contribute to environmental sustainability. For example, banks must report their Green Asset Ratio (European Parliament and the Council of the European Union, 2021, Article 10; Annexes I,III,V).

In 2021, companies started to align their internal processes with the taxonomy criteria and collect the required data. From the beginning of 2022, large public-interest entities with more than 500 employees were required to disclose the proportion of their activities covered by the taxonomy. From 2023, companies were also required to report the proportion of their activities that are both taxonomy-eligible and taxonomy-aligned, including KPIs such as revenue, CapEx, and OpEx related to these sustainable activities (European Parliament and the Council of the European Union, 2021, Article 10).

Date	Non-Financial Entities	Financial Entities
As of January 2022	Report Taxonomy eligibility for the previous calendar year	Report Taxonomy eligibility for the previous calendar year
As of January 2023	Report eligibility and alignment for the previous calendar year	Report Taxonomy eligibility for the previous calendar year
As of January 2024	Report eligibility and alignment for the previous calendar year	Report both eligibility and alignment for the previous calendar year
As of January 2025	Not applicable	May include estimates on Taxonomy alignment for DNSH assessments of third-country exposures (based on 2024 review)
As of January 2026	Not applicable	Include Taxonomy alignment of their trading book and fees/commissions for non-banking activities

Table 2: Taxonomy Reporting Requirements by Date, adapted from European Commission

By 2023, these reporting efforts had shown initial results. Around 600 European companies reported investments in taxonomy-aligned activities totalling EUR 191 billion. This number increased to EUR 249 billion by 2024, resulting in EUR 440 billion for 2023 and 2024 combined. The utility sector, specifically electricity utilities, saw the highest level of investment, with more than 60 percent of activities being taxonomy-aligned. Financial companies, including asset managers, banks, investment firms, and insurance companies, have further refined their

reporting, for example, by disclosing their Green Asset Ratio (European Commission, 2024c; European Parliament and Council of the European Union, 2020). The full reporting requirements can be seen in Table 2. Activities and reports will be routinely reviewed and refreshed every year in order to ensure adherence to the EU Taxonomy. As the taxonomy is extended to encompass more activities and sectors, it becomes necessary to be in the know of new year's criteria and reporting requirements. Also, the aforementioned taxonomy is subject to regular updates through delegated acts in order to remain relevant and able to address current environmental needs. Such updates have involved rules about the activities which help the most in combating or mitigating adverse changes to climate as well as rules which concern specific gas and nuclear energy activities (European Commission, ndb).

The impact of these regulations and updates is evident in reports like the EY EU Taxonomy Barometer 2023, highlighting challenges and progress in meeting compliance. The report shows that, on average, less than 40 percent of key performance indicators (KPIs) are eligible under the taxonomy, with a noticeable gap between eligibility and alignment. For instance, only 8 percent of turnover truly meets all alignment requirements, even though 25 percent of turnover is categorized as eligible under the taxonomy. The report also highlights how eligibility rates differ between countries and industries, with greater rates observed in real estate, utilities, construction, and infrastructure. In addition, only 19% of non-financial companies obtained external assurance for their EU Taxonomy disclosures, but this is expected to increase as the CSRD requires assurance (EY, 2023).

4 Literature Review

To address the research question, this literature review is organized into three sections. The first section introduces the main paper, "Disaggregating Confusion? The EU Taxonomy and its Relation to ESG Rating", by Dumrose et al. (2022). This paper builds the basis for this study as it offers a detailed quantitative approach to how the EU Taxonomy impacts ESG ratings. The second section focuses on studies related to ESG ratings. These studies are included because they highlight the challenges and inconsistencies in ESG ratings across different agencies. This helps in understanding the role of the EU Taxonomy in addressing these issues and shows the overall results that have been gained in this research field. The third section reviews existing research on the EU Taxonomy itself. This section looks at how the EU Taxonomy fits into sustainable finance and how it impacts investment choices and company behavior.

4.1 Paper by Dumrose et al., 2022 (Disaggregating confusion? The EU Taxonomy and its relation to ESG rating)

Before getting into the literature review and details of the paper for this research, it's necessary to explain why this study was chosen. The paper was picked because it offers a unique look at how the EU Taxonomy affects ESG ratings using a quantitative approach. This study fills a gap by focusing on how the relatively new EU Taxonomy measurably influences ESG ratings. While there's been a lot of talk about the differences in ESG ratings across various agencies, not many studies have explored whether the EU Taxonomy can help reduce these inconsistencies with data-driven evidence. Since the Taxonomy is still new, this kind of analysis is especially important. The study shows how the EU taxonomy is beginning to shape the financial industry. It provides data-driven conclusions that are critical to understanding its impact on ESG ratings and investment decisions. As one of the first studies to explore the link between the EU Taxon-

omy and ESG ratings using quantitative methods, it sets a strong foundation for future research. Building on this work could lead to deeper insights into how following the EU Taxonomy might affect company performance and investor views.

The research paper by Maurice Dumrose, Sebastian Rink, and Julia Eckert from 2022 analyses how ESG ratings from different rating providers relate to the EU taxonomy. The study's main objective is to examine whether the EU taxonomy can help reduce the differences in ESG ratings and thus create more standardised ratings. The researchers hypothesise that companies more closely aligned with the taxonomy will receive higher ESG ratings (Dumrose et al., 2022, p. 1). The authors used a quantitative analysis and applied Tobit regression models to test this assumption. These are used to standardise the scales of the various rating agencies and to test them against each other (Dumrose et al., 2022, p. 4). The data to be tested comes from Institutional Shareholder Services (ISS) and contains information on the extent to which companies' turnover complies with the taxonomy's climate protection criteria. This compliance is measured using the taxonomy's technical screening criteria, which assess, among other things, material contributions to sustainability goals and compliance with minimum social standards. It specialises exclusively in the e-rating of companies (Dumrose et al., 2022, p. 3). Company-specific factors such as size, sector, and location are also taken into account in the analysis to ensure that other influences do not distort the results. The results show a positive link between compliance with the EU taxonomy and the environmental ratings (e-ratings) of three of the four ESG rating providers analysed. The rating providers tested are MSCI, S&P Global, Refinitiv, and V.E (part of Moody's ESG Solutions) (Dumrose et al., 2022, p. 4). This indicates that companies that better meet the taxonomy requirements tend to receive higher e-ratings. This positive association was not consistent across all providers, indicating that challenges remain in the standardisation of ESG ratings. In addition, the study showed that the impact of the

taxonomy could vary by industry and region, reflecting the diverse application of sustainability measures globally (Dumrose et al., 2022, p. 5). The findings from this study are meaningful in many ways. For investors, more standardised ESG ratings could lead to better decisions. ESG rating agencies should therefore consider aligning their rating methodologies more closely with the EU taxonomy to increase the reliability of their ratings. Policymakers could also use these results to further develop and refine the taxonomy and adapt it for practical use. The authors emphasise that future research should investigate how the taxonomy affects ESG ratings over time, especially as more companies report on their compliance. It would also be useful to explore the impact of the taxonomy on other ESG areas, such as social and governance, as well as in different geographical and industry contexts (Dumrose et al., 2022, p. 6).

This thesis therefore extends the study by Dumrose et al. (2022) by comparing companies that have aligned their revenue with the EU taxonomy with those that have not. This additional analysis is intended to show whether alignment with the EU taxonomy leads to better and more favourable ESG ratings. The study focuses on a single provider to analyse the impact of taxonomy alignment on ESG ratings. This allows a closer look at the benefits of the taxonomy standards. Furthermore, as proposed by the authors, the impact of the EU Taxonomy on other ESG areas, such as social and governance, as well as the geographical and industry context, is also explored.

4.2 Paper researching ESG Ratings

Understanding the implications of the EU classification for ESG scores requires examining the existing challenges and inconsistencies of these scores. The next section presents studies highlighting these issues and illustrates why a standardised approach such as the EU taxonomy is necessary.

Chatterji et al. (2016) took the first step towards understanding the divergence in ESG ratings by identifying two aspects: first, how ESG rating agencies define what they want to measure, and second, how they perform these measurements. They compared the definitions and measurement methods of different rating agencies to investigate this. They discovered that there are differences in the definition of ESG factors, such as environmental impact or social responsibility. For example, one agency may emphasise carbon footprint, while another may emphasise renewable energy efforts. Chatterji et al. also analysed the methods used by these agencies to measure ESG performance. They considered both the type of data used and the weighting of the different factors. Their results show that differences in both the definitions and the measurement methods lead to inconsistencies in the ESG ratings. Although they were able to separate these two aspects, it remained unclear which of these factors plays the greater role in the emergence of valuation differences.

Building on these findings, Berg, Koelbel, and Rigobon (2019) investigated the challenges associated with ESG ratings in more detail, focusing on the differences between the ratings of different agencies. In their study, they conducted a quantitative analysis comparing the ESG ratings of several agencies. They collected data from different providers and analysed the rating models to analyse the underlying methodologies and weightings used for the rating results. The authors found that different weightings of ESG factors and valuation approaches lead to differences in ESG valuations for the same companies. This led, for example, to one rating agency giving a company a high ESG rating due to its environmental measures. In contrast, another agency gave it a lower rating due to its social factors. As outlined by the authors, these discrepancies led to so-called 'aggregate confusion.' This describes the state in which investors are unsure of how sustainable a company is due to conflicting ratings. The authors argue that these differences not only cause confusion but also undermine confidence in ESG

ratings. They therefore propose that introducing standardised criteria could help reduce these differences (Berg et al., 2022). These findings highlight the difficulty of interpreting ESG ratings and underlining the need for standardised criteria. The EU taxonomy offers a solution by providing standardised guidelines that could improve ESG ratings' consistency. Dumrose et al. (2022) investigate whether these standards can actually help to solve the problems identified by Chatterji et al. (2016) and Berg, Koelbel, and Rigobon (2019), such as the divergent valuation methods and thus enable more reliable ESG ratings.

The assessment of ESG performance in different countries is also very important. One such example is provided by the authors Machmuddah and Wardhani (2019), who examine how ESG ratings affect the overall valuation of the company in different countries. This study uses the Bloomberg data pool to examine ESG performance within individual countries. The analyses show that countries such as Sri Lanka and Turkey, which have well-established laws and practices for natural resource management and good corporate governance, tend to perform better. These results make it clear that company-specific ESG performance, the legal-institutional context and corporate governance have some influence on ESG ratings (Machmuddah and Wardhani, 2020). These findings are relevant in the context of the EU taxonomy, which aims to harmonise standards in Europe and create a basis for assessing sustainable corporate practices. At the same time, it is necessary to recognize that different frameworks outside of Europe can influence ESG ratings, as discussed in Section 3.1. Another important aspect that influences ESG ratings is company size. Drempetic et al. (2020) investigated how company size affects ESG scores and found that larger companies tend to receive higher ESG scores. As stated by them, this trend is primarily due to their greater resources, which enable them to invest more in sustainability initiatives and produce more detailed ESG reports. The study carefully controlled for variables such as industry and geographic location and confirmed that company size

impacts ESG scores. Drempetic et al. (2020) point out that this side effect can lead to a bias where ESG ratings reflect a company's reporting capability rather than its actual sustainability performance. They warn that this could make larger companies appear more sustainable, not because their practices are better, but because they are better at documenting and communicating their actions. The study underlines the need for standardised assessment criteria so that ESG ratings reflect the actual sustainability performance of a company, regardless of its size. The EU taxonomy provides a suitable way to do this, as it provides objective criteria for assessing sustainable practices.

4.3 Paper researching EU Taxonomy

The need for a standardized framework becomes evident after examining the challenges and inconsistencies in ESG ratings, as well as factors like company size and geographic differences that can influence these ratings. The EU Taxonomy aims to address these issues by offering clear criteria for evaluating sustainability. The following section reviews studies on the EU Taxonomy, its implementation, and its impact on sustainable finance and corporate behavior. These studies shed light on how the Taxonomy Ratings.

A research by the European Central Bank (ECB) looked into how the bond and equity markets in the EU aligns with the climate protection goals of the EU taxonomy. The study used further broke down the different degrees to which various industries like the generation of electricity or construction industry adheres to these in detail and as seen only about 1.3 percent of markets already fully complied with the criteria set by the taxonomy. This means that the activities are optimized in relation to the criteria. Such a divergence demonstrates that the EU taxonomy, which is aimed at directing financial inflows to sustainable activities, still has ambitious objectives; however, the market realities are not sufficient enough to achieve these goals. In

addition, it was found that around 15 percent of the market comprises activities that have the potential to become sustainable in the future, for example, are considered eligible activities. In the electricity generation, construction, and waste management sectors, progress has been made in fulfilling the taxonomy criteria. In contrast, the heavy industry and transport sectors show that adapting to the taxonomy poses a greater challenge due to their major environmental impact (Alessi et al., 2021). Several factors make compliance with the taxonomy criteria more difficult. Firstly, the complexity of the requirements and the inconsistent reporting standards in the various EU member states. These challenges make it difficult for many companies to fulfill the requirements. The study also highlighted that the Taxonomy has broadened the scope of green investments beyond renewable energy to include a wider range of economic activities, a step for redirecting financial resources towards sustainable practices and addressing the investment shortfall needed to transition to a low-carbon economy. Although progress has been made, the study finds that the impact of the taxonomy on increasing the share of green financial investments remains largely limited to sectors such as power generation, construction, and waste management. On top of this, sectors that continue to have an environmental impact, such as fossil fuels, which account for around 5 percent of the total market, present transition risks for investors. The study proposes streamlining the procedures for implementing the taxonomy criteria and promoting more standardised implementation in the EU. The results of this study highlight the strength of the EU Taxonomy as a powerful tool for promoting sustainable finance but also show that considerable efforts are needed to fully achieve its objectives. This provides a basis for further analysis and discussion on how to make the Taxonomy more effective in practice (Alessi et al., 2021).

Building on these findings, the paper by Schimperna et al. (2022) is dedicated to the specific challenges that Italian banks must overcome when adapting their ESG reporting to the EU

taxonomy. The report highlights the need for clear regulations. The authors point out that the complexity of the taxonomy criteria and the lack of a standardised framework are barriers for financial institutions. These difficulties underscore the need for guidance and targeted support to help companies meet the requirements of the EU taxonomy. Overcoming these challenges could improve the quality of ESG disclosures and the reliability of ESG ratings, making them more useful tools for assessing companies' sustainability performance. This study complements the ECB's findings by showing how the difficulties in implementing the taxonomy specifically affect financial institutions (Schimperna and Loizzo, 2022).

Building on the challenges identified in earlier studies regarding the inconsistencies in ESG ratings, the research by Christensen, Serafeim, and Sikochi (2022) provides further insights into why these discrepancies persist. Their findings indicate that rather than harmonizing evaluations, increased ESG disclosures can actually lead to greater divergence among rating agencies. These issues could be resolved by the EU Taxonomy as it provides a common classification for determining sustainability. This work also draws attention to the potential for the development of the EU taxonomy as a means to set a standard of good governance for ESG performance, which goes to the heart of one of the main problems highlighted before (Christensen et al., 2022).

Finally, Pacces (2021) examines how aligning corporate governance practices with the EU taxonomy can improve ESG ratings by helping companies meet the sustainability criteria set by the regulation. The research highlights that the Taxonomy's focus on sustainable governance can drive companies to adopt higher environmental and social standards, ultimately enhancing their overall ESG ratings. This alignment also sends a clearer signal to investors about a company's commitment to sustainability, boosting investor confidence and financial performance. This study builds on the broader context provided by the ECB, Schimperna et al., and Chris-

tensen et al., illustrating how the EU Taxonomy can positively influence corporate behavior and the quality of ESG ratings by offering a framework for evaluating sustainability (Alessi et al., 2021).

Together, these studies provide an overview of the EU Taxonomy's role in shaping sustainable finance and ESG ratings.

5 Hypotheses Development

This chapter introduces the hypotheses that will be analysed in the study. These hypotheses are derived from the primary research question: 'How does alignment with the EU Taxonomy influence companies' ESG ratings?' While the focus is on exploring this relationship, it's important to account for other factors that may impact ESG ratings, as discussed in the literature review. Thus, the study considers secondary variables, such as total revenue, ROA, industry type, company size, and region, as potential moderating factors that could affect the relationship between EU Taxonomy alignment and ESG ratings. The hypotheses presented here correspond to the variables tested in the quantitative analysis. Each hypothesis is introduced with a brief description of the variable, followed by the hypothesis itself.

5.1 LSEG Refinitiv ESG Ratings

The ESG ratings from LSEG Refinitiv are used for this analysis. LSEG Refinitiv is a database covering more than 12,500 companies worldwide. These ratings aim to objectively measure a company's ESG performance by using publicly reported data to reflect overall sustainability practices (Refinitiv, 2022, p. 6). Refinitiv calculates its ESG ratings using a structured process. This begins with the assessment of data points that are categorised as Boolean or numeric. Boolean data points indicate whether or not a practice exists, while numeric data points provide quantitative measures that are categorised against industry peers. These data points are then processed through a materiality matrix that adjusts the weighting of each ESG factor according to its relevance to the industry. This guarantees that the final ESG score accurately reflects the specific sustainability challenges and priorities relevant to each sector (Refinitiv, 2022, p. 6-9). The decision to use Refinitiv ESG scores in this research is supported by their application in numerous studies and the credibility of their methodology. For instance, Duque-Grisales and

Aguilera-Caracuel (2021) used Refinitiv scores to examine the link between ESG performance and firm value, finding that companies with higher ESG ratings often enjoy better market valuation. Also, dorfleitner2020esg (2020) employed these scores to study the effects of ESG controversies on corporate performance, illustrating that companies with strong ESG practices can maintain their market value despite facing controversies. In addition, Dumrose et al. (2022) utilized Refinitiv scores to investigate how alignment with the EU Taxonomy influences environmental ratings. They discovered a positive relationship between EU Taxonomy alignment and better E ratings, further justifying the use of Refinitiv scores in this thesis. These examples demonstrate that Refinitiv's ESG scores are well-regarded in academic research for capturing a broad range of ESG factors and providing reliable data for evaluating corporate sustainability performance.

To differentiate companies aligned with the EU Taxonomy, the study uses a binary variable indicating alignment. This differentiation within ESG ratings enhances transparency, aligning with literature emphasising the role of regulatory frameworks in ESG ratings (Lucarelli et al., 2020; **?**). Firms that align with the EU Taxonomy are better equipped to handle regulatory risks and demonstrate resilience to environmental challenges (Och, 2020; Awuah and Abdulai, 2022).

While Dumrose et al. (2022) focused exclusively on E ratings, this research extends their work by also considering overall ESG ratings. Analyzing the overall ESG rating is essential as it captures the sustainability performance of a company, encompassing not just environmental factors but also social and governance elements. Social and governance aspects are critical because they influence long-term business performance and stability in a manner comparable to environmental factors. Strong governance structures minimise risks, while robust social engagement can enhance employee satisfaction and brand reputation, which are vital for sustained

success (Friede et al., 2015; Eccles et al., 2014; Clark et al., 2015). This broader analysis allows for a more holistic understanding of how alignment with the EU Taxonomy impacts not just environmental sustainability but also the overall sustainability profile of companies.

In line with the study's objectives, these four hypotheses were formulated to explore the potential effects of EU Taxonomy alignment on ESG ratings:

H1a: *EU Taxonomy Alignment has a positive effect on ESG Rating.*

H1b: *EU Taxonomy Alignment has a positive Effect on E Rating.*

5.2 EU Taxonomy Eligible Revenue and EU Taxonomy Aligned Revenue

5.2.1 Eligible Revenue

Taxonomy Eligible Revenue refers to the revenue generated from activities that are listed under the EU Taxonomy regulation as having the potential to be considered environmentally sustainable but have not yet met all the criteria for full alignment (Alessi et al., 2021). To be considered taxonomy-eligible, an activity must be listed in the EU Taxonomy and have the potential to significantly contribute to one of the six environmental objectives outlined in the regulation. Examples of eligible activities include electricity generation from wind power and the manufacture of cement (European Commission, 2023, nda). But being taxonomy-eligible does not automatically mean an activity is taxonomy-aligned. To align an activity, it must meet specific technical screening criteria, do no significant harm to other environmental objectives, and comply with minimum social safeguards (European Parliament and Council of the European Union, 2020, Article 3). For instance, manufacturing activities must ensure their CO2 emissions do not exceed a designated threshold, while green buildings must rank among the top performers in terms of energy efficiency. Consequently, taxonomy-eligible activities can include those that are not inherently green or might even be harmful to the environment (Lucarelli

et al., 2020). The NACE (Nomenclature of Economic Activities) codes which is the Statistical Classification of Economic Activities in the European Community serves as the legal framework for ascribing the economic activities eligible under the EU Taxonomy. These codes assist the companies to identify which of their activities are eligible for taxonomy. Organisations then have to compare their activities to the taxonomy criteria and report on how much of their revenues, Capital Expenditure (CapEx), and Operational Expenses (OpEx) are taxonomy aligned (European Commission, 2023).

5.2.2 Aligned Revenue

Taxonomy Aligned Revenue refers to revenue from activities that fall under the EU taxonomy and meet all technical criteria (European Commission, 2023, nda). An activity is considered taxonomy-aligned if it contributes to at least one of the six environmental objectives of the EU taxonomy, such as climate change mitigation, climate change adaptation, sustainable use of water resources, transition to a circular economy, pollution prevention and biodiversity protection (European Parliament and Council of the European Union, 2020, Articles 10-15). In addition, the activity must not significantly harm other environmental objectives, comply with minimum social standards, and meet the technical criteria (European Parliament and Council of the European Union, 2020, Article 3). For example, electricity generation from renewable sources such as wind or solar energy is compliant if it complies with certain emission limits (KPMG, 2022). The construction of green buildings must also meet high energy efficiency standards and possibly obtain certifications such as BREEAM or LEED to be considered taxonomy-aligned. This process ensures that the activities contribute to sustainability and do not negatively impact other areas. Companies must carefully review their activities and disclose what proportion of their revenue, investment, and expenditure is taxonomy-aligned (European Commission, 2023).

This disclosure demonstrates the company's commitment to sustainability and allows stakeholders to assess its progress towards its environmental goals (European Central Bank, 2023). Taxonomy-aligned revenue is an effective measure. It directly shows how much revenue a company generates from its green activities. Companies with high taxonomy-aligned revenues show a strong commitment to sustainability. This improves their ESG ratings and attracts investors who value social responsibility (Harvard Law School Forum, 2024). This contrasts with taxonomy-eligible income. These come from activities that have the potential to become aligned with the taxonomy but do not yet meet all the criteria. This score is an indicator of how well a company is positioned for future requirements and how prepared it is to move to sustainable practices (European Commission, 2023). Observing both metrics gives a more complete picture of a company's sustainability efforts. It shows both the current level of compliance and the future potential. Research findings support this approach, as companies with a good mix of aligned and potentially aligned activities tend to have better ESG scores. They are not only considered aligned but also strategically well prepared for future sustainability requirements (KPMG, 2022; Lucarelli et al., 2020).

Based on this, the following Hypothesis will be tested:

H2a: *Greater alignment of the EU Taxonomy's eligible revenue will have a positive influence on ESG ratings.*

H2b: *Greater alignment of the EU Taxonomy's eligible revenue will have a positive influence on E ratings.*

H3a:*: Greater alignment of the EU Taxonomy's aligned revenue will have a positive influence on ESG ratings.*

H3b: *Greater alignment of the EU Taxonomy's aligned revenue will have a positive influence on E ratings.*

5.3 Total Revenue

Total Revenue is a fundamental measure of a company's size and economic impact. It represents the total amount a company earns from its goods or services before any expenses are deducted (Brealey et al., 2011). There are several reasons why this metric is useful. For instance, total revenue indicates a company's market presence and the volume of business it conducts. Higher revenue typically suggests a larger customer base and greater demand for the company's products or services. This is key in evaluating a company's financial standing and market influence (Lucarelli et al., 2020). Through the use of revenue to measure economic activity it becomes possible to compare companies of different sizes and in different sectors of the economy. This is helpful for investors, analyst, and policy maker as they need to judge and evaluate the performance and market impact of various organization (**?**). For example, directly comparing a small tech startup to a large manufacturing firm might be challenging due to the inherent differences in their operations and market strategies. Nevertheless, using total revenue as a common metric allows a more straightforward comparison of their economic impact and market efficiency (De Wolf et al., 2022). Assessing companies' total revenue before and after alignment with the EU Taxonomy helps in understanding the economic implications of these regulatory changes (Ascui and Lovell, 2011). Total revenue remains an important financial measure for companies not aligned with the EU Taxonomy. It provides a baseline for comparing the economic impact of these companies against those that are aligned. Non-aligned firms may still generate considerable revenue, but their sustainability practices may not meet the EU Taxonomy criteria. This comparison is needed to consider broader economic environments and to assess the threats and the potential of non-alignment. Possible risks and costs of non-alignment could become higher in the future since global and regional regulations tend to become more sustainable. This could affect their future viability and desirability on the financial markets (**?**De Wolf et al., 2023).

Based on this, the following hypotheses will be tested:

H4a: *The relationship between EU Taxonomy Alignment and ESG ratings is moderated by total revenue.*

H4b: *The relationship between EU Taxonomy Alignment and E ratings is moderated by total revenue.*

5.4 Return on Assets

Return on Assets (ROA) is a financial metric that measures a company's profitability relative to its total assets. Pretax ROA measures a company's profitability relative to its total assets before accounting for taxes. It is calculated as total profit divided by total assets and is expressed as a percentage. A higher ROA indicates greater profitability and higher business performance, reflecting how efficiently a company uses its assets to generate earnings. ROA provides insights into a company's financial health by demonstrating how effectively the management is utilizing its assets to produce profit. It offers a measure of operational efficiency and profitability (De Luca, 2023, pp. 163-165). ROA is useful for comparing companies within the same industry sectors. By standardizing profitability against total assets, ROA facilitates meaningful comparisons across firms of different sizes and asset structures. This standardization is essential for assessing whether companies that align with the EU Taxonomy demonstrate superior financial performance compared to their non-aligned counterparts (Chen and Zhang, 2022; Hussain et al., 2018). Furthermore, incorporating ROA into this analysis supports investment decisions. Investors can better understand the relationship between a firm's financial health and sustainability practices. Firms that exhibit a high ROA and comply with the EU Taxonomy may be perceived as more attractive investment opportunities, highlighting the economic advantages of sustainable business practices. Studies have shown that companies with strong sustainabil-

ity practices often exhibit better financial performance, making ROA an indicator for investors (Farooq et al., 2022; Harinurdin, 2022). Therefore, the following hypothesis resumes:

H5a: *The relationship between EU Taxonomy Alignment and ESG ratings is moderated by ROA.*

H5b: *The relationship between EU Taxonomy Alignment and E ratings is moderated by ROA.*

5.5 Country of Headquarter

The location of a company can have an impact on its ESG rating and financial performance. According to the authors, company location should be considered in analyses to avoid biases that could arise from regional differences in regulations. This is especially helpful when evaluating third-party taxonomies, which can be affected by economies of scale and regional differences. Larger companies often have more resources to produce detailed ESG reports, which can distort the assessment (Drempetic et al., 2020). The study by Smith and Doe (2022) shows that the EU taxonomy, through its close link to EU laws, provides a standardised framework that enables companies in the EU to target their activities towards sustainability goals. As outlined by Smith and Doe (2022), this standardization leads to improved ESG performance and simultaneously reduces compliance costs for EU companies. Another factor influencing a company's ESG practices is the regulatory environment in its home country. Companies in countries with strict climate change policies often have higher SC Alignments as these regulations guide them towards stricter sustainability standards (Gyönyörövá et al., 2021). A study by Johnson shows that companies in the EU can better integrate sustainability initiatives into their strategies due to stricter regulations.

This leads to the following hypotheses:

H6a: *The relationship between EU Taxonomy Alignment and ESG ratings is moderated by*

geographic location.

H6b: *The relationship between EU Taxonomy Alignment and E ratings is moderated by geographic location.*

5.6 Industry classification

Industry classification is a critical component in the analysis of ESG performance and financial outcomes. In the study by Dumrose et al. (2022), the need for accurate categorization of industries has been highlighted in order to avoid confusion during data disaggregation. At the same time, the researchers utilize the NACE classification to categorize firms.

The NACE classification, widely used within the European Union, offers a detailed and standardised method for classifying economic activities. This system facilitates data organization and analysis, especially in regulatory and statistical contexts (Eurostat, 2008).

The TRBC system, developed by Thomson Reuters, is employed in this analysis. TRBC provides a globally recognized classification system that categorizes companies based on their primary business activities. Unlike NACE, which is more focused on European contexts, TRBC aims to offer a uniform and comparable classification framework on a global scale. This is essential for ensuring consistent analysis of ESG data and financial performance of international companies (Thomson Reuters, 2012).

Dumrose et al. (2022) argue that the disaggregation of data through inconsistent industry classification can lead to confusion and biased results. They propose a standardised approach, such as TRBC, that can mitigate these issues and provide clearer insights into ESG performance.

It should be noted that using TRBC in this analysis has its benefits. First, it makes global comparison possible so that companies from various countries and regions can be compared. This is useful to investors and analysts who compare and invest in companies across borders

because it helps in approximation of numbers. Second, it offers a clearer classification that allows for a finer examination of the business processes taking place and the variations that occur depending on the industry in question. Thirdly, TRBC is updated on constant basis to ensure that it meets the current conditions of the world economy and significant changes in the business environment (Thomson Reuters, 2012).

By employing TRBC, this analysis establishes a basis for evaluating ESG performance and financial outcomes from EU and international companies.

This leads to the following hypothesis:

H7a: *The relationship between EU Taxonomy Alignment and ESG ratings is moderated by industry type.*

H7b: *The relationship between EU Taxonomy Alignment and E ratings is moderated by industry type.*

5.7 Market Capitalisation

Market capitalisation, or market cap, is a financial metric representing the total market value of a company's outstanding shares. It is calculated by multiplying the current share price by the total number of outstanding shares (Bodie et al., 2014).

In financial research, the natural logarithm of market capitalisation is often utilized to normalize data, manage outliers, and reduce skewness, thereby making the data more suitable for statistical analysis. This transformation helps in dealing with large numbers and provides a more manageable range for comparison, especially when dealing with firms of vastly different sizes (Graham and Dodd, 2009; Wooldridge, 2015).

Dumrose et al. (2022) point out the need to consider company size, as using a sample with

different company size could lead to a distorting bias. Larger companies have a greater capacity to allocate resources to ESG measures and also more detailed reporting, leading to variations in ESG ratings. By using ln(Market Cap), the size effect is less pronounced, which means that it is easier to compare companies on an equal footing (Dumrose et al., 2022).

The logarithmic transformation helps normalize the distribution of market capitalisation, which is often highly skewed. This makes the data more suitable for parametric statistical tests and regression models (Gujarati and Porter, 2009). Additionally, large firms with significantly higher market capitalisation can distort analyses. The logarithmic transformation reduces the impact of extreme values, making the analysis more robust (Wooldridge, 2015).

The coefficients are easier to interpret in regression models involving ln(Market Cap). For instance, a coefficient can be interpreted as the percentage change in the dependent variable for a one percent change in market capitalisation. This improved interpretability is beneficial for the communication of results (Wooldridge, 2015).

Controlling for market capitalization is useful in ESG analysis to understand the true relationship between ESG performance and financial results. Larger firms may naturally have higher ESG scores due to their ability to allocate more resources towards sustainability initiatives. By using ln(Market Cap), researchers can more accurately assess whether ESG performance is genuinely related to financial performance or if it is merely a reflection of firm size (Dumrose et al., 2022).

This leads to the following hypothesis:

H8a: *The relationship between EU Taxonomy Alignment and ESG ratings is moderated by company size.*

H8b: *The relationship between EU Taxonomy Alignment and ESG ratings is moderated by company size.*

5.8 Summary of Hypotheses

The hypotheses developed in this chapter address the various factors that may influence the relationship between EU Taxonomy alignment and ESG ratings. These hypotheses explore the direct and moderating effects of variables, such as total revenue, ROA, industry type, company size, and geographic location, on ESG performance. To provide a summary, the following Table 3 presents all the hypotheses formulated for this study:

Table 3: Hypotheses

Primary Hypotheses	
H1a (+)	EU Taxonomy Alignment has a Positive Effect on ESG Rating.
H1b (+)	EU Taxonomy Alignment has a positive Effect on E Rating.
H2a (+)	Greater alignment of the EU Taxonomy's eligible revenue will have a positive influence on ESG ratings.
H2b (+)	Greater alignment of the EU Taxonomy's eligible revenue will have a positive influence on E ratings.
H3a (+)	Greater alignment of the EU Taxonomy's aligned revenue will have a positive influence on ESG ratings.
H3b (+)	Greater alignment of the EU Taxonomy's aligned revenue will have a positive influence on E ratings.
Moderating Hypotheses	

H4a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by Total Revenue.
H4b	The relationship between EU Taxonomy Alignment and E ratings is moderated by Total Revenue.
H5a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by ROA.
H5b	The relationship between EU Taxonomy Alignment and E ratings is moderated by ROA.
H6a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by geographic location.
H6b	The relationship between EU Taxonomy Alignment and E ratings is moderated by geographic location.
H7a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by industry type.
H7b	The relationship between EU Taxonomy Alignment and E ratings is moderated by industry type.
H8a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by company size.
H8b	The relationship between EU Taxonomy Alignment and E ratings is moderated by company size.

6 Methodology

The investigation of the research question involves two main approaches. First, a quantitative regression analysis will examine the relationship between the EU Taxonomy and ESG Ratings. The second approach involves analyzing sustainability reports to assess how extensively companies report on the EU Taxonomy. This will be done through text-based content analysis. The subsequent sections will detail the methodologies used for data collection and sample selection.

6.1 Regression Analysis

Three multiple linear regression analyses were performed to test the 16 hypotheses. The first regression investigates the influence of the independent variables on the ESG ratings, while the second focuses on the environmental ratings. For the stability of the results, robust regression analyses were used to check robustness. The third used logistic regression analysis to explore the overall relationship between EU taxonomy compliance and the dependent variables. The analysis is based on a sample of 813 companies, where 320 were classified as EU taxonomy compliant and 493 as non-compliant. Following the regression analysis, descriptive statistics, T-tests, and chi-square tests were used to examine group differences. Also, interaction effects were tested between EU taxonomy compliance and financial performance metrics, industry classification, and geographic variables to identify possible moderating effects on ESG ratings. The statistical analyses were performed using R Studio, checking the assumptions for the regression analyses, such as normal distribution, multicollinearity, and homoscedasticity, as described in the Statistical Assumptions chapter. The complete R-code is attached in the appendix.

6.1.1 Data Collection

The first step in building the dataset was identifying companies officially recognized as aligned with the EU Taxonomy. The Refinitiv Workspace screener tool was instrumental in this process. By applying the "EU Taxonomy aligned flag" filter, 320 companies were selected based on their alignment status. This filter captures companies that have met specific sustainability criteria established under the EU Taxonomy framework, which includes activities contributing substantially to climate change mitigation or adaptation.

For a comparative analysis, it was necessary to select companies that are not aligned with the EU taxonomy. But it was not sufficient to simply select any non-aligned company. It was required to make sure that these companies were comparable to the aligned group in terms of financial ratios and geographical representation. A multi-stage selection process was therefore applied:

First, a comparison of financial ratios was made. The first criterion was to compare the non-aligned companies with the aligned companies on the basis of total revenues, pre-tax return on assets (ROA) and market capitalisation. The selection process involved filtering out non-aligned companies that fell within the median range of these financial ratios. This match was critical to determine whether any differences in ESG or E scores could be attributed to alignment status rather than financial size or performance differences. The second criterion was geographical location. The selected non-aligned companies were selected from the same countries as the companies in the aligned group. This mitigated the influence of country-specific regulatory or market conditions on the sustainability performance of the companies. This process resulted in a dataset of 493 non-aligned companies. Combined with the 320 aligned companies, the total dataset comprised 813 companies. This balanced dataset provided a basis for comparing the sustainability performance of aligned and non-aligned companies, controlling for financial and

geographical variables. The full data set can be found in the appendix.

6.1.2 Statiscal Assumptions

To investigate the influence of EU Taxonomy alignment and other variables on ESG and environmental ratings, multiple linear regression analyses with an enter method were performed at a significance level of 5 percent. Several conditions must be met for multiple linear regression to be valid, and these are detailed below.

First of all, the data has to be interval or discrete to conduct the analysis on it. Based on the analysis for the present study, all the variables including the alignment with EU Taxonomy, total revenue, ROA, industry type, geographical location as well as the ESG and environmental rating are all measured on appropriate scales. This helps to facilitate that the data meet the prerequisite requirement of multiple linear regression analysis. The precise measurement of these variables is important as it has a direct impact on the reliability and validity of the regression results. Using interval or ratio scales allows for applying arithmetic operations, providing a more detailed and accurate analysis. By quantifying these variables appropriately, the analysis assumes that the assumptions of the regression models are met, thereby enhancing the credibility of the findings (Backhaus et al., 2016, pp.101-110).

Selecting regressors is critical to avoid overfitting or underfitting, which can lead to bias. Overfitting occurs when too many predictors are included in the model, causing it to fit the noise in the data rather than the underlying relationship. Underfitting occurs when too few predictors are included, failing to capture the complexity of the relationship. Since the selected variables and hypotheses were derived from existing studies and have been tested in similar compositions, this assumption is confirmed for all regressions performed. The careful selection of regressors is based on theoretical foundations and empirical evidence that the model is both economical

and comprehensive. By doing so, the study maintains a balance between model complexity and explanatory power. The use of well-established variables also enhances the comparability of the results with previous studies, contributing to the broader body of literature on sustainable finance and ESG performance (Backhaus et al., 2016, pp.101-102).

Furthermore, the variables must be linearly related to measure the strength of the relationship. To test for linear relationships, residuals were examined using scatter plots, plotting the predicted unstandardised values against the observed values. The scatter plot indicated linearity, confirming that the relationship between the independent and dependent variables is linear. Maintaining linearity is fundamental as it confirms the assumption that changes in the independent variable are associated with proportional changes in the dependent variable. If the relationship were non-linear, the results could be misleading, necessitating alternative analytical methods such as polynomial regression or non-linear modeling. The visual inspection of scatter plots is a powerful tool to detect deviations from linearity, thereby safeguarding the integrity of the regression analysis (Backhaus et al., 2016, p. 99).

The data set should not contain outliers to avoid bias, as multiple linear regressions are highly susceptible to them. Cook's distance was used to check for possible outliers. Values greater than 1 indicate outliers (Stevens, 1984, p. 341). Outliers can disproportionately influence the results, leading to inaccurate estimates of the regression coefficients. No values above 1 were found, indicating no outliers in the data set, thereby guaranteeing the robustness of the regression results. Outliers should therefore be recognized and removed if necessary, as they distort the regression line and thus result in a misleading best-fit line. Observations that are considered outliers may be due to input errors, measurement errors or real fluctuations; recognizing them helps to decide whether they should be deleted or retained depending on the model assumptions. The fact that there are no extreme values that deviate significantly from the rest of the data

strengthens confidence in the results of the study and the reliability of the specified regression models (Backhaus et al., 2016, pp. 101–111).

Another requirement is to test for autocorrelation, as linear regression assumes that residuals are uncorrelated. Autocorrelation can bias the standard errors of regression coefficients, affecting the confidence intervals. The Durbin-Watson statistic tests for independence, with values ranging from 0 to 4 and no autocorrelation at a value of 2 (Backhaus et al., 2016, p. 105). The Durbin-Watson statistic for this data was appropriate, indicating no autocorrelation in the residuals. This confirms that the residuals are independent, satisfying the assumption of the regression analysis. Assuring no autocorrelation is essential because it validates that the residuals do not follow a systematic pattern over time, which could otherwise lead to misleading inferences (Field, 2013, pp. 315-317).

The regression also requires that predictors are not too highly correlated with each other, avoiding perfect linear dependence. High correlation among predictors can bias parameter estimation. Tolerance, variance inflation factor (VIF), and Pearson correlation are used to test for multicollinearity. Tolerance values close to 0 and VIF values above 10 indicate multicollinearity, while correlations above 0.8 are concerning. On the one hand, multicollinearity can result in unstable estimates of the regression coefficients which makes it difficult to assess how each predictor influences our dependent variable separately (Backhaus et al., 2016, pp. 107-108). Given that correlations did not even exceed 0.8 and VIF was below 10 (the highest value), no multicollinearity ever had to be identified or removed. Addressing multicollinearity is important because it makes sure that each predictor variable contributes uniquely to explaining the variance in the dependent variable. High multicollinearity can inflate the standard errors of the coefficients, leading to less precise estimates and making it difficult to assess the significance of individual predictors. By confirming the absence of multicollinearity, the study confirms

that the regression coefficients are reliable and interpretable, thereby strengthening the overall validity of the regression model (Hair et al., 2010; Field, 2013, pp. 200-201).

Another assumption is that residuals are normally distributed, which is required for t-tests and f-tests. Graphical solutions, such as histograms and P-P plots, were used to check for normal distribution (Backhaus et al., 2016, pp. 110-111). The normality of residuals means that the significance tests for the regression coefficients are valid. Assuring normality is the basis for many inferential statistics used in regression analysis, such as hypothesis testing and confidence interval estimation. Deviations from normality can lead to biased estimates and affect the accuracy of predictions. By visually inspecting histograms and P-P plots, researchers can identify any deviations from normality and apply necessary transformations or corrections to meet this assumption. Confirming the normal distribution of residuals further supports the robustness and reliability of the regression findings (Hair et al., 2010; Field, 2013, pp. 71-72). Some of the variables used in the analysis were logarithmized to check that the requirements of a normal distribution were met. This transformation is necessary to properly apply the regression models in the quantitative analysis. The specific reasons and methods for logarithmizing these variables will be discussed in detail later. Finally, homoscedasticity must be proved, meaning residuals of the predicted dependent variable must be constant. Heteroskedasticity, indicated by non-constant residuals, makes estimates inefficient and biases the standard errors of coefficients. Graphical solutions, considering student residuals against unstandardised predicted values, were used to test for heteroskedasticity (Backhaus et al., 2016, p. 103). No heteroskedasticity was detected, confirming that the residuals were constant, and the variance of the errors was consistent across all levels of the independent variables. The test for homoscedasticity makes sure that the variability of the residuals is uniform across the different levels of the independent variables. This is an essential assumption of linear regression. Heteroskedasticity can lead to incorrect conclu-

sions about the relationships between variables and affect the generalizability of the findings. By using graphical solutions to detect heteroskedasticity, the study adopts a robust approach to validate this assumption, enhancing the credibility of the regression analysis (Hair et al., 2010; Field, 2013, pp. 75-76).

To further explore the relationships and interaction effects between variables, mediation analyses were conducted. This analysis helps to understand whether the influence of EU Taxonomy alignment on ESG and environmental ratings is mediated by other factors such as financial performance metrics, industry classification, and geographic location. Mediation analysis involves testing whether the effect of the independent variable on the dependent variable is transmitted through a mediator variable (Wooldridge, 2015). All statistical analyses were performed with R Studio.

6.2 Text-based Content Analysis

Text-based content analysis is a systematic method of searching text for specific terms, themes, or patterns and quantifying their frequency. Specific search terms are used to filter and analyse relevant content from large volumes of text. This method is useful for identifying and interpreting trends or the distribution of specific terms. Quantitative and qualitative approaches can be combined to highlight different aspects of texts (Loughran and McDonald, 2016, pp. 1192-1193).

The paper 'Environmental, Social, and Governance Reporting in Annual Reports: A Textual Analysis' by Philipp Baier, Marc Berninger, and Florian Kiesel (2020) analyses ESG reporting in annual reports. The authors have developed a specific ESG vocabulary that allows a detailed analysis of environmental, social, and governance aspects in the reports of large companies, particularly the S&P 100 Index. The vocabulary is based on the 10-K reports and proxy state-

ments of 25 of the largest companies in the S&P 100 Index, covering a four-year period. The list has been refined using a variety of methods, including reducing the word document matrix and using stop lists. The list can be found in the appendix in Table 23. The study shows that ESG terms account for approximately 4.0 percent of the total number of words in the reports analysed, with governance terms being the most common (Baier et al., 2020, p. 93).

The study uses the ESG vocabulary developed by Baier et al. (2020) as a basis for further analysis. The aim is to analyse the influence of ESG in companies' written annual reports as well. In addition, the word list is extended by 25 terms specifically related to the EU taxonomy. These terms are based on the criteria of the EU Taxonomy (see Chapter 2) and are listed in Table 4. By including these terms, the analysis focuses not only on general ESG issues but also on how companies address compliance with the EU Taxonomy in their reports. The extended word list is used to answer the research question: How do companies describe their compliance with the EU Taxonomy in their public reporting, and how do they perceive its impact on their sustainability practices?

6.2.1 Sample

A convenience sample was used in this study, where 20 companies were randomly selected for analysis. The Data set of the collected companies can be found in the appendix in Table 24. The aim was to include both companies that follow the EU taxonomy and those that do not. This simple random sampling method was chosen as an unbiased strategy to select the sample. This is because each unit in the population has an equal chance of being selected, minimising bias. This method provides a representative sample and reduces the possibility of bias in the selection, although some sampling error may remain (Kothari, 2004, p. 15). The process of random selection was also applied to the companies' geographical location and sustainability

performance to make the study results reliable. The sample was split evenly between companies from the European Union and other parts of the world to account for regulatory and market conditions differences that may influence the approach to sustainability. The word count function of MAXQDA24 was used for the analysis. Table 4 shows which companies were selected.

Company	**EU Taxonomy Alignment**	**EU**	**Industry**
EDP Energias de Portugal SA	TRUE	EU	Electric Utilities
A2A SpA	TRUE	EU	Electric Utilities
Rexel SA	TRUE	EU	Electrical Components & Equipment
Bureau Veritas SA	TRUE	EU	Business Support Services
Eni SpA	TRUE	EU	Integrated Oil & Gas
Bechtle AG	FALSE	EU	Software & IT Services
Technip Energies NV	FALSE	EU	Energy - Fossil Fuels
SKF AB	FALSE	EU	Industrial Goods
Banco de Sabadell SA	FALSE	EU	Banking & Investment Services
Peab AB	FALSE	EU	Industrial & Commercial Services
Magellan Midstream Partners LP	TRUE	Rest of the World	Oil & Gas Transportation Services
Genting Bhd	TRUE	Rest of the World	Casinos & Gaming
Vistra Corp	TRUE	Rest of the World	Electric Utilities
Anhui Conch Cement Co Ltd	TRUE	Rest of the World	Construction Materials
JSW Energy Ltd	TRUE	Rest of the World	Independent Power Producers
Constellation Software Inc	FALSE	Rest of the World	Software & IT Services
Mitsubishi Corp	TRUE	Rest of the World	Diversified Industrial Goods Wholesale
Sumitomo Mitsui Trust Holdings Inc	FALSE	Rest of the World	Banking & Investment Services
Micro-Star International Co Ltd	FALSE	Rest of the World	Technology Equipment
ANTA Sports Products Ltd	FALSE	Rest of the World	Cyclical Consumer Products

Table 4: Overview Sample for Content Analysis

7 Results of Regression Analysis

This study tests several hypotheses related to the impact of EU Taxonomy alignment on ESG and E scores, as well as the influence of financial and industry-related factors. The hypotheses are summarised in Table 1. The analysis is structured to answer the research questions:
To help answer this research question, the following questions need to be considered as well:

1. To what extent does alignment with the EU Taxonomy's eligible revenue criteria correlate with higher ESG ratings?

2. How do financial performance metrics, such as Return on Assets (ROA) and total revenue, interact with EU Taxonomy alignment to affect ESG ratings?

3. Does the influence of EU Taxonomy alignment on ESG ratings vary according to the company's industry and geographic location?

4. How do companies describe their compliance with the EU Taxonomy in their public reports, and how do they perceive its impact on their sustainability practices?

7.1 Descriptive Analysis

After merging the data sets, a data cleansing process was carried out to determine the usability of the data. The following steps were taken: The dataset was carefully checked for missing values throughout the variables. Missing data could have introduced bias or inaccuracy into the analysis. Therefore, records with missing values in the categories of alignment status, E- and ESG scores were removed. This guaranteed that the final dataset was complete and ready for analysis. Logarithmic transformations were performed to remove skewness in the financial variables for total revenue and market capitalisation. As already mentioned, this transformation was necessary to stabilise the variance and approximate a normal distribution, which is a prerequisite

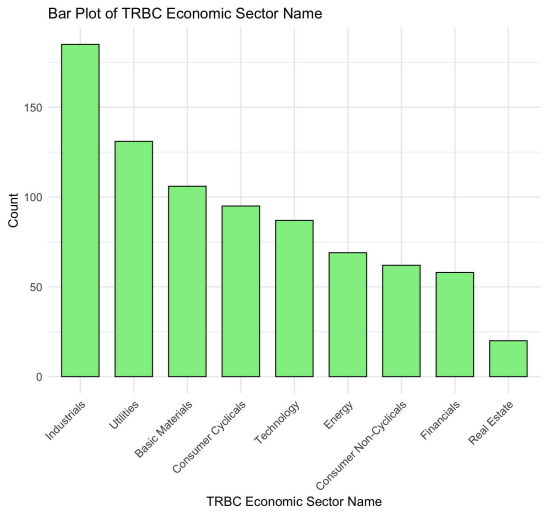
for statistical analyses. The log-transformed variables provided a more accurate representation of the data and facilitated the comparison between aligned and non-aligned companies.

Descriptive statistics were calculated for both financial and non-financial variables to gain an initial understanding of the dataset. Descriptive statistics for financial variables such as total revenue, market capitalisation and pre-tax return on assets were calculated separately for aligned and non-aligned companies. Key statistics (see Table 5) included mean, standard deviation, and median, which provided insight into the central tendency and variability of these financial measures within each group. For example, the analysis showed that aligned companies had a slightly lower mean total revenue than non-aligned companies, although the standard deviation was higher for aligned companies. This indicates that while the non-aligned companies were more homogeneous regarding revenue, the aligned group included a more comprehensive range of company sizes. The plots can be found in the appendix.

Table 5: Descriptive Statistics for Financial Variables by Alignment Status

Alignment Status	**Mean Revenue**	**SD Revenue**	**Mean Market Cap**	**Mean ROA**
Non-Aligned (0)	22.57	0.17	22.72	0.0618
Aligned (1)	22.49	1.51	21.58	0.0497

The industry distribution was analysed to understand the representation of different industries within the aligned and non-aligned groups (see Figure 1). This analysis was critical in identifying whether certain sectors were over- or under-represented in the aligned group, which could influence sustainability performance results. The results showed that specific industries, such as utilities and energy, had a higher representation among aligned companies, reflecting the greater regulatory scrutiny of these sectors and the benefits of aligning with the EU taxonomy. Conversely, industries such as basic materials and industrial had a more balanced representation of aligned and non-aligned companies.

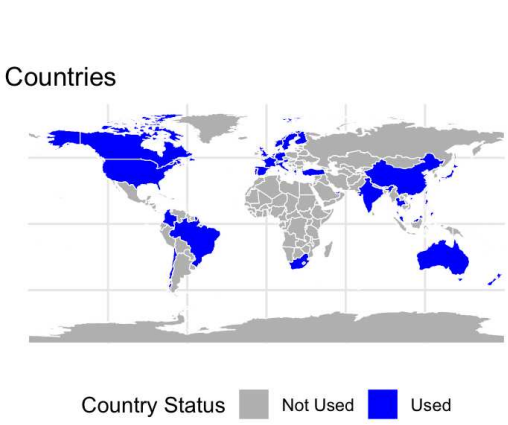


(a) Industries selected

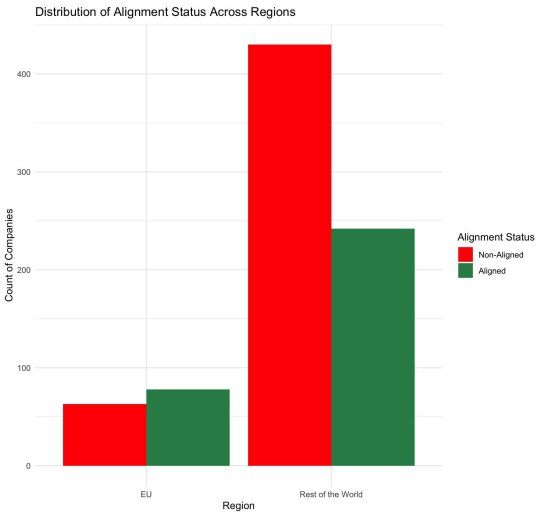
(b) Industries distribution

Figure 1: Overview of selected Industries and their Distribution

The geographical distribution of companies was analysed to assess the regional diversity of the dataset. The analysis showed that the majority of companies in both aligned and non-aligned groups were headquartered in the Rest of the World category, which includes countries outside the EU (see figure 2). The proportion of EU-based companies was higher in the aligned group, reflecting the more stringent regulatory environment in the EU and the incentives for companies to align with the EU taxonomy.



(a) Countries selected



(b) Country distribution

Figure 2: Overview of selected Countries and their Distribution

7.2 Normality Check

The first step of the analysis was to assess the normality of the financial variables to verify that the assumptions of the subsequent regression models were met. The Shapiro-Wilk test was employed to check the normality of financial metrics, including total revenue, market capitalization, and Pretax ROA. The test was conducted separately for companies categorized as aligned and non-aligned with the EU Taxonomy to allow for a comparative analysis between these two groups. The results indicated significant deviations from normality for all financial metrics across both aligned and non-aligned companies, with p-values less than 0.001 in most cases. This approach follows Wooldridge's (2015) guidance on testing regression assumptions and adjusting for deviations when necessary.

Given these significant deviations from normality, log transformations were applied to the financial variables. This transformation was necessary to stabilize variance and approximate a normal distribution to meet the conditions for the regression analyses. The application of log

transformations allowed the models to better meet the assumptions required for valid statistical inference. This transformation is a standard approach for stabilizing variance and improving the normality of data distributions, specifically when dealing with skewed financial metrics. The use of log-shift transformations is well-supported in statistical analysis, as outlined in the R package documentation for log-shift transformation techniques (R Documentation, 2022).

To visually inspect the distribution of these variables, histograms and boxplots were generated for each financial metric, both before and after the log transformations. These visualizations, which can be found in the appendix, confirmed the skewness and outliers present in the raw data, further justifying the need for log transformations.

7.3 T-Tests

The analysis of descriptive statistics showed that companies aligned with the EU taxonomy tend to have higher average total revenue and market capitalisation than their non-aligned counterparts. For example, the mean log-transformed total revenue `log_total_revenue` for companies aligned with the EU taxonomy was 22.5, indicating that aligned companies generated significantly higher revenue on average than non-aligned companies, which had a mean `log_total_revenue` of 22.6. The independent samples t-test did not show a significant difference in total revenue between the two groups ($t = 1.02$, $p = 0.3095$), indicating that revenue size alone may not be a strong determinant of EU Taxonomy alignment. In contrast, the log-transformed market capitalisation differed significantly between aligned and non-aligned companies. Aligned firms had a mean `log_market_cap` of 21.6, while non-aligned firms had a higher mean of 22.7. This difference was statistically significant ($t = 4.13$, $p < 0.001$), indicating that, on average, non-aligned companies have larger market capitalisations. The higher standard deviation among aligned companies implies greater variability within this group, which

may reflect a greater diversity of company sizes or industries among aligned companies. Further analysis of aligned revenue revealed strong contrasts between the two groups, mainly due to the nature of their alignment with the EU taxonomy. Aligned enterprises reported a mean `log_aligned_revenue` of 19.0, while non-aligned enterprises had no aligned revenue, reflected by a mean of zero. These significant differences are due to the nature of the variable. Not-aligned companies also do not have revenues aligned with the EU taxonomy. Aligned companies in this group therefore also have much higher values. The mean value `log_eligible_revenue` for aligned companies was 20.4, in contrast to the mean value of 5.82 for non-aligned companies. This large difference, which is statistically significant ($t = -33.95$, $p < 0.001$), underlines the fact that non-aligned companies often do not report eligible revenue because they do not have to fulfil the criteria of the EU taxonomy. Finally, the analysis of pre-tax return on assets revealed a modest but significant difference between the two groups. Non-aligned companies had a slightly higher average `Pretax_ROA` of 0.0618 compared to 0.0497 for aligned companies. The t-test results ($t = 2.62$, $p < 0.01$) show that non-aligned enterprises might have slightly better profitability or financial efficiency than aligned enterprises.

The results, summarised in Table 6, show significant financial differences between aligned and non-aligned companies according to the EU taxonomy. Although total revenues did not show a significant difference, non-aligned companies generally had higher market capitalisations, indicating larger company size. Aligned companies, on the other hand, had significantly higher aligned and eligible revenues, consistent with their adherence to the standards of the EU Taxonomy. Interestingly, non-aligned firms had slightly better pre-tax profitability, possibly reflecting greater financial efficiency.

Table 6: T-Test Results and Means for Financial Metrics by EU Taxonomy Alignment

Metric	**Aligned Mean**	**Non-Aligned Mean**	**t-value**	**p-value**
Log Total Revenue	22.5	22.6	1.02	0.3095
Log Market Capitalization	21.6	22.7	4.13	< 0.001
Log Aligned Revenue	19.0	0.0	-168.14	< 0.001
Log Aligned Revenue percent	1.71	0.0	-24.82	< 0.001
Log Eligible Revenue	20.4	5.82	-33.95	< 0.001
Log Eligible Revenue percent	2.70	0.738	-21.99	< 0.001
Pre-Tax ROA	0.0497	0.0618	2.62	0.0088

7.4 Chi-Square Tests

The association between categorical variables such as industry classification and geographical region and EU taxonomy alignment status was assessed using chi-square tests. The initial analysis included the variable `TRBC Industry`, which had numerous categories, making it too detailed and less meaningful for the analysis. Consequently, the analysis was refined by focusing on broader economic sectors, providing a more generalised and interpretable view of the relationship between industry classification and alignment status. The Chi-square test for the association between `TRBC Economic Sector` and `EU Taxonomy Alignment Flag` revealed a significant relationship ($x^2 = 85.3$, $p < 0.001$). The strength of this association was quantified using Cramérs V, yielding a value of 0.55, indicating a moderate to strong association. This measure is commonly used to assess the association between categorical variables and follows the guidelines for measuring relationships between variables discussed in Wooldridge (2015). This result implies that the economic sector in which a company operates significantly influ-

ences its likelihood of being aligned with the EU Taxonomy. The higher Cramérs V value highlights the strong connection between specific industries and alignment, reflecting the varying environmental impacts and regulatory pressures across different sectors.

The chi-squared test between geographical region and alignment status also showed a significant association (x^2= 17.4, p < 0.001). Cramérs V for this relationship was 0.15, indicating a weaker but still meaningful association compared to industry. This result indicates that companies headquartered in different regions have different probabilities of aligning with the EU taxonomy. The weaker association compared to industry classification may be due to the more diverse regulatory environments and market pressures across regions, which influence alignment decisions differently.

These findings support the hypothesis that industry and geographic location significantly influence a company's likelihood of aligning with the EU Taxonomy, with industry classification showing a stronger influence compared to geographic regions.

7.5 Robust Regression Analysis

In analysing the drivers of ESG and E scores, linear regression models were first used to identify significant predictors within companies. The initial linear regression models were used to explore the relationship between various financial and industry predictors and ESG and E scores. The analysis revealed limitations in the use of Ordinary Least Squares (OLS) regression due to several diagnostic issues: First, heteroscedasticity was observed. The residual plots indicated non-constant variance, violating OLS assumptions. Second, the non-normality of the residuals was examined, and the Q-Q plots showed deviations from normality, indicating non-normally distributed residuals. Additionally, the Residuals versus leverage plots highlighted high leverage points and outliers that could bias model estimates. Due to these concerns, the OLS re-

gression approach was found to be unreliable, requiring the use of robust regression methods. Robust regression is less sensitive to the observed violations and provides more reliable coefficient estimates, making it a better fit for this analysis. Further testing of the hypotheses will be carried out using robust regression to confirm the findings (Wooldridge, 2015).

Robust regression is a regression approach in statistics that, unlike ordinary least squares (OLS), provides exponential coefficient estimates, but only if some of the OLS assumptions are met. The consequence of running a standard OLS regression is to minimize the sum of squared residuals (SSE), and outliers or extreme values can have a significant impact. They often strongly distort the result and lead to potentially misleading and unreliable estimates of the relationships between the variables. As Huber and Ronchetti (2009) describe, robust regression methods are less affected by such violations of assumptions, leading to more reliable coefficient estimates (Huber and Ronchetti, 2009).

The results of the robust regression models provided more certain insights into the relationships between financial, industry-related predictors and companies' ESG and E scores, given that the assumptions of ordinary least squares (OLS) regression were violated in the initial analysis. The robust regression technique was used to address these issues and to account for the fact that the results are not affected by outliers or heteroscedasticity (Wooldridge, 2015; Huber and Ronchetti, 2009).

Robust regression addresses this issue by reducing the influence of outliers and providing a more accurate depiction of the data, unlike OLS regression, which assumes that residuals are normally distributed and homoscedastic, robust regression employs techniques such as M-estimation. The coefficients obtained from a robust regression model can be interpreted in a similar way to those from an OLS regression. Specifically, each coefficient represents the expected change in the dependent variable for a one-unit change in the corresponding independent variable if

all other variables remain constant. Because robust regression reduces the effect of outliers, the estimates produced by this method are generally considered to be more reliable (Huber and Ronchetti, 2009). For example, the standard errors in robust regression indicate the variability of the coefficient estimates. Residuals in robust regression play a role in diagnosing the fit of the model. If the residuals are more normally distributed and have a constant variance, it indicates that the robust regression model is well specified and adequately accounts for the underlying data structure. But in robust regression, the model does not minimise the sum of squared residuals in the same way as OLS does. Instead, it uses alternative loss functions that reduce the influence of outliers (Wooldridge, 2015; Huber and Ronchetti, 2009).

The model fit for the robust regression on ESG and E scores was considerably improved compared to the OLS model, as indicated by the residual diagnostics. The residuals versus fitted values plot showed no clear patterns, implying that the assumptions of the model were better met. Additionally, the residuals vs. leverage plot did not indicate any influential outliers with excessive leverage, reinforcing the robustness of the model. These diagnostic improvements show that the robust regression model provided more accurate estimates of the relationships between the variables. The requirements explained above to fulfill a regression analysis were proved and confirmed. The plots can be found in the appendix.

The dependent variable in this robust regression analysis was the ESG score. The independent variables included log-transformed total revenue, log-transformed aligned revenue percentage, log-transformed eligible revenue percentage, log-transformed market capitalization, Pretax Return on Assets, TRBC Economic Sector Name, Region, and an indicator variable for alignment with the EU Taxonomy. The model for ESG demonstrated a reasonable fit, as indicated by a residual standard error of 13.41. The model for ESG demonstrated a reasonable fit, as indicated by a residual standard error of 13.41. The model fit for E-ratings was reasonably strong, as in-

dicated by the residual standard error of 17.26. The following equation can represent the robust regression model for the scores:

$$\begin{aligned}(\text{E})\text{SG\_Score} = {} & \beta_0 + \beta_1 \cdot \log(\text{total\_revenue}) + \beta_2 \cdot \log(\text{aligned\_revenue\_percent}) \\ & + \beta_3 \cdot \log(\text{eligible\_revenue\_percent}) + \beta_4 \cdot \log(\text{market\_cap}) \\ & + \beta_5 \cdot \text{Pretax\_ROA} + \beta_6 \cdot \text{TRBC\_Economic\_Sector\_Name} \\ & + \beta_7 \cdot \text{Region} + \beta_8 \cdot \text{Aligned\_Flag\_Binary} + \varepsilon\end{aligned} \tag{1}$$

The robust regression analysis showed that alignment with the EU taxonomy positively affected both ESG and E-scores, supporting hypotheses H1a and H1b. The coefficient for alignment with the EU taxonomy was 2.73 for the ESG score ($t = 1.60$, $p > 0.05$) and 5.50 for the E score ($t = 2.46$, $p < 0.05$), although the effect on the ESG score was not statistically significant (see Table 7 and 8). This shows that there is a tendency towards better ESG performance with regulatory alignment, but the impact may not be as strong as expected.

The percentage of revenue meeting the EU taxonomy criteria (H2a and H2b) had a significant positive impact on both ESG and E scores. The coefficient for the ESG score was 1.13 ($t = 2.47$, $p < 0.05$), and for the E-score, 1.93 ($t = 3.21$, $p < 0.01$). The positive coefficient on both scores highlights the role of eligible revenues as a determinant of ESG and E outcomes.

Interestingly, the percentage of aligned revenue (H3a and H3b) did not show a statistically significant effect on ESG scores (coefficient = 0.26, $t = 0.33$, $p > 0.05$) or E scores (coefficient = -0.08, $t = -0.08$, $p > 0.05$). This shows that this factor may not be as relevant in determining ESG or E performance as other factors.

Moderation by company size and financial performance (H4a, H4b, H8a, and H8b) showed that total income and market capitalization were significant positive predictors of both ESG and E

scores, suggesting that larger companies tend to perform better in these areas. The coefficient for total income was 2.70 for the ESG score ($t = 4.49$, $p < 0.001$) and 4.62 for the E score ($t = 5.88$, $p < 0.001$). Market capitalization showed a coefficient of 1.73 for the ESG score ($t = 9.82$, $p < 0.001$) and 1.48 for the E-score ($t = 6.44$, $p < 0.001$). Pretax ROA (H5a and H5b), on the other hand, had no significant impact on these scores, with a coefficient of -7.70 for the ESG score ($t = -0.98$, $p > 0.05$) and -5.94 for the E score ($t = -0.58$, $p > 0.05$). This indicates that financial efficiency alone is insufficient to determine a company's ESG or E scores.

In addition, significant regional effects were found for companies outside the EU (H6a and H6b). These have lower ESG values (coefficient = -9.89, $t = -7.19$, $p < 0.001$) and E-values (coefficient = -11.70, $t = -6.50$, $p < 0.001$). Industry-related effects (H7a and H7b) were also significant, with companies from the energy (coefficient = -5.06 for ESG and -9.66 for E) and utilities (coefficient = -8.67 for ESG and -12.02 for E) sectors showing low values. This shows that companies in certain sectors have greater difficulties in improving their sustainability performance, which could reflect the different weightings within the various sectors on the ESG and E scores.

In conclusion, the robust regression analysis highlighted the central role of company size, alignment with EU environmental standards, and challenges in specific industries in shaping ESG and E performance.

Table 7: Robust Regression Results for ESG Score

Variable	**Estimate**	**Std. Error**	**t value**
(Intercept)	-26.8194	13.2839	-2.0189
log_total_revenue	2.7017	0.6016	4.4908
log_aligned_revenue_percent	0.2558	0.7724	0.3312
log_eligible_revenue_percent	1.1332	0.4583	2.4723
log_market_cap	1.7256	0.1757	9.8199
Pretax_ROA	-7.7025	7.8315	-0.9835
Consumer Cyclicals	-2.0463	2.0865	-0.9807
Consumer Non-Cyclicals	-1.4599	2.3379	-0.6245
Energy	-5.0621	2.3186	-2.1833
Financials	-5.1708	2.4697	-2.0937
Industrials	-3.9097	1.7613	-2.2198
Real Estate	-1.7845	3.5297	-0.5056
Technology	-1.1011	2.1184	-0.5198
Utilities	-8.6682	1.9704	-4.3992
Region (Rest of the World)	-9.8872	1.3753	-7.1890
Aligned_Flag_Binary	2.7332	1.7113	1.5972
Residual standard error	13.41 on 797 degrees of freedom		

Table 8: Robust Regression Results for E Score

Variable	**Estimate**	**Std. Error**	**t value**
(Intercept)	-62.3914	17.3755	-3.5908
log_total_revenue	4.6240	0.7869	5.8763
log_aligned_revenue_percent	-0.0772	1.0103	-0.0764
log_eligible_revenue_percent	1.9274	0.5995	3.2149
log_market_cap	1.4796	0.2299	6.4370
Pretax_ROA	-5.9406	10.2436	-0.5799
TRBC_Economic_Sector_NameConsumer Cyclicals	-3.4132	2.7291	-1.2507
TRBC_Economic_Sector_NameConsumer Non-Cyclicals	-1.2855	3.0579	-0.4204
TRBC_Economic_Sector_NameEnergy	-9.6565	3.0327	-3.1841
TRBC_Economic_Sector_NameFinancials	-8.3853	3.2304	-2.5957
TRBC_Economic_Sector_NameIndustrials	-6.2382	2.3038	-2.7078
TRBC_Economic_Sector_NameReal Estate	5.1448	4.6169	1.1143
TRBC_Economic_Sector_NameTechnology	-8.0011	2.7709	-2.8876
TRBC_Economic_Sector_NameUtilities	-12.0175	2.5773	-4.6628
RegionRest of the World	-11.6991	1.7989	-6.5033
Aligned_Flag_Binary	5.5049	2.2383	2.4594
Residual standard error	13.41 on 797 degrees of freedom		

7.6 Interaction Models

Interaction effects occur when the relationship between a predictor variable and an outcome variable changes depending on the level of another variable (Wooldridge, 2015). When analysing interaction effects in the context of ESG and E (Environmental) scores, exploring different models was used to understand how different factors might moderate the impact of EU Taxonomy alignment on companies' sustainability performance. These variables could be financial metrics, industry sectors, or geographical locations. By estimating interaction models, we can investigate whether the effect of alignment on sustainability scores is consistent across companies or whether it varies depending on specific factors such as company size, industry type, or geographic region. Consequently, three different interaction models were examined to identify significant interaction effects. These results were then combined in a final model. The regression tables and plots can be found in the appendix.

Financial Interaction Model

The financial interaction model was designed to determine whether the impact of EU Taxonomy alignment on ESG and E scores varied with the company's financial size, as measured by variables such as total revenue and market capitalisation. Analysis of the ESG score interaction model showed that the interactions between alignment and financial measures (specifically `log_total_revenue` and `log_market_cap`) were not statistically significant, with estimates for the interaction terms of -3.36 and -0.42, respectively. Similar results were found for the E-score model, with interaction terms of -3.53 for `log_total_revenue` and -0.91 for `log_market_cap`, both of which were not statistically significant. This implies that the effect of alignment with the EU taxonomy is consistent across companies regardless of their financial size, whether large or small. This result suggests that the benefits of alignment with the EU

taxonomy are accessible to companies of different financial strengths, implying a consequent effect of alignment on sustainability scores in different financial contexts.

Industry Interaction Model

The industry interaction model explored whether the impact of alignment on ESG and E scores differed across various industry sectors. In the ESG score model, significant interaction effects were observed within certain sectors. The Energy sector displayed a significant positive interaction with an estimate of 9.29 ($p = 0.022$), showing that alignment with the EU Taxonomy benefits companies in this sector. In the E score model, the interaction effect for the Energy sector was also significant with an estimate of 13.25 ($p = 0.02$). These findings imply that energy companies, often under greater environmental scrutiny, benefit more from alignment with EU standards, leading to improved sustainability scores. In the technology sector, a positive interaction effect was found in both models, with estimates of 4.43 ($p = 0.043$) for ESG ratings and 10.07 ($p = 0.013$) for E ratings, reflecting the growing prominence of sustainable practices in this industry. These results suggest that alignment with the EU Taxonomy can significantly enhance sustainability performance in sectors traditionally associated with high environmental impacts, emphasising the role of industry-specific factors in moderating the effect of alignment on ESG and E scores.

Geographic Interaction Model

The geographical interaction model assessed whether the impact of alignment on ESG and E scores differed for companies headquartered in different regions. The ESG score model showed a significant interaction effect for companies headquartered outside the reference region (presumably the EU), with an estimated 3.22 ($p = 0.022$). The E-score model confirmed this finding, showing a stronger positive interaction effect with an estimated 9.53 ($p = 0.008$). These

results show that the positive effect of aligning with the EU taxonomy is more pronounced for non-EU companies. In non-EU markets, alignment with stringent EU standards may serve as a differentiator, offering competitive advantages in terms of sustainability. This could improve the perceived sustainability performance of non-EU companies in both EU and global markets, thereby increasing their ESG and E scores more than their EU counterparts.

Combined Interaction Model

The combined interaction model integrated the effects of financial metrics, industry sectors, and geographic regions to assess their collective influence on the relationship between EU Taxonomy alignment and sustainability scores. For both the ESG and E-score models, the analysis has shown that industry and geographic location play a more integral role than financial metrics when it comes to mitigating the impact of alignment on sustainability scores. Significant interactions were found in specific sectors, such as energy and technology, and non-EU regions. For example, the energy sector shows similar interaction effects in both models (ESG = 11.92). These results show that the sectoral context as well as the geographical location should be taken into account when analysing the adjustments to the EU taxonomy in order to better understand the differences in the scores. Although alignment with EU standards is generally favourable, its impact in certain sectors and regions needs to be taken more into account.

Final Interaction Model

After conducting a series of interaction models to examine the relationships between EU Taxonomy alignment, financial metrics, industry classification, and regional differences in both ESG and E scores, a final interaction model was established. This model incorporated interaction effects to provide an understanding of how these factors influence sustainability scores.

The final interaction model for ESG scores included interactions between EU Taxonomy align-

ment and essential financial variables, specifically log-transformed total revenue and log-transformed market capitalization, along with interactions between market capitalization and various industry sectors:

$$\begin{aligned}(\text{E})\text{SG\_Score} = {} & \beta_0 + \beta_1 \cdot \text{Aligned\_Flag\_Binary} + \beta_2 \cdot \log(\text{total\_revenue}) + \beta_3 \cdot \log(\text{market\_cap}) \\ & + \beta_4 \cdot \log(\text{eligible\_revenue\_percent}) + \beta_5 \cdot \text{Pretax\_ROA} \\ & + \beta_6 \cdot \text{TRBC\_Economic\_Sector\_Name} + \beta_7 \cdot \text{Region} \\ & + \beta_8 \cdot \text{Aligned\_Flag\_Binary} \cdot \log(\text{total\_revenue}) \\ & + \beta_9 \cdot \text{Aligned\_Flag\_Binary} \cdot \log(\text{market\_cap}) \\ & + \beta_{10} \cdot \log(\text{market\_cap}) \cdot \text{TRBC\_Economic\_Sector\_Name} + \varepsilon \end{aligned} \tag{2}$$

The analysis revealed that the interactions between EU Taxonomy alignment and financial measures, such as total revenue and market capitalization, were not statistically significant, with t-values of -0.97 and -0.48. This finding means that the positive effects of EU Taxonomy alignment on ESG scores are relatively consistent across companies, regardless of their size. Significant interaction effects were observed within specific industries. For instance, the interaction between market capitalization and the Energy sector displayed a significant negative coefficient (-2.49, t = -2.49). This result indicates that larger energy companies might face greater challenges in improving their ESG scores, even when aligned with the EU Taxonomy. On the other hand, a positive interaction effect was found in the Consumer sector, with a coefficient of 3.07 (t = 2.16), implying that larger companies in this sector benefit more from alignment. Furthermore, the model confirmed that companies headquartered outside the EU (Rest of the World) consistently had lower ESG scores, with a coefficient of -10.43 (t = -7.67). This result reinforces the role of the EU's regulatory framework in promoting higher environmental standards. Among industry sectors, the Technology sector demonstrated a positive interaction with the

market capitalization (coefficient = 78.50, t = 2.41), showing that larger technology companies benefit significantly from the alignment in terms of their ESG scores. The Regression Tables will be provided in the Appendix.

The final interaction model for E scores mirrored the structure of the ESG model but focused exclusively on environmental performance. Like the ESG model, the interaction effects between EU Taxonomy alignment and financial measures, such as total revenue and market capitalization, were not statistically significant, with t-values of -0.74 and -1.00. This outcome suggests that the benefits of alignment on E scores do not vary significantly with company size. In the industry-specific analysis, the interaction between market capitalization and the Energy sector also revealed a significant negative coefficient (-0.85, t = -0.85), indicating that larger energy companies might struggle more with environmental performance, even when aligned with EU standards. Conversely, a positive interaction effect was observed for the Consumer sector, with a coefficient of 2.37 (t = 1.25), indicating that larger companies in this sector could see improved environmental performance with alignment. Additionally, companies headquartered outside the EU had consistently lower E scores, with a coefficient of -12.07 (t = -6.66). This shows the notion that the EU's stringent environmental regulations contribute to better environmental outcomes for EU-based companies. In contrast to the ESG model, the interaction between the technology sector and market capitalization was less relevant, with a coefficient of 96.74 (t = 2.22). The result shows that the benefits of alignment are still significant for environmental performance in the technology sector but slightly less effective than for ESG scores.

This final interaction model was selected as it captures the complexity of how financial size, industry characteristics, and regional factors interact with EU Taxonomy alignment to influence both ESG and E scores. By incorporating these interaction effects, the model provides a more detailed and accurate understanding of the differential impact of alignment across various con-

texts. The results show how the effectiveness of alignment with the EU taxonomy in terms of sustainability outcomes needs to be considered in the specific industry and regional context.

7.7 Logistic Regression

Following the analysis of the ESG and E-scores using robust regression, the focus now shifts to the specific investigation of the factors that influence whether a company aligns with the EU Taxonomy. This is a binary outcome that requires the use of logistic regression (Wooldridge, 2015). The logistic regression model is suitable for this analysis as it allows for the exploration of predictors for binary outcomes, in this case, alignment (yes or no) with the EU Taxonomy. The logistic regression models developed for both the E Score and ESG Score offered valuable insights into the factors that predict alignment with the EU Taxonomy. These models were reassessed to determine whether financial metrics, industry classification, regional location, and overall sustainability performance (as measured by E and ESG scores) influenced a company's likelihood of alignment:

$$\begin{aligned}\text{(E)SG\_Score} = \beta_0 &+ \beta_1 \cdot \log(\text{total\_revenue}) + \beta_2 \cdot \log(\text{market\_cap}) \\ &+ \beta_3 \cdot \log(\text{eligible\_revenue\_percent}) + \beta_4 \cdot \text{Pretax\_ROA} \\ &+ \sum_{i=5}^{n} \beta_i \cdot \text{Industry}_i + \beta_n \cdot \text{Region} \\ &+ \beta_{n+1} \cdot \text{E/ESG Score}\end{aligned} \tag{3}$$

The logistic regression models were evaluated using the Akaike Information Criterion (AIC) and the Area Under the Curve (AUC) from the receiver operating characteristic (ROC) analysis. The AIC for the ESG Score model was slightly higher than that for the E Score model (AIC = 611.83 vs. 609.6), indicating that the E Score may be a slightly more efficient predictor of alignment. The AUC values were very similar, with the E Score model displaying an AUC of

0.9175 and the ESG Score model exhibiting an AUC of 0.9159. Both values indicate a high level of model performance. The plots can be found in the appendix.

In the logistic regression model focusing on the E Score, several key predictors were identified as statistically significant. For instance, the coefficient representing `log_total_revenue` was positive and statistically significant (Estimate = 0.308, p = 0.011). This supports the hypothesis (H4b) that total revenue positively influences alignment with the EU Taxonomy, as larger companies with higher revenues are more likely to have the resources needed to align with the necessary standards.

Conversely, the `log_market_cap` coefficient was negative and significant (Estimate = -0.173, p = 0.0098), indicating that companies with larger market capitalizations may encounter more difficulties in aligning with the EU Taxonomy. This result supports the hypothesis (H8b) that company size, as measured by market capitalization, can pose challenges to alignment, particularly in larger firms with more complex operations.

Furthermore, the `log_eligible_revenue` variable was found to be significant, exhibiting a robust positive coefficient (Estimate = 0.917, $p < 0.001$). This supports the hypothesis (H2b) that companies with a higher percentage of EU Taxonomy-eligible revenue are more likely to align, as they are already engaged in activities that meet the necessary standards for sustainability.

Industry-specific effects also played a significant role. The energy sector demonstrated a significant positive coefficient (Estimate = 1.405, p = 0.0006), indicating that companies within this sector are more likely to align with the EU Taxonomy. This supports the hypothesis (H7b) that industry context affects the likelihood of alignment in sectors under greater environmental scrutiny. Energy companies, which face higher environmental pressures, may be more motivated to align with the EU Taxonomy to meet regulatory and market expectations.

The E Score was a significant predictor of alignment when examining the overall environmental

performance of the companies, with a coefficient of 0.020 (p = 0.0018). This finding aligns with the hypothesis (H5b) that companies with superior environmental performance are more likely to align with the EU Taxonomy, reflecting the direct impact of strong environmental practices on compliance.

The ESG Score model yielded consistent results, with the ESG Score demonstrating a positive and significant impact on alignment (Estimate = 0.023, p = 0.0057). This supports the hypothesis (H5a) that better overall sustainability performance, as captured by ESG scores, increases the likelihood of alignment with the EU Taxonomy. The full regression table can be found in the appendix.

The models also considered the effect of regional location, whether companies headquartered outside the EU were less likely to align with the EU Taxonomy. Despite the negative coefficients for the region variable, they were not statistically significant in either model. In the E Score model, the estimated coefficient for the region variable was -0.060 (p = 0.832), while in the ESG Score model, the estimated value was -0.026 (p = 0.929). This indicates that, while non-EU companies may face some obstacles to alignment, these barriers were not as substantial as initially hypothesized (H6b).

7.8 Summary of Findings

This study investigated the relationships between EU Taxonomy alignment, financial performance, industry classification, geographic location, and sustainability performance, as measured by ESG and E scores. The analysis focused on several research questions, including the extent to which alignment with the EU Taxonomy criteria correlates with higher ESG ratings, how financial performance metrics interact with EU Taxonomy alignment to affect ESG ratings, whether the influence of EU Taxonomy alignment on ESG ratings varies by the company's in-

dustry and geographic location.

The following key findings were identified:

The robust regression analysis confirmed that E scores are significantly and positively associated with EU Taxonomy alignment, supporting the hypothesis (H1b) that companies with stronger environmental performance are more likely to align with the EU Taxonomy. This finding was further corroborated by the logistic regression analysis, which demonstrated a significant positive relationship between E scores and alignment (Estimate = 0.020, p = 0.0018). The consistency between these methods highlights the role of environmental performance in driving alignment with regulatory standards. On the other hand, while the robust regression analysis indicated a positive relationship between ESG scores and EU Taxonomy alignment (H1a), this effect was not statistically significant (Estimate = 2.73, t = 1.60, $p > 0.05$). This shows that the role of ESG scores in alignment is less clear. But the logistic regression analysis revealed a significant positive relationship between ESG scores and alignment (Estimate = 0.023, p = 0.0057), indicating that strong ESG performance may still be a relevant factor in determining alignment. Together, these findings indicate that H1a is only partially supported, and E scores are a more consistent and robust predictor of alignment with the EU Taxonomy. At the same time, ESG scores may also influence alignment, but their effect is less firmly established across different analytical methods. This highlights the dominant role of environmental performance in driving alignment with the EU Taxonomy, while ESG performance appears to have a potential but less definitive influence. The results of the robust regression also confirmed that a higher percentage of EU taxonomy-eligible revenue leads to better results for both ESG and E scores (H2a, H2b). The logistic regression also supported this result by showing a significant positive effect of the percentage of eligible revenue on EU taxonomy alignment (Estimate = 0.917, $p < 0.001$). This underlines the impact of eligible activities on sustainability performance and alignment with the

EU taxonomy. However, when focusing on the relationship between the percentage of aligned revenue and sustainability performance (H3a, H3b), no significant effect was found for ESG scores (H3a) or E scores (H3b). It's important to note that having aligned revenue alone does not significantly improve sustainability performance. When examining moderation by financial performance, both total revenue and market capitalization were significant positive predictors of ESG and E-scores. The coefficient of total revenue was 2.70 for the ESG score ($t = 4.49$, $p < 0.001$) and 4.62 for the E-score ($t = 5.88$, $p < 0.001$). This indicates that larger companies tend to have better sustainability performance. This means that while larger companies generally have better sustainability performance, this relationship does not depend on their alignment with the EU taxonomy. The interaction terms between alignment and financial metrics, such as total revenue and market capitalization, showed no significant impact on ESG or E-scores. This suggests that the benefits of alignment with the EU taxonomy are relatively consistent across different company sizes. Therefore, H4a and H4b are not supported. Return on assets before tax (ROA) showed no significant impact on ESG or E-scores, with a coefficient of -7.70 for ESG scores ($t = -0.98$, $p > 0.05$) and -5.94 for E-scores ($t = -0.58$, $p > 0.05$). This indicates that financial efficiency alone, as measured by return on equity, is not strong enough to significantly influence a company's ESG or E-score. Consequently, H5a and H5b are not supported. Market capitalization also showed a positive relationship, with a coefficient of 1.73 for the ESG score ($t = 9.82$, $p < 0.001$) and 1.48 for the E-score ($t = 6.44$, $p < 0.001$). This confirms that larger companies generally have better sustainability performance. However, the logistic regression showed a negative and significant relationship between market capitalization and alignment with the EU taxonomy (estimate = -0.173, $p = 0.0098$). This suggests that larger companies may have greater difficulties in adapting to the EU taxonomy relative to their market capitalization. On the other hand, in the logistic regression, total sales showed a positive influence

on the adaptation to the EU taxonomy (estimate = 0.308, p = 0.011), supporting the hypothesis that larger companies with more resources are better able to comply with the requirements of the EU taxonomy. Nevertheless, H8a and H8b are also not supported, as the adjustment for the EU taxonomy does not moderate the relationship between firm size and ESG or E-scores. Although larger companies tend to have better ESG and E-scores, their alignment with the EU taxonomy does not moderate this relationship. Sector-related effects also played a significant role. Significant interaction effects were observed in the energy and technology sectors, with alignment with the EU taxonomy having a positive impact on ESG and E-scores (H7a, H7b). The robust regression analysis showed significant positive interaction effects in these sectors and confirmed the hypothesis that the influence of EU taxonomy alignment varies depending on the sector. In environmentally intensive sectors such as energy, larger companies had greater difficulty achieving high ESG and E-scores, even when aligned with the EU taxonomy. This challenge was also evident in the logistic regression, which showed significant sector-specific effects on the likelihood of alignment. In addition, the examination of geographic location showed that EU-based companies generally had better ESG and E scores than non-EU companies (ESG: Estimate = -9.89, t = -7.19, $p < 0.001$; E: Estimate = -11.70, t = -6.50, $p < 0.001$). This supports hypotheses H6a and H6b, which state that the EU regulatory environment has a positive influence on the sustainability performance of companies based in the region. The chi-square tests also confirmed a significant link between region and EU taxonomy orientation. Even though the region factor was not significant in the logistic regression, the totality of the evidence shows that EU-based companies tend to have better sustainability performance. The consistency of the results from the robust regression, logistic regression, and chi-square tests reinforces the significance of this analysis. The collective results of these analyses show that financial strength, industry-specific challenges, and geographic location are critical factors in

a company's ability to adapt to the EU taxonomy and achieve improved sustainability performance.

Table 9: Hypotheses and Results

Primary Hypotheses		
H1a (+)	EU Taxonomy Alignment has a Positive Effect on ESG Rating.	Partially supported
H1b (+)	EU Taxonomy Alignment has a positive Effect on E Rating.	Supported
H2a (+)	Greater alignment of the EU Taxonomy's eligible revenue will have a positive influence on ESG ratings.	Supported
H2b (+)	Greater alignment of the EU Taxonomy's eligible revenue will have a positive influence on E ratings.	Supported
H3a (+)	Greater alignment of the EU Taxonomy's aligned revenue will have a positive influence on ESG ratings.	Not supported
H3b (+)	Greater alignment of the EU Taxonomy's aligned revenue will have a positive influence on E ratings.	Not supported
Moderating Hypotheses		
H4a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by Total Revenue.	Not supported
H4b	The relationship between EU Taxonomy Alignment and E ratings is moderated by Total Revenue.	Not supported
H5a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by ROA.	Not supported

H5b	The relationship between EU Taxonomy Alignment and E ratings is moderated by ROA.	Not supported
H6a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by geographic location.	Supported
H6b	The relationship between EU Taxonomy Alignment and E ratings is moderated by geographic location.	Supported
H7a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by industry type.	Supported
H7b	The relationship between EU Taxonomy Alignment and E ratings is moderated by industry type.	Supported
H8a	The relationship between EU Taxonomy Alignment and ESG ratings is moderated by company size.	Not supported
H8b	The relationship between EU Taxonomy Alignment and E ratings is moderated by company size.	Not supported

8 Results of Content Analysis

The study by Baier et al. (2020) shows that governance issues account for a large proportion of ESG reporting. This is confirmed in the current analysis, where governance has the largest share of word frequency at 33.55 percent (see Table 10). Baier et al. (2020) attribute this to the fact that governance is a broad topic dealing with the management of companies and the consideration of stakeholder interests. In addition, many governance issues are now mandatory in financial reports. The study also shows that 'corporate governance' appears most frequently in governance reporting, suggesting that companies, especially public companies, pay more attention to their shareholders than other stakeholders (Baier et al., 2020, p.103). This analysis also reflects these observations, where the 'corporate governance' section accounts for around 23 percent (see Table 11). A closer look at the differences between companies inside and outside the EU also shows that there are significant differences in the way ESG issues are reported. EU companies report more extensively on governance issues than non-EU companies. In the reports of EU companies, governance issues account for 20.9 percent of the total frequency, compared to 16.2 percent in the reports of non-EU companies.

Category	**Frequency Words**	**percent**	**Not Aligned Ratio**	**Aligned Ratio**
EU Taxonomy	989	1.09%	0.372	0.722
Environmental	29,810	32.94%	13.0	20.0
Governance	33,552	37.07%	12.2	24.9
Social	26,087	28.82%	12.1	16.6

Table 10: Comparison of ESG and EU Taxonomy across Categories

In the social category, the results also show similarities with the study by Baier et al. (2020). The proportion of reporting on social issues is relatively low (Baier et al., 2020, p.110). The analyses show that subcategories such as 'labor standards' (7.6 percent) and 'society' (7.7 percent) play a larger role than other social issues (see Table 11). This may indicate that these areas have become more relevant in recent years, possibly due to growing public and NGO pressure to emphasise social responsibility and fair labor practices (Matten and Moon, 2008, p. 410). While Baier et al. (2020) found that environmental issues were less prominent in reporting, the current analysis shows a greater focus on issues such as 'climate change' and 'environmental management' (Baier et al., 2020, p.110). Compared to the 'social' category, 'environment' has a higher share of 29 percent (see Table 10). This may indicate that companies have become more responsive to environmental issues recently. These changes could be driven by stricter environmental regulations, such as the growing presence of the Paris Climate Agreement, or by increased investor interest in sustainability information (Sullivan and Gouldson, 2017, p. 380). The analysis carried out here differs from the study by Baier et al. (2020). In that study, in addition to the general ESG assessment words, the framework of the EU taxonomy was also taken into account, which was not yet active at that time. The current analysis shows that companies are beginning to respond to the new requirements of the EU taxonomy, but there are still gaps in their reporting. Overall, half of the terms analysed that relate to the EU taxonomy are not mentioned in sustainability reports (see Table 12). Terms such as 'circular economy' and 'energy efficiency' are already mentioned in the reports, indicating that these topics have been partially integrated into companies' sustainability strategies. The differences in reporting between companies that follow the EU taxonomy and those that do not are noticeable. Companies that follow the EU taxonomy report in more detail on their environmental and governance policies, which leads to greater transparency and comparability of sustainability reports. In the

'environment' category, the results show that aligned companies focus more on topics such as 'climate change' (7.21 percent vs. 3.94 percent) and 'environmental management.' This implies that the strict requirements of the EU taxonomy are forcing these companies to document their climate strategies and environmental measures in more detail (Siew, 2015, p. 187).

The differences between aligned and non-aligned companies are also significant in the social area. Aligned companies place more emphasis on reporting on labor standards and social responsibility (5.06 percent vs. 3.35 percent). This reflects the requirements of the EU taxonomy, which places greater value on social and human rights issues. In terms of governance reporting, aligned companies devote, on average, 24.9 percent of their reporting to governance issues, compared to only 12.2 percent for non-aligned companies (see Table 10).

Category	**Subcategory**	**Frequency Words**	**percent**	**Not Aligned Ratio (%)**	**Aligned Ratio (%)**
Environmental	-	11,534	12.74%	5.71	7.04
Environmental	Climate Change	10,085	11.14%	3.94	7.21
Environmental	Ecosystem Service	3,136	3.46%	1.07	2.40
Environmental	Environmental Management	5,055	5.59%	2.29	3.30
Governance	-	2,284	2.52%	0.715	1.81
Governance	Business Ethics	1,522	1.68%	0.679	1.00
Governance	Corporate Governance	23,341	25.79%	8.25	17.60
Governance	Sustainability Management and Reporting	6,405	7.08%	2.55	4.53
Social	-	5,863	6.48%	2.54	3.95
Social	Human Rights	2,181	2.41%	0.859	1.55
Social	Labor Standards	7,600	8.40%	3.35	5.06
Social	Public Health	2,657	2.94%	1.20	1.73
Social	Society	7,786	8.60%	4.25	4.36
EU Taxonomy	EU Taxonomy	989	1.09%	0.372	0.722

Table 11: Comparison of ESG and EU Taxonomy by Category and Subcategory

Category	**Search Word**	**Frequency**	**Frequency (%)**	**Not Aligned Ratio (%)**	**Aligned Ratio (%)**
EU Taxonomy	circular economy	285	31.49%	8.74%	22.80%
EU Taxonomy	energy efficiency	259	28.62%	7.19%	21.50%
EU Taxonomy	waste management	116	12.82%	4.64%	8.18%
EU Taxonomy	eu taxonomy	98	10.83%	4.87%	5.97%
EU Taxonomy	climate change mitigation	69	7.62%	4.98%	2.65%
EU Taxonomy	carbon reduction	44	4.86%	3.43%	1.44%
EU Taxonomy	pollution prevention	35	3.87%	1.55%	2.32%
EU Taxonomy	renewable energy sources	32	3.54%	0.55%	2.99%
EU Taxonomy	biodiversity protection	19	2.10%	0.11%	1.99%
EU Taxonomy	renewable power	13	1.44%	0%	1.44%
EU Taxonomy	resource recycling	12	1.33%	0.66%	0.66%
EU Taxonomy	green building	7	0.77%	0.44%	0.33%
EU Taxonomy	DNSH (Do No Significant Harm)	0	0%	0%	0%
EU Taxonomy	Water sustainable use	0	0%	0%	0%

Continued on next page

Table 12 – continued from previous page

Category	Search Word	Frequency	Frequency (%)	Not Aligned Ratio (%)	Aligned Ratio (%)
EU Taxonomy	Ecosystem preservation	0	0%	0%	0%
EU Taxonomy	Sustainable agriculture	0	0%	0%	0%
EU Taxonomy	Sustainable transport	0	0%	0%	0%
EU Taxonomy	Low-carbon technology	0	0%	0%	0%
EU Taxonomy	Environmental restoration	0	0%	0%	0%
EU Taxonomy	Non-toxic materials	0	0%	0%	0%
EU Taxonomy	Green infrastructure	0	0%	0%	0%
EU Taxonomy	Sustainable water management	0	0%	0%	0%
EU Taxonomy	Habitat restoration	0	0%	0%	0%
EU Taxonomy	Clean transportation	0	0%	0%	0%
EU Taxonomy	Sustainable product innovation	0	0%	0%	0%

9 Discussion

This study aimed to explore the factors influencing ESG ratings within the context of alignment with the EU Taxonomy. Through multiple linear regression, robust regression, and content analysis, the results revealed that alignment with the EU Taxonomy, sector, and geographical location significantly influence ESG ratings, although the impact on ESG scores was not consistently significant across all methods. This is especially true in the environmental dimension (E-rating). These findings support Hypotheses H1b, H2a, H2b, H6a, and H6b, highlighting a strong positive relationship between EU Taxonomy alignment and environmental performance. The results of this work show that larger companies are better able to meet high sustainability standards due to their greater resources. Larger companies have access to more financial resources that enable them to invest in sustainable technologies and long-term projects, which tends to earn them better ESG and especially E-Ratings. These findings are in line with the studies by Clark, Feiner, and Viehs (2015) and Friede, Busch, and Bassen (2015), who also found that larger companies are better able to implement ESG management systems due to their greater resources and can improve their sustainability performance (Clark et al., 2015; Friede et al., 2015). In addition, a meta-analysis by Bartels et al. (2016) showed that access to greater financial resources enables larger companies to better integrate and implement sustainable initiatives (Bartels et al., 2016). This work also shows that company size does not have an unconditionally positive influence on ESG performance in certain industries, especially in environmentally intensive sectors. Despite their extensive resources, larger companies in these sectors face challenges. These companies often face more complex operations and greater environmental impacts, requiring high upfront costs for sustainable transitions. These results contradict the findings of Clark et al. (2015), which proposed that larger companies are generally better able to meet sustainability standards. Especially in environmentally intensive

industries, company size seems to be more of a burden, as high investments in green technologies are necessary to meet regulatory requirements, as also found by Berg et al. (2022). Porter and Kramer (2006) also argue that companies in highly regulated industries are often forced to make far-reaching strategic changes in order to achieve sustainability goals (Porter and Kramer, 2006). Heinkel, Kraus, and Zechner (2001) also found that companies in environmentally intensive industries have greater difficulties in improving their ESG performance due to the high investment costs for green technologies (Heinkel et al., 2001). A comparable picture can be seen for the influence of turnover on ESG performance. The results of this work show that companies with higher revenues tend to achieve better ESG scores because they have more financial resources available to invest in sustainable practices and technologies. This ability to mobilize greater resources helps these companies improve their ESG ratings, which is in line with previous research findings. Financially strong companies can achieve their sustainability goals through better management practices, long-term sustainable projects, and investments. These advantages also enable larger companies to implement more sustainable supply chains and ESG management systems, ultimately leading to better ESG ratings (Clark et al., 2015). Baumann-Pauly et al. (2013) highlight that large companies are under greater pressure to act transparently and sustainably due to their visibility in the public eye, which can also have a positive impact on their ESG ratings (Baumann-Pauly et al., 2013). But this thesis also found that total revenue did not moderate the relationship between EU Taxonomy alignment and ESG or E scores. It also found that total revenue did not moderate the relationship between alignment with the EU taxonomy and ESG or E scores. Nevertheless, it can also be seen here that this correlation is not equally pronounced in all sectors. In environmentally intensive sectors in this analysis, a high total revenue alone is no guarantee of a better ESG rating. Companies in these sectors often face additional financial hurdles in order to improve their ESG performance. Due

to the resource-intensive activities and higher CO2 emissions typically associated with these industries, extensive investment is required to minimise environmental impacts. Such companies often face high upfront costs and delayed returns on their ESG ratings. These results are aligned with the findings of Clark et al. (2015) and Berg et al. (2022), who also found that companies in environmentally intensive industries face greater financial challenges when investing in green technologies, making it more difficult to improve their ESG ratings (Clark et al., 2015; Berg et al., 2022). Benlemlih et al. (2016) also argue that environmentally intensive sectors face higher financial hurdles when implementing environmental strategies (Benlemlih et al., 2016). Furthermore, the relationship between alignment and ESG or E scores was not significantly moderated by sector-specific interaction effects. This highlights the fact that the challenges are present regardless of the alignment. Moreover, it was shown that a stronger regulatory environment and geographical location can have an impact on ESG and E-scores. For example, companies based in the EU tend to have higher ratings in both categories. Companies within the EU benefit from these framework conditions and are better able to fulfil the high sustainability requirements. These findings are consistent with previous studies showing that stricter regulatory requirements in the EU contribute to better ESG performance (Shanaev and Ghimire, 2022). Pacces (2021) highlights the need for a strong regulatory framework for improving sustainability performance, especially in regions such as the EU (**?**). A text-based content analysis of company reports, which provided insight into reporting practices in relation to the EU Taxonomy, was conducted in addition to the quantitative analyses. This analysis revealed that companies that adhere to the EU taxonomy produce more detailed and transparent sustainability reports. In contrast, companies that do not adhere to the EU taxonomy often report in less detail in areas relevant to the taxonomy. Overall, the analysis shows that alignment with the EU taxonomy has a significant impact on E-scores, while the overall impact on ESG is

less consistent, as shown by the partial support for H1a. Economic performance alone is not a reliable indicator of sustainability performance. Industry and location-specific challenges play a decisive role. These results are aligned with the findings of Dumrose et al. (2022), who also found a positive correlation between compliance with the EU taxonomy and higher environmental ratings (Dumrose et al., 2022). The robust and logistic regression analyses in this study consistently show that alignment with the EU taxonomy is a strong predictor of E-scores. This further reinforces the role of the EU taxonomy in promoting environmental sustainability.

10 Limitations and Future Research

In considering the limitations of this analysis, several factors that may have influenced the results and their interpretation need to be carefully reviewed.

The data itself is one of the main limitations. The accuracy and completeness of the data provided by Refinitiv Workspace is highly dependent on the analysis. Potential inaccuracies, such as incorrectly reported financial ratios or incomplete ESG ratings, may have affected the validity of the results. The data on EU taxonomy alignment is also relatively new and may not be consistent for all companies. This lack of consistency could lead to inconsistencies in the analysis, especially when comparing companies from different sectors and regions. Another consideration is the potential bias in the data set due to selection. The sample was specifically constructed by selecting companies that may or may not conform to the EU taxonomy based on certain financial and regional criteria. While this approach was intended to create comparable groups, it can lead to unintended selection biases. The criteria used for the selection of companies not aligned with the EU taxonomy, specifically the consistency of financial ratios and geographical location, may not fully reflect the diversity of companies not aligned with the EU taxonomy. As a result, the results may not be fully generalizable to the broader population of companies, limiting the applicability of the results beyond the sample studied. The cross-sectional nature of the study is also a limitation. The analysis is based on data at a single point in time, meaning that changes over time, such as shifts in a company's alignment with the EU taxonomy or fluctuations in financial performance and ESG rating, are not taken into account. The results are therefore only a snapshot of the current situation and do not take into account dynamic processes or trends that may affect these variables over time. Furthermore, the regression models used in this analysis primarily show associations and not causal relationships. While the models imply that certain financial ratios and industry factors are related to EU taxonomy orientation

and ESG performance, they do not demonstrate causality. Another methodological limitation arises from the use of robust regression techniques to deal with outliers and heteroscedasticity. However, although robust regression can reduce the impact of outliers and provide more accurate estimates in the presence of irregular data scatter, it has its limitations. It assumes that most of the data conforms to a particular distribution and attempts to compensate for any outliers, thereby losing useful information. The sample size of 813 companies is adequate, but not representative of all companies in the European Union or all companies worldwide. Finally, the operationalization of certain variables such as ESG and E-scores or alignment with the EU taxonomy may vary depending on the source and over time. The way in which these variables are measured and reported may vary, leading to inconsistencies in the assessment of alignment and sustainability performance. In addition to these limitations, the content analysis of terms from the EU taxonomy is another limitation in this study. The EU taxonomy terms were manually selected and added by the researcher, and the number of terms in this category was significantly lower than in other categories, such as 'environment' or 'governance.' This discrepancy may have influenced the results, as the meaning of reporting on the EU taxonomy is underrepresented. In addition, the manual selection process may have led to a subjective bias, as some relevant terms or variations may have been omitted. This may limit the scope of the analysis and not fully capture the extent to which companies have adapted to the requirements of the EU taxonomy.

When considering the limitations of this analysis, it should be noted that future research could address some of the limitations identified. One area for further investigation is the long-term impact of alignment with the EU taxonomy. While this study represents a snapshot in time, investigating whether compliance leads to sustained financial performance or improved ESG scores over time could provide valuable insights. By comparing companies in different regula-

tory environments, future studies could identify best practices suitable for different economic and cultural contexts. In addition, the role of technological innovation in meeting sustainability standards is a promising area for further research. Understanding how companies use new technologies to comply with EU taxonomy guidelines could provide a deeper perspective on the intersection of innovation and sustainability.

11 Conclusion

This master's thesis analyses the influence of the EU taxonomy on a company's ESG ratings. The results indicate that the alignment of business activities with the EU taxonomy has an impact on companies' ESG ratings, particularly in relation to E ratings. However, the effect on ESG ratings was less consistent and only partially supported. This suggests that the EU Taxonomy is an appropriate framework for incentivizing companies to adopt more sustainable practices, especially in the environmental dimension. The research shows that companies in the European Union benefit from aligning with the EU Taxonomy. The EU taxonomy provides guidance on what constitutes sustainable activities, which helps companies to gain recognition for their sustainability efforts. The thesis also highlights that larger companies in industries with significant environmental impacts, such as energy or manufacturing, struggle to fully meet the standards of the EU Taxonomy. Although these companies often have more resources at their disposal, the cost and complexity associated with running a fully sustainable business can be a significant hurdle. The study found that while larger companies tend to have better ESG and E ratings, this relationship was not moderated by their alignment with the EU Taxonomy. Adapting to the EU taxonomy has a positive impact on companies, particularly in Europe. In addition to the realization that this can have a positive impact on the company's ESG rating, it also helps to improve the reputation and interest of potential investors in the long term. The EU taxonomy provides investors with another tool to better scrutinize the transparency of companies' sustainability reporting. For them, the realization of the work can be that a high ESG rating in combination with the EU Taxonomy can be a quality indicator. This can help investors to make better decisions, especially if they want to make long-term investments that prioritize ethical and sustainable practice. For policymakers, the results confirm the effectiveness of the EU taxonomy in encouraging companies to adopt more sustainable practices. The framework

may need to be adapted to make it easier for companies in different sectors, especially those with significant environmental impacts, to comply with these standards. For ESG rating agencies, the research suggests that incorporating a company's alignment with the EU taxonomy into their rating process can make ESG ratings more accurate and useful. This will help to provide a clearer picture of a company's overall sustainability performance. The research in this paper demonstrates the importance of the EU Taxonomy in guiding companies towards more sustainable business practices. The EU Taxonomy provides a simple set of guidelines that define what is considered sustainable. When companies follow these guidelines, they can more easily fulfill their environmental responsibilities. But the results also highlight that total revenue does not moderate the relationship between EU Taxonomy alignment and sustainability performance, indicating that company size alone does not guarantee better ESG outcomes. When companies adopt these standards, they do more than just follow the rules: they actively contribute to building a better future by reducing their environmental impact and improving their social and governance practices. As sustainability becomes increasingly important, alignment with the EU taxonomy is likely to become a key factor for companies.

References

Alessi, L., Battiston, S., and Melo, A. S. (2021). Travelling down the green brick road: a status quo assessment of the eu taxonomy. *Macroprudential Bulletin*, 15.

Ascui, F. and Lovell, H. (2011). As frames collide: making sense of carbon accounting. *Accounting, Auditing Accountability Journal*, 24(8):978–999.

Awuah, K. G. B. and Abdulai, R. T. (2022). Urban land and development management in a challenged developing world: an overview of new reflections. *Land*, 11(1):129.

Backhaus, K., Erichson, B., Plinke, W., and Weiber, R. (2016). *Multivariate Analysemethoden: Eine anwendungsorientierte Einführung*. Springer, Berlin, Germany, 14th edition.

Baier, P., Berninger, M., and Kiesel, F. (2020). Environmental, social and governance reporting in annual reports: A textual analysis. *Financial Markets, Institutions & Instruments*, 29(3):93–118.

Bartels, W., Fogelberg, T., Hoballah, A., and van der Lugt, C. T. (2016). Carrots & sticks: Global trends in sustainability reporting regulation and policy. `https://www.carrotsandsticks.net/`. Global Reporting Initiative.

Baumann-Pauly, D., Wickert, C., Spence, L. J., and Scherer, A. G. (2013). Organizing corporate social responsibility in small and large firms: Size matters. *Journal of Business Ethics*, 115(4):693–705.

Benlemlih, M., Shaukat, A., Qiu, Y., and Trojanowski, G. (2016). Environmental and social disclosures and firm risk. *Journal of Business Ethics*, 152(3):613–626.

Berg, F., K"olbel, J. F., and Rigobon, R. (2022). Aggregate confusion: The divergence of esg ratings. *Review of Finance*, 26(6):1315–1344.

Bodie, Z., Kane, A., and Marcus, A. J. (2014). *Investments*. McGraw-Hill Education, New York, 10th edition.

Brealey, R. A., Myers, S. C., and Allen, F. (2011). *Principles of Corporate Finance*. McGraw-Hill Education, New York, 10th edition.

Chatterji, A. K., Durand, R., Levine, D. I., and Touboul, S. (2016). Do ratings of firms converge? implications for managers, investors and strategy researchers. *Strategic Management Journal*, 37(8):1597–1614.

Chen, L. and Zhang, W. (2022). Return on assets and industry comparison: An empirical analysis. *Journal of Financial Analysis*, 45(3):245–262.

Christensen, D. M., Serafeim, G., and Sikochi, A. (2022). Why is corporate virtue in the eye of the beholder? the case of esg ratings. *The Accounting Review*, 97(1):147–175.

Clark, G. L., Feiner, A., and Viehs, M. (2015). From the stockholder to the stakeholder: How sustainability can drive financial outperformance. *Available at SSRN 2508281*.

Council of the European Union (2023). European green bonds: Council adopts new regulation to promote sustainable finance. `https://www.consilium.europa.eu/en/press/press-releases/2023/10/24/european-green-bonds-council-adopts-new-regulation-to-promote-sustainable-finance/`. Accessed: 2024-08-30.

De Luca, P. (2023). *Corporate Finance: Fundamentals of Value and Price*. Springer Texts in Business and Economics. Springer, Berlin, Germany.

De Wolf, C., Cordella, M., Dodd, N., Byers, B., and Donatello, S. (2023). Whole life cycle en-

vironmental impact assessment of buildings: Developing software tool and database support for the eu framework level (s). *Resources, Conservation and Recycling*, 188:106642.

Diligent Insights (2023). Esg scores and ratings: What they are, why they matter. `https://www.diligent.com`. Accessed: 2023-08-31.

Dong, X. et al. (2022). Integrating sustainability risks in asset management: the role of esg exposures and esg ratings. *Journal of Asset Management*, 23(4):453–472.

Drempetic, S., Klein, C., and Zwergel, B. (2020). The influence of firm size on the esg score: Corporate sustainability ratings under review. *Journal of business ethics*, 167(2):333–360.

Dumrose, M., Rink, S., and Eckert, J. (2022). Disaggregating confusion? the eu taxonomy and its relation to esg rating. *Finance Research Letters*, 48:102928.

Duque-Grisales, E. and Aguilera-Caracuel, J. (2021). Environmental, social and governance (esg) scores and financial performance of multilatinas: Moderating effects of geographic international diversification and financial slack. *Journal of Business Ethics*, 168(2):315–334.

Eccles, R. G., Ioannou, I., and Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management science*, 60(11):2835–2857.

Eccles, R. G. and Klimenko, S. (2019). The investor revolution. *Harvard Business Review*, 97(3):106–116.

Edmans, A. and Kacperczyk, M. (2022). Sustainable finance. *Review of Finance*, 26(6):1309–1313.

Erkens, M., Paugam, L., and Stolowy, H. (2015). Non-financial information: State of the art and research perspectives based on a bibliometric study. *Comptabilité Contrôle Audit*, 21(3):15–92.

European Commission (2018a). Questions and answers: Brexit negotiations. https://ec.europa.eu/commission/presscorner/detail/en/MEMO_18_1424. Accessed: 2024-08-29.

European Commission (2018b). Renewed sustainable finance strategy and implementation of the action plan on financing sustainable growth. https://finance.ec.europa.eu/publications/renewed-sustainable-finance-strategy-and-implementation-action-plan-financing-susta en. Accessed: 2024-07-02.

European Commission (2019). The european green deal. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:640:FIN. Accessed: 2023-07-01.

European Commission (2020). Questions and answers: The european green deal investment plan and just transition mechanism. https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_24. Accessed: 2024-08-29.

European Commission (2021). Corporate sustainability reporting directive. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2464. Accessed: 2023-07-01.

European Commission (2022a). Directive (eu) 2022/2464 of the european parliament and of the council of 14 december 2022 on corporate sustainability reporting. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464. Accessed: 2024-07-02.

European Commission (2022b). Sustainable finance: Making the financial sector a powerful actor in fighting climate change. *Sustainable Finance*. Accessed: 2023-08-31.

European Commission (2023). Faq: What is the eu taxonomy and how will it work in practice? https://finance.ec.europa.eu/system/files/2021-07/sustainable-finance-taxonomy-article-8-faq_en.pdf. Retrieved from https://finance.ec.europa.eu/system/files/2021-07/sustainable-finance-taxonomy-article-8-faq$_e n.pdf$.

European Commission (2024a). Corporate sustainability reporting. https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en. Accessed: 2024-08-29.

European Commission (2024b). Delivering the european green deal. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en. Accessed: 2024-08-29.

European Commission (2024c). Factsheet eu taxonomy uptake on the ground. https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities/eu-taxonomys-uptake-ground_en. Accessed: 2023-07-01.

European Commission (2024d). Sustainability-related disclosure in the financial services sector. https://finance.ec.europa.eu/sustainable-finance/disclosures/sustainability-related-disclosure-financial-services-sector_en. Accessed: 2024-08-30.

European Commission (n.d.a). Eu taxonomy for sustainable activities. https://ec.europa.eu/sustainable-finance-taxonomy/. Accessed: 2024-08-31.

European Commission (n.d.b). Eu taxonomy for sustainable activities. https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance/platform-sustainable-finance/stakeholder-request-mechanism_en. Retrieved: 14-06, Accessed: 2023-07-01.

European Parliament (2022). Sustainable economy: Parliament adopts new reporting rules for multinationals. https://www.europarl.europa.eu/news/en/press-room/20221107IPR49611/sustainable-economy-parliament-adopts-new-reporting-rules-for-multinationals. Accessed: 2024-08-29.

European Parliament (2024). Stopping greenwashing: How the eu regulates green claims. https://www.europarl.europa.eu/topics/en/article/20240111STO16722/stopping-greenwashing-how-the-eu-regulates-green-claims. Accessed: 2024-08-30.

European Parliament and Council of the European Union (2019). Regulation (eu) 2019/2088 of the european parliament and of the council of 27 november 2019 on sustainability-related disclosures in the financial services sector. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R2088. Accessed: 2024-08-29.

European Parliament and Council of the European Union (2020). Regulation (eu) 2020/852 on the establishment of a framework to facilitate sustainable investment, and amending regulation (eu) 2019/2088. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0852. Accessed: 2024-08-29.

European Parliament and the Council of the European Union (2021). Regulation (eu) 2021/2178.

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R2178. Accessed: 2024-08-31.

European Parliament and the Council of the European Union (2023). Regulation (eu) 2023/2772 of 22 december 2023 establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending certain regulations. https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32023R2772. Accessed: 2024-08-31.

Eurostat (2008). *NACE Rev. 2: Statistical Classification of Economic Activities in the European Community*. Office for Official Publications of the European Communities, Luxembourg. Accessed: 2023-09-01.

EY (2023). Ey eu taxonomy barometer 2023 - fiscal year 2022 reporting practices and results. https://www.ey.com/en_gl/insights/assurance/eu-taxonomy-report. Accessed: 2023-07-01.

Farooq, O., Sajid, M., and Khan, A. (2022). Sustainability practices and financial performance: An empirical analysis. *Journal of Sustainable Finance Investment*, 12(3):256–272.

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*. Sage, London, 4th edition. pp. 315–317.

Friede, G., Busch, T., and Bassen, A. (2015). Esg and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of sustainable finance & investment*, 5(4):210–233.

Global Reporting Initiative (2021a). *GRI 2: General Disclosures 2021*. Global Reporting Initiative, Amsterdam. Accessed: 2023-09-01.

Global Reporting Initiative (2021b). Gri standards. https://www.globalreporting.org/standards/. Accessed: 2023-07-01.

Graham, B. and Dodd, D. (2009). *Security Analysis*. McGraw-Hill, New York, NY, 6th edition.

GRI and SASB (2021). *A Practical Guide to Sustainability Reporting Using GRI and SASB Standards*. Global Reporting Initiative, Netherlands. Accessed: 2023-09-01.

Gujarati, D. N. and Porter, D. C. (2009). *Basic Econometrics*. McGraw-Hill, New York, NY, 5th edition.

Gyönyörövá, L., Kreisl, P., and Szkutnik, P. (2021). The impact of climate policies on the financial performance of firms: Evidence from the eu and beyond. *Environmental Economics and Policy Studies*, 23(4):765–789.

Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2010). *Multivariate Data Analysis*. Prentice Hall, Upper Saddle River, NJ, 7th edition.

Harinurdin, E. (2022). The impact of sustainable business practices on financial performance. *International Journal of Business and Management*, 17(5):45–58.

Harvard Law School Forum (2024). Eu taxonomy and the future of reporting. https://corpgov.law.harvard.edu/2024/01/01/eu-taxonomy-and-the-future-of-reporting/. Retrieved from https://corpgov.law.harvard.edu/2024/01/01/eu-taxonomy-and-the-future-of-reporting/.

Heinkel, R., Kraus, A., and Zechner, J. (2001). The effect of green investment on corporate behavior. *Journal of Economic Dynamics and Control*, 25(4):429–453.

Huber, P. J. and Ronchetti, E. M. (2009). *Robust Statistics*. Wiley, Hoboken, NJ, 2nd edition.

Hussain, N., Rigoni, U., and Cavezzali, E. (2018). Does it pay to be sustainable? looking inside the black box of the relationship between sustainability performance and financial performance. *Corporate Social Responsibility and Environmental Management*, 25(6):1198–1211.

Johnson, M. (2021). Integrating esg principles: Implications for financial performance. *Sustainable Finance Review*, 29(1):78–95.

Kothari, C. (2004). Research methodology, methods and techniques. *New Age International (P) Ltd., Publishers*.

KPMG (2022). Eu taxonomy disclosures - setting a baseline. `https://kpmg.com/xx/en/home/insights/2023/10/setting-the-baseline-towards-transparency.html`. Retrieved from https://kpmg.com/xx/en/home/insights/2023/10/setting-the-baseline-towards-transparency.html.

KPMG (2023). Corporate sustainability reporting directive (csrd) slipsheet. `https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2023/04/corporate-sustainability-reporting-directive-csrd-slipsheet.pdf`. Accessed: 2024-07-02.

Loughran, T. and McDonald, B. (2016). Textual analysis in accounting and finance: A survey. *Journal of Accounting Research*, 54(4):1187–1230.

Lucarelli, C., Mazzoli, C., Rancan, M., and Severini, S. (2020). Classification of sustainable activities: Eu taxonomy and scientific literature. *Sustainability*, 12(16):6460.

Machmuddah, Z. and Wardhani, R. (2020). Environmental social governance (esg) disclosure score rating of bloomberg. In *1st International Conference on Science, Health, Economics, Education and Technology (ICoSHEET 2019)*, pages 48–52. Atlantis Press.

Matten, D. and Moon, J. (2008). "implicit" and "explicit" csr: A conceptual framework for a comparative understanding of corporate social responsibility. *Academy of Management Review*, 33(2):404–424.

Mayor, T. (2019). Why esg ratings vary so widely (and what you can do about it). https://mitsloan.mit.edu. Accessed: 2023-08-31.

Misiuda, M. and Lachmann, M. (2022). Investors' perceptions of sustainability reporting—a review of the experimental literature. *Sustainability*, 14(24):16746.

MSCI (2023). Msci esg ratings methodology. https://www.msci.com/our-solutions/esg-investing/esg-ratings. Accessed: 2023-07-01.

NYU Stern Center for Sustainable Business (2021). Esg and financial performance. https://www.stern.nyu.edu/sites/default/files/assets/documents/NYU-RAM_ESG-Paper_2021%20Rev_0.pdf. Accessed: 2023-08-31.

Och, M. (2020). Sustainable finance and the eu taxonomy regulation–hype or hope? *Jan Ronse Institute for Company & Financial Law Working Paper*, (2020/05).

OECD (2023). Esg metrics and ratings mapping and gap analysis study. https://mneguidelines.oecd.org/esg-metrics-and-ratings-mapping-and-gap-analysis-study-terms-of-reference.pdf. Accessed: 2023-08-31.

Porter, M. E. and Kramer, M. R. (2006). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84(12):78–92.

PwC (2024). Pwc study: Eu taxonomy reporting 2024. https://blogs.pwc.de/en/

sustainability/article/244301/pwc-study-eu-taxonomy-reporting-2024/. Accessed: 2024-08-28.

R Documentation (2022). *Log-shift Transformation for Normality*. Accessed: 2022-09-01.

Refinitiv (2022). Environmental, social and governance (esg) scores from refinitiv. https://thesource.refinitiv.com/thesource/getfile/index/2a2a25f0-d3a5-4d24-af2d-2ea95be99fa2. Retrieved from https://thesource.refinitiv.com/thesource/getfile/index/2a2a25f0-d3a5-4d24-af2d-2ea95be99fa2 on July 4, 2024.

Refinitiv (2024). Refinitiv esg rating methodology. https://www.lseg.com/content/dam/data-analytics/en_us/documents/methodology/lseg-esg-scores-methodology.pdf. Accessed: 2023-07-01.

Schimperna, F. and Loizzo, T. (2022). Esg disclosure: regulatory framework and challenges for italian banks. *Bank of Italy Occasional Paper*, (744).

Shanaev, S. and Ghimire, B. (2022). When esg meets aaa: The effect of esg rating changes on stock returns. *Finance Research Letters*, 46:102302.

Siew, R. Y. J. (2015). A review of corporate sustainability reporting tools (srts). *Journal of Environmental Management*, 164:180–195.

Smith, J. and Doe, J. (2022). Impact of regional regulatory frameworks on esg performance. *Journal of Environmental Economics*, 34(2):123–145.

S&P Global (2023). Esg evaluation. https://www.spglobal.com/en/research-insights/articles/understanding-sp-global-esg-evaluation. Accessed: 2023-07-01.

Stevens, J. P. (1984). Outliers and influential data points in regression analysis. *Psychological Bulletin*, 95(2):334–344.

Sullivan, R. and Gouldson, A. (2017). The governance of corporate responses to climate change: An international comparison. *Business Strategy and the Environment*, 26(3):373–386.

Sustainalytics (2023). Esg risk ratings. `https://www.sustainalytics.com/esg-ratings`. Accessed: 2023-07-01.

Thomson Reuters (2012). Thomson reuters business classification (trbc). `https://www.refinitiv.com/en/financial-data/indices/trbc-business-classification`. Accessed: September 3, 2024.

Threlfall, R., King, A., Shulman, J., and Bartels, W. (2020). The time has come: The kpmg survey of sustainability reporting 2020. *KPMG IMPACT: Singapore*, 63. Accessed: 2023-09-01.

U.S. Securities and Exchange Commission (2021). Sec proposes rules to enhance and standardize climate-related disclosures. `https://www.sec.gov/news/press-release/2021-82`. Accessed: 2023-07-01.

Wooldridge, J. M. (2015). *Introductory Econometrics: A Modern Approach*. Cengage Learning, Mason, OH, 6th edition.

World Economic Forum (2020). Towards common metrics and consistent reporting of sustainable value creation. `https://www.weforum.org/reports/towards-common-metrics-and-consistent-reporting-of-sustainable-value-creation`. Accessed: 2023-09-01.

Appendix

Table of Contents for Appendix

Plots for Descriptive Analysis

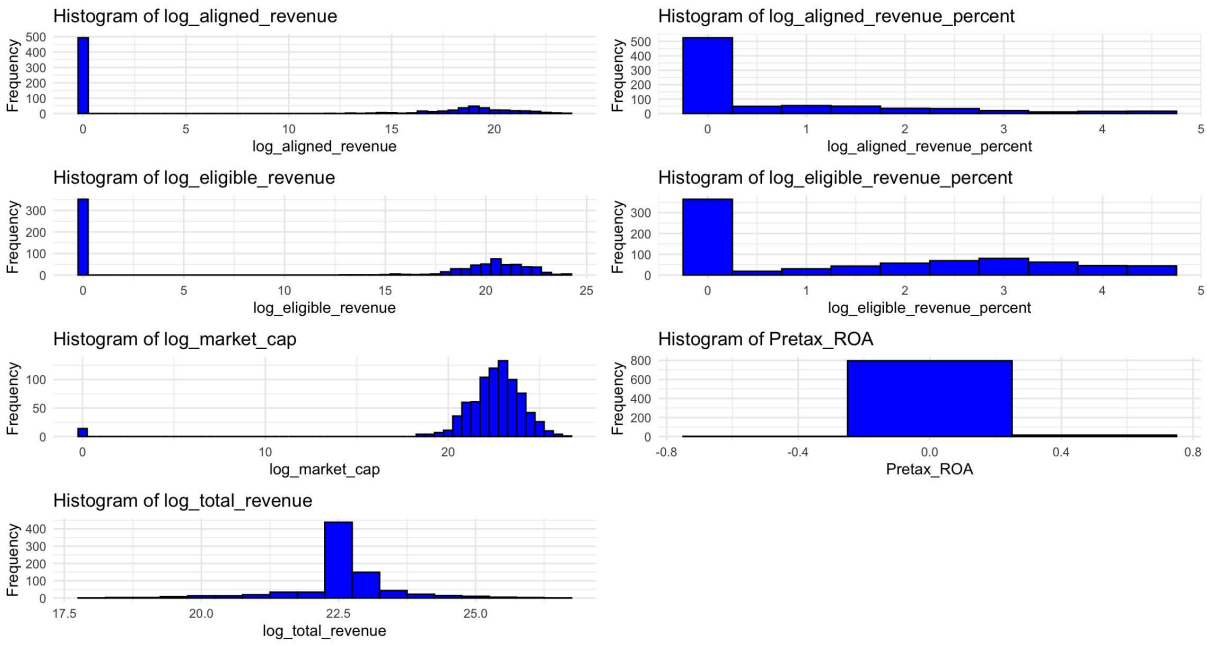


Figure 3: Histograms of Logarithmic Financial Metrics

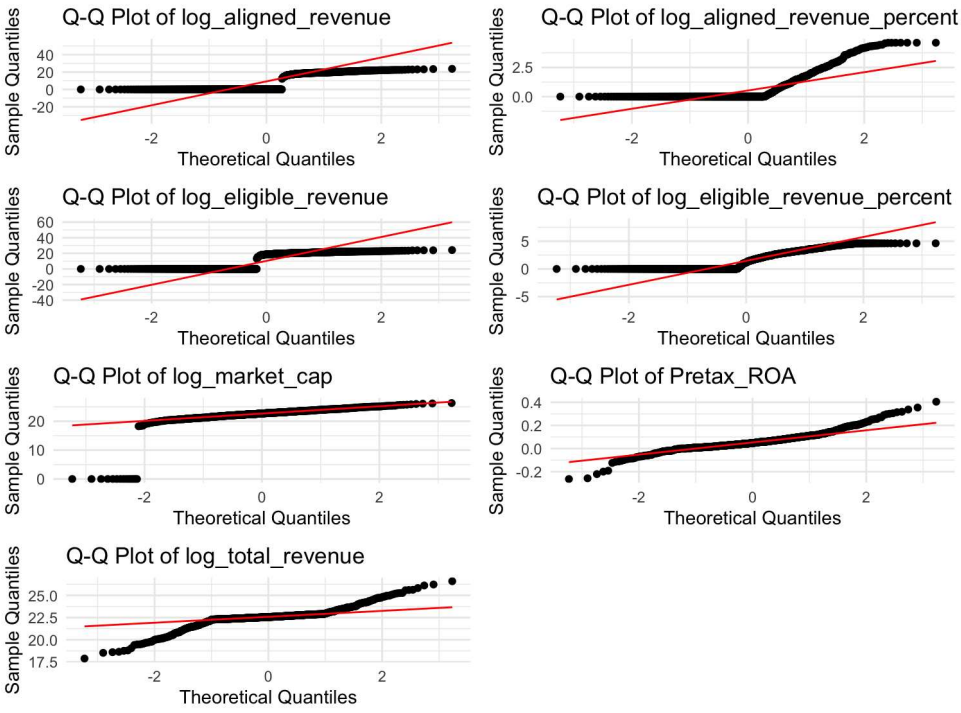


Figure 4: QQ-Plots of Logarithmic Financial Metrics

Logistic Regression Tables

Table 13: Summary of Logistic Regression for E Score

Variable	**Estimate**	**Std. Error**	**z value**	**Pr($>|z|$)**
(Intercept)	-6.497150	2.524894	-2.573	0.0101*
log_total_revenue	0.308093	0.121536	2.535	0.0112*
log_market_cap	-0.172521	0.066780	-2.583	0.0098**
log_eligible_revenue_percent	0.917331	0.084202	10.894	$< 2e-16$***
Pretax_ROA	-0.006690	1.777608	-0.004	0.9970
TRBC_Economic_Sector_NameConsumer Cyclicals	-2.536698	0.546767	-4.639	3.49e-06***
TRBC_Economic_Sector_NameConsumer Non-Cyclicals	0.557180	0.422643	1.318	0.1874
TRBC_Economic_Sector_NameEnergy	1.404591	0.410177	3.424	0.0006***
TRBC_Economic_Sector_NameFinancials	-1.940922	1.072992	-1.809	0.0705.
TRBC_Economic_Sector_NameIndustrials	0.125716	0.309908	0.406	0.6850
TRBC_Economic_Sector_NameReal Estate	-1.114997	0.802328	-1.390	0.1646
TRBC_Economic_Sector_NameTechnology	-1.361107	0.467833	-2.909	0.0036**
TRBC_Economic_Sector_NameUtilities	2.211989	0.383581	5.767	8.08e-09***
RegionRest of the World	-0.060166	0.284203	-0.212	0.8323
E_Score	0.019518	0.006244	3.126	0.0018**

Table 14: Summary of Logistic Regression for ESG Score

Variable	**Estimate**	**Std. Error**	**z value**	**Pr**($>|z|$)
(Intercept)	-7.143978	2.515984	-2.839	0.0045**
log_total_revenue	0.344057	0.121062	2.842	0.0045**
log_market_cap	-0.188718	0.073112	-2.581	0.0099**
log_eligible_revenue_percent	0.927235	0.084006	11.038	$< 2e-16$***
Pretax_ROA	0.224030	1.808011	0.124	0.9014
TRBC_Economic_Sector_NameConsumer Cyclicals	-2.584097	0.544883	-4.742	2.11e-06***
TRBC_Economic_Sector_NameConsumer Non-Cyclicals	0.558334	0.420899	1.327	0.1847
TRBC_Economic_Sector_NameEnergy	1.297664	0.404312	3.210	0.0013**
TRBC_Economic_Sector_NameFinancials	-2.080412	1.086500	-1.915	0.0555
TRBC_Economic_Sector_NameIndustrials	0.073650	0.309175	0.238	0.8117
TRBC_Economic_Sector_NameReal Estate	-0.978686	0.810466	-1.208	0.2272
TRBC_Economic_Sector_NameTechnology	-1.452244	0.466912	-3.110	0.0019**
TRBC_Economic_Sector_NameUtilities	2.170524	0.380960	5.698	1.22e-08***
RegionRest of the World	-0.025804	0.290078	-0.089	0.9291
ESG_Score	0.022754	0.008235	2.763	0.0057**

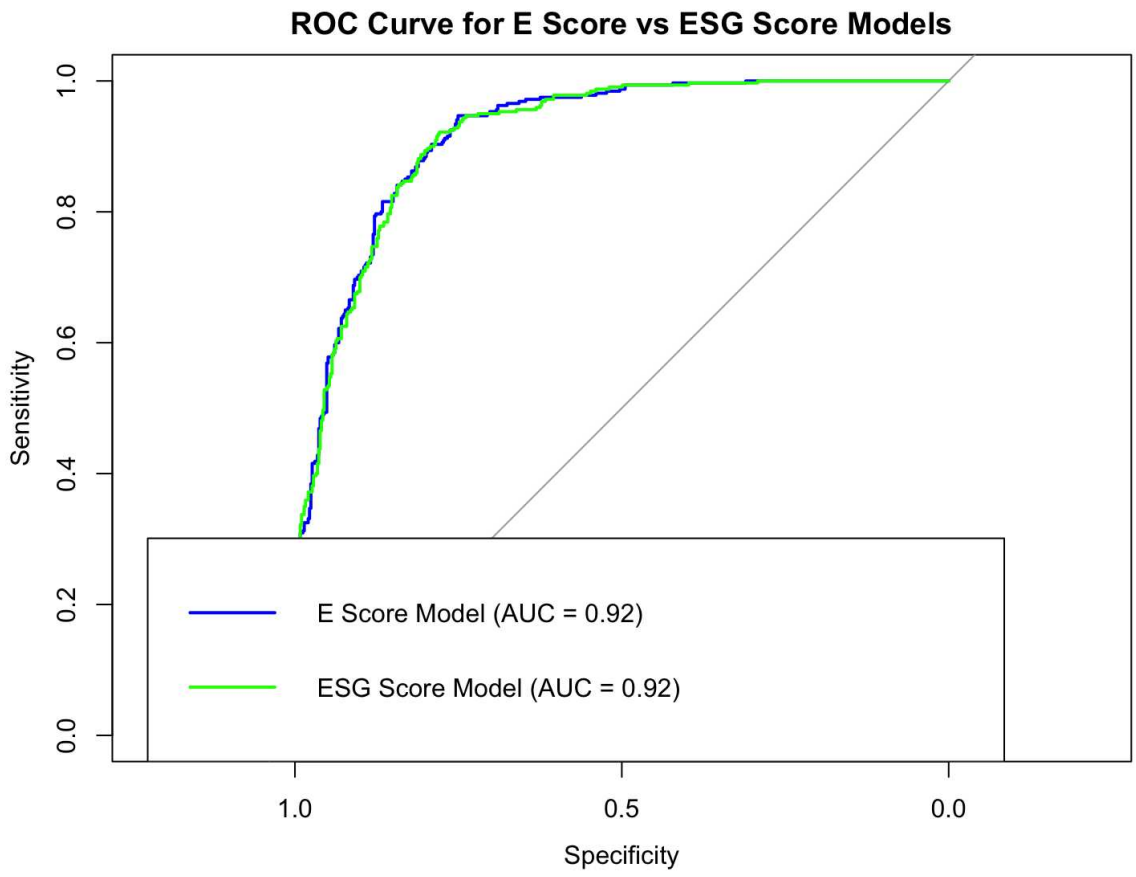


Figure 5: ROC Curve of Logistic Regression Model

Robust Regression Plots

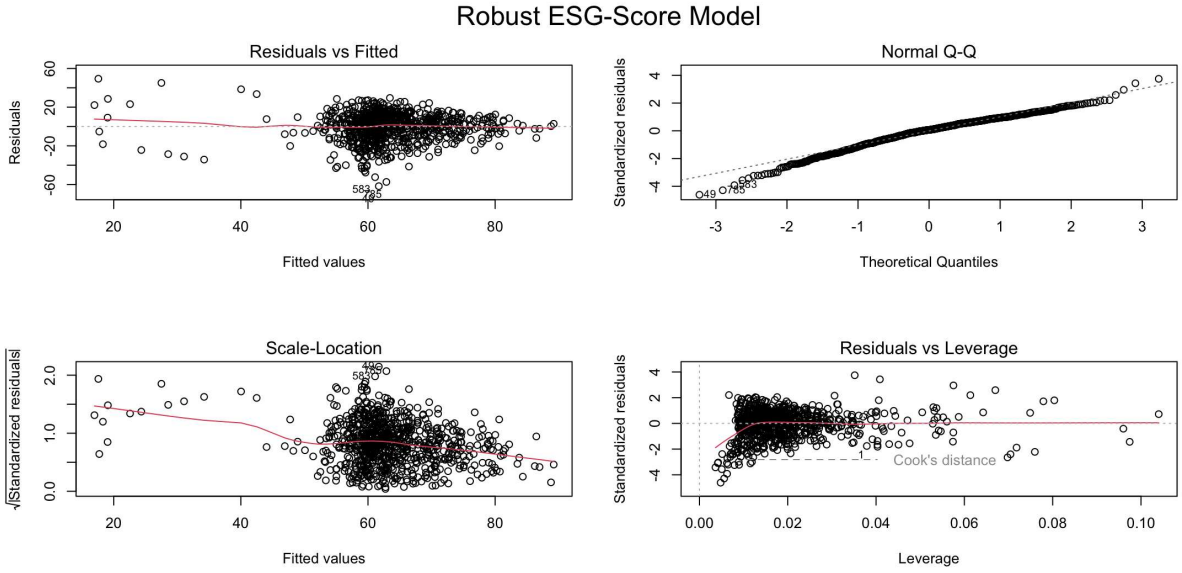


Figure 6: Plots of Robust Regression ESG Model

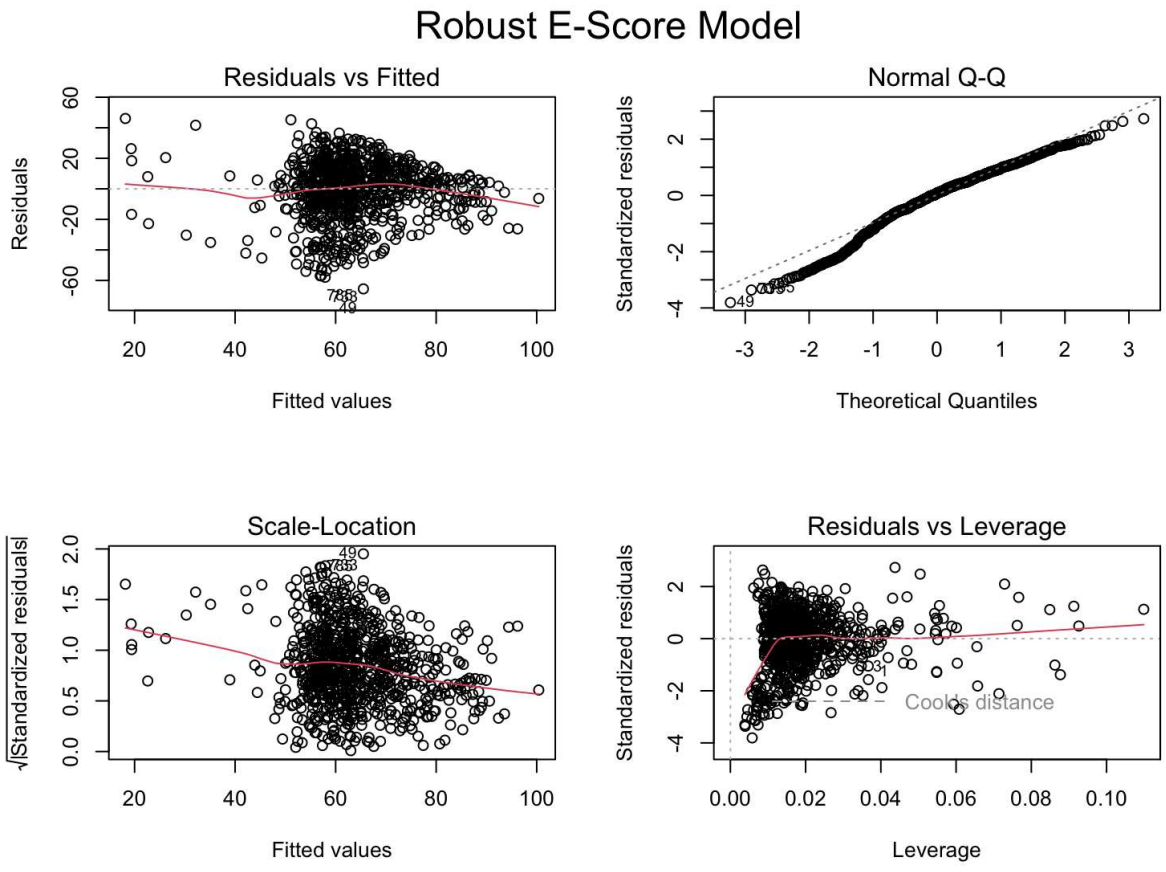


Figure 7: Plots of of Robust Regression E Model

Interaction Models

Table 15: Robust Regression Results for ESG-Score and E-Score Models with Financial Interaction

Variable	**ESG-Score Model**			**E-Score Model**		
Variable	**Estimate**	**Std. Error**	**t value**	**Estimate**	**Std. Error**	**t value**
(Intercept)	-119.4743	84.2773	-1.4176	-160.5464	111.8197	-1.4358
Aligned_Flag_Binary	97.9021	85.2212	1.1488	105.7796	113.0721	0.9355
log_total_revenue	6.1566	3.7200	1.6550	8.1780	4.9358	1.6569
log_market_cap	2.3843	0.6142	3.8819	2.2820	0.8150	2.8002
log_aligned_revenue_percent	0.1691	0.7663	0.2207	-0.1764	1.0167	-0.1735
log_eligible_revenue_percent	1.1612	0.4538	2.5590	1.9585	0.6020	3.2531
Pretax_ROA	-11.5067	8.2559	-1.3938	-9.9672	10.9540	-0.9099
TRBC_Economic_Sector_NameConsumer Cyclicals	-1.7926	2.0745	-0.8641	-3.1678	2.7524	-1.1509
TRBC_Economic_Sector_NameConsumer Non-Cyclicals	-1.3726	2.3124	-0.5936	-1.1679	3.0681	-0.3807
TRBC_Economic_Sector_NameEnergy	-4.8101	2.3011	-2.0904	-9.4380	3.0531	-3.0913
TRBC_Economic_Sector_NameFinancials	-5.8624	2.5142	-2.3318	-9.2380	3.3358	-2.7694
TRBC_Economic_Sector_NameIndustrials	-3.9573	1.7429	-2.2706	-6.3267	2.3125	-2.7359
TRBC_Economic_Sector_NameReal Estate	-2.2113	3.4970	-0.6323	4.5094	4.6398	0.9719
TRBC_Economic_Sector_NameTechnology	-1.2613	2.1109	-0.5975	-8.3284	2.8008	-2.9736
TRBC_Economic_Sector_NameUtilities	-8.6583	1.9488	-4.4428	-12.0388	2.5857	-4.6559
RegionRest_of_the_World	-9.9062	1.3607	-7.2804	-11.6875	1.8053	-6.4739
Aligned_Flag_Binary:log_total_revenue	-3.3576	3.7639	-0.8920	-3.5328	4.9940	-0.7074
Aligned_Flag_Binary:log_market_cap	-0.8568	0.6286	-1.3630	-0.9061	0.8340	-1.0864

Table 16: Robust Regression Results for ESG-Score and E-Score Models with Industry Interaction

Variable	ESG-Score Model			E-Score Model		
Variable	**Estimate**	**Std. Error**	**t value**	**Estimate**	**Std. Error**	**t value**
(Intercept)	-23.3368	13.5057	-1.7279	-58.0471	17.6124	-3.2958
Aligned_Flag_Binary	-1.1101	2.9602	-0.3750	2.5196	3.8603	0.6527
TRBC_Economic_Sector_NameConsumer Cyclicals	-4.2178	2.3959	-1.7604	-5.5980	3.1244	-1.7917
TRBC_Economic_Sector_NameConsumer Non-Cyclicals	-2.1773	2.9022	-0.7502	-1.7557	3.7846	-0.4639
TRBC_Economic_Sector_NameEnergy	-10.0534	3.3469	-3.0038	-17.6167	4.3646	-4.0363
TRBC_Economic_Sector_NameFinancials	-6.8957	2.7087	-2.5457	-9.2673	3.5324	-2.6235
TRBC_Economic_Sector_NameIndustrials	-6.3407	2.3302	-2.7211	-6.9564	3.0388	-2.2892
TRBC_Economic_Sector_NameReal Estate	-5.9009	3.9496	-1.4941	3.0358	5.1506	0.5894
TRBC_Economic_Sector_NameTechnology	-2.9101	2.4553	-1.1852	-10.2391	3.2019	-3.1978
TRBC_Economic_Sector_NameUtilities	-7.9754	3.7632	-2.1193	-8.2410	4.9075	-1.6793
log_total_revenue	2.6345	0.6098	4.3203	4.5377	0.7952	5.7064
log_market_cap	1.7290	0.1764	9.8023	1.4469	0.2300	6.2905
log_aligned_revenue_percent	0.1439	0.7889	0.1823	0.0078	1.0288	0.0076
log_eligible_revenue_percent	1.0773	0.4622	2.3311	1.7742	0.6027	2.9438
Pretax_ROA	-8.0963	7.8701	-1.0287	-6.4665	10.2631	-0.6301
RegionRest_of_the_World	-10.0075	1.3810	-7.2464	-11.8112	1.8010	-6.5583
Aligned_Flag_Binary:TRBC_Economic_Sector_NameConsumer Cyclicals	9.5539	6.6765	1.4310	13.7675	8.7067	1.5813
Aligned_Flag_Binary:TRBC_Economic_Sector_NameConsumer Non-Cyclicals	0.8457	4.8764	0.1734	0.3379	6.3592	0.0531
Aligned_Flag_Binary:TRBC_Economic_Sector_NameEnergy	9.2862	4.5821	2.0266	13.2484	5.9754	2.2172
Aligned_Flag_Binary:TRBC_Economic_Sector_NameFinancials	-1.3553	14.8340	-0.0914	-23.9753	19.3446	-1.2394
Aligned_Flag_Binary:TRBC_Economic_Sector_NameIndustrials	5.4628	3.5446	1.5412	1.7752	4.6224	0.3840
Aligned_Flag_Binary:TRBC_Economic_Sector_NameReal Estate	15.8266	9.4599	1.6730	7.3533	12.3364	0.5961
Aligned_Flag_Binary:TRBC_Economic_Sector_NameTechnology	4.4259	5.7841	0.7652	10.0739	7.5429	1.3355
Aligned_Flag_Binary:TRBC_Economic_Sector_NameUtilities	1.1471	4.5615	0.2515	-2.9975	5.9485	-0.5039

Table 17: Robust Regression Results for ESG-Score and E-Score Models with Region Interaction

Variable	**ESG-Score Model**			**E-Score Model**		
Variable	**Estimate**	**Std. Error**	**t value**	**Estimate**	**Std. Error**	**t value**
(Intercept)	-27.1862	13.2617	-2.0500	-62.7804	17.2941	-3.6302
Aligned_Flag_Binary	-0.0451	2.9139	-0.0155	-2.7423	3.7999	-0.7217
RegionRest_of_the_World	-11.5260	1.9480	-5.9168	-16.6417	2.5404	-6.5509
log_total_revenue	2.7760	0.6043	4.5936	4.8725	0.7881	6.1828
log_market_cap	1.7304	0.1755	9.8620	1.4499	0.2288	6.3368
log_aligned_revenue_percent	0.3822	0.7772	0.4918	0.2473	1.0135	0.2440
log_eligible_revenue_percent	1.1341	0.4576	2.4783	1.9031	0.5968	3.1891
Pretax_ROA	-7.3556	7.8217	-0.9404	-5.6939	10.1999	-0.5582
TRBC_Economic_Sector_NameConsumer Cyclicals	-2.0947	2.0832	-1.0055	-3.6133	2.7167	-1.3301
TRBC_Economic_Sector_NameConsumer Non-Cyclicals	-1.4336	2.3338	-0.6143	-1.2672	3.0434	-0.4164
TRBC_Economic_Sector_NameEnergy	-5.1292	2.3169	-2.2138	-9.8741	3.0214	-3.2681
TRBC_Economic_Sector_NameFinancials	-5.3656	2.4697	-2.1726	-9.1542	3.2206	-2.8424
TRBC_Economic_Sector_NameIndustrials	-3.9713	1.7591	-2.2576	-6.4751	2.2939	-2.8227
TRBC_Economic_Sector_NameReal Estate	-1.7155	3.5240	-0.4868	5.3977	4.5955	1.1745
TRBC_Economic_Sector_NameTechnology	-1.1742	2.1157	-0.5550	-8.1363	2.7590	-2.9490
TRBC_Economic_Sector_NameUtilities	-8.7327	1.9679	-4.4375	-12.2334	2.5663	-4.7670
Aligned_Flag_Binary:RegionRest_of_the_World	3.2157	2.7150	1.1844	9.5265	3.5406	2.6907

Table 18: Robust Regression Results for ESG-Score and E-Score Models with Combined Interaction Terms

Variable	ESG-Score Model			E-Score Model		
Variable	**Estimate**	**Std. Error**	**t value**	**Estimate**	**Std. Error**	**t value**
(Intercept)	-118.2503	84.4211	-1.4007	-155.9370	110.4118	-1.4123
Aligned_Flag_Binary	93.1303	85.5745	1.0883	93.8123	111.9202	0.8382
log_total_revenue	6.2111	3.7276	1.6663	8.2756	4.8752	1.6975
log_market_cap	2.4212	0.6205	3.9019	2.2357	0.8116	2.7548
TRBC_Economic_Sector_NameConsumer Cyclicals	-3.8951	2.3756	-1.6396	-5.4740	3.1070	-1.7618
TRBC_Economic_Sector_NameConsumer Non-Cyclicals	-1.9379	2.8693	-0.6754	-1.3740	3.7527	-0.3661
TRBC_Economic_Sector_NameEnergy	-9.5543	3.3294	-2.8697	-16.8333	4.3544	-3.8658
TRBC_Economic_Sector_NameFinancials	-7.7643	2.7607	-2.8124	-10.6849	3.6106	-2.9593
TRBC_Economic_Sector_NameIndustrials	-6.5304	2.3118	-2.8248	-7.7043	3.0235	-2.5481
TRBC_Economic_Sector_NameReal Estate	-6.1710	3.9168	-1.5755	2.6626	5.1227	0.5198
TRBC_Economic_Sector_NameTechnology	-3.1826	2.4527	-1.2976	-10.7844	3.2078	-3.3619
TRBC_Economic_Sector_NameUtilities	-7.7240	3.7258	-2.0731	-8.0510	4.8729	-1.6522
RegionRest of the World	-11.5561	1.9402	-5.9562	-16.4324	2.5375	-6.4758
log_aligned_revenue_percent	0.1779	0.7893	0.2254	0.2396	1.0323	0.2321
log_eligible_revenue_percent	1.1078	0.4573	2.4223	1.7959	0.5981	3.0026
Pretax_ROA	-11.8133	8.3088	-1.4218	-9.7565	10.8668	-0.8978
Aligned_Flag_Binary:log_total_revenue	-3.4026	3.7775	-0.9007	-3.4993	4.9405	-0.7083
Aligned_Flag_Binary:log_market_cap	-0.8810	0.6359	-1.3854	-0.8780	0.8317	-1.0557
Aligned_Flag_Binary:TRBC_Economic_Sector_NameConsumer Cyclicals	8.8452	6.6135	1.3374	12.3930	8.6496	1.4328
Aligned_Flag_Binary:TRBC_Economic_Sector_NameConsumer Non-Cyclicals	0.4632	4.8219	0.0961	-0.4039	6.3065	-0.0640
Aligned_Flag_Binary:TRBC_Economic_Sector_NameEnergy	8.8215	4.5522	1.9379	11.9235	5.9536	2.0027
Aligned_Flag_Binary:TRBC_Economic_Sector_NameFinancials	-1.5988	14.6886	-0.1088	-24.8198	19.2107	-1.2920
Aligned_Flag_Binary:TRBC_Economic_Sector_NameIndustrials	5.7163	3.5130	1.6272	2.6607	4.5946	0.5791
Aligned_Flag_Binary:TRBC_Economic_Sector_NameReal Estate	15.8492	9.3711	1.6913	6.5531	12.2562	0.5347
Aligned_Flag_Binary:TRBC_Economic_Sector_NameTechnology	4.8609	5.7399	0.8469	10.4255	7.5071	1.3888
Aligned_Flag_Binary:TRBC_Economic_Sector_NameUtilities	0.8028	4.5204	0.1776	-3.5633	5.9121	-0.6027
Aligned_Flag_Binary:RegionRest of the World	2.9656	2.7225	1.0893	8.8953	3.5606	2.4982

Table 19: Robust Regression Results for ESG-Score and E-Score Models with Final Interaction Terms

Variable	ESG-Score Model			E-Score Model		
Variable	**Estimate**	**Std. Error**	**t value**	**Estimate**	**Std. Error**	**t value**
(Intercept)	-131.4889	84.9714	-1.5474	-175.1015	113.2395	-1.5463
Aligned_Flag_Binary	94.8644	85.3661	1.1113	115.5630	113.7654	1.0158
log_total_revenue	6.0969	3.7163	1.6406	8.2886	4.9527	1.6736
log_market_cap	2.9959	0.9409	3.1842	2.8216	1.2539	2.2503
log_eligible_revenue_percent	1.1061	0.4210	2.6271	1.9314	0.5611	3.4421
Pretax_ROA	-9.3186	8.3472	-1.1164	-5.0009	11.1241	-0.4496
TRBC_Economic_Sector_NameConsumer Cyclicals	43.2543	36.4676	1.1861	42.8268	48.5996	0.8812
TRBC_Economic_Sector_NameConsumer Non-Cyclicals	-70.8223	31.9963	-2.2134	-54.6109	42.6408	-1.2807
TRBC_Economic_Sector_NameEnergy	25.8339	12.1846	2.1202	3.9644	16.2381	0.2441
TRBC_Economic_Sector_NameFinancials	-59.0165	55.3501	-1.0662	-137.4736	73.7638	-1.8637
TRBC_Economic_Sector_NameIndustrials	22.5730	11.5300	1.9578	-0.2300	15.3658	-0.0150
TRBC_Economic_Sector_NameReal Estate	-58.0472	43.8582	-1.3235	-71.5448	58.4489	-1.2241
TRBC_Economic_Sector_NameTechnology	78.4953	32.6284	2.4057	96.7361	43.4831	2.2247
TRBC_Economic_Sector_NameUtilities	14.1009	11.2567	1.2527	-8.8037	15.0016	-0.5868
RegionRest of the World	-10.4304	1.3607	-7.6656	-12.0688	1.8133	-6.6556
Aligned_Flag_Binary:log_total_revenue	-3.6322	3.7607	-0.9658	-3.7017	5.0118	-0.7386
Aligned_Flag_Binary:log_market_cap	-0.4197	0.8714	-0.4817	-1.1644	1.1612	-1.0027
log_market_cap:TRBC_Economic_Sector_NameConsumer Cyclicals	-2.0187	1.6310	-1.2377	-2.0602	2.1736	-0.9478
log_market_cap:TRBC_Economic_Sector_NameConsumer Non-Cyclicals	3.0709	1.4221	2.1595	2.3684	1.8952	1.2497
log_market_cap:TRBC_Economic_Sector_NameEnergy	-1.3708	0.5512	-2.4870	-0.6265	0.7346	-0.8529
log_market_cap:TRBC_Economic_Sector_NameFinancials	2.2460	2.3787	0.9442	5.4615	3.1700	1.7229
log_market_cap:TRBC_Economic_Sector_NameIndustrials	-1.1825	0.5159	-2.2922	-0.2862	0.6875	-0.4163
log_market_cap:TRBC_Economic_Sector_NameReal Estate	2.4565	1.9333	1.2706	3.2966	2.5764	1.2795
log_market_cap:TRBC_Economic_Sector_NameTechnology	-3.4751	1.4224	-2.4431	-4.5434	1.8956	-2.3968
log_market_cap:TRBC_Economic_Sector_NameUtilities	-1.0220	0.5045	-2.0259	-0.1578	0.6723	-0.2346

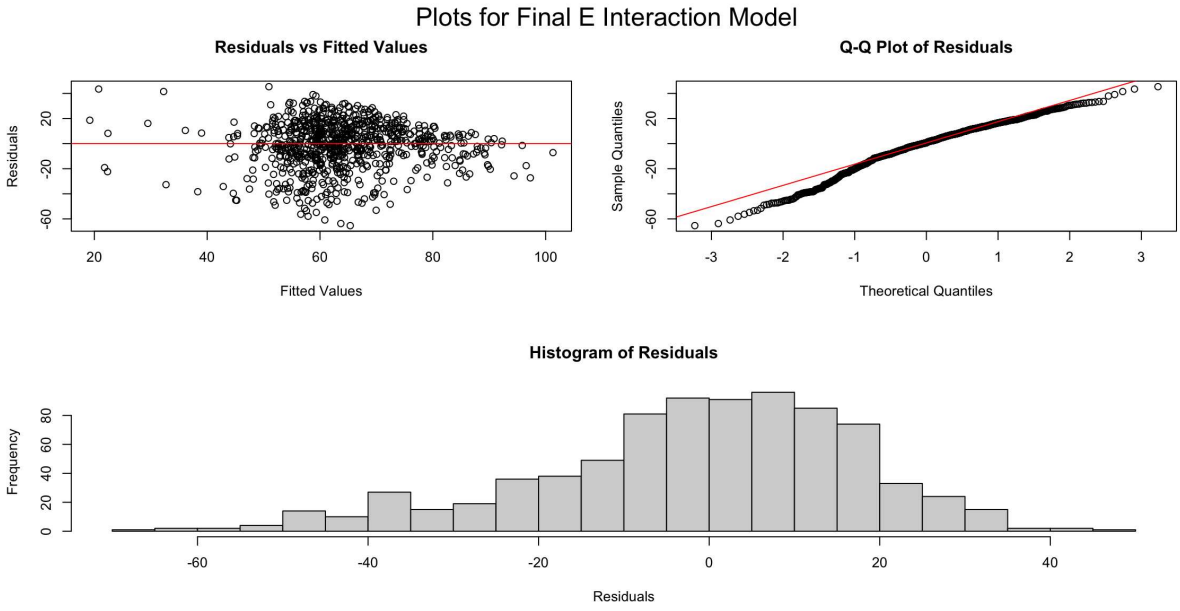


Figure 8: Plots for Final ESG Interaction Model

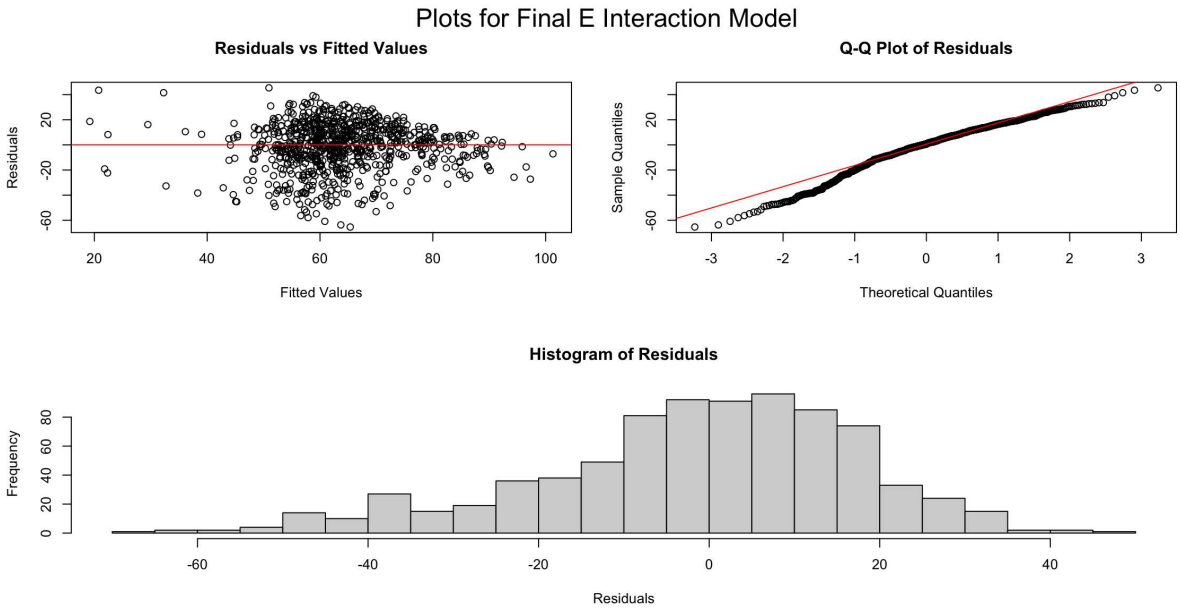


Figure 9: Plots for Final E Interaction Model

R Code for Regression Analysis

R code for Regression Analysis:

```
setwd("Documents/Uni/Pavia/Master Thesis/Refinitiv Workspace")

rm(list=ls())

# PACKAGES ------------------------------------------------------------------

# Install packages

install.packages("ggplot2")

install.packages("forcats")

install.packages("dplyr")

install.packages("fastDummies")

install.packages("glmnet")

install.packages("caret")

install.packages("openxlsx")

install.packages("corrplot")

install.packages("car")

install.packages("pROC")

install.packages("reshape2")

install.packages("plotly")

install.packages("MASS")

install.packages("boot")

library(readxl)

library(car)

library(ggplot2)

library(forcats)

library(dplyr)

library(fastDummies)

library(glmnet)

library(caret)
```

```r
library(openxlsx)
library(corrplot)
library(pROC)
library(reshape2)
library(plotly)
library(MASS)
library(boot)


# IMPORT ----------------------------------------------------------------------
########## Import data
Aligned_V2 <- read_excel("Aligned_V2.xlsx")
View(Aligned_V2)
# DATA CLEANING ---------------------------------------------------------------
########## Investigate the dataset
# Check the dimensions of the dataset
dim(Aligned_V2)
str(Aligned_V2)
colnames(Aligned_V2)
head(Aligned_V2)
summary(Aligned_V2)
is.na(Aligned_V2)
# Filter out rows where Aligned Revenue Percent, E Score, ESG Score, Market Cap, or
↪  Pretax ROA are 0
Aligned_cleaned <- subset(Aligned_V2, `Aligned Revenue Percent` != 0 & `Market Cap` !=
↪  0)
# Define the list of categorical variables
categorical_vars <- c("TRBC Industry", "Country", "TRBC Economic Sector Name")
# Convert the categorical variables in the dataset 'Aligned_V2' to factors
Aligned_cleaned[categorical_vars] <- lapply(Aligned_cleaned[categorical_vars], factor)
```

```r
# DESCRIPTIVE STATISTICS
↪ ----------------------------------------------------------------
#colnames(Aligned_V2)
# Plotting histogram for Total Revenue
ggplot(Aligned_V2, aes(x=`Total Revenue`)) +
  geom_histogram(bins=30, fill="blue", alpha=0.7) +
  labs(title="Histogram of Total Revenue", x="Total Revenue", y="Count")
# Plotting histogram for Market Cap
ggplot(Aligned_V2, aes(x=`Market Cap`)) +
  geom_histogram(bins=30, fill="green", alpha=0.7) +
  labs(title="Histogram of Market Cap", x="Market Cap", y="Count")
# Boxplot for E Score
ggplot(Aligned_V2, aes(y=`E Score`)) +
  geom_boxplot(fill="coral", alpha=0.6) +
  labs(title="Boxplot of E Score", y="E Score")
# Boxplot for ESG Score
ggplot(Aligned_V2, aes(y=`ESG Score`)) +
  geom_boxplot(fill="purple", alpha=0.6) +
  labs(title="Boxplot of ESG Score", y="ESG Score")
# Frequency table for Country
country_frequency <- table(Aligned_V2$Country)
print(country_frequency)
# Frequency table for TRBC Industry
industry_frequency <- table(Aligned_V2$`TRBC Industry`)
print(industry_frequency)
# Histograms for numerical data
ggplot(Aligned_V2, aes(x=`Total Revenue`)) + geom_histogram(bins=30) +
↪  ggtitle("Histogram of Total Revenue")
```

```r
ggplot(Aligned_V2, aes(x=`Market Cap`)) + geom_histogram(bins=30) + ggtitle("Histogram
↪  of Market Cap")
ggplot(Aligned_V2, aes(x=`E Score`)) + geom_histogram(bins=30) + ggtitle("Histogram of
↪  E Score")
ggplot(Aligned_V2, aes(x=`ESG Score`)) + geom_histogram(bins=30) + ggtitle("Histogram
↪  of ESG Score")
# Boxplots for outlier detection in numerical data
ggplot(Aligned_V2, aes(y=`Total Revenue`)) + geom_boxplot() + ggtitle("Boxplot of
↪  Total Revenue")
ggplot(Aligned_V2, aes(y=`Market Cap`)) + geom_boxplot() + ggtitle("Boxplot of Market
↪  Cap")
ggplot(Aligned_V2, aes(y=`E Score`)) + geom_boxplot() + ggtitle("Boxplot of E Score")
ggplot(Aligned_V2, aes(y=`ESG Score`)) + geom_boxplot() + ggtitle("Boxplot of ESG
↪  Score")
# CRITERIAS FOR COMPANIES
↪  ---------------------------------------------------------------------
median_revenue <- median(Aligned_cleaned$`Total Revenue`)
revenue_range <- c(median_revenue * 0.7, median_revenue * 1.3)
median_market_cap <- median(Aligned_cleaned$`Market Cap`)
market_cap_range <- c(median_market_cap * 0.7, median_market_cap * 1.3)
median_pretax_roa <- median(Aligned_cleaned$`Pretax ROA`, na.rm = TRUE)
pretax_roa_range <- c(median_pretax_roa * 0.7, median_pretax_roa * 1.3)
countries <- unique(Aligned_cleaned$Country)
sectors <- unique(Aligned_cleaned$`TRBC Economic Sector Name`)
industries <- unique(Aligned_cleaned$`TRBC Industry`)
# Combine Data Set ----------------------------------------------------
#Load two Data Sets
Aligned_V2 <- read_excel("Aligned_V2.xlsx")
not_aligned_companies <- read_excel("not aligned companies.xlsx")
```

```r
# Combine the datasets Aligned_V2 and not_aligned_cleaned
combined <- rbind(Aligned_V2, not_aligned_companies)
# Data Cleaning ------------------------------------------------------------
# Assuming your data is in a dataframe called 'df'
combined_cleaned <- combined[!is.na(combined$`E Score`) & !is.na(combined$`ESG Score`)
↪  & !is.na(combined$`Aligned Flag`), ]
# Define the list of categorical variables
categorical_vars <- c("TRBC Industry", "Country", "TRBC Economic Sector Name",
↪  "Aligned Flag")
combined_cleaned[categorical_vars] <- lapply(combined_cleaned[categorical_vars],
↪  factor)
summary(combined_cleaned)
# Descriptive Statistics ---------------------------------------------------
combined_cleaned$Aligned_Flag_Binary <- ifelse(combined_cleaned$`Aligned Flag` ==
↪  TRUE, 1, 0)
table(combined_cleaned$`Aligned Flag` , combined_cleaned$Aligned_Flag_Binary)
combined_cleaned <- combined_cleaned %>%
  rename(
    ESG_Score = `ESG Score`,
    E_Score = `E Score`,
    Pretax_ROA = `Pretax ROA`,
    TRBC_Economic_Sector_Name = `TRBC Economic Sector Name`
  )
# Split between Europe and Rest of the World
eu_countries <- c("Austria", "Belgium", "Czech Republic", "Denmark", "Finland",
↪  "France",
                  "Germany", "Greece", "Italy", "Netherlands", "Portugal", "Spain",
                  "Sweden", "Ireland", "Poland", "Hungary", "Slovakia", "Slovenia",
```

```
                    "Estonia", "Latvia", "Lithuania", "Luxembourg", "Malta", "Croatia",
                    ↪  "Romania", "Bulgaria")

combined_cleaned <- combined_cleaned %>%
mutate(Region = ifelse(Country %in% eu_countries, "EU", "Rest of the World"))
# Select numeric variables
numeric_vars <- combined_cleaned %>% select_if(is.numeric)
# descriptive statistics
numeric_summary <- describe(numeric_vars)
print(numeric_summary)
# Loop through numeric variables and plot histograms with adaptive binwidth
for (var in names(numeric_vars)) {
  # Calculate an appropriate binwidth based on the data range
  data_range <- range(combined_cleaned[[var]], na.rm = TRUE)
  binwidth <- (data_range[2] - data_range[1]) / 30  # Adjust 30 as needed
  p <- ggplot(combined_cleaned, aes(x = !!sym(var))) +
    geom_histogram(binwidth = binwidth, fill = "blue", color = "black") +
    labs(title = paste("Histogram of", var)) +
    theme_minimal()
  print(p)
}
# Box plots for numeric variables
# Loop through numeric variables and plot box plots
for (var in names(numeric_vars)) {
  p <- ggplot(combined_cleaned, aes(y = !!sym(var))) +
    geom_boxplot(fill = "cyan", color = "black") +
    labs(title = paste("Box Plot of", var)) +
    theme_minimal()
  print(p)
```

```
}
# Detecting outliers in numeric variables using IQR method
for (var in names(numeric_vars)) {
  Q1 <- quantile(numeric_vars[[var]], 0.25, na.rm = TRUE)
  Q3 <- quantile(numeric_vars[[var]], 0.75, na.rm = TRUE)
  IQR <- Q3 - Q1
  lower_bound <- Q1 - 1.5 * IQR
  upper_bound <- Q3 + 1.5 * IQR
  outliers <- numeric_vars[[var]][numeric_vars[[var]] < lower_bound |
  ↪  numeric_vars[[var]] > upper_bound]
  cat("\nOutliers for", var, ":\n")
  print(outliers)
}
# Applying log transformation to the selected variables
combined_cleaned$log_total_revenue <- log(combined_cleaned$`Total Revenue` + 1)  #
↪  Adding 1 to avoid log(0)
combined_cleaned$log_aligned_revenue <- log(combined_cleaned$`Aligned Revenue` + 1)
combined_cleaned$log_aligned_revenue_percent <- log(combined_cleaned$`Aligned Revenue
↪  Percent` + 1)
combined_cleaned$log_eligible_revenue <- log(combined_cleaned$`Eligible Revenue` + 1)
combined_cleaned$log_eligible_revenue_percent <- log(combined_cleaned$`Eligible
↪  Revenue Percent` + 1)
combined_cleaned$log_market_cap <- log(combined_cleaned$`Market Cap` + 1)
# Checking the distribution of log-transformed variables
log_vars <- combined_cleaned[, c("log_total_revenue", "log_aligned_revenue",
                                 "log_aligned_revenue_percent",
                                 ↪  "log_eligible_revenue",
                                 "log_eligible_revenue_percent", "log_market_cap")]
```

```r
# Plotting histograms for the log-transformed variables
for (var in colnames(log_vars)) {
  p <- ggplot(combined_cleaned, aes_string(x = var)) +
    geom_histogram(binwidth = 0.5, fill = "blue", color = "black") +
    labs(title = paste("Histogram of", var)) +
    theme_minimal()
  print(p)
}
# ##### Descriptive Analysis  ----------------------------------------------
ggplot(combined_cleaned, aes(x = `Total Revenue`)) +
  geom_histogram(binwidth = 1e9, fill = "blue", color = "black") +
  labs(title = "Distribution of Total Revenue")
ggplot(combined_cleaned, aes(x = `Aligned Revenue`)) +
  geom_histogram(binwidth = 1e8, fill = "green", color = "black") +
  labs(title = "Distribution of Aligned Revenue")
ggplot(combined_cleaned, aes(x = `Eligible Revenue`)) +
  geom_histogram(binwidth = 1e8, fill = "green", color = "black") +
  labs(title = "Distribution of Eligible Revenue")
ggplot(combined_cleaned, aes(x = `Market Cap`)) +
  geom_histogram(binwidth = 1e8, fill = "green", color = "black") +
  labs(title = "Distribution of Aligned Revenue")
# List of continuous variables to plot
con_variables <- c("`Total Revenue`", "`Aligned Revenue`", "`Eligible Revenue`",
↪  "`Market Cap`")
# Loop to create box plots for each variable
for (i in seq_along(con_variables)) {
  p <- ggplot(combined_cleaned, aes_string(y = con_variables[i])) +
    geom_boxplot(fill = "pink", color = "black") +
    labs(title = paste("Box Plot of", gsub("`", "", con_variables[i])))
```

```
  print(p)
}
# Select categorical variables
categorical_vars <- combined_cleaned %>% select_if(is.factor)


# Loop through categorical variables and plot bar plots
for (var in names(categorical_vars)) {
  p <- ggplot(combined_cleaned, aes(x = !!sym(var))) +
    geom_bar(fill = "lightgreen", color = "black") +
    labs(title = paste("Bar Plot of", var)) +
    theme_minimal()
  print(p)
}
# Loop through categorical variables and plot bar plots
for (var in names(categorical_vars)) {
  # Create a summary table with counts for each category, sorted in descending order
  summary_table <- combined_cleaned %>%
    group_by(!!sym(var)) %>%
    summarise(count = n()) %>%
    arrange(desc(count))
  # Plot the bar plot with the customizations
  p <- ggplot(summary_table, aes(x = reorder(!!sym(var), -count), y = count)) +  #
   ↪  reorder bars by count
    geom_bar(stat = "identity", fill = "lightgreen", color = "black", width = 0.7) +
     ↪  # Set width for smaller bars
    labs(title = paste("Bar Plot of", var), x = var, y = "Count") +
    theme_minimal(base_size = 14) +  # Increase base font size
    theme(axis.text.x = element_text(angle = 45, hjust = 1, size = 12),  # Larger
     ↪  x-axis text and angled for readability
```

```
          axis.text.y = element_text(size = 12),  # Larger y-axis text
          axis.title.x = element_text(size = 14),  # Larger x-axis title
          axis.title.y = element_text(size = 14),  # Larger y-axis title
          plot.title = element_text(size = 16))    # Larger plot title

  print(p)
}
# Descriptive statistics for financial variables
descriptive_stats_financial <- combined_cleaned %>%
  group_by(Aligned_Flag_Binary) %>%
  summarise(
    Count = n(),
    Mean_Total_Revenue = mean(log_total_revenue, na.rm = TRUE),
    SD_Total_Revenue = sd(log_total_revenue, na.rm = TRUE),
    Median_Total_Revenue = median(log_total_revenue, na.rm = TRUE),
    Mean_Market_Cap = mean(log_market_cap, na.rm = TRUE),
    SD_Market_Cap = sd(log_market_cap, na.rm = TRUE),
    Median_Market_Cap = median(log_market_cap, na.rm = TRUE),
    Mean_ROA = mean(Pretax_ROA, na.rm = TRUE),
    SD_ROA = sd(Pretax_ROA, na.rm = TRUE),
    Median_ROA = median(Pretax_ROA, na.rm = TRUE),
    Mean_Aligned_Revenue_Percent = mean(log_aligned_revenue_percent, na.rm = TRUE),
    SD_Aligned_Revenue_Percent = sd(log_aligned_revenue_percent, na.rm = TRUE),
    Median_Aligned_Revenue_Percent = median(log_aligned_revenue_percent, na.rm =
    ↪  TRUE),
    Mean_Eligible_Revenue_Percent = mean(log_eligible_revenue_percent, na.rm = TRUE),
    SD_Eligible_Revenue_Percent = sd(log_eligible_revenue_percent, na.rm = TRUE),
    Median_Eligible_Revenue_Percent = median(log_eligible_revenue_percent, na.rm =
    ↪  TRUE)
```

```
  )
print(descriptive_stats_financial)
# Descriptive statistics for industry sector by alignment status
industry_distribution <- combined_cleaned %>%
  group_by(Aligned_Flag_Binary, TRBC_Economic_Sector_Name) %>%
  summarise(Count = n()) %>%
  ungroup() %>%
  arrange(desc(Count))
# View the industry distribution
print(industry_distribution)
# Descriptive statistics for geographic region by alignment status
region_distribution <- combined_cleaned %>%
  group_by(Aligned_Flag_Binary, Region) %>%
  summarise(Count = n()) %>%
  ungroup() %>%
  arrange(desc(Count))
# View the region distribution
print(region_distribution)
# Aligned vs not Aligned T-Tests and normality Check ----------------------
# Convert Aligned Flag from TRUE/FALSE to binary 1/0
combined_cleaned$Aligned_Flag_Binary <- ifelse(combined_cleaned$`Aligned Flag` ==
↪  TRUE, 1, 0)
# Check the transformation
table(combined_cleaned$`Aligned Flag` , combined_cleaned$Aligned_Flag_Binary)
# Perform analysis on aligned_companies
aligned_companies <- combined_cleaned %>% filter(Aligned_Flag_Binary == 1)
non_aligned_companies <- combined_cleaned %>% filter(Aligned_Flag_Binary == 0)
# For Total Revenue in aligned companies
shapiro.test(aligned_companies$log_total_revenue)
```

```r
# For Total Revenue in non-aligned companies
shapiro.test(non_aligned_companies$log_total_revenue)
# ##Normality Check  ----------------------------------------------------
# Histogram for log-transformed Total Revenue (non-aligned companies)
ggplot(non_aligned_companies, aes(x = log_total_revenue)) +
  geom_histogram(fill = "red", color = "black", binwidth = 0.1) +
  labs(title = "Histogram of Log-Transformed Total Revenue (Non-Aligned Companies)")
# Q-Q plot for log-transformed Total Revenue (non-aligned companies)
qqnorm(non_aligned_companies$log_total_revenue)
qqline(non_aligned_companies$log_total_revenue, col = "red")
t_test_total_revenue <- t.test(log_total_revenue ~ Aligned_Flag_Binary, data =
↪  combined_cleaned)
print(t_test_total_revenue)
# Descriptive Statistics and T-Tests for Financial Metrics
financial_metrics <- c("log_aligned_revenue", "log_aligned_revenue_percent",
                       "log_eligible_revenue", "log_eligible_revenue_percent",
                       "log_market_cap", "Pretax_ROA", "log_total_revenue")



# Loop through each financial metric
for (metric in financial_metrics) {
  print(paste("Shapiro-Wilk test for", metric, "in aligned companies"))
  # Shapiro-Wilk test for aligned companies (Aligned_Flag_Binary == 1)
  aligned_test <- shapiro.test(combined_cleaned %>%
                                 filter(Aligned_Flag_Binary == 1) %>%
                                 pull(metric))
  print(aligned_test)


  non_aligned_values <- combined_cleaned %>%
```

```
    filter(Aligned_Flag_Binary == 0) %>%
    pull(metric)

  if (length(unique(non_aligned_values)) == 1) {
    print(paste("Shapiro-Wilk test for", metric, "in non-aligned companies: Skipped
    ↪  (all values are identical)"))
  } else {
    print(paste("Shapiro-Wilk test for", metric, "in non-aligned companies"))
    non_aligned_test <- shapiro.test(non_aligned_values)
    print(non_aligned_test)
  }
}
# Loop through each financial metric to create histograms and Q-Q plots
for (metric in financial_metrics) {
  # Histogram for aligned companies
  p_hist_aligned <- ggplot(combined_cleaned %>% filter(Aligned_Flag_Binary == 1),
  ↪  aes(x = get(metric))) +
    geom_histogram(binwidth = 0.5, fill = "blue", color = "black") +
    labs(title = paste("Histogram of", metric, "in Aligned Companies"), x = metric, y
    ↪  = "Frequency") +
    theme_minimal()
  print(p_hist_aligned)

  # Q-Q plot for aligned companies
  p_qq_aligned <- ggplot(combined_cleaned %>% filter(Aligned_Flag_Binary == 1),
  ↪  aes(sample = get(metric))) +
    stat_qq() +
    stat_qq_line(color = "red") +
```

```
  labs(title = paste("Q-Q Plot of", metric, "in Aligned Companies"), x =
  ↪  "Theoretical Quantiles", y = "Sample Quantiles") +
  theme_minimal()
print(p_qq_aligned)

non_aligned_values <- combined_cleaned %>% filter(Aligned_Flag_Binary == 0) %>%
↪  pull(metric)

if (length(unique(non_aligned_values)) > 1) {
  # Histogram for non-aligned companies
  p_hist_non_aligned <- ggplot(combined_cleaned %>% filter(Aligned_Flag_Binary ==
  ↪  0), aes(x = get(metric))) +
    geom_histogram(binwidth = 0.5, fill = "green", color = "black") +
    labs(title = paste("Histogram of", metric, "in Non-Aligned Companies"), x =
    ↪  metric, y = "Frequency") +
    theme_minimal()
  print(p_hist_non_aligned)

  # Q-Q plot for non-aligned companies
  p_qq_non_aligned <- ggplot(combined_cleaned %>% filter(Aligned_Flag_Binary == 0),
  ↪  aes(sample = get(metric))) +
    stat_qq() +
    stat_qq_line(color = "red") +
    labs(title = paste("Q-Q Plot of", metric, "in Non-Aligned Companies"), x =
    ↪  "Theoretical Quantiles", y = "Sample Quantiles") +
    theme_minimal()
  print(p_qq_non_aligned)
} else {
```

```
    print(paste("Histogram and Q-Q Plot for", metric, "in non-aligned companies:
    ↪  Skipped (all values are identical)"))
  }
}
# ##TTests ------------------------------------------------------------------
# Loop through each financial metric to get descriptive statistics and t-test results
for (metric in financial_metrics) {
  summary_stats <- combined_cleaned %>%
    group_by(Aligned_Flag_Binary) %>%
    summarise(
      mean_value = mean(get(metric), na.rm = TRUE),
      median_value = median(get(metric), na.rm = TRUE),
      sd_value = sd(get(metric), na.rm = TRUE)
    )
  print(paste("Summary statistics for", metric))
  print(summary_stats)

  # T-Test
  t_test_result <- t.test(get(metric) ~ Aligned_Flag_Binary, data = combined_cleaned)
  print(paste("T-Test results for", metric))
  print(t_test_result)
}

# Visualizations for Financial Metrics
for (metric in financial_metrics) {
  p <- ggplot(combined_cleaned, aes(x = factor(Aligned_Flag_Binary), y = get(metric)))
  ↪  +
    geom_boxplot(fill = "cyan", color = "black") +
    labs(title = paste("Box Plot of", metric, "by Alignment Status"),
```

```
         x = "Aligned (1) vs Non-Aligned (0)", y = metric) +
    theme_minimal()
  print(p)
}
# Chi Square ------------------------------------------------------------

############ Chi-Square Test for Industry Classification (TRBC Industry)
industry_table1 <- table(combined_cleaned$`TRBC Economic Sector Name`,
↪  combined_cleaned$Aligned_Flag_Binary)
chi_square_test_industrysector <- chisq.test(industry_table1)
print("Chi-Square Test results for TRBC Industry")
print(chi_square_test_industrysector)

chi_square_value <- chi_square_test_industrysector$statistic
n <- sum(industry_table1)
k_min <- min(nrow(industry_table1) - 1, ncol(industry_table1) - 1)
cramers_v <- sqrt(chi_square_value / (n * k_min))
print(paste("Cramér's V for Industry Sector vs. Alignment Status:", cramers_v))
#############Chi Square Test for Countries
# Split between Europe and Rest of the World
eu_countries <- c("Austria", "Belgium", "Czech Republic", "Denmark", "Finland",
↪  "France",
                  "Germany", "Greece", "Italy", "Netherlands", "Portugal", "Spain",
                  "Sweden", "Ireland", "Poland", "Hungary", "Slovakia", "Slovenia",
                  "Estonia", "Latvia", "Lithuania", "Luxembourg", "Malta", "Croatia",
                   ↪  "Romania", "Bulgaria")

combined_cleaned <- combined_cleaned %>%
  mutate(Region = ifelse(Country %in% eu_countries, "EU", "Rest of the World"))
```

```r
#Chi-Square Test on Region vs Aligned_Flag_Binary
region_table <- table(combined_cleaned$Region, combined_cleaned$Aligned_Flag_Binary)
chi_square_test_region <- chisq.test(region_table)
print("Chi-Square Test results for Region")
print(chi_square_test_region)


###Cramers V
chi_square_statistic <- chi_square_test_region$statistic
n <- sum(region_table)  # Total number of observations
k <- ncol(region_table) # Number of levels in one variable (2 levels: "EU", "Rest of
↪  the World")
r <- nrow(region_table) # Number of levels in the other variable (2 levels: "Aligned",
↪  "Not Aligned")
cramers_v <- sqrt(chi_square_statistic / (n * min(k-1, r-1)))
print(paste("Cramér's V for Region vs. Alignment Status:", cramers_v))




# Bar plot for the number of companies in each region with alignment status
ggplot(combined_cleaned, aes(x = Region, fill = as.factor(Aligned_Flag_Binary))) +
  geom_bar(position = "dodge") +
  labs(title = "Distribution of Alignment Status Across Regions",
       x = "Region",
       y = "Count of Companies",
       fill = "Alignment Status") +
  scale_fill_manual(values = c("0" = "red", "1" = "seagreen"),
                    labels = c("0" = "Non-Aligned", "1" = "Aligned")) +
  theme_minimal()
```

```r
# Barplot for Industry Classification (TRBC Economic Secotr) by Alignment Status
p_industry <- ggplot(combined_cleaned, aes(x = TRBC_Economic_Sector_Name, fill =
↪  factor(Aligned_Flag_Binary))) +
  geom_bar(position = "dodge") +
  labs(title = "Industry Distribution by Alignment Status",
       x = "TRBC Economic Sector", fill = "Alignment Status") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 90, hjust = 1))
print(p_industry)


# Adjusting plot size and increasing font size
p_industry <- ggplot(combined_cleaned, aes(x = TRBC_Economic_Sector_Name, fill =
↪  factor(Aligned_Flag_Binary))) +
  geom_bar(position = "dodge", width = 0.7) +  # Adjusts bar width to make the plot
  ↪  more compact
  labs(title = "Industry Distribution by Alignment Status",
       x = "TRBC Economic Sector",
       fill = "Alignment Status") +
  theme_minimal(base_size = 14) +  # Increases the base font size for all text
  theme(axis.text.x = element_text(angle = 90, hjust = 1, size = 12),  # Adjusts the
  ↪  size of x-axis labels
        axis.text.y = element_text(size = 12),  # Adjusts the size of y-axis labels
        axis.title.x = element_text(size = 14),  # Adjusts the size of x-axis title
        axis.title.y = element_text(size = 14),  # Adjusts the size of y-axis title
        plot.title = element_text(size = 16),  # Adjusts the size of the plot title
        legend.title = element_text(size = 14),  # Adjusts the size of the legend
        ↪  title
```

```
        legend.text = element_text(size = 12))  # Adjusts the size of the legend text
print(p_industry)



# Barplot for Geographic Location (Country) by Alignment Status
p_country <- ggplot(combined_cleaned, aes(x = Country, fill =
↪  factor(Aligned_Flag_Binary))) +
  geom_bar(position = "dodge") +
  labs(title = "Geographic Location Distribution by Alignment Status",
       x = "Country", fill = "Alignment Status") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 90, hjust = 1))
print(p_country)
# Regression Analyses ----------------------------------------------------
#######Normal OLS Regression
# Run multiple linear regression for ESG Rating
esg_model <- lm(ESG_Score ~ log_total_revenue + log_aligned_revenue_percent +
                  log_eligible_revenue_percent + log_market_cap +
                  Pretax_ROA + TRBC_Economic_Sector_Name + Region +
                  ↪  Aligned_Flag_Binary, data = combined_cleaned)


# Summary of ESG model
print("Summary of ESG Rating Regression Model")
summary(esg_model)
###Check Residuals
plot(esg_model, which = 1) #Residuals vs Fitted Plot
plot(esg_model, which = 2) #Normal Q-Q Plot
plot(esg_model, which = 3) #Scale-Location Plot
plot(esg_model, which = 5) #Residuals vs Leverage Plot
```

```r
# Run multiple linear regression for ESG Rating
e_model <- lm(E_Score ~ log_total_revenue + log_aligned_revenue_percent +
                log_eligible_revenue_percent + log_market_cap +
                Pretax_ROA + TRBC_Economic_Sector_Name + Region + Aligned_Flag_Binary,
                ↪  data = combined_cleaned)

# Summary of ESG model
print("Summary of E Rating Regression Model")
summary(e_model)
###Check Residuals
plot(e_model, which = 1) #Residuals vs Fitted Plot
plot(e_model, which = 2) #Normal Q-Q Plot
plot(e_model, which = 3) #Scale-Location Plot
plot(e_model, which = 5) #Residuals vs Leverage Plot
########## ROBOST Regression
library(MASS)
#multiple linear regression for ESG Rating
resg_model <- rlm(ESG_Score ~ log_total_revenue + log_aligned_revenue_percent +
                    log_eligible_revenue_percent + log_market_cap +
                    Pretax_ROA + TRBC_Economic_Sector_Name + Region +
                    ↪  Aligned_Flag_Binary, data = combined_cleaned)

# Summary of ESG model
print("Summary of Robust ESG Rating Regression Model")
summary(resg_model)
###Check Residuals
plot(resg_model, which = 1) #Residuals vs Fitted Plot
plot(resg_model, which = 2) #Normal Q-Q Plot
plot(resg_model, which = 3) #Scale-Location Plot
```

```r
plot(resg_model, which = 5) #Residuals vs Leverage Plot

#multiple linear regression for E Rating

re_model <- rlm(E_Score ~ log_total_revenue + log_aligned_revenue_percent +

                  log_eligible_revenue_percent + log_market_cap +

                  Pretax_ROA + TRBC_Economic_Sector_Name + Region +

                   ↪  Aligned_Flag_Binary, data = combined_cleaned)


# Summary of E model

print("Summary of Robust E Rating Regression Model")

summary(re_model)

###Check Residuals

plot(re_model, which = 1) #Residuals vs Fitted Plot

plot(re_model, which = 2) #Normal Q-Q Plot

plot(re_model, which = 3) #Scale-Location Plot

plot(re_model, which = 5) #Residuals vs Leverage Plot

# Interaction Term ------------------------------------------------------


######### Add interaction terms between Sector and Region, and between Financial

 ↪  Metrics and Sector

# Update the robust regression model with interaction terms

resg_model_interaction <- rlm(ESG_Score ~ log_total_revenue *

 ↪  log_aligned_revenue_percent +

                                 log_total_revenue * log_eligible_revenue_percent +

                                 log_total_revenue * log_market_cap +

                                 Region * Aligned_Flag_Binary +

                                 Pretax_ROA + TRBC_Economic_Sector_Name + Region +

                                  ↪  Aligned_Flag_Binary,

                               data = combined_cleaned)
```

```r
# Summarize the updated model
summary(resg_model_interaction)
vif_model <- rlm(ESG_Score ~ log_total_revenue * log_aligned_revenue_percent +
                   log_total_revenue * log_eligible_revenue_percent +
                   log_total_revenue * log_market_cap +
                   Region * Aligned_Flag_Binary +
                   Pretax_ROA + TRBC_Economic_Sector_Name + Region +
                    ↪  Aligned_Flag_Binary,
                 data = combined_cleaned)
vif(vif_model) # Not working bc Multicolinearity is too high
###next step find possible interaction terms
#Interaction Between EU Taxonomy Alignment and Financial Metrics
interaction_model_financial <- rlm(ESG_Score ~ Aligned_Flag_Binary * log_total_revenue
↪  +
                                     Aligned_Flag_Binary * log_market_cap +
                                     log_aligned_revenue_percent +
                                     log_eligible_revenue_percent +
                                     Pretax_ROA +
                                     TRBC_Economic_Sector_Name + Region,
                                   data = combined_cleaned)
summary(interaction_model_financial)
#Interaction Between EU Taxonomy Alignment and Industry Classification
interaction_model_industry <- rlm(ESG_Score ~ Aligned_Flag_Binary *
↪  TRBC_Economic_Sector_Name +
                                    log_total_revenue +
                                    log_market_cap +
                                    log_aligned_revenue_percent +
                                    log_eligible_revenue_percent +
                                    Pretax_ROA +
```

```
                                    Region,
                                  data = combined_cleaned)
summary(interaction_model_industry)
#Interaction Between EU Taxonomy Alignment and Geographic Location
interaction_model_region <- rlm(ESG_Score ~ Aligned_Flag_Binary * Region +
                                    log_total_revenue +
                                    log_market_cap +
                                    log_aligned_revenue_percent +
                                    log_eligible_revenue_percent +
                                    Pretax_ROA +
                                    TRBC_Economic_Sector_Name,
                                  data = combined_cleaned)
summary(interaction_model_region)
#Combined Interaction Effects
combined_interaction_model <- rlm(ESG_Score ~ Aligned_Flag_Binary * log_total_revenue
↪  +
                                    Aligned_Flag_Binary * log_market_cap +
                                    Aligned_Flag_Binary * TRBC_Economic_Sector_Name +
                                    Aligned_Flag_Binary * Region +
                                    log_aligned_revenue_percent +
                                    log_eligible_revenue_percent +
                                    Pretax_ROA,
                                  data = combined_cleaned)
summary(combined_interaction_model)
####find final model
resg_final_interaction <- rlm(ESG_Score ~ Aligned_Flag_Binary * log_total_revenue +
                                  Aligned_Flag_Binary * log_market_cap +
                                  log_eligible_revenue_percent +
                                  Pretax_ROA +
```

```
                                TRBC_Economic_Sector_Name * log_market_cap +
                                Region,
                              data = combined_cleaned)

# Summarize the alternative final model
summary(resg_final_interaction)
# Plot residuals vs fitted values
plot(final_model$fitted.values, resg_final_interaction$residuals,
     xlab = "Fitted Values", ylab = "Residuals",
     main = "Residuals vs Fitted Values")
abline(h = 0, col = "red")

# Q-Q plot to check for normality
qqnorm(resg_final_interaction$residuals, main = "Q-Q Plot of Residuals")
qqline(resg_final_interaction$residuals, col = "red")

# Histogram of residuals
hist(resg_final_interaction$residuals, breaks = 30, main = "Histogram of Residuals",
     xlab = "Residuals")

# Calculate VIF
vif_values <- vif(resg_final_interaction)
print(vif_values)

######### Add interaction terms between Sector and Region, and between Financial
↪  Metrics and Sector
# Update the robust regression model with interaction terms
re_model_interaction <- rlm(E_Score ~ log_total_revenue * log_aligned_revenue_percent
↪  +
```

```
                                log_total_revenue * log_eligible_revenue_percent +
                                log_total_revenue * log_market_cap +
                                Region * Aligned_Flag_Binary +
                                Pretax_ROA + TRBC_Economic_Sector_Name + Region +
                                 ↪  Aligned_Flag_Binary,
                               data = combined_cleaned)

# Summarize the updated model
summary(re_model_interaction)
vif_model_e <- rlm(E_Score ~ log_total_revenue * log_aligned_revenue_percent +
                     log_total_revenue * log_eligible_revenue_percent +
                     log_total_revenue * log_market_cap +
                     Region * Aligned_Flag_Binary +
                     Pretax_ROA + TRBC_Economic_Sector_Name + Region +
                      ↪  Aligned_Flag_Binary,
                   data = combined_cleaned)
vif(vif_model_e) # Not working bc Multicolinearity is too high
###E-Rating: next step find possible interaction terms

#Interaction Between EU Taxonomy Alignment and Financial Metrics
e_interaction_model_financial <- rlm(E_Score ~ Aligned_Flag_Binary * log_total_revenue
 ↪  +
                                       Aligned_Flag_Binary * log_market_cap +
                                       log_aligned_revenue_percent +
                                       log_eligible_revenue_percent +
                                       Pretax_ROA +
                                       TRBC_Economic_Sector_Name + Region,
                                     data = combined_cleaned)
summary(e_interaction_model_financial)
```

```r
#Interaction Between EU Taxonomy Alignment and Industry Classification
e_interaction_model_industry <- rlm(E_Score ~ Aligned_Flag_Binary *
↪  TRBC_Economic_Sector_Name +
                                      log_total_revenue +
                                      log_market_cap +
                                      log_aligned_revenue_percent +
                                      log_eligible_revenue_percent +
                                      Pretax_ROA +
                                      Region,
                                    data = combined_cleaned)
summary(e_interaction_model_industry)


#Interaction Between EU Taxonomy Alignment and Geographic Location
e_interaction_model_region <- rlm(E_Score ~ Aligned_Flag_Binary * Region +
                                      log_total_revenue +
                                      log_market_cap +
                                      log_aligned_revenue_percent +
                                      log_eligible_revenue_percent +
                                      Pretax_ROA +
                                      TRBC_Economic_Sector_Name,
                                    data = combined_cleaned)
summary(e_interaction_model_region)
#Combined Interaction Effects
e_combined_interaction_model <- rlm(E_Score ~ Aligned_Flag_Binary * log_total_revenue
↪  +
                                      Aligned_Flag_Binary * log_market_cap +
                                      Aligned_Flag_Binary * TRBC_Economic_Sector_Name
                                      ↪  +
```

```
                                    Aligned_Flag_Binary * Region +
                                    log_aligned_revenue_percent +
                                    log_eligible_revenue_percent +
                                    Pretax_ROA,
                                  data = combined_cleaned)
summary(e_combined_interaction_model)
####find final model
re_final_interaction <- rlm(E_Score ~ Aligned_Flag_Binary * log_total_revenue +
                              Aligned_Flag_Binary * log_market_cap +
                              log_eligible_revenue_percent +
                              Pretax_ROA +
                              TRBC_Economic_Sector_Name * log_market_cap +
                              Region,
                            data = combined_cleaned)



# Summarize the alternative final model
summary(re_final_interaction)
# Plot residuals vs fitted values
plot(final_model$fitted.values, re_final_interaction$residuals,
     xlab = "Fitted Values", ylab = "Residuals",
     main = "Residuals vs Fitted Values")
abline(h = 0, col = "red")
# Q-Q plot to check for normality
qqnorm(re_final_interaction$residuals, main = "Q-Q Plot of Residuals")
qqline(re_final_interaction$residuals, col = "red")


# Histogram of residuals
hist(re_final_interaction$residuals, breaks = 30, main = "Histogram of Residuals",
```

```
     xlab = "Residuals")
# Calculate VIF
vif_values <- vif(re_final_interaction)
print(vif_values)
# Logistic Model ------------------------------------------------------------
logistic_model_e_score <- glm(
  formula = Aligned_Flag_Binary ~ log_total_revenue + log_market_cap +
    log_eligible_revenue_percent  +
    Pretax_ROA + TRBC_Economic_Sector_Name + Region  + E_Score,
  family = binomial,
  data = combined_cleaned
)
vif_values <- vif(logistic_model_e_score)
print(vif_values)
summary(logistic_model_e_score)


logistic_model_esg_score <- glm(
  formula = Aligned_Flag_Binary ~ log_total_revenue + log_market_cap +
    log_eligible_revenue_percent  +
    Pretax_ROA + TRBC_Economic_Sector_Name + Region  + ESG_Score,
  family = binomial,
  data = combined_cleaned
)
summary(logistic_model_esg_score)
vif_values <- vif(logistic_model_esg_score)
print(vif_values)
#Model fit
predicted_probabilities_escore <- predict(logistic_model_e_score, type = "response")
```

```r
predicted_probabilities_esgscore <- predict(logistic_model_esg_score, type =
↪  "response")
# For E Score model
roc_curve_e <- roc(combined_cleaned$Aligned_Flag_Binary,
↪  predicted_probabilities_escore)
auc_e <- auc(roc_curve_e)
# For ESG Score model
roc_curve_esg <- roc(combined_cleaned$Aligned_Flag_Binary,
↪  predicted_probabilities_esgscore)
auc_esg <- auc(roc_curve_esg)
plot(roc_curve_e, col = "blue", main = "ROC Curve for E Score vs ESG Score Models")
plot(roc_curve_esg, add = TRUE, col = "green")
legend("bottomright", legend = c(sprintf("E Score Model (AUC = %.2f)", auc_e),
                                 sprintf("ESG Score Model (AUC = %.2f)", auc_esg)),
       col = c("blue", "green"), lwd = 2)

print(auc_e)
print(auc_esg)

############### CONTENT ANALYSIS

#### RANDOM SAMPLING FOR CONTENT ANALYSIS
# Function to sample companies based on alignment status and region
sample_companies_balanced <- function(data, aligned_status, region, n) {
  data %>%
    filter(`Aligned_Flag_Binary` == aligned_status, Region == region) %>%
    slice_sample(n = n) %>%
    ungroup()
}
```

```r
# Sample 10 aligned and 10 non-aligned companies from each region
eu_aligned_sample <- sample_companies_balanced(combined_cleaned, aligned_status = 1,
↪  region = "EU", n = 5)
eu_non_aligned_sample <- sample_companies_balanced(combined_cleaned, aligned_status =
↪  0, region = "EU", n = 5)

row_aligned_sample <- sample_companies_balanced(combined_cleaned, aligned_status = 1,
↪  region = "Rest of the World", n = 5)
row_non_aligned_sample <- sample_companies_balanced(combined_cleaned, aligned_status =
↪  0, region = "Rest of the World", n = 5)

# Combine the samples
final_sample <- bind_rows(eu_aligned_sample, eu_non_aligned_sample,
↪  row_aligned_sample, row_non_aligned_sample)
print(final_sample)

# Calculate the sum of "Frequency" by "Category"
sum_by_category <- aggregate(Häufigkeit ~ Category, data = Wortha_ufigkeiten_beides_R,
↪  sum, na.rm = TRUE)
print(sum_by_category)
sum_by_subcategory <- aggregate(Häufigkeit ~ `Subcategory`, data =
↪  Wortha_ufigkeiten_beides_R, sum, na.rm = TRUE)
print(sum_by_subcategory)

# Combine "Environmental" and "Environmental (Additon LMO 2022)" into a single
↪  category
Wortha_ufigkeiten_beides_R$Category <- ifelse(Wortha_ufigkeiten_beides_R$Category ==
↪  "Environmental (Additon LMO 2022)",
```

```
                                                "Environmental",
                                                Wortha_ufigkeiten_beides_R$Category)


############# Calculate the sum of "Frequency" by "Category" by percentage

sum_haeufigkeitP <- sum(Wortha_ufigkeiten_beides_R$Prozent, na.rm = TRUE)
print(sum_haeufigkeitP)

sum_by_categoryP <- aggregate(Prozent ~ Category, data = Wortha_ufigkeiten_beides_R,
↪  sum, na.rm = TRUE)
print(sum_by_categoryP)

sum_by_subcategoryP <- aggregate(Prozent ~ Subcategory, data =
↪  Wortha_ufigkeiten_beides_R, sum, na.rm = TRUE)
print(sum_by_subcategoryP)



####Calculate the sum of "Frequency" by "Category" by subcategory
sum_by_category_and_3 <- aggregate(Prozent ~ Category + Subcategory, data =
↪  Wortha_ufigkeiten_beides_R, sum, na.rm = TRUE)
print(sum_by_category_and_3)



# Filter by environmental, social, governance
environmental_subset <- subset(sum_by_category_and_3, Category == "Environmental")
print(environmental_subset)
social_subset <- subset(sum_by_category_and_3, Category == "Social")
```

```r
print(social_subset)

governance_subset <- subset(sum_by_category_and_3, Category == "Governance")

print(governance_subset)

taxonomy_subset <- subset(sum_by_category_and_3, Category == "EU Taxonomy")

print(taxonomy_subset)


#######

# Filter by environmental, social, governance by percent

sum_by_category_and_3H <- aggregate(Häufigkeit ~ Category + Subcategory, data =
↪  Wortha_ufigkeiten_beides_R, sum, na.rm = TRUE)

print(sum_by_category_and_3)



environmental_subset <- subset(sum_by_category_and_3H, Category == "Environmental")

print(environmental_subset)

social_subset <- subset(sum_by_category_and_3H, Category == "Social")

print(social_subset)

governance_subset <- subset(sum_by_category_and_3H, Category == "Governance")

print(governance_subset)

taxonomy_subset <- subset(sum_by_category_and_3H, Category == "EU Taxonomy")

print(taxonomy_subset)



# Split the data into RW and EU groups based on the column names you provided

#EU = aligned companies

#RW = not aligned companies


eu_columns <- c( "EDP_Integrated Annual Report_2023_EU",

                 "A2A_integrated report_2023_EU",
```

```
                  "Rexel_Sustainability Report 2023_EU",
                  "bureau-veritas_integrated report_2023_EU",
                  "eni_Sustainability Report_2023_EU",
                  "Genting_SR2023_RW",
                  "vistra-sustainability-report-2023_RW",
                  "Anhui Conch Cement_Sustainability Report 2023_RW",
                  "JSW_Annual-Report-Integrated_2023_RW",
                  "Mitsubishi Sustainability_report2023_RW",
                  "Magellan_Sustainability Report2023_RW")

rw_columns <- c("SKF Sustainability report 2023_EU",
                "peabs_sustainability_report_2023_EU",
                "Banco de Sabadell_SR2023_EU",
                "TEN-Sustainability-report-2023_EU",
                "bechtle_short-report-sustainability-2023_EU",
                "MSI_Sustainability report_2023_RW",
                "ANTA_Sustainability report 2023_RW",
                "Sumitomo Sustainability Report 2023_RW",
                "Constellation Brand_Sustainability Report_2023_RW")

# Filter the data based on the RW and EU columns
df_rw <- Wortha_ufigkeiten_beides_R %>% select(Category, Subcategory, Prozent,
↪  Häufigkeit, all_of(rw_columns))
df_eu <- Wortha_ufigkeiten_beides_R %>% select(Category, Subcategory, Prozent,
↪  Häufigkeit, all_of(eu_columns))



# Summing the Frequency for RW group
Wortha_ufigkeiten_beides_R <- Wortha_ufigkeiten_beides_R %>%
```

```r
  rowwise() %>%
  mutate(Total_Häufigkeit_RW = sum(c_across(all_of(rw_columns)), na.rm = TRUE))

# Summing the Frequency for EU group
Wortha_ufigkeiten_beides_R <- Wortha_ufigkeiten_beides_R %>%
  rowwise() %>%
  mutate(Total_Häufigkeit_EU = sum(c_across(all_of(eu_columns)), na.rm = TRUE))

# Calculation of the total frequency for RW and EU
total_haeufigkeit_rw <- sum(Wortha_ufigkeiten_beides_R$Total_Häufigkeit_RW, na.rm =
↪  TRUE)
total_haeufigkeit_eu <- sum(Wortha_ufigkeiten_beides_R$Total_Häufigkeit_EU, na.rm =
↪  TRUE)

# Calculation of the total number of all words (for both groups together)
total_words <- total_haeufigkeit_rw + total_haeufigkeit_eu

# Add the columns for the percentage of frequency in the total number of all words
Wortha_ufigkeiten_beides_R <- Wortha_ufigkeiten_beides_R %>%
  mutate(Ratio_Häufigkeit_RW_gesamt = (Total_Häufigkeit_RW / total_words) * 100,
         Ratio_Häufigkeit_EU_gesamt = (Total_Häufigkeit_EU / total_words) * 100)


# Sum of Ratio_frequency_RW_total and Ratio_frequency_EU_total by category and
↪  subcategory
sum_ratio_by_category_and_subcategory <- Wortha_ufigkeiten_beides_R %>%
  group_by(Category, Subcategory) %>%
  summarise(
    Sum_Ratio_Häufigkeit_RW_gesamt = sum(Ratio_Häufigkeit_RW_gesamt, na.rm = TRUE),
```

```
    Sum_Ratio_Häufigkeit_EU_gesamt = sum(Ratio_Häufigkeit_EU_gesamt, na.rm = TRUE)
  )

# Sum of Ratio_frequency_RW_total and Ratio_frequency_EU_total by category
sum_ratio_by_category <- Wortha_ufigkeiten_beides_R %>%
  group_by(Category) %>%
  summarise(
    Sum_Ratio_Häufigkeit_RW_gesamt = sum(Ratio_Häufigkeit_RW_gesamt, na.rm = TRUE),
    Sum_Ratio_Häufigkeit_EU_gesamt = sum(Ratio_Häufigkeit_EU_gesamt, na.rm = TRUE)
  )

####Filter for EU Taxonomy
# Filter by EU Taxonomy in the subcategory column
eu_taxonomy_subset <- Wortha_ufigkeiten_beides_R %>%
  filter(Category == "EU Taxonomy")

# Summe von Ratio_Häufigkeit_RW_gesamt und Ratio_Häufigkeit_EU_gesamt nach Category
sum_ratio_by_category_eu_taxonomy <- eu_taxonomy_subset %>%
  group_by(Category) %>%
  summarise(
    Sum_Ratio_Häufigkeit_RW_gesamt = sum(Ratio_Häufigkeit_RW_gesamt, na.rm = TRUE),
    Sum_Ratio_Häufigkeit_EU_gesamt = sum(Ratio_Häufigkeit_EU_gesamt, na.rm = TRUE)
  )
print(sum_ratio_by_category_eu_taxonomy)
eu_taxonomy_ratios <- Wortha_ufigkeiten_beides_R %>%
  filter(Category == "EU Taxonomy") %>%
  select(Ratio_Häufigkeit_RW_gesamt, Ratio_Häufigkeit_EU_gesamt)
print(eu_taxonomy_ratios)
```

Data Set for Regression Analysis

Table 20: Company Data with Aligned and Non-Aligned Flags in Different Regions

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Trina Solar Co Ltd	True	1.15224142e+10	1.095857718e+10	95.11	1.132021387e+10	98.25	61.63	48.28	0.06	China	Energy	4381764222
Nabtesco Corp	True	2199991384	492798.07	0.02	492798.07	0.02	63.56	69.74	0.06	Japan	Industrials	1940843323
Chevron Corp	True	2.202539648e+11	54182475.34	0.02	54182475.34	0.02	75.67	84.1	0.11	United States of America	Energy	2.607634913e+11
UGI Corp	True	1.031327406e+10	2361739.76	0.02	4280008.73	0.04	62.36	59.83	-0.11	United States of America	Utilities	4368580974
China Shenhua Energy Co Ltd	True	4.468028441e+10	2189333.94	0.0	21401856.23	0.05	91.89	76.46	0.14	China	Energy	1.056109728e+11
HK Electric Investments Ltd	True	1291373225	759327.46	0.06	759327.46	0.06	49.7	51.03	0.03	Hong Kong	Utilities	5242871967
Mitsui Chemicals Inc	True	1.197983544e+10	1317781.9	0.01	6636828.84	0.06	86.45	66.85	0.03	Japan	Basic Materials	5058433367
Repsol SA	True	6.9291e+10	678913218	0.98	1131522030	1.63	89.54	89.46	0.07	Spain	Energy	1.665501687e+10
Banpu PCL	True	7188544768	17755705.58	0.25	17755705.58	0.25	91.91	85.74	0.04	Thailand	Energy	1323056350
Associated British Foods PLC	True	1.936789403e+10	38290326.49	0.2	76580652.99	0.4	92.77	75.45	0.07	United Kingdom	Consumer Non-Cyclicals	2.155254561e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Inpex Corp	True	1.650637448e+10	55510937.38	0.34	74014583.18	0.45	74.58	72.1	0.19	Japan	Energy	1.741700492e+10
Centrica PLC	True	3.802142721e+10	67373969.01	0.18	168434922.5	0.44	67.51	68.04	0.26	United Kingdom	Utilities	8702943736
PPL Corp	True	7383628800	2252006.78	0.03	40469669.45	0.55	43.84	62.51	0.02	United States of America	Utilities	1.870284403e+10
Casino Guichard Perrachon SA	True	9655000000	18643805	0.19	55931415	0.58	80.61	78.16	-0.07	France	Consumer Non-Cyclicals	1514498679
Marubeni Corp	True	6.320597663e+10	202827979	0.32	535354622	0.85	46.63	57.85	0.07	Japan	Industrials	2.941541868e+10
China Steel Corp	True	1.373829548e+10	96264236.4	0.7	117201398.7	0.85	93.9	78.49	0.01	Taiwan	Basic Materials	1.044644031e+10
Graham Corp	True	110993152.5	3745574.92	3.37	4716321.04	4.25	8.65	27.6	0.03	United States of America	Industrials	274022220.5
IVS Group SA	True	540068000	2352000	0.44	2352000	0.44	29.38	43.02	0.01	Italy	Consumer Non-Cyclicals	648511968.2
Naturgy Energy Group SA	True	3.3965e+10	139086675	0.41	370897800	1.09	89.26	79.32	0.08	Spain	Utilities	2.067199541e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
ENN Natural Gas Co Ltd	True	2.083877144e+10	45678587	0.22	137035761	0.66	50.04	29.65	0.12	China	Utilities	8256115516
Eni SpA	True	1.32512e+11	2923479744	2.21	2923479744	2.21	81.58	86.46	0.07	Italy	Energy	4.649652772e+10
TotalEnergies SE	True	2.46036864e+11	1587921920	0.65	2905449327	1.18	91.26	83.77	0.12	France	Energy	1.517223842e+11
World Kinect Corporation	True	5.516987264e+10	900924020.2	1.63	900924020.2	1.63	26.75	50.11	0.01	United States of America	Energy	1383615740
Itochu Corp	True	9.132100325e+10	139447172	0.15	1426616713	1.56	85.58	59.54	0.08	Japan	Industrials	7.411816828e+10
Eversource Energy	True	1.141587876e+10	30526059.8	0.27	198876023.8	1.74	89.16	73.46	-0.01	United States of America	Utilities	1.88443223e+10
Stolt-Nielsen Ltd	True	2663962870	44237767.43	1.66	44237767.43	1.66	35.67	40.86	0.06	United Kingdom	Industrials	2178191609
Atco Ltd	True	3433052771	3807255.52	0.11	62406033.28	1.82	41.06	38.15	0.04	Canada	Utilities	2982184633
Kumho Petro Chemical Co Ltd	True	5910307487	109352509.1	1.85	109352509.1	1.85	61.52	57.01	0.06	Korea; Republic (S. Korea)	Consumer Cyclicals	3028284967
ENKA Insaat ve Sanayi AS	True	3090150694	12697429.2	0.41	63487146	2.05	92.34	87.06	0.1	Turkey	Industrials	6827522380
Valero Energy Corp	True	1.648122752e+11	3413427032	2.07	3413427032	2.07	57.99	65.45	0.19	United States of America	Energy	4.424681906e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
GS Holdings	True	1.998573644e+10	221581859.9	1.11	466227259.8	2.33	63.01	46.29	0.1	Korea; Republic (S. Korea)	Utilities	2982844927
Bangchak Corporation PCL	True	8428832550	162693325.9	1.93	199105882.5	2.36	91.41	83.22	0.07	Thailand	Energy	1347358471
Vedanta Resources Ltd	True	1.592317125e+10	333940747.5	2.1	333940747.5	2.1	0.0	0.0	0.0	United Kingdom	Basic Materials	0
Vedanta Ltd	True	1.580425987e+10	19771129.1	0.13	459082140.7	2.9	80.67	81.63	0.11	India	Basic Materials	1.913784311e+10
Unitil Corp	True	526254080	364167.82	0.07	15557649.37	2.96	34.21	41.85	0.04	United States of America	Utilities	784237583.7
Mitsubishi Materials Corp	True	1.345863222e+10	54224829.23	0.4	396249049.9	2.94	75.46	63.24	0.02	Japan	Basic Materials	2305089963
Chugoku Electric Power Co Inc	True	8443562572	1021671.07	0.01	268243539.3	3.18	60.47	45.77	0.05	Japan	Utilities	2262350878
CMS Energy Corp	True	8032102400	273950916.6	3.41	275517176.5	3.43	46.43	49.89	0.03	United States of America	Utilities	1.625759743e+10
CLP Holdings Ltd	True	1.204412226e+10	214168582.1	1.78	428337164.1	3.56	86.88	78.39	0.05	Hong Kong	Utilities	1.874553631e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
CenterPoint Energy Inc	True	8709542400	171020574.6	1.96	171020574.6	1.96	25.47	41.65	0.03	United States of America	Utilities	1.747868531e+10
Vistra Corp	True	1.46e+10	14322600	0.1	611097600	4.19	64.06	62.58	0.06	United States of America	Utilities	2.961587883e+10
Nordson Corp	True	2620946892	62302528.56	2.38	96128469.14	3.67	59.63	66.51	0.14	United States of America	Industrials	1.215598581e+10
Evonik Industries AG	True	1.8488e+10	182994224	0.99	633842592	3.43	93.39	86.54	-0.02	Germany	Basic Materials	8837690000
Verbund AG	True	1.0346088e+10	176773259.6	1.71	299105404.1	2.89	86.9	70.24	0.18	Austria	Utilities	1.312522193e+10
PNM Resources Inc	True	2101984192	106175425.5	5.05	106175425.5	5.05	39.79	47.66	0.01	United States of America	Utilities	3089130651
WEC Energy Group Inc	True	8967810560	190225197.6	2.12	342911140.2	3.82	65.74	59.7	0.04	United States of America	Utilities	2.280160704e+10
Weatherford International PLC	True	4046886400	198281246.1	4.9	198281246.1	4.9	76.84	60.13	0.1	United States of America	Energy	8294170628
Sumitomo Corp	True	4.081965976e+10	396685453.5	0.97	1726426690	4.23	74.02	61.28	0.05	Japan	Industrials	2.85814615e+10
Japan Pulp & Paper Co Ltd	True	3303872585	31664314.86	0.96	155817238.9	4.72	0.0	0.0	0.05	Japan	Basic Materials	531338909.3
Nexans SA	True	8369000000	193139782	2.31	772575866	9.23	82.31	84.22	0.05	France	Industrials	4579327899

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
AMETEK Inc	True	5747055232	142268352.3	2.48	142268352.3	2.48	66.97	58.54	0.12	United States of America	Industrials	3.545135402e+10
Pinnacle West Capital Corp	True	4040705344	60610580.16	1.5	60610580.16	1.5	87.48	68.74	0.03	United States of America	Utilities	8230126409
Ingersoll Rand Inc	True	5528190720	219828504	3.98	219828504	3.98	34.38	50.14	0.07	United States of America	Industrials	3.422759528e+10
Genting Bhd	True	4753483927	35075957.9	0.74	230025840.7	4.84	81.51	69.31	0.03	Malaysia	Consumer Cyclicals	3440655916
Obayashi Corp	True	1.428412309e+10	80133930.53	0.56	662754743.1	4.64	91.05	86.34	0.04	Japan	Industrials	8143920670
Bureau Veritas SA	True	5650600000	287152190.8	5.08	287152190.8	5.08	71.32	76.39	0.11	France	Industrials	1.190747426e+10
Emera Inc	True	5233026201	216715314.1	4.14	285822658.1	5.46	42.56	47.09	0.03	Canada	Utilities	8872494760
HD Korea Shipbuilding & Offshore Engineering Co Ltd	True	1.282159666e+10	364902640.9	2.85	729805281.9	5.69	83.47	70.72	-0.0	Korea; Republic (S. Korea)	Industrials	7557202413
Arkema SA	True	1.155e+10	96303900	0.83	288911700	2.5	92.27	77.48	0.04	France	Basic Materials	6129249904
Anhui Conch Cement Co Ltd	True	1.788565502e+10	212624666.8	1.19	1021288787	5.71	52.17	53.79	0.06	China	Basic Materials	1.571812238e+10
BGrimm Power PCL	True	1684545959	89375270.41	5.31	99359574.31	5.9	48.42	59.42	0.02	Thailand	Utilities	1451046102

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Italmobiliare SpA	True	483630000	16541596.89	3.42	33083193.78	6.84	72.99	74.33	0.05	Italy	Consumer Non-Cyclicals	1228535647
Tenaga Nasional Bhd	True	1.080244975e+10	131282171.8	1.22	677518845.6	6.27	41.46	50.38	0.02	Malaysia	Utilities	1.647070864e+10
Grupo Argos SA	True	3967476087	51846977.51	1.31	259222985.1	6.53	28.81	50.0	0.04	Colombia	Basic Materials	3130890683
Saipem SpA	True	9987000000	723298488	7.24	1018204611	10.2	92.3	88.56	0.03	Italy	Energy	4608941663
Ratch Group PCL	True	2017429809	88968654.57	4.41	133452981.9	6.62	51.71	59.4	0.03	Thailand	Utilities	1547854070
JFE Holdings Inc	True	3.242643263e+10	1075746902	3.32	1746779499	5.39	74.25	65.17	0.05	Japan	Basic Materials	8488075365
Taiwan Cement Corp	True	3481568410	59869050.39	1.72	114661974	3.29	88.49	70.72	0.03	Taiwan	Basic Materials	7581974552
China National Building Material Co Ltd	True	3.168493135e+10	1311692788	4.14	1841591580	5.81	83.81	60.14	0.03	China	Basic Materials	2562606607
Berjaya Corporation Bhd	True	1765811554	208365.76	0.01	101511208.8	5.75	19.33	34.83	0.01	Malaysia	Consumer Non-Cyclicals	385482697.3

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Turkiye Sise ve Cam Fabrikalari AS	True	8532621225	220790106.8	2.59	511581838.2	6.0	83.49	76.35	0.08	Turkey	Consumer Non-Cyclicals	4314629880
Shimizu Corp	True	1.101615982e+10	77267344.98	0.7	678220895.5	6.16	85.93	69.42	0.01	Japan	Industrials	3971863874
Furukawa Electric Co Ltd	True	6912179517	31173929.62	0.45	498540947.6	7.21	89.93	77.78	0.02	Japan	Industrials	1658687100
Wilmar International Ltd	True	6.858400317e+10	5001762768	7.29	5001762768	7.29	76.26	67.74	0.03	Singapore	Consumer Non-Cyclicals	1.36825011e+10
Sumitomo Heavy Industries Ltd	True	6539871390	184842925	2.83	332709417.1	5.09	94.83	72.05	0.04	Japan	Industrials	2952046739
Genting Plantations Bhd	True	677393704.7	64229793.69	9.48	64229793.69	9.48	68.39	59.02	0.04	Malaysia	Consumer Non-Cyclicals	1024927826
Tohoku Electric Power Co Inc	True	1.563286931e+10	57997945.13	0.37	1183267511	7.57	37.27	37.27	0.06	Japan	Utilities	3943696326
Companhia Paranaense de Energia	True	3876137439	39730408.75	1.02	236436631.5	6.1	77.05	77.81	0.05	Brazil	Utilities	4905489535

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
UPM-Kymmene Oyj	True	1.172e+10	121630160	1.04	653765040	5.58	85.79	87.72	0.02	Finland	Basic Materials	1.674795594e+10
Kajima Corp	True	1.544899191e+10	259743901.1	1.68	983065702.5	6.36	73.74	68.23	0.06	Japan	Industrials	8416295744
Enel SpA	True	1.35653e+11	4293824409	3.17	1.19305457e+10	8.79	94.81	90.82	0.04	Italy	Utilities	6.766116836e+10
Sika AG	True	1.060529849e+10	370230970.1	3.49	903444167.4	8.52	89.23	81.98	0.1	Switzerland	Basic Materials	4.275221281e+10
Renesas Electronics Corp	True	1.069633928e+10	4192965	0.04	976147922.8	9.13	85.03	79.05	0.14	Japan	Technology	3.601641171e+10
Vinci SA	True	6.2265e+10	1295610120	2.08	5226275040	8.39	94.26	85.2	0.06	France	Industrials	6.073280257e+10
Halliburton Co	True	1.89655168e+10	541105159.8	2.85	1082210320	5.71	86.43	86.23	0.14	United States of America	Energy	2.699225725e+10
Itochu Enex Co Ltd	True	6955339039	255469602.9	3.67	466585008.8	6.71	68.96	40.7	0.06	Japan	Energy	1015086349
Vattenfall AB	True	2.151495548e+10	232060293.2	1.08	1750740852	8.14	0.0	0.0	0.0	Sweden	Utilities	0
Ayala Corp	True	4428127038	308968136	6.98	435736556.8	9.84	83.76	72.59	0.04	Philippines	Real Estate	5917841380
Hawaiian Electric Industries Inc	True	3496510784	183395487.1	5.25	356623120.9	10.2	46.46	58.39	0.01	United States of America	Utilities	1054137881
Dai Nippon Printing Co Ltd	True	9984981516	161437181.2	1.62	998488166.6	10.0	89.14	63.74	0.08	Japan	Industrials	8564328401

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Helix Energy Solutions Group Inc	True	815824640	63595162.34	7.8	63595162.34	7.8	62.39	66.73	0.0	United States of America	Energy	1665297295
Portland General Electric Co	True	2473356800	162620736.2	6.57	257246420.7	10.4	49.47	52.71	0.03	United States of America	Utilities	4062367405
Avangrid Inc	True	7403251200	819836037.9	11.07	906661368	12.25	82.2	81.19	0.02	United States of America	Utilities	1.260034026e+10
Holcim AG	True	2.950476158e+10	799756067.2	2.71	2882438177	9.77	66.5	76.46	0.08	Switzerland	Basic Materials	4.838893681e+10
L'Air Liquide Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude SA	True	2.9934e+10	313828056	1.05	3175428654	10.61	69.99	84.68	0.08	France	Basic Materials	9.35579904e+10
AGC Inc	True	1.450934838e+10	518389998.8	3.57	1660014548	11.44	86.09	78.63	0.04	Japan	Consumer Cyclicals	6544271038
BASF SE	True	8.7327e+10	2955669642	3.38	1.034484375e+10	11.85	94.13	92.02	0.02	Germany	Basic Materials	3.949066187e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Toray Industries Inc	True	1.655455911e+10	1074904078	6.49	1730100418	10.45	82.51	65.56	0.02	Japan	Basic Materials	7182114311
A2A SpA	True	2.3166e+10	112146606	0.48	1564214652	6.75	80.43	72.87	0.04	Italy	Utilities	5909768080
DIC Corp	True	7513121916	108061232.5	1.44	1063595104	14.16	78.14	72.83	-0.02	Japan	Basic Materials	1638732759
Daiwa House Industry Co Ltd	True	3.297904537e+10	597745197.4	1.81	4280449236	12.98	85.7	74.18	0.07	Japan	Consumer Cyclicals	1.545348909e+10
Nov Inc	True	6762252800	574034115.7	8.49	662734585.7	9.8	54.67	62.01	0.06	United States of America	Energy	6497300398
Wasco Bhd	True	570518731.6	25609444.83	4.49	76828334.48	13.47	49.71	46.61	0.08	Malaysia	Energy	210165315.1
Mitsui Mining and Smelting Co Ltd	True	4704803941	11893744.36	0.25	629700369.1	13.38	72.95	53.26	0.06	Japan	Basic Materials	1765892689
Ameren Corp	True	7435020800	169652304.6	2.28	1049698542	14.12	33.25	41.18	0.03	United States of America	Utilities	1.760047509e+10
Evergy Inc	True	5474743040	244660791.7	4.47	710462879	12.98	62.23	69.45	0.02	United States of America	Utilities	1.139665847e+10
Quanta Services Inc	True	1.595385496e+10	1323994470	8.3	1765325959	11.07	82.21	75.24	0.07	United States of America	Industrials	3.48560929e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
AES Corp	True	1.17893248e+10	1322302459	11.22	2492923465	21.15	60.21	74.67	0.0	United States of America	Utilities	1.17591247e+10
Afry AB	True	2114470762	309363988.3	14.63	309363988.3	14.63	43.08	63.5	0.05	Sweden	Industrials	1895295048
Hanwha Corp	True	3.770941967e+10	5770823329	15.3	5770823329	15.3	45.58	61.52	0.01	Korea; Republic (S. Korea)	Financials	1699389730
Marshalls PLC	True	813139939.8	37365406.51	4.6	126447326.3	15.55	69.31	64.04	0.02	United Kingdom	Basic Materials	994587749.3
Bouygues SA	True	4.4322e+10	163282248	0.37	8555076762	19.3	69.76	74.39	0.03	France	Industrials	1.206252144e+10
Capital Power Corp	True	2019970182	327239209.5	16.2	327239209.5	16.2	41.07	58.6	0.09	Canada	Utilities	3475401807
Porr AG	True	5786011000	73493911.72	1.27	841100847	14.54	83.29	71.88	0.03	Austria	Industrials	535598142.1
Alliant Energy Corp	True	3929152000	633002103.8	16.11	650494688.5	16.56	79.48	64.61	0.03	United States of America	Utilities	1.225224703e+10
Iberdrola SA	True	5.3949e+10	5851038795	10.85	8978192580	16.64	85.7	79.23	0.05	Spain	Utilities	7.548242112e+10
3M Co	True	3.19835776e+10	831828886.2	2.6	4827473269	15.09	91.09	88.73	-0.2	United States of America	Consumer Non-Cyclicals	5.102172347e+10
Applus Services SA	True	1898514000	236148562.4	12.44	236148562.4	12.44	84.3	80.49	0.03	Spain	Industrials	1651102665
Enel Americas SA	True	1.325652248e+10	863516618	6.51	2241518874	16.91	94.2	92.93	0.04	Chile	Utilities	9501841002

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Hitachi Ltd	True	7.625048543e+10	595516291.2	0.78	1.181775773e+10	15.5	94.41	87.73	0.07	Japan	Consumer Non-Cyclicals	1.022422973e+11
Mytilineos SA	True	6306472000	672049188.7	10.66	1045884236	16.58	91.14	81.78	0.1	Greece	Utilities	5260428207
First Resources Ltd	True	1145039923	200274352.8	17.49	200274352.8	17.49	66.02	44.35	0.11	Singapore	Consumer Non-Cyclicals	1507961225
Doosan Enerbility Co Ltd	True	1.14277168e+10	604994755.3	5.29	1008324592	8.82	82.53	67.56	0.03	Korea; Republic (S. Korea)	Industrials	9529682446
Arcosa Inc	True	2095672320	187254608.8	8.94	402989404.4	19.23	48.71	51.93	0.06	United States of America	Industrials	3698190620
China Railway Hi-tech Industry Corp Ltd	True	3904004071	25020762.09	0.64	627435918.2	16.07	45.8	35.49	0.03	China	Industrials	2040225603
Alfa Laval AB	True	4680618767	60899530.77	1.3	582938303.1	12.45	86.18	77.72	0.11	Sweden	Industrials	1.630669542e+10
Acbel Polytech Inc	True	757542621.9	35296940.92	4.66	141187763.7	18.64	45.77	52.06	0.01	Taiwan	Industrials	961186796.8

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OCI Holdings Co Ltd	True	2051904666	229160816.9	11.17	384666463.9	18.75	61.31	56.67	0.08	Korea; Republic (S. Korea)	Basic Materials	1135441656
Manila Electric Co	True	7159128752	694800604.5	9.71	1389601209	19.41	56.58	68.68	0.08	Philippines	Utilities	6707651058
Rexel SA	True	1.87016e+10	16064674.4	0.09	3627455844	19.4	64.19	78.64	0.08	France	Industrials	7248379763
Linde PLC	True	3.11753216e+10	1793859180	5.75	5822116010	18.68	94.79	89.38	0.1	United Kingdom	Basic Materials	1.917177833e+11
Fuji Electric Co Ltd	True	6761604040	328073028	4.85	1276847784	18.88	94.09	73.26	0.09	Japan	Industrials	8141171975
YTL Power International Bhd	True	3855212575	14730767.25	0.38	775996463.2	20.13	60.69	47.35	0.04	Malaysia	Utilities	8420899868
China Resources Power Holdings Co Ltd	True	1.236036656e+10	1701701106	13.77	2552551658	20.65	57.5	58.25	0.05	Hong Kong	Utilities	1.378689585e+10
Ebara Corp	True	4852451590	91080516.35	1.88	1082480048	22.31	82.63	79.86	0.1	Japan	Industrials	6513530883
BayWa AG	True	2.70618e+10	4326099348	15.99	5660706139	20.92	92.2	66.9	-0.0	Germany	Consumer Non-Cyclicals	794235726.4
SNC-Lavalin Group Inc	True	5206151425	33173596.88	0.64	726882862	13.96	77.13	75.35	0.03	Canada	Industrials	6947546849

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Clean Energy Fuels Corp	True	392601241.6	87554395.49	22.3	87554395.49	22.3	57.86	65.09	-0.09	United States of America	Energy	461780870.8
Balfour Beatty PLC	True	8623404827	299835785.8	3.48	2294024022	26.6	79.86	77.33	0.05	United Kingdom	Industrials	2465751976
General Electric Co	True	5.428864e+10	6811215640	12.55	9529882154	17.55	78.97	77.88	0.06	United States of America	Consumer Non-Cyclicals	1.674756446e+11
Mota Engil SGPS SA	True	3804258000	131239292.5	3.45	496246434.8	13.04	86.23	67.9	0.06	Portugal	Industrials	1079890934
Delta Electronics Thailand PCL	True	3200825313	60130704.32	1.88	736193022.7	23.0	96.97	90.58	0.2	Thailand	Industrials	2.718605499e+10
Duke Energy Corp	True	2.68808192e+10	293162214.2	1.09	6218097978	23.13	74.77	69.76	0.03	United States of America	Utilities	7.205185919e+10
Worley Ltd	True	6382868944	812781765.5	12.73	1415579909	22.18	70.67	81.56	0.01	Australia	Industrials	4742565305
Zorlu Enerji Elektrik Uretim AS	True	1940273853	239841131.5	12.36	458071492.8	23.61	80.29	69.25	0.04	Turkey	Utilities	779843455.9
Wacker Chemie AG	True	8209300000	1944118217	23.68	2215148256	26.98	85.07	72.76	0.04	Germany	Basic Materials	5315914462
Algonquin Power & Utilities Corp	True	2583760832	234814768.2	9.09	623510580.2	24.13	70.3	69.89	-0.01	Canada	Utilities	3972266501

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NV5 Global Inc	True	539877715.5	23681196.11	4.39	99832567.52	18.49	47.2	41.95	0.05	United States of America	Industrials	1374862076
Samsung SDI Co Ltd	True	1.491286565e+10	94771261.21	0.64	3728216413	25.0	81.65	76.48	0.08	Korea; Republic (S. Korea)	Industrials	1.784251573e+10
NorthWestern Corp	True	1380890893	61004997.86	4.42	330872505	23.96	0.0	0.0	0.0	United States of America	Utilities	0
Nextera Energy Inc	True	1.95812864e+10	2778251658	14.19	5001569660	25.54	79.52	76.92	0.04	United States of America	Utilities	1.370451038e+11
Granite Construction Inc	True	3084693606	393002304.2	12.74	778181825.5	25.23	63.82	64.96	0.02	United States of America	Industrials	2465200733
ALS Ltd	True	1319424976	84540835.89	6.41	84540835.89	6.41	48.95	69.2	0.03	Australia	Industrials	4277853951
American Electric Power Company Inc	True	1.83511488e+10	1211212523	6.6	4772473162	26.01	70.05	71.07	0.02	United States of America	Utilities	4.275193669e+10
Public Service Enterprise Group Inc	True	9157120000	324354347.5	3.54	1995510433	21.79	53.71	57.98	0.06	United States of America	Utilities	3.508634928e+10
Aboitiz Power Corp	True	3256109370	8006772.94	0.25	860381315.5	26.42	34.57	43.32	0.09	Philippines	Utilities	3882434828
Xcel Energy Inc	True	1.4305664e+10	2732253073	19.1	4022495215	28.12	82.93	81.12	0.03	United States of America	Utilities	2.698157467e+10

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Mersen SA	True	1114800000	86831772	7.79	303362720.4	27.21	75.92	71.32	0.0	France	Consumer Non-Cyclicals	835883500.2
SAP SE	True	2.952e+10	2276995680	7.71	7745250960	26.24	76.65	89.1	0.08	Germany	Technology	2.283301023e+11
Solvay SA	True	7979000000	299451870	3.75	2312864751	28.99	83.23	82.45	0.01	Belgium	Basic Materials	3386632070
Electricity Generating PCL	True	1609954434	78523917.58	4.88	454445058.1	28.23	49.24	63.37	-0.03	Thailand	Utilities	1391603676
Gulf Energy Development PCL	True	2541883477	199006599.3	7.83	731203284.9	28.77	59.71	52.77	0.05	Thailand	Utilities	1.207764805e+10
Shenzhen Energy Group Co Ltd	True	5083601012	654605135.1	12.88	1460167802	28.72	53.13	47.49	0.02	China	Utilities	4222146034
EDP Energias de Portugal SA	True	2.0650764e+10	1252923153	6.07	5979841731	28.96	87.36	82.83	0.03	Portugal	Utilities	1.486196183e+10
WEG SA	True	5286222519	573407129.1	10.85	1495731376	28.29	59.98	58.65	0.22	Brazil	Industrials	3.15310553e+10
ENEOS Holdings Inc	True	8.113216913e+10	1.915165418e+10	23.61	2.424229214e+10	29.88	69.55	63.48	0.04	Japan	Energy	1.447109835e+10
AECOM	True	1.341785121e+10	417375679.8	3.11	2313519324	17.24	61.49	63.73	0.02	United States of America	Industrials	1.052189464e+10
Prysmian SpA	True	1.6067e+10	2635421809	16.4	4467059809	27.8	62.37	78.54	0.06	Italy	Industrials	1.708701681e+10

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Jacobs Solutions Inc	True	1.522889214e+10	437282408.9	2.87	3595069339	23.61	76.06	78.14	0.06	United States of America	Industrials	1.602098113e+10
Dominion Energy Inc	True	1.30236672e+10	368556758.1	2.83	3348020174	25.71	80.2	81.08	0.03	United States of America	Utilities	3.850501835e+10
Svenska Cellulosa Aktiebolaget SCA	True	1866860777	30851741.21	1.65	607084456.2	32.52	89.71	85.58	0.03	Sweden	Basic Materials	9359574255
Cascades Inc	True	3079954535	39765293.01	1.29	1006627701	32.68	87.64	63.63	-0.01	Canada	Basic Materials	612807857.1
Rejlers AB (publ)	True	315392993.7	107794735.5	34.18	107794735.5	34.18	27.91	38.36	0.07	Sweden	Industrials	276954743.5
Ence Energia y Celulosa SA	True	1003374000	50586103.58	5.04	389303091.8	38.8	76.79	67.74	-0.02	Spain	Basic Materials	821377288.4
China Suntien Green Energy Corp Ltd	True	2514491742	859664494.6	34.19	859664494.6	34.19	78.81	64.89	0.04	China	Utilities	3192595925
China Power International Development Ltd	True	5918796343	1290339034	21.8	2046465267	34.58	59.94	52.93	0.02	Hong Kong	Utilities	5990208955
Delta Electronics Inc	True	1.174817108e+10	195066632.6	1.66	4162764702	35.43	66.98	68.01	0.11	Taiwan	Industrials	3.033792683e+10
ALLETE Inc	True	1467662080	252026932.4	17.17	361957757.5	24.66	53.0	59.36	0.03	United States of America	Utilities	3366692734

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Eiffage SA	True	2.0867e+10	2216993548	10.62	5733208250	27.48	95.55	81.09	0.06	France	Industrials	8934250131
Fugro NV	True	1766009000	27120600.21	1.54	159949201.1	9.06	50.03	68.63	0.1	Netherlands	Energy	2568375552
ICF International Inc	True	1663198362	602729780.7	36.24	687449778.8	41.33	89.55	79.03	0.05	United States of America	Industrials	2239909664
Towngas Smart Energy Co Ltd	True	2401718490	99695334.5	4.15	897255608.8	37.36	46.15	65.88	0.04	Hong Kong	Utilities	1136213366
Neste Oyj	True	2.5957e+10	8726042561	33.62	8726042561	33.62	71.73	77.77	0.1	Finland	Energy	1.30656605e+10
Drax Group PLC	True	9222713942	423995828.1	4.6	3520558925	38.17	58.27	58.44	0.13	United Kingdom	Utilities	2446274309
CEZ as	True	1.164387351e+10	183600597.5	1.58	4551811390	39.09	82.59	71.92	0.08	Czech Republic	Utilities	1.912807045e+10
Miura Co Ltd	True	1066307630	9972108.95	0.94	352311239.8	33.04	42.19	32.61	0.11	Japan	Industrials	2558896166
REN Redes Energeticas Nacionais SGPS S A	True	812871000	155269741.2	19.1	253606810.4	31.2	55.05	70.9	0.04	Portugal	Utilities	1556205843
Iren SpA	True	7670595000	16484108.66	0.21	2825693786	36.84	76.03	59.77	0.03	Italy	Utilities	2580845738
Endesa SA	True	3.2896e+10	2747605504	8.35	1.40046496e+10	42.57	77.24	85.22	0.02	Spain	Utilities	1.899049587e+10
China Energy Engineering Corp Ltd	True	4.956169435e+10	1.020088705e+10	20.58	2.135221872e+10	43.08	62.86	55.74	0.02	China	Industrials	9650236204

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Hanwha Solutions Corp	True	9730494796	4205412815	43.22	4206220446	43.23	73.15	66.53	-0.0	Korea; Republic (S. Korea)	Energy	3182420725
Oji Holdings Corp	True	1.092107516e+10	89137815.44	0.82	4758661921	43.57	82.59	75.63	0.03	Japan	Basic Materials	3579297115
Hera SpA	True	2.0082e+10	4311223842	21.47	5546347170	27.62	93.95	81.38	0.04	Italy	Utilities	4979843529
Arcadis NV	True	3018677000	1343489367	44.51	1343489367	44.51	80.6	80.89	0.06	Netherlands	Industrials	5476839036
Xiamen Tungsten Co Ltd	True	6518194576	85388348.94	1.31	3950638623	60.61	83.75	82.11	0.07	China	Basic Materials	3003633534
Mega First Corporation Bhd	True	284489760	9866958.35	3.47	126765223.2	44.56	52.82	49.64	0.11	Malaysia	Energy	983635697.5
Covanta Holding Corp	True	1558995200	192690247.7	12.36	721906758.3	46.31	0.0	0.0	0.0	United States of America	Industrials	0
Acciona SA	True	1.1195e+10	3177924650	28.39	5691761900	50.84	91.01	85.86	0.03	Spain	Industrials	5984940155
ERG SpA	True	749049000	385487581.2	51.46	385487581.2	51.46	63.05	71.56	0.06	Italy	Utilities	3550853691
Mercer International Inc	True	2131307533	16530421.22	0.78	1194141772	56.03	59.04	63.95	-0.1	Canada	Basic Materials	515603079.6
Mercury Nz Ltd	True	1302741517	1489033.55	0.11	679646763.1	52.17	39.23	49.89	0.02	New Zealand	Utilities	5242978623

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Atlantica Sustainable Infrastructure PLC	True	1029735898	486317491.3	47.23	635739378.2	61.74	53.93	57.92	0.0	United Kingdom	Utilities	2350986781
Brazilian Electric Power Co	True	6023262072	47704235.61	0.79	3422447626	56.82	79.99	71.19	0.01	Brazil	Utilities	1.525350654e+10
Fomento de Construcciones y Contratas SA	True	7705687000	109513223.6	1.42	2609214969	33.86	70.84	62.41	0.06	Spain	Industrials	6048928672
Absolute Clean Energy PCL	True	186745382.8	541457.15	0.29	100515341.5	53.82	31.63	38.97	0.05	Thailand	Utilities	342874534.6
Webuild SpA	True	7656006000	1448853199	18.92	4853655156	63.4	88.49	71.22	0.02	Italy	Industrials	2191134160
Oersted A/S	True	1.539022051e+10	8489261022	55.16	9576410809	62.22	81.69	66.12	-0.06	Denmark	Utilities	2.198961419e+10
Sweco AB (publ)	True	2181266204	1365210892	62.59	1365210892	62.59	55.77	55.41	0.09	Sweden	Industrials	4765280972
China High Speed Transmission Equipment Group Co Ltd	True	2855771719	1798347990	62.97	1849677631	64.77	72.52	59.19	0.02	Hong Kong	Energy	205231832.6
Clearway Energy Inc	True	1111936000	650342456.1	58.49	650342456.1	58.49	47.86	35.65	-0.0	United States of America	Utilities	4457070642
DOWA Holdings Co Ltd	True	6178972772	1176655606	19.04	4215733932	68.23	77.66	60.99	0.07	Japan	Basic Materials	2014750293

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Stantec Inc	True	3073885659	2183454757	71.03	2183454757	71.03	92.34	85.08	0.07	Canada	Industrials	8998016540
Schneider Electric SE	True	3.4176e+10	3893705856	11.39	2.460672e+10	72.0	68.63	74.65	0.09	France	Industrials	1.29361567e+11
Legrand SA	True	8339400000	959297860.8	11.5	5755787165	69.02	86.08	86.35	0.11	France	Industrials	2.479661421e+10
Tongwei Co Ltd	True	1.929472841e+10	1.487874392e+10	77.11	1.487874392e+10	77.11	67.44	53.31	0.14	China	Energy	9406724281
Ranhill Utilities Bhd	True	366612052.4	24925672.15	6.8	314857653.8	85.88	19.85	43.45	0.05	Malaysia	Utilities	411568518.5
Green Plains Inc	True	3422566106	2588548352	75.63	2774557975	81.07	58.02	64.88	-0.04	United States of America	Energy	902751757.8
Terna Energy SA	True	298045000	152424981.7	51.14	237371383.3	79.64	57.5	58.55	0.04	Greece	Utilities	2274456790
Weyerhaeuser Co	True	9515929600	323303708.2	3.4	8244211252	86.64	80.82	83.23	0.05	United States of America	Real Estate	1.856534288e+10
Montrose Environmental Group Inc	True	508702310.4	215231438.8	42.31	272774826.8	53.62	18.14	56.17	-0.04	United States of America	Industrials	1164046980
China Everbright Environment Group Ltd	True	4465453150	284574398.4	6.37	1776821670	39.79	68.55	58.59	0.04	Hong Kong	Utilities	2859152420
Veolia Environnement SA	True	4.28853e+10	783643086.9	1.83	2.349278177e+10	54.78	78.97	75.8	0.03	France	Utilities	2.084581001e+10
Severn Trent PLC	True	2306494766	26038019.42	1.13	852046844.7	36.94	69.29	73.18	0.02	United Kingdom	Utilities	9262894369

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ENGIE Brasil Energia SA	True	2104716555	192238496	9.13	1652006757	78.49	86.48	85.57	0.11	Brazil	Utilities	6370128701
Holmen AB	True	2150382290	48977107.04	2.28	1928940223	89.7	61.01	59.97	0.06	Sweden	Basic Materials	5926340373
Ormat Technologies Inc	True	685998169.6	67753295.22	9.88	675988770.3	98.54	55.92	63.34	0.03	United States of America	Utilities	4013601971
United Utilities Group PLC	True	2210830958	18060278.1	0.82	2162681271	97.82	80.89	66.8	0.01	United Kingdom	Utilities	8414323746
Embassy Office Parks REIT	True	352754266.6	17919563.99	5.08	345503049.9	97.94	77.19	71.54	0.02	India	Real Estate	3767319892
Brookfield Renewable Partners LP	True	4265536000	1756232075	41.17	4265536000	100.0	79.19	67.51	0.01	Bermuda	Utilities	6941018972
Sungrow Power Supply Co Ltd	True	5453860156	4008532676	73.5	5404900853	99.1	83.17	66.17	0.16	China	Energy	1.53664726e+10
China National Nuclear Power Co Ltd	True	9657435688	885915205.4	9.17	9609756928	99.51	30.66	43.59	0.05	China	Utilities	2.753747382e+10
Xinyi Solar Holdings Ltd	True	2458076946	2447674364	99.58	2447674364	99.58	75.38	64.14	0.1	China	Energy	3651022588
Scatec ASA	True	286333772.3	190920201	66.68	285734762	99.79	43.89	53.0	0.03	Norway	Utilities	1155933681

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Nordex SE	True	5693561000	5681877813	99.79	5681877813	99.79	64.14	76.14	-0.06	Germany	Industrials	3010447836
First Solar Inc	True	2447491674	2447491674	100.0	2447491674	100.0	69.32	72.96	0.1	United States of America	Energy	2.229835771e+10
EDP Renovaveis SA	True	2371486000	2371486000	100.0	2371486000	100.0	84.31	76.0	0.02	Spain	Utilities	1.384295468e+10
Innergex Renewable Energy Inc	True	644971858.6	395542536.7	61.33	644971858.6	100.0	48.76	54.53	-0.02	Canada	Utilities	1435416602
Array Technologies Inc	True	1530122982	1530122982	100.0	1530122982	100.0	15.13	38.24	0.1	United States of America	Energy	1387361885
Waste Management Inc	True	1.84058112e+10	368613180.9	2.0	2040762723	11.09	66.56	84.29	0.09	United States of America	Industrials	7.820926479e+10
Darling Ingredients Inc	True	2924940587	265414958.8	9.07	2924940587	100.0	67.05	69.5	0.07	United States of America	Consumer Non-Cyclicals	5448432395
AES Brasil Energia SA	True	502917378.1	129400641.4	25.73	502917378.1	100.0	69.78	64.47	0.02	Brazil	Utilities	1163415525
Balco Group AB	True	119725353.1	119725353.1	100.0	119725353.1	100.0	68.84	72.66	0.04	Sweden	Industrials	86139438.14
Polaris Renewable Energy Inc	True	58493440	2056427.52	3.52	57670233.6	98.59	47.41	51.66	0.01	Canada	Utilities	186548755.7

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Hebei Construction Group Corp Ltd	True	5404101018	524123035.1	9.7	5419825903	100.29	41.58	41.08	0.0	China	Industrials	108442852
Japan Petroleum Exploration Co Ltd	True	1850733807	2777951.44	0.15	2777951.44	0.15	71.97	74.58	0.11	Japan	Energy	1973712668
Gail (India) Ltd	True	1.104600625e+10	4948610.8	0.04	4948610.8	0.04	62.95	53.48	0.11	India	Utilities	1.667397444e+10
QL Resources Bhd	True	1125865646	4744397.83	0.42	4744397.83	0.42	48.55	57.9	0.12	Malaysia	Consumer Non-Cyclicals	3123421672
Oil India Ltd	True	3084551400	10660209.64	0.35	10660209.64	0.35	54.63	52.91	0.11	India	Energy	9228685948
Hill International Inc	True	268378108.4	13418905.42	5.0	26837810.84	10.0	2.69	12.47	0.0	United States of America	Industrials	0
Reunert Ltd	True	625875157.9	2974158.75	0.48	36929763.69	5.9	35.68	53.84	0.11	South Africa	Industrials	681615403.3
Hindustan Zinc Ltd	True	3505389887	19766893.58	0.56	19766893.58	0.56	70.45	76.9	0.3	India	Basic Materials	3.081366527e+10
Ferroglobe PLC	True	2427492710	86564390.05	3.57	90191064.16	3.72	49.61	65.19	0.08	United Kingdom	Basic Materials	990602658.8
Origin Energy Ltd	True	9520646497	52144580.87	0.55	75184545.39	0.79	47.83	61.09	0.07	Australia	Utilities	1.141831694e+10
Esken Ltd	True	125152137.7	47634906.05	38.06	47634906.05	38.06	64.24	66.95	0.0	United Kingdom	Industrials	0

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BCPG PCL	True	145929161.4	114114707.1	78.2	145929015.5	100.0	50.18	58.56	0.02	Thailand	Utilities	512674610.6
Lamprell Ltd	True	342018845.3	124332058.7	36.35	124332058.7	36.35	45.62	47.62	0.0	United Arab Emirates	Energy	0
Balrampur Chini Mills Ltd	True	577011322.6	103301183.1	17.9	121703805.2	21.09	66.46	54.97	0.13	India	Consumer Non-Cyclicals	974344571.7
Koninklijke Vopak NV	True	1367000000	120599474	8.82	120599474	8.82	75.23	60.68	0.08	Netherlands	Energy	4976057651
JSW Energy Ltd	True	972453974.8	13832185.34	1.42	235861904.4	24.25	49.81	46.24	0.04	India	Utilities	1.397871948e+10
Magellan Midstream Partners LP	True	2990453760	172396668.8	5.76	172396668.8	5.76	46.64	45.65	0.0	United States of America	Energy	0
Torrent Power Ltd	True	1697638652	155228683.1	9.14	155228683.1	9.14	39.28	43.89	0.08	India	Utilities	8216074045
Solaria Energia y Medio Ambiente SA	True	139281000	139281000	100.0	139281000	100.0	63.08	57.19	0.09	Spain	Utilities	1428305371
Tata Steel Ltd	True	2.904796221e+10	204555749.9	0.7	204555749.9	0.7	81.2	76.26	-0.0	India	Basic Materials	2.319859585e+10
Borregaard ASA	True	656316684.5	11967278.43	1.82	224994547.9	34.28	42.56	46.05	0.13	Norway	Basic Materials	1658536526

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Ricardo PLC	True	441607095.6	78053612.53	17.67	185307611	41.96	48.81	53.12	-0.02	United Kingdom	Industrials	362049705.5
Ibiden Co Ltd	True	2979849314	112265822.9	3.77	224531645.8	7.54	75.67	62.08	0.05	Japan	Technology	5486903178
Sumitomo Bakelite Co Ltd	True	1954539516	87696279	4.49	185587436.1	9.5	66.48	49.14	0.08	Japan	Basic Materials	2509530042
Tech Mahindra Ltd	True	5315952341	11450561.34	0.22	267636936.6	5.03	53.31	67.22	0.07	India	Technology	1.583074975e+10
Sharp Corp	True	1.853844859e+10	354937136.6	1.91	356698289.2	1.92	87.12	59.67	-0.08	Japan	Technology	3491442486
SSE PLC	True	1.021703713e+10	262128304.5	2.57	425968711.9	4.17	75.19	74.65	0.09	United Kingdom	Utilities	2.378024621e+10
TransAlta Renewables Inc	True	386201195.7	160115539.9	41.46	386201195.7	100.0	37.83	39.09	0.0	Canada	Utilities	0
Renantis SpA	True	568417000	284306836.1	50.02	382432094.4	67.28	73.79	72.53	0.0	Italy	Utilities	0
National Grid PLC	True	2.16727188e+10	438179028.6	2.02	438179028.6	2.02	58.99	70.87	0.03	United Kingdom	Utilities	5.347759949e+10
Sao Martinho SA	True	1090822436	378134688.2	34.67	421531968	38.64	53.43	48.43	0.09	Brazil	Consumer Non-Cyclicals	1912097532
Meridian Energy Ltd	True	2248241302	124258048.5	5.53	1135409070	50.5	67.43	58.7	0.01	New Zealand	Utilities	9659225280
Rohm Co Ltd	True	3358598266	93150722.9	2.77	582380939.3	17.34	81.75	73.96	0.06	Japan	Technology	5299527038

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Adani Green Energy Ltd	True	611180920.2	450437893.5	73.7	450437893.5	73.7	68.28	57.94	0.02	India	Utilities	3.076583326e+10
Osaka Gas Co Ltd	True	1.181961779e+10	330902019.6	2.8	496353029.4	4.2	70.73	54.1	0.07	Japan	Utilities	8001195518
TerraForm Power Inc	True	840069851.1	698859149.6	83.19	698859149.6	83.19	30.6	28.18	0.0	United States of America	Utilities	0
Toho Gas Co Ltd	True	3827997072	528929667.4	13.82	528929667.4	13.82	72.38	48.45	0.06	Japan	Utilities	2313604007
Cosmo Energy Holdings Co Ltd	True	1.81288714e+10	97243266.21	0.54	97243266.21	0.54	68.53	76.36	0.07	Japan	Energy	4023736951
EVN AG	True	4062200000	150138912	3.7	911890780.4	22.45	63.57	53.35	0.06	Austria	Utilities	5297577443
NTN Corp	True	4769260942	85159923.39	1.79	217158758.5	4.55	85.63	65.94	0.02	Japan	Industrials	978068669.7
CropEnergies AG	True	1075345000	711395560.1	66.16	726020252.1	67.52	50.98	57.51	0.25	Germany	Energy	1118545000
MVV Energie AG	True	5923588000	231712000	3.91	733813200	12.39	50.55	49.3	0.06	Germany	Utilities	2000230570
Tata Power Company Ltd	True	5098016870	865582088.2	16.98	1004018736	19.69	45.33	63.56	0.04	India	Utilities	1.546011801e+10
NTPC Ltd	True	1.579679186e+10	228547984.7	1.45	798543625.5	5.06	53.21	51.11	0.06	India	Utilities	4.091379743e+10
Intertek Group PLC	True	3609079731	1533866104	42.5	1533866104	42.5	63.51	73.22	0.12	United Kingdom	Industrials	9071470769
Novozymes A/S	True	2361052471	252070683.9	10.68	1051577355	44.54	77.28	72.36	0.14	Denmark	Basic Materials	2.37633802e+10

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Koninklijke BAM Groep NV	True	6618169000	213740386	3.23	1521609707	22.99	80.1	68.31	0.05	Netherlands	Industrials	1207419515
Grasim Industries Ltd	True	1.139503306e+10	27746905.5	0.24	1479394352	12.98	63.58	61.27	0.04	India	Basic Materials	2.130686455e+10
Omron Corp	True	5667395005	26172030.13	0.46	1932320996	34.1	96.01	91.3	0.03	Japan	Industrials	6826074318
Linde AG (Pre-merger)	True	1.7113e+10	1123297320	6.56	1247263892	7.29	74.32	75.99	0.0	Germany	Basic Materials	0
YTL Corporation Bhd	True	5248951133	325340489.1	6.2	906457118	17.27	60.97	55.96	0.04	Malaysia	Utilities	8183619089
Yaskawa Electric Corp	True	3713625017	121535805.9	3.27	1742752230	46.93	47.25	61.12	0.1	Japan	Industrials	8721306119
NSK Ltd	True	6426876315	79326934.36	1.23	1986753129	30.91	78.95	64.66	0.02	Japan	Consumer Cyclicals	2314839650
Nidec Corp	True	1.42491349e+10	211442912.8	1.48	1793139635	12.58	79.47	68.16	0.07	Japan	Industrials	2.371841013e+10
Toyota Tsusho Corp	True	5.963591156e+10	960913442.9	1.61	2162457789	3.63	77.37	71.76	0.07	Japan	Industrials	1.955936147e+10
Panasonic Holdings Corp	True	5.488755438e+10	1209666811	2.2	2419333622	4.41	89.38	62.82	0.05	Japan	Technology	1.843967532e+10
Nippon Steel Corp	True	5.057976605e+10	134542177.7	0.27	1780812403	3.52	88.5	62.82	0.08	Japan	Basic Materials	1.893746673e+10
Mitsubishi Corp	True	1.282515889e+11	406685788.4	0.32	1560308830	1.22	81.53	77.28	0.06	Japan	Industrials	7.982523947e+10

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AGL Energy Ltd	True	8704271305	176714116	2.03	2420675258	27.81	36.45	53.43	-0.11	Australia	Utilities	4312409156
Wipro Ltd	True	9417568088	122428385.2	1.3	2326139318	24.7	77.62	87.09	0.13	India	Technology	3.095336128e+10
voestalpine AG	True	1.49232e+10	159917011.2	1.07	2054611253	13.77	71.86	60.28	0.02	Austria	Basic Materials	4541857664
IHI Corp	True	8712904735	32412005.61	0.37	2387353323	27.4	93.17	80.24	-0.04	Japan	Industrials	4831675443
Owens Corning	True	9120678400	266022826.9	2.92	3642643901	39.94	96.48	93.89	0.14	United States of America	Consumer Cyclicals	1.337533888e+10
Larsen and Toubro Ltd	True	1.863662204e+10	420442193.3	2.26	2522653160	13.54	91.43	75.71	0.06	India	Industrials	5.551625884e+10
Archer-Daniels-Midland Co	True	9.48939264e+10	4369485735	4.6	4369485735	4.6	72.87	78.05	0.08	United States of America	Consumer Non-Cyclicals	2.932382606e+10
Spie SA	True	8113775000	248784569.1	3.07	3317325023	40.89	78.14	74.1	0.04	France	Industrials	5952012005
Schlumberger NV	True	2.62482304e+10	2096577403	7.99	3068365637	11.69	85.74	82.79	0.12	United States of America	Energy	5.976023976e+10
Indian Oil Corporation Ltd	True	7.017158775e+10	3260452653	4.65	3260452653	4.65	87.22	69.42	0.12	India	Energy	2.685439177e+10
Sumitomo Chemical Co Ltd	True	2.054215727e+10	180832610.5	0.88	4614569668	22.46	92.62	89.17	-0.11	Japan	Basic Materials	3440922103

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Kansai Electric Power Co Inc	True	2.118526387e+10	2245637.97	0.01	5823574815	27.49	77.32	65.62	0.07	Japan	Utilities	1.409988903e+10
RWE AG	True	3.8366e+10	3915480496	10.21	6846873092	17.85	70.94	62.8	0.03	Germany	Utilities	2.454301884e+10
Skanska AB	True	1.464956913e+10	989593044.4	6.76	6812533082	46.5	59.29	70.4	0.04	Sweden	Industrials	6866982003
Canadian Solar Inc (Pre-Reincorporation)	True	6978669184	5855152296	83.9	6978669184	100.0	0.0	0.0	0.0	Canada	Energy	0
Infineon Technologies AG	True	1.4218e+10	214805544	1.51	6188014832	43.52	77.54	79.36	0.14	Germany	Technology	4.614611514e+10
Vigie SA	True	1.7209e+10	365329861	2.12	6034284223	35.06	87.47	78.52	0.0	France	Industrials	0
Engie SA	True	9.3865e+10	5280093980	5.63	1.457010076e+10	15.52	80.32	75.97	0.02	France	Utilities	3.423172054e+10
Shell PLC	True	3.562998016e+11	3313231855	0.93	3.248456551e+10	9.12	92.67	92.42	0.08	United Kingdom	Energy	2.113398537e+11
Power Finance Corporation Ltd	False	5118949462	0	0.0	1063854.3	0.01	33.27	44.79	0.03	India	Financials	2.011498778e+10
Chennai Petroleum Corporation Ltd	False	7423450590	0	0.0	3541456.68	0.04	55.22	42.99	0.21	India	Energy	1711569352
Bajaj Auto Ltd	False	4969184514	0	0.0	9012733.36	0.22	25.51	40.08	0.27	India	Consumer Cyclicals	2.890761439e+10

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Nippon Sanso Holdings Corp	False	7792585444	0	0.0	11130427.92	0.14	61.42	63.97	0.07	Japan	Basic Materials	1.256866553e+10
Companhia Siderurgica Nacional SA	False	8147325178	0	0.0	51973933.76	0.61	59.91	61.44	0.01	Brazil	Basic Materials	2990280291
Microchip Technology Inc	False	7069196477	0	0.0	66168626.52	0.85	67.72	61.77	0.15	United States of America	Technology	4.555834116e+10
Kanematsu Corp	False	6147945441	0	0.0	78652543.24	1.24	21.39	36.37	0.05	Japan	Industrials	1282726353
Koninklijke KPN NV	False	5513000000	0	0.0	91435520	1.68	67.15	69.86	0.09	Netherlands	Technology	1.431458519e+10
Terex Corp	False	4838555994	0	0.0	100897278.7	2.16	75.46	74.6	0.17	United States of America	Industrials	2776922505
Autodesk Inc	False	5211139980	0	0.0	104859777.4	2.28	71.17	81.3	0.12	United States of America	Technology	5.006899642e+10
Universal Scientific Industrial Shanghai Co Ltd	False	7873350508	0	0.0	110437721.2	1.42	78.41	60.78	0.06	China	Technology	4555192176
Resideo Technologies Inc	False	5755065610	0	0.0	121056726.2	2.14	57.79	67.72	0.05	United States of America	Technology	2750045141
TechnipFMC PLC	False	7568105411	0	0.0	126154875.3	1.78	57.03	68.78	0.02	United Kingdom	Energy	1.053926352e+10

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Orkla ASA	False	5949421442	0	0.0	128744137	2.12	96.46	84.79	0.08	Norway	Consumer Non-Cyclicals	7314927676
Computacenter PLC	False	8084690521	0	0.0	156590363	1.96	32.53	60.73	0.09	United Kingdom	Technology	3842397905
Regal Rexnord Corp	False	6100368692	0	0.0	163914620.1	2.89	73.53	56.93	-0.0	United States of America	Industrials	8876318340
Babcock International Group PLC	False	5153546848	0	0.0	187834116.4	3.72	56.36	56.53	0.0	United Kingdom	Industrials	3183804787
Nippon Paper Industries Co Ltd	False	7208325550	0	0.0	195666167.1	2.44	84.99	70.77	0.02	Japan	Basic Materials	645089998.7
Vertiv Holdings Co	False	6492200383	0	0.0	201568653.3	3.24	68.96	66.18	0.07	United States of America	Industrials	3.077906151e+10
Otsuka Corp	False	6209689041	0	0.0	202401499.2	3.22	47.89	34.97	0.12	Japan	Technology	7300068366
KBR Inc	False	6570285690	0	0.0	217870890.3	3.46	70.49	88.48	-0.03	United States of America	Technology	8038593823
Chunghwa Telecom Co Ltd	False	6513854482	0	0.0	229168182.2	3.48	72.0	74.46	0.09	Taiwan	Technology	2.598719599e+10

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UPL Ltd	False	4810682770	0	0.0	240645968.1	4.0	66.32	59.38	-0.02	India	Basic Materials	4645201843
Sanmina Corp	False	7365011952	0	0.0	254914122.1	3.02	60.46	62.98	0.09	United States of America	Technology	3600480858
John Wood Group PLC	False	5444916774	0	0.0	267773155.4	5.01	59.59	66.26	-0.01	United Kingdom	Energy	1639286078
Rockwell Automation Inc	False	8326390480	0	0.0	267805508.9	3.13	61.63	56.83	0.15	United States of America	Industrials	2.961940633e+10
Insight Enterprises Inc	False	8575489219	0	0.0	279891144.8	3.37	67.13	67.4	0.07	United States of America	Technology	6065212996
Samsung Heavy Industries Co Ltd	False	6092345076	0	0.0	280345516.3	5.0	69.56	52.81	-0.02	Korea; Republic (S. Korea)	Industrials	5815293455
Graphic Packaging Holding Co	False	8599164000	0	0.0	280902173.9	3.29	75.65	67.5	0.09	United States of America	Basic Materials	7754227798
Primoris Services Corp	False	5426190160	0	0.0	302204450.5	5.84	29.42	39.43	0.05	United States of America	Industrials	2589058480
Beacon Roofing Supply Inc	False	8624811079	0	0.0	304642199.1	3.69	25.86	32.1	0.1	United States of America	Consumer Cyclicals	5661886798

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Fincantieri SpA	False	7654000000	0	0.0	305094707.7	3.99	73.81	76.75	-0.01	Italy	Industrials	1563789455
NiSource Inc	False	4871482711	0	0.0	323341622.7	6.48	63.34	65.15	0.03	United States of America	Utilities	1.236071293e+10
Ningbo Joyson Electronic Corp	False	7101924627	0	0.0	326498354.4	4.59	44.63	52.07	0.03	China	Consumer Cyclicals	2844061078
JGC Holdings Corp	False	5121525220	0	0.0	329963156.4	7.83	45.42	46.28	0.0	Japan	Industrials	1899817445
Seagate Technology Holdings PLC	False	5798053090	0	0.0	338405028	5.0	52.48	55.38	-0.06	Singapore	Technology	2.062154742e+10
Hong Kong and China Gas Co Ltd	False	6674646368	0	0.0	360561297.9	5.45	67.39	68.71	0.06	Hong Kong	Utilities	1.431039262e+10
Seiko Epson Corp	False	8184459167	0	0.0	386478018.9	4.18	58.92	82.17	0.05	Japan	Technology	5820243915
Fortive Corp	False	5680999244	0	0.0	386519191.9	7.03	56.24	65.89	0.06	United States of America	Industrials	2.439936661e+10
Hitachi Construction Machinery Co Ltd	False	8795183151	0	0.0	396355945	4.51	89.5	69.74	0.09	Japan	Industrials	5511196353
Air Water Inc	False	6337239713	0	0.0	426495012.2	6.11	45.09	31.52	0.06	Japan	Basic Materials	2869506961
Puma SE	False	8516300000	0	0.0	430085000	5.0	89.68	87.75	0.07	Germany	Consumer Cyclicals	6716516890

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Schouw & Co A/S	False	4884655425	0	0.0	433392146.6	8.68	44.58	44.35	0.05	Denmark	Consumer Non-Cyclicals	1870004516
Greif Inc	False	4807819266	0	0.0	451240558	9.14	62.41	65.24	0.09	United States of America	Basic Materials	2677771857
Jindal Steel And Power Ltd	False	5579166855	0	0.0	455310079.1	7.69	67.62	65.58	0.08	India	Basic Materials	1.115912818e+10
Lanxess AG	False	6422000000	0	0.0	467999370	6.97	74.83	83.45	-0.09	Germany	Basic Materials	1979359396
Boise Cascade Co	False	6429841053	0	0.0	482700999.9	7.79	17.13	35.19	0.19	United States of America	Consumer Cyclicals	4529312716
Digital Realty Trust Inc	False	5082131205	0	0.0	492044660.9	9.91	78.33	68.58	0.02	United States of America	Real Estate	4.71162927e+10
Chemours Co	False	5428442780	0	0.0	493783974	9.04	66.83	79.97	-0.04	United States of America	Basic Materials	3346267067
Hengtong Optic-Electric Co Ltd	False	6230282123	0	0.0	493909411	8.12	75.67	75.53	0.04	China	Technology	5061178029
Wartsila Oyj Abp	False	5871000000	0	0.0	496496145	8.25	92.85	76.1	0.05	Finland	Industrials	1.104721011e+10

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Hokkaido Electric Power Company Incorporated	False	5931645935	0	0.0	503853801.1	8.16	63.58	42.08	0.04	Japan	Utilities	1378621176
GEA Group AG	False	5343797000	0	0.0	516397858.6	9.61	92.73	86.81	0.08	Germany	Industrials	6977206708
NGL Energy Partners LP	False	6430760696	0	0.0	531719077.9	6.63	13.7	16.56	-0.03	United States of America	Energy	558922680.4
Iwatani Corp	False	5245523323	0	0.0	553660593.9	8.79	43.65	40.89	0.09	Japan	Energy	3447356613
Roper Technologies Inc	False	5920383484	0	0.0	562341629.2	10.05	46.99	57.58	0.06	United States of America	Technology	5.480630513e+10
Sopra Steria Group SA	False	5805300000	0	0.0	563114100	9.7	76.58	78.48	0.05	France	Technology	3885292648
Taiheiyo Cement Corp	False	5464237273	0	0.0	563618385.8	10.02	57.56	42.41	0.04	Japan	Basic Materials	2731856012
Sappi Ltd	False	4941400960	0	0.0	580831721.9	10.57	75.08	81.41	0.06	South Africa	Basic Materials	1645876473
Dover Corp	False	7822219775	0	0.0	624628465.4	8.17	78.93	66.06	0.11	United States of America	Industrials	2.325207313e+10
Academy Sports and Outdoors Inc	False	5667317409	0	0.0	638873699.5	10.86	31.01	37.08	0.14	United States of America	Consumer Cyclicals	3513697659

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Tokyo Century Corp	False	8289433788	0	0.0	649943738.4	7.03	20.37	38.49	0.02	Japan	Financials	4294957992
Hubbell Inc	False	5090024712	0	0.0	675866144.3	13.88	73.63	72.04	0.16	United States of America	Industrials	1.872913083e+10
Hotai Motor Co Ltd	False	7866433945	0	0.0	685530643.3	9.61	70.48	59.37	0.07	Taiwan	Consumer Cyclicals	9843229556
Travis Perkins PLC	False	5672883848	0	0.0	702187061.4	12.52	61.24	62.05	0.02	United Kingdom	Consumer Cyclicals	2261352986
LG Corp	False	5140697727	0	0.0	725792794.8	15.84	70.42	48.65	0.05	Korea; Republic (S. Korea)	Technology	8690146520
Comfort Systems USA Inc	False	5161697389	0	0.0	735003290.1	15.58	22.43	56.23	0.13	United States of America	Industrials	1.054104998e+10
Peab AB	False	5183490625	0	0.0	750418863.8	13.53	66.46	66.86	0.05	Sweden	Industrials	1672488994
New World Development Co Ltd	False	8665138450	0	0.0	755733790.4	6.79	85.71	68.98	0.02	Hong Kong	Real Estate	2355634953
Teijin Ltd	False	6383241668	0	0.0	792100551.8	11.19	39.12	53.03	0.02	Japan	Consumer Cyclicals	1552776558
Hexagon AB	False	5450000000	0	0.0	817778880	15.03	69.77	52.22	0.06	Sweden	Technology	2.762463501e+10

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Kuraray Co Ltd	False	4860594584	0	0.0	854710915.7	17.04	81.74	72.37	0.05	Japan	Basic Materials	3830651219
Bechtle AG	False	6835238000	0	0.0	858014237.4	13.36	38.82	68.99	0.1	Germany	Technology	5146579580
Subsea 7 SA	False	5634852893	0	0.0	869952889.2	16.07	80.23	72.42	0.01	United Kingdom	Energy	5196692833
American Axle & Manufacturing Holdings Inc	False	5724643990	0	0.0	870426191.8	15.8	67.83	70.37	-0.0	United States of America	Consumer Cyclicals	772839189
SGS SA	False	6971978226	0	0.0	873283557.4	12.25	71.61	84.32	0.12	Switzerland	Industrials	1.620973229e+10
Serco Group PLC	False	5678010165	0	0.0	908201816.6	16.16	57.05	73.07	0.09	United Kingdom	Industrials	2387661709
Spirit AeroSystems Holdings Inc	False	5878958201	0	0.0	921038021.6	16.81	58.62	72.99	-0.09	United States of America	Industrials	3695555968
SKF AB	False	8838544938	0	0.0	928112951.4	9.93	86.63	78.45	0.08	Sweden	Industrials	8580525744
Howmet Aerospace Inc	False	6378929890	0	0.0	930916352.5	15.47	52.35	72.17	0.09	United States of America	Industrials	2.965386047e+10
Axalta Coating Systems Ltd	False	4829046399	0	0.0	939493706.6	20.0	52.11	53.92	0.05	United States of America	Basic Materials	7172119676

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Huntsman Corp	False	5543475970	0	0.0	954856895.2	17.24	81.96	77.47	0.01	United States of America	Basic Materials	3577004676
Knorr Bremse AG	False	7965362000	0	0.0	958309644.7	12.09	77.11	79.84	0.1	Germany	Industrials	1.177566e+10
Hokuriku Electric Power Co	False	5025401245	0	0.0	966981875.3	17.02	31.37	19.49	0.03	Japan	Utilities	1218135125
Power Grid Corporation of India Ltd	False	5109760879	0	0.0	971913859.4	18.99	58.77	51.79	0.08	India	Utilities	3.503595503e+10
Sealed Air Corp	False	5071684859	0	0.0	994731391.4	20.0	50.55	61.32	0.06	United States of America	Basic Materials	4786636702
Teledyne Technologies Inc	False	5184728050	0	0.0	998376064.2	19.55	38.7	41.46	0.07	United States of America	Technology	1.713712602e+10
Juniper Networks Inc	False	4956841592	0	0.0	1053650171	20.9	88.71	71.02	0.04	United States of America	Technology	1.106441149e+10
Valmet Oyj	False	5423000000	0	0.0	1071083712	19.36	81.0	82.71	0.07	Finland	Industrials	5002597592
Tokyu Corp	False	6392189967	0	0.0	1092161129	16.88	52.46	52.95	0.04	Japan	Industrials	6352011885
Daewoo Engineering & Construction Co Ltd	False	8023955517	0	0.0	1111206774	13.63	97.22	81.75	0.07	Korea; Republic (S. Korea)	Industrials	1106944530

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Mondi PLC	False	7330000000	0	0.0	1128497480	15.4	90.06	81.25	0.07	United Kingdom	Basic Materials	8339932498
Arista Networks Inc	False	5641053838	0	0.0	1139345414	21.46	60.62	57.61	0.29	United States of America	Technology	1.039854597e+11
Hertz Global Holdings Inc	False	8750114880	0	0.0	1188788192	14.0	59.64	54.66	0.01	United States of America	Industrials	1132851302
Minebea Mitsumi Inc	False	8712746711	0	0.0	1246058841	13.88	76.0	73.16	0.06	Japan	Technology	8788873826
Sun Hung Kai Properties Ltd	False	8465410941	0	0.0	1247312600	14.98	85.35	58.25	0.04	Hong Kong	Real Estate	2.463960661e+10
Hyundai Wia Corp	False	6003073588	0	0.0	1247649887	20.75	72.14	74.11	0.01	Korea; Republic (S. Korea)	Consumer Cyclicals	1018373333
Hankyu Hanshin Holdings Inc	False	6171658776	0	0.0	1297114618	19.28	69.25	58.05	0.03	Japan	Industrials	6353121302
Stora Enso Oyj	False	8839000000	0	0.0	1318005108	14.03	85.41	81.22	-0.02	Finland	Basic Materials	9866078961
Brunswick Corp	False	5585358702	0	0.0	1381377613	23.81	53.21	73.64	0.1	United States of America	Consumer Cyclicals	4789692682

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Boliden AB	False	6710548224	0	0.0	1390151521	19.66	88.43	82.1	0.08	Sweden	Basic Materials	8601483807
Vulcan Materials Co	False	7144262840	0	0.0	1408653733	19.98	66.91	48.44	0.09	United States of America	Basic Materials	3.062089471e+10
Empresas CMPC SA	False	7288452340	0	0.0	1497490063	20.4	80.31	73.78	0.03	Chile	Basic Materials	4216858862
Sunwoda Electronic Co Ltd	False	6214673910	0	0.0	1519817061	24.87	85.38	59.5	0.0	China	Industrials	3598751646
Polaris Inc	False	7864213981	0	0.0	1525607535	18.84	72.3	74.55	0.12	United States of America	Consumer Cyclicals	4224798482
Constellium SE	False	7014000000	0	0.0	1629180384	22.51	65.97	70.19	0.04	France	Basic Materials	2493843861
Celestica Inc	False	7725158973	0	0.0	1642588557	22.77	82.89	79.73	0.05	Canada	Technology	6462042553
Ncc AB	False	4859671178	0	0.0	1673172461	32.65	83.71	73.59	0.06	Sweden	Industrials	1282911972
NVR Inc	False	8778028398	0	0.0	1718047059	19.57	23.81	34.34	0.31	United States of America	Consumer Cyclicals	2.315618402e+10
Hanon Systems	False	6697242599	0	0.0	1739893748	26.0	72.48	61.05	0.02	Korea; Republic (S. Korea)	Consumer Cyclicals	1744154826

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Jungheinrich AG	False	5528887000	0	0.0	1759321733	31.72	47.78	56.81	0.06	Germany	Industrials	1514923495
ABM Industries Inc	False	7564899529	0	0.0	1893925014	24.74	79.09	68.92	0.07	United States of America	Industrials	2951156248
Sibanye Stillwater Ltd	False	5595138494	0	0.0	1922348995	34.12	62.63	70.72	-0.26	South Africa	Basic Materials	3060722363
Samsung E&A Co Ltd	False	7296958717	0	0.0	1940439159	26.09	76.58	74.44	0.12	Korea; Republic (S. Korea)	Industrials	3067981150
Sonoco Products Co	False	6230397247	0	0.0	2073502985	33.74	61.59	54.02	0.09	United States of America	Basic Materials	4584041861
Konica Minolta Inc	False	7181145863	0	0.0	2085291153	26.55	90.24	79.36	0.01	Japan	Technology	1344121534
Shikoku Electric Power Co Inc	False	4922646930	0	0.0	2097338478	36.23	65.1	43.04	0.05	Japan	Utilities	1620091334
Samsung Electro-Mechanics Co Ltd	False	6609249642	0	0.0	2322424900	37.24	76.41	82.16	0.05	Korea; Republic (S. Korea)	Technology	8364124751
Localiza Rent a Car SA	False	5717621204	0	0.0	2738374809	50.73	25.87	54.46	0.03	Brazil	Industrials	8539836486

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Nippon Sheet Glass Co Ltd	False	5140280600	0	0.0	2812458100	53.02	57.36	59.05	0.02	Japan	Consumer Cyclicals	223778888.9
Fortum Oyj	False	6461000000	0	0.0	2867113686	42.72	80.75	68.68	0.07	Finland	Utilities	1.239380426e+10
Andritz AG	False	8583800000	0	0.0	2952964740	34.1	79.28	79.33	0.08	Austria	Industrials	5952339078
Brother Industries Ltd	False	5110593910	0	0.0	2968493393	52.41	83.97	74.27	0.06	Japan	Technology	4500659283
Xylem Inc	False	7402631280	0	0.0	3847108953	57.65	75.31	82.91	0.05	United States of America	Industrials	3.077175831e+10
TopBuild Corp	False	4833671409	0	0.0	3931625680	83.53	41.8	50.79	0.17	United States of America	Industrials	1.260080663e+10
Koito Manufacturing Co Ltd	False	5915757255	0	0.0	3941930208	65.61	37.49	39.11	0.06	Japan	Consumer Cyclicals	4057953003
SDIC Power Holdings Co Ltd	False	7358016831	0	0.0	4069286781	56.63	64.74	50.82	0.05	China	Utilities	1.720606522e+10
Masco Corp	False	7359431560	0	0.0	4175902989	57.84	63.96	70.39	0.23	United States of America	Consumer Cyclicals	1.428383009e+10
Basic Sanitation Company of the State of Sao Paulo SABESP	False	4898033586	0	0.0	4216123602	88.28	50.46	57.2	0.08	Brazil	Utilities	9599826481

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Pirelli & C SpA	False	6645900000	0	0.0	4457716781	67.03	68.78	71.74	0.05	Italy	Consumer Cyclicals	5712444312
Clean Harbors Inc	False	5093184698	0	0.0	4773375368	97.39	72.59	54.93	0.08	United States of America	Industrials	1.122919173e+10
UltraTech Cement Ltd	False	7899333326	0	0.0	4899883586	69.0	70.51	77.92	0.1	India	Basic Materials	3.671297332e+10
DS Smith PLC	False	8011876958	0	0.0	5158325579	55.0	90.36	82.58	0.05	United Kingdom	Basic Materials	6872982285
MTR Corp Ltd	False	6647349510	0	0.0	5245818715	79.33	74.23	66.61	0.03	Hong Kong	Industrials	1.891142107e+10
Signify NV	False	6495000000	0	0.0	5698400000	85.0	93.81	88.12	0.03	Netherlands	Consumer Cyclicals	3186314974
Sekisui Chemical Co Ltd	False	7813888129	0	0.0	5704295661	66.08	97.85	74.71	0.09	Japan	Consumer Cyclicals	5773651479
KB Home	False	5951363219	0	0.0	5837964532	99.14	71.58	65.98	0.12	United States of America	Consumer Cyclicals	5249665342
Barratt Developments P L C	False	5127476769	0	0.0	6095034515	98.36	85.83	75.39	0.09	United Kingdom	Consumer Cyclicals	5742599220
Waste Connections Inc	False	7641232882	0	0.0	6230505592	85.71	50.64	50.43	0.06	Canada	Industrials	4.270111416e+10

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Commercial Metals Co	False	7572711110	0	0.0	6777038637	83.49	74.14	71.48	0.17	United States of America	Basic Materials	5851919982
NIO Inc	False	6825323375	0	0.0	6799501460	95.76	54.52	45.57	-0.19	China	Consumer Cyclicals	9320147049
Givaudan SA	False	7260894254	0	0.0	0	0.0	72.28	76.35	0.09	Switzerland	Basic Materials	4.132674891e+10
Suzano SA	False	7073295368	0	0.0	0	0.0	68.98	81.39	0.13	Brazil	Basic Materials	1.152059183e+10
Usinas Siderurgicas de Minas Gerais SA USIMINAS	False	4993076522	0	0.0	0	0.0	67.5	61.74	0.03	Brazil	Basic Materials	1655997659
Acerinox SA	False	6306925000	0	0.0	0	0.0	88.98	79.27	0.06	Spain	Basic Materials	2483980505
Antofagasta PLC	False	5811510831	0	0.0	0	0.0	73.99	77.25	0.1	United Kingdom	Basic Materials	2.613114868e+10
Formosa Plastics Corp	False	5672403195	0	0.0	0	0.0	86.69	77.37	0.01	Taiwan	Basic Materials	1.041956992e+10
UACJ Corp	False	5520234020	0	0.0	0	0.0	29.12	11.95	0.02	Japan	Basic Materials	1084119770

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Mitsubishi Gas Chemical Co Inc	False	5038256320	0	0.0	0	0.0	67.14	54.51	0.06	Japan	Basic Materials	3840865181
Nagase & Co Ltd	False	5615418589	0	0.0	0	0.0	68.7	63.79	0.04	Japan	Basic Materials	2173606479
Nine Dragons Paper (Holdings) Ltd	False	7220847674	0	0.0	0	0.0	39.39	39.53	-0.02	Hong Kong	Basic Materials	1840603411
Nitto Denko Corp	False	5686296000	0	0.0	0	0.0	67.08	72.26	0.12	Japan	Basic Materials	1.107804418e+10
Nan Ya Plastics Corp	False	7347173061	0	0.0	0	0.0	88.91	73.74	0.01	Taiwan	Basic Materials	1.123254548e+10
Outokumpu Oyj	False	6434000000	0	0.0	0	0.0	90.99	85.05	-0.02	Finland	Basic Materials	1552540291
Kloeckner & Co SE	False	6617536000	0	0.0	0	0.0	66.24	64.93	0.0	Germany	Basic Materials	523706314.4
Korea Zinc Inc	False	6685451942	0	0.0	0	0.0	63.61	55.46	0.06	Korea; Republic (S. Korea)	Basic Materials	7476360809
Anglo American Platinum Ltd	False	6227318983	0	0.0	0	0.0	80.74	75.1	0.1	South Africa	Basic Materials	8455173398

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Resonac Holdings Corp	False	8093820907	0	0.0	0	0.0	80.12	75.67	-0.01	Japan	Basic Materials	4010063165
Tosoh Corp	False	6247961730	0	0.0	0	0.0	60.75	44.67	0.08	Japan	Basic Materials	3849841703
Toyo Seikan Group Holdings Ltd	False	5895138652	0	0.0	0	0.0	44.08	49.15	0.03	Japan	Basic Materials	2523898349
Albemarle Corp	False	7821102972	0	0.0	0	0.0	63.58	72.46	0.01	United States of America	Basic Materials	1.054690827e+10
Avery Dennison Corp	False	7840203847	0	0.0	0	0.0	83.17	74.16	0.09	United States of America	Basic Materials	1.629981812e+10
CF Industries Holdings Inc	False	5665125700	0	0.0	0	0.0	43.75	62.76	0.16	United States of America	Basic Materials	1.183915513e+10
Eastman Chemical Co	False	8447723940	0	0.0	0	0.0	82.16	83.27	0.07	United States of America	Basic Materials	1.064092367e+10
First Quantum Minerals Ltd	False	5505823040	0	0.0	0	0.0	81.43	77.09	-0.02	Canada	Basic Materials	1.073207327e+10
Martin Marietta Materials Inc	False	6218752619	0	0.0	0	0.0	19.97	43.48	0.1	United States of America	Basic Materials	3.13413259e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
O-I Glass Inc	False	6388698360	0	0.0	0	0.0	66.51	60.27	0.01	United States of America	Basic Materials	1622047910
Olin Corp	False	6147329814	0	0.0	0	0.0	51.5	63.61	0.07	United States of America	Basic Materials	5273554741
Packaging Corp of America	False	7218103369	0	0.0	0	0.0	72.76	68.72	0.12	United States of America	Basic Materials	1.526884419e+10
RPM International Inc	False	6778135568	0	0.0	0	0.0	74.56	63.48	0.1	United States of America	Basic Materials	1.305462861e+10
Silgan Holdings Inc	False	5463081932	0	0.0	0	0.0	20.33	25.21	0.06	United States of America	Basic Materials	4335247730
Ufp Industries Inc	False	6549479309	0	0.0	0	0.0	39.95	44.29	0.17	United States of America	Basic Materials	6668608787
West Fraser Timber Co Ltd	False	5997351430	0	0.0	0	0.0	85.25	76.1	-0.02	Canada	Basic Materials	5744281214
PETRONAS Chemicals Group Bhd	False	5602994172	0	0.0	0	0.0	53.52	67.89	0.04	Malaysia	Basic Materials	9603500836
Satellite Chemical Co Ltd	False	5117300481	0	0.0	0	0.0	50.32	49.76	0.09	China	Basic Materials	7609673141

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ANTA Sports Products Ltd	False	7933263487	0	0.0	0	0.0	53.99	62.43	0.19	China	Consumer Cyclicals	2.533343474e+10
Titan Company Ltd	False	5683103479	0	0.0	0	0.0	46.01	53.99	0.16	India	Consumer Cyclicals	3.145706578e+10
Grupo Casas Bahia SA	False	5080320421	0	0.0	0	0.0	73.75	67.89	-0.12	Brazil	Consumer Cyclicals	92027277.4
Accor SA	False	5056000000	0	0.0	0	0.0	72.86	78.5	0.06	France	Consumer Cyclicals	9589354140
Vistry Group PLC	False	5542849584	0	0.0	0	0.0	46.91	55.6	0.05	United Kingdom	Consumer Cyclicals	5329162905
D'Ieteren Group SA	False	7983600000	0	0.0	0	0.0	72.39	71.46	0.09	Belgium	Consumer Cyclicals	1.123648933e+10
Dentsu Group Inc	False	8161764075	0	0.0	0	0.0	56.54	80.23	0.01	Japan	Consumer Cyclicals	6378703993
Haseko Corp	False	6743285381	0	0.0	0	0.0	63.7	54.36	0.06	Japan	Consumer Cyclicals	3153201174
Bandai Namco Holdings Inc	False	6486932811	0	0.0	0	0.0	65.75	64.99	0.15	Japan	Consumer Cyclicals	1.240453853e+10

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Entain PLC	False	5543388766	0	0.0	0	0.0	69.91	81.05	-0.09	United Kingdom	Consumer Cyclicals	5115720500
Next PLC	False	6369201340	0	0.0	0	0.0	79.78	73.01	0.23	United Kingdom	Consumer Cyclicals	1.360400286e+10
Pou Chen Corp	False	7068191183	0	0.0	0	0.0	62.39	74.31	0.06	Taiwan	Consumer Cyclicals	2911509668
Swatch Group AG	False	8286288800	0	0.0	0	0.0	90.98	61.27	0.08	Switzerland	Consumer Cyclicals	1.011002164e+10
Toyoda Gosei Co Ltd	False	6645877603	0	0.0	0	0.0	75.75	60.28	0.08	Japan	Consumer Cyclicals	2101890847
Sumitomo Rubber Industries Ltd	False	7355855276	0	0.0	0	0.0	68.25	52.15	0.05	Japan	Consumer Cyclicals	2433184487
Nitori Holdings Co Ltd	False	5345638142	0	0.0	0	0.0	60.46	62.1	0.1	Japan	Consumer Cyclicals	1.145184241e+10
Dogus Otomotiv Servis ve Ticaret AS	False	4989380453	0	0.0	0	0.0	80.96	83.59	0.41	Turkey	Consumer Cyclicals	1669696899
Yokohama Rubber Co Ltd	False	6345154309	0	0.0	0	0.0	87.23	64.58	0.08	Japan	Consumer Cyclicals	3307050063

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Yue Yuen Industrial (Holdings) Ltd	False	7179525160	0	0.0	0	0.0	49.91	49.7	0.05	Hong Kong	Consumer Cyclicals	2522052613
American Eagle Outfitters Inc	False	4905092886	0	0.0	0	0.0	82.38	58.99	0.07	United States of America	Consumer Cyclicals	3812990561
Sirius XM Holdings Inc	False	8326885370	0	0.0	0	0.0	17.53	53.71	0.15	United States of America	Consumer Cyclicals	1.308551132e+10
Tapestry Inc	False	6217871551	0	0.0	0	0.0	71.69	72.66	0.16	United States of America	Consumer Cyclicals	9249114791
Dillard's Inc	False	6271332590	0	0.0	0	0.0	22.81	24.04	0.27	United States of America	Consumer Cyclicals	6974881885
HanesBrands Inc	False	5004052130	0	0.0	0	0.0	76.06	71.79	-0.0	United States of America	Consumer Cyclicals	1663372156
Hyatt Hotels Corp	False	6209559580	0	0.0	0	0.0	70.42	59.48	0.02	United States of America	Consumer Cyclicals	1.437309284e+10
Interpublic Group of Companies Inc	False	8713786794	0	0.0	0	0.0	76.93	81.34	0.07	United States of America	Consumer Cyclicals	1.018140692e+10
Linamar Corp	False	6895177199	0	0.0	0	0.0	62.84	47.53	0.08	Canada	Consumer Cyclicals	2780481043

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Bath & Body Works Inc	False	6843164420	0	0.0	0	0.0	68.4	59.17	0.19	United States of America	Consumer Cyclicals	7643033740
Levi Strauss & Co	False	5733828422	0	0.0	0	0.0	81.09	66.39	0.04	United States of America	Consumer Cyclicals	6965260716
Mattel Inc	False	5058792435	0	0.0	0	0.0	63.47	79.3	0.07	United States of America	Consumer Cyclicals	5294351986
Newell Brands Inc	False	7411004240	0	0.0	0	0.0	57.67	72.33	-0.04	United States of America	Consumer Cyclicals	2368012070
ODP Corp	False	7023114040	0	0.0	0	0.0	48.76	66.66	0.05	United States of America	Consumer Cyclicals	1305333678
PENN Entertainment Inc	False	5844945740	0	0.0	0	0.0	29.64	51.61	-0.03	United States of America	Consumer Cyclicals	2876721069
Pool Corp	False	5034223856	0	0.0	0	0.0	18.61	50.58	0.2	United States of America	Consumer Cyclicals	1.154174774e+10
PVH Corp	False	8295460703	0	0.0	0	0.0	70.2	82.07	0.07	United States of America	Consumer Cyclicals	5501803254
Ralph Lauren Corp	False	6132972364	0	0.0	0	0.0	81.36	80.55	0.12	United States of America	Consumer Cyclicals	1.043182506e+10

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Signet Jewelers Ltd	False	6472760793	0	0.0	0	0.0	50.57	64.08	0.1	Bermuda	Consumer Cyclicals	3602955156
Rush Enterprises Inc	False	7327766171	0	0.0	0	0.0	43.52	36.9	0.11	United States of America	Consumer Cyclicals	3218796981
Skechers USA Inc	False	7653885349	0	0.0	0	0.0	14.0	33.14	0.11	United States of America	Consumer Cyclicals	9531975095
Urban Outfitters Inc	False	4832741687	0	0.0	0	0.0	63.02	53.62	0.1	United States of America	Consumer Cyclicals	3996843934
Williams-Sonoma Inc	False	7040084953	0	0.0	0	0.0	80.18	79.67	0.26	United States of America	Consumer Cyclicals	1.870401854e+10
Wynn Resorts Ltd	False	6463197797	0	0.0	0	0.0	76.64	68.41	0.02	United States of America	Consumer Cyclicals	8819988181
Yum! Brands Inc	False	6541264210	0	0.0	0	0.0	86.94	79.74	0.3	United States of America	Consumer Cyclicals	3.390910364e+10
Foot Locker Inc	False	7452431590	0	0.0	0	0.0	37.18	54.49	-0.06	United States of America	Consumer Cyclicals	2146927000
Magazine Luiza SA	False	6788473246	0	0.0	0	0.0	53.24	34.85	-0.05	Brazil	Consumer Cyclicals	1731308445

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Prada SpA	False	4848760000	0	0.0	0	0.0	54.01	47.28	0.13	Italy	Consumer Cyclicals	1.688931538e+10
Capri Holdings Ltd	False	4786454150	0	0.0	0	0.0	70.69	67.75	-0.04	United Kingdom	Consumer Cyclicals	3830207918
Hankook Tire & Technology Co Ltd	False	6244265296	0	0.0	0	0.0	76.06	72.39	0.09	Korea; Republic (S. Korea)	Consumer Cyclicals	3497663664
Norwegian Cruise Line Holdings Ltd	False	8285986701	0	0.0	0	0.0	79.62	74.7	0.01	United States of America	Consumer Cyclicals	7683106284
Taylor Morrison Home Corp	False	6786326715	0	0.0	0	0.0	59.41	65.6	0.12	United States of America	Consumer Cyclicals	5918602272
Fnac Darty SA	False	7887300000	0	0.0	0	0.0	56.24	59.0	-0.01	France	Consumer Cyclicals	848212717.7
BRP Inc	False	6788071432	0	0.0	0	0.0	58.83	71.09	0.14	Canada	Consumer Cyclicals	4709421434
Elior Group SA	False	5868000000	0	0.0	0	0.0	87.05	79.41	-0.04	France	Consumer Cyclicals	732709395.5

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HL Mando Corp	False	5923821002	0	0.0	0	0.0	57.43	60.51	0.04	Korea; Republic (S. Korea)	Consumer Cyclicals	1299211201
Restaurant Brands International Inc	False	6662662250	0	0.0	0	0.0	77.16	67.37	0.06	Canada	Consumer Cyclicals	2.118514569e+10
Ferrari NV	False	6125629000	0	0.0	0	0.0	71.6	65.91	0.2	Italy	Consumer Cyclicals	7.7259122e+10
GMS Inc	False	5102294815	0	0.0	0	0.0	19.62	36.16	0.11	United States of America	Consumer Cyclicals	3187459732
Camping World Holdings Inc	False	5666655342	0	0.0	0	0.0	12.5	25.94	0.01	United States of America	Consumer Cyclicals	1658075057
Haidilao International Holding Ltd	False	5272268425	0	0.0	0	0.0	71.7	61.68	0.25	China	Consumer Cyclicals	9112583358
Central Retail Corporation PCL	False	5989215008	0	0.0	0	0.0	50.61	58.44	0.04	Thailand	Consumer Cyclicals	4979915682
Warner Music Group Corp	False	5898196800	0	0.0	0	0.0	46.19	43.69	0.07	United States of America	Consumer Cyclicals	1.467886305e+10

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Petco Health and Wellness Company Inc	False	5721341401	0	0.0	0	0.0	60.2	41.41	-0.22	United States of America	Consumer Cyclicals	977327316.9
Trip.com Group Ltd	False	6043102749	0	0.0	0	0.0	40.48	31.5	0.05	Singapore	Consumer Cyclicals	3.175719976e+10
Pepco Group NV	False	6027885000	0	0.0	0	0.0	26.3	36.74	0.03	United Kingdom	Consumer Cyclicals	2759341836
Victoria's Secret & Co	False	5621504591	0	0.0	0	0.0	4.06	31.04	0.03	United States of America	Consumer Cyclicals	1363385467
MatsukiyoCocokara & Co	False	6278665106	0	0.0	0	0.0	31.89	44.18	0.12	Japan	Consumer Non-Cyclicals	6055091711
Henan Shuanghui Investment & Development Co Ltd	False	7498121668	0	0.0	0	0.0	78.54	58.04	0.18	China	Consumer Non-Cyclicals	1.036101221e+10
Hindustan Unilever Ltd	False	6899852782	0	0.0	0	0.0	76.98	82.84	0.18	India	Consumer Non-Cyclicals	6.764699507e+10

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ITC Ltd	False	8069346102	0	0.0	0	0.0	96.71	83.68	0.31	India	Consumer Non-Cyclicals	6.298087952e+10
Axfood AB	False	7138572552	0	0.0	0	0.0	86.22	67.6	0.1	Sweden	Consumer Non-Cyclicals	4959196759
Minerva SA	False	5154710765	0	0.0	0	0.0	61.24	45.99	0.01	Brazil	Consumer Non-Cyclicals	699571534.2
Meiji Holdings Co Ltd	False	6836507086	0	0.0	0	0.0	80.92	69.34	0.07	Japan	Consumer Non-Cyclicals	6188193513
Savencia SA	False	6791000000	0	0.0	0	0.0	40.32	40.2	0.03	France	Consumer Non-Cyclicals	707396923
China Resources Beer Holdings Co Ltd	False	4942661645	0	0.0	0	0.0	51.2	48.6	0.11	Hong Kong	Consumer Non-Cyclicals	1.064931455e+10

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Anadolu Efes Biracilik ve Malt Sanayii AS	False	5568811181	0	0.0	0	0.0	70.72	79.37	0.14	Turkey	Consumer Non-Cyclicals	4800008928
Far Eastern New Century Corp	False	7533595054	0	0.0	0	0.0	63.28	70.35	0.03	Taiwan	Consumer Non-Cyclicals	5720068110
Pick N Pay Stores Ltd	False	5625242176	0	0.0	0	0.0	63.91	70.58	-0.09	South Africa	Consumer Non-Cyclicals	702135922.2
Lawson Inc	False	6772563711	0	0.0	0	0.0	61.15	61.66	0.03	Japan	Consumer Non-Cyclicals	5976766847
Chocoladefabriken Lindt & Spruengli AG	False	5434684427	0	0.0	0	0.0	85.97	72.89	0.1	Switzerland	Consumer Non-Cyclicals	2.522407647e+10
Nisshin Seifun Group Inc	False	5370259171	0	0.0	0	0.0	75.04	66.78	0.06	Japan	Consumer Non-Cyclicals	3251187216

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Natura &Co Holding SA	False	5173423761	0	0.0	0	0.0	52.86	70.14	-0.05	Brazil	Consumer Non-Cyclicals	3736335898
NH Foods Ltd	False	8097980574	0	0.0	0	0.0	71.82	65.22	0.04	Japan	Consumer Non-Cyclicals	2896388901
Nissui Corp	False	5158829734	0	0.0	0	0.0	68.44	48.34	0.06	Japan	Consumer Non-Cyclicals	1564076156
Mowi ASA	False	5474800000	0	0.0	0	0.0	58.71	74.06	0.11	Norway	Consumer Non-Cyclicals	7717018787
Shiseido Co Ltd	False	6073325163	0	0.0	0	0.0	70.06	80.32	0.02	Japan	Consumer Non-Cyclicals	1.082993645e+10
Unicharm Corp	False	5959530542	0	0.0	0	0.0	62.63	73.07	0.12	Japan	Consumer Non-Cyclicals	1.899928554e+10

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Coca-Cola Bottlers Japan Holdings Inc	False	5401581751	0	0.0	0	0.0	53.14	69.15	0.0	Japan	Consumer Non-Cyclicals	2651804417
Yamazaki Baking Co Ltd	False	7454349732	0	0.0	0	0.0	13.0	8.7	0.06	Japan	Consumer Non-Cyclicals	4404725839
Clorox Co	False	6688975490	0	0.0	0	0.0	61.98	75.76	0.04	United States of America	Consumer Non-Cyclicals	1.553212378e+10
Campbell Soup Co	False	8680900210	0	0.0	0	0.0	73.16	71.96	0.09	United States of America	Consumer Non-Cyclicals	1.244754954e+10
Church & Dwight Co Inc	False	5495758385	0	0.0	0	0.0	68.01	71.56	0.11	United States of America	Consumer Non-Cyclicals	2.335600091e+10
Monster Beverage Corp	False	6809974292	0	0.0	0	0.0	24.12	42.62	0.23	United States of America	Consumer Non-Cyclicals	4.855240245e+10

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McCormick & Company Inc	False	6241205531	0	0.0	0	0.0	94.97	79.99	0.06	United States of America	Consumer Non-Cyclicals	1.760342727e+10
J M Smucker Co	False	7536973306	0	0.0	0	0.0	61.21	62.81	0.06	United States of America	Consumer Non-Cyclicals	1.10435173e+10
GS Retail Co Ltd	False	8229006015	0	0.0	0	0.0	19.03	19.91	0.01	Korea; Republic (S. Korea)	Consumer Non-Cyclicals	1471386897
Post Holdings Inc	False	7164088281	0	0.0	0	0.0	61.08	49.57	0.04	United States of America	Consumer Non-Cyclicals	5951949298
Coty Inc	False	5671289710	0	0.0	0	0.0	69.83	72.97	0.06	United States of America	Consumer Non-Cyclicals	8307604930
Sprouts Farmers Market Inc	False	6489371646	0	0.0	0	0.0	43.57	50.91	0.11	United States of America	Consumer Non-Cyclicals	7612752863

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Lamb Weston Holdings Inc	False	6040968304	0	0.0	0	0.0	57.72	59.67	0.15	United States of America	Consumer Non-Cyclicals	1.045270043e+10
Avenue Supermarts Ltd	False	5645947899	0	0.0	0	0.0	30.19	28.92	0.18	India	Consumer Non-Cyclicals	3.532097553e+10
BGF Retail Co Ltd	False	5792987188	0	0.0	0	0.0	50.09	46.94	0.08	Korea; Republic (S. Korea)	Consumer Non-Cyclicals	1198701950
Hellofresh SE	False	7654000000	0	0.0	0	0.0	84.06	75.95	0.03	Germany	Consumer Non-Cyclicals	1006237165
Budweiser Brewing Company APAC Ltd	False	6314256860	0	0.0	0	0.0	57.34	66.89	0.08	Hong Kong	Consumer Non-Cyclicals	1.553818189e+10
Nongfu Spring Co Ltd	False	5424979857	0	0.0	0	0.0	95.12	72.27	0.35	China	Consumer Non-Cyclicals	4.636161125e+10

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JD Health International Inc	False	6777363768	0	0.0	0	0.0	68.29	50.23	0.04	China	Consumer Non-Cyclicals	8521863456
Adani Wilmar Ltd	False	5732047648	0	0.0	0	0.0	55.08	47.44	0.01	India	Consumer Non-Cyclicals	4791087344
Bangchak Sriracha PCL	False	6018373250	0	0.0	0	0.0	37.03	55.86	0.03	Thailand	Energy	751794588.4
PTT Exploration and Production PCL	False	7825637623	0	0.0	0	0.0	54.4	62.83	0.16	Thailand	Energy	1.523053493e+10
IRPC PCL	False	8201114596	0	0.0	0	0.0	82.22	76.37	-0.02	Thailand	Energy	861826189.7
Petronet LNG Ltd	False	5876888773	0	0.0	0	0.0	39.78	38.57	0.2	India	Energy	5583893551
APA Corp (US)	False	6939903960	0	0.0	0	0.0	38.48	58.55	0.2	United States of America	Energy	1.020051116e+10
Coterra Energy Inc	False	5153365530	0	0.0	0	0.0	33.83	33.96	0.1	United States of America	Energy	1.849329734e+10
Cheniere Energy Partners LP	False	8385077640	0	0.0	0	0.0	71.32	50.08	0.23	United States of America	Energy	2.303040971e+10

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CVR Energy Inc	False	8186706700	0	0.0	0	0.0	2.98	13.61	0.25	United States of America	Energy	2268538040
Par Pacific Holdings Inc	False	7881785732	0	0.0	0	0.0	19.44	25.17	0.17	United States of America	Energy	1276062930
EQT Corp	False	5081732308	0	0.0	0	0.0	34.28	41.3	0.09	United States of America	Energy	1.506669426e+10
Marathon Oil Corp	False	6110640640	0	0.0	0	0.0	49.63	67.76	0.1	United States of America	Energy	1.459646945e+10
Pembina Pipeline Corp	False	5722601143	0	0.0	0	0.0	61.87	72.57	0.07	Canada	Energy	2.008400401e+10
Southwestern Energy Co	False	5402844840	0	0.0	0	0.0	27.24	56.27	0.1	United States of America	Energy	6977497900
Gibson Energy Inc	False	8171006176	0	0.0	0	0.0	68.19	73.97	0.07	Canada	Energy	2473875385
Diamondback Energy Inc	False	8080047840	0	0.0	0	0.0	50.15	61.03	0.15	United States of America	Energy	3.338765858e+10
PTG Energy PCL	False	5216434210	0	0.0	0	0.0	51.71	62.85	0.03	Thailand	Energy	360648970.6
EnLink Midstream LLC	False	6316996347	0	0.0	0	0.0	43.49	39.38	0.05	United States of America	Energy	5752019108

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Star Petroleum Refining PCL	False	6414202997	0	0.0	0	0.0	47.83	56.99	-0.02	Thailand	Energy	903322073.5
Arko Corp.	False	8678220390	0	0.0	0	0.0	10.71	11.92	0.01	United States of America	Energy	648447742.6
Technip Energies NV	False	6129000000	0	0.0	0	0.0	95.55	81.89	0.06	France	Energy	4233089695
Chesapeake Energy Corp	False	5968368070	0	0.0	0	0.0	42.22	54.2	0.21	United States of America	Energy	1.003114606e+10
CITIC Securities Co Ltd	False	7692694355	0	0.0	0	0.0	65.25	71.06	0.02	China	Financials	3.175911008e+10
Sumitomo Mitsui Trust Holdings Inc	False	7048445346	0	0.0	0	0.0	90.5	63.79	0.0	Japan	Financials	1.564445876e+10
BOC Hong Kong Holdings Ltd	False	7700112475	0	0.0	0	0.0	82.47	73.13	0.01	Hong Kong	Financials	2.905593234e+10
Bank of Beijing Co Ltd	False	8703168986	0	0.0	0	0.0	47.55	45.5	0.01	China	Financials	1.503896107e+10
Bank of Nanjing Co Ltd	False	5834853216	0	0.0	0	0.0	34.35	59.98	0.01	China	Financials	1.314682788e+10
Bank of Ningbo Co Ltd	False	8036603125	0	0.0	0	0.0	45.37	30.89	0.01	China	Financials	1.82962438e+10

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Union Bank of India Ltd	False	5854526047	0	0.0	0	0.0	17.53	32.59	0.02	India	Financials	1.140779871e+10
Bank of Baroda Ltd	False	6579634027	0	0.0	0	0.0	47.48	48.96	0.02	India	Financials	1.422879488e+10
Canara Bank Ltd	False	6196185315	0	0.0	0	0.0	43.71	32.59	0.01	India	Financials	1.122590977e+10
Punjab National Bank	False	5581824354	0	0.0	0	0.0	31.86	15.69	0.01	India	Financials	1.423421446e+10
Absa Group Ltd	False	5074842434	0	0.0	0	0.0	62.44	64.78	0.02	South Africa	Financials	7097980123
Banco BPM SpA	False	5524935000	0	0.0	0	0.0	92.15	73.55	0.01	Italy	Financials	9385984808
Banco de Sabadell SA	False	6103000000	0	0.0	0	0.0	94.33	91.43	0.01	Spain	Financials	1.033550168e+10
Beazley PLC	False	5027494421	0	0.0	0	0.0	53.47	66.29	0.1	United King-dom	Financials	5243109434
Danske Bank A/S	False	7566439730	0	0.0	0	0.0	81.19	70.5	0.01	Denmark	Financials	2.372368298e+10
Dnb Bank ASA	False	7164574048	0	0.0	0	0.0	88.5	68.07	0.02	Norway	Financials	2.784827851e+10
Fubon Financial Holding Co Ltd	False	6476650010	0	0.0	0	0.0	73.77	85.5	0.01	Taiwan	Financials	3.650971484e+10
Investor AB	False	5250048144	0	0.0	0	0.0	70.02	72.82	0.16	Sweden	Financials	7.924520523e+10
FirstRand Ltd	False	6093336785	0	0.0	0	0.0	80.4	67.17	0.02	South Africa	Financials	2.259749681e+10
Malayan Banking Bhd	False	5855190742	0	0.0	0	0.0	78.71	87.22	0.01	Malaysia	Financials	2.380288981e+10
Deutsche Boerse AG	False	5570800000	0	0.0	0	0.0	65.3	73.13	0.01	Germany	Financials	3.636179019e+10

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Axis Bank Ltd	False	6149680041	0	0.0	0	0.0	59.59	78.1	0.02	India	Financials	4.470452344e+10
Hana Financial Group Inc	False	7948901194	0	0.0	0	0.0	70.2	86.53	0.01	Korea; Republic (S. Korea)	Financials	1.217730707e+10
Raiffeisen Bank International AG	False	8659000000	0	0.0	0	0.0	61.49	72.16	0.02	Austria	Financials	5715141126
SBI Holdings Inc	False	7499467609	0	0.0	0	0.0	46.86	26.83	0.01	Japan	Financials	7031974599
Hang Seng Bank Ltd	False	4798145596	0	0.0	0	0.0	89.89	71.17	0.01	Hong Kong	Financials	2.287489255e+10
Svenska Handelsbanken AB	False	5441266087	0	0.0	0	0.0	91.98	62.51	0.01	Sweden	Financials	1.792968018e+10
Skandinaviska Enskilda Banken AB	False	7084226269	0	0.0	0	0.0	87.0	69.31	0.01	Sweden	Financials	2.975065613e+10
Standard Bank Group Ltd	False	8644898532	0	0.0	0	0.0	88.59	66.51	0.02	South Africa	Financials	1.837691672e+10
Kasikornbank PCL	False	5062700354	0	0.0	0	0.0	61.53	73.5	0.01	Thailand	Financials	7705208268
Swedbank AB	False	6380529401	0	0.0	0	0.0	81.02	74.09	0.02	Sweden	Financials	2.179495727e+10
Bper Banca SpA	False	5531316000	0	0.0	0	0.0	78.29	70.84	0.01	Italy	Financials	7300892644
Hanover Insurance Group Inc	False	5519609265	0	0.0	0	0.0	61.86	58.43	0.0	United States of America	Financials	4174354579

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CME Group Inc	False	5226728272	0	0.0	0	0.0	20.12	62.16	0.03	United States of America	Financials	6.386127492e+10
M&T Bank Corp	False	8288861786	0	0.0	0	0.0	81.32	84.2	0.02	United States of America	Financials	2.374617146e+10
Franklin Resources Inc	False	5878150312	0	0.0	0	0.0	52.3	50.0	0.05	United States of America	Financials	1.119142242e+10
Intercontinental Exchange Inc	False	7788907970	0	0.0	0	0.0	55.21	69.47	0.02	United States of America	Financials	7.804903729e+10
KKR & Co Inc	False	6157536861	0	0.0	0	0.0	41.22	37.83	0.02	United States of America	Financials	9.010750499e+10
Jefferies Financial Group Inc	False	5375967463	0	0.0	0	0.0	60.42	63.33	0.01	United States of America	Financials	1.014456359e+10
National Bank of Canada	False	7453798180	0	0.0	0	0.0	83.3	65.79	0.01	Canada	Financials	2.602016297e+10
Northern Trust Corp	False	6227804233	0	0.0	0	0.0	73.53	71.18	0.01	United States of America	Financials	1.674859673e+10
Old Republic International Corp	False	7022982534	0	0.0	0	0.0	5.43	34.78	0.03	United States of America	Financials	7796599592

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American Financial Group Inc	False	6187518440	0	0.0	0	0.0	16.03	40.5	0.04	United States of America	Financials	9690955975
T Rowe Price Group Inc	False	6166702835	0	0.0	0	0.0	47.88	56.01	0.21	United States of America	Financials	2.416463985e+10
KeyCorp	False	5768359370	0	0.0	0	0.0	56.48	72.22	0.01	United States of America	Financials	1.314960843e+10
Globe Life Inc	False	5150692181	0	0.0	0	0.0	42.27	56.76	0.04	United States of America	Financials	7279402680
First American Financial Corp	False	5730370745	0	0.0	0	0.0	19.17	41.21	0.02	United States of America	Financials	5360248554
Voya Financial Inc	False	6805190420	0	0.0	0	0.0	47.44	61.81	0.0	United States of America	Financials	6635261725
Ally Financial Inc	False	7487503980	0	0.0	0	0.0	16.92	51.46	0.01	United States of America	Financials	1.195192104e+10
Citizens Financial Group Inc	False	7444562680	0	0.0	0	0.0	49.85	60.89	0.01	United States of America	Financials	1.593785985e+10
ABN Amro Bank NV	False	8672000000	0	0.0	0	0.0	88.61	67.74	0.01	Netherlands	Financials	8019506793
Bank of Shanghai Co Ltd	False	6472755720	0	0.0	0	0.0	57.93	60.93	0.01	China	Financials	1.317442232e+10

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Brighthouse Financial Inc	False	7754877870	0	0.0	0	0.0	43.94	64.19	-0.01	United States of America	Financials	2734820793
Oscar Health Inc	False	6056593013	0	0.0	0	0.0	5.0	35.92	-0.07	United States of America	Financials	3593388535
Nu Holdings Ltd	False	8428900104	0	0.0	0	0.0	16.84	56.48	0.04	Brazil	Financials	5.860211242e+10
Shanghai International Port Group Co Ltd	False	4973077495	0	0.0	0	0.0	31.22	35.99	0.08	China	Industrials	1.765040579e+10
Persol Holdings Co Ltd	False	8160632637	0	0.0	0	0.0	32.66	51.52	0.1	Japan	Industrials	3490189185
Zoomlion Heavy Industry Science and Technology Co Ltd	False	6191113234	0	0.0	0	0.0	66.71	52.55	0.0	China	Industrials	7580476730
China Tourism Group Duty Free Corp Ltd	False	8041528599	0	0.0	0	0.0	73.88	75.89	0.11	China	Industrials	1.746618884e+10
Embraer SA	False	5034594179	0	0.0	0	0.0	51.6	67.24	0.01	Brazil	Industrials	4994506045
Hanwha Ocean Co Ltd	False	5688316146	0	0.0	0	0.0	51.47	52.85	-0.01	Korea; Republic (S. Korea)	Industrials	6114422672

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China Airlines Ltd	False	5510073272	0	0.0	0	0.0	85.93	78.12	0.03	Taiwan	Industrials	4105816003
Dassault Aviation SA	False	4804891000	0	0.0	0	0.0	85.82	54.68	0.04	France	Industrials	1.336348626e+10
Evergreen Marine Corp Taiwan Ltd	False	8602438711	0	0.0	0	0.0	63.53	72.27	0.08	Taiwan	Industrials	1.053807114e+10
Fujikura Ltd	False	4923357577	0	0.0	0	0.0	43.92	58.91	0.09	Japan	Industrials	5680265145
HMM Co Ltd	False	6009828911	0	0.0	0	0.0	75.59	76.8	0.04	Korea; Republic (S. Korea)	Industrials	8310912456
Eva Airways Corp	False	5997022746	0	0.0	0	0.0	74.02	60.12	0.09	Taiwan	Industrials	5328159300
CJ Logistics Corp	False	8290868686	0	0.0	0	0.0	55.65	56.91	0.03	Korea; Republic (S. Korea)	Industrials	1403959570
Kawasaki Kisen Kaisha Ltd	False	5986769762	0	0.0	0	0.0	49.61	67.43	0.06	Japan	Industrials	9947951445
Metso Oyj	False	5361000000	0	0.0	0	0.0	81.05	68.04	0.1	Finland	Industrials	8320500246
Orient Overseas (International) Ltd	False	7681199878	0	0.0	0	0.0	78.86	62.82	0.08	Hong Kong	Industrials	8919133379
Rheinmetall AG	False	7395000000	0	0.0	0	0.0	84.86	84.09	0.08	Germany	Industrials	2.208810603e+10

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Rentokil Initial PLC	False	6277522204	0	0.0	0	0.0	76.2	78.53	0.04	United Kingdom	Industrials	1.386535118e+10
Secom Co Ltd	False	7124236760	0	0.0	0	0.0	64.19	41.61	0.08	Japan	Industrials	1.29159305e+10
Senko Group Holdings Co Ltd	False	4786723567	0	0.0	0	0.0	49.97	55.91	0.05	Japan	Industrials	1010335214
Hanwha AeroSpace Co Ltd	False	6311025600	0	0.0	0	0.0	90.92	74.87	0.07	Korea; Republic (S. Korea)	Industrials	8567214874
Teleperformance SE	False	8881000000	0	0.0	0	0.0	62.67	78.51	0.08	France	Industrials	6747183962
Wolters Kluwer NV	False	5584000000	0	0.0	0	0.0	61.36	66.99	0.14	Netherlands	Industrials	3.809047719e+10
MTU Aero Engines AG	False	6452000000	0	0.0	0	0.0	83.45	78.83	-0.02	Germany	Industrials	1.349133241e+10
Aeroports de Paris SA	False	5495000000	0	0.0	0	0.0	73.9	64.32	0.05	France	Industrials	1.18109121e+10
U-Haul Holding Co	False	5280109100	0	0.0	0	0.0	0.3	13.6	0.05	United States of America	Industrials	1.116098441e+10
Insperity Inc	False	6058914621	0	0.0	0	0.0	18.59	48.21	0.11	United States of America	Industrials	3188952174
Bombardier Inc	False	7313622650	0	0.0	0	0.0	83.87	63.83	0.03	Canada	Industrials	6494390355

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Broadridge Financial Solutions Inc	False	5925500577	0	0.0	0	0.0	64.98	65.57	0.1	United States of America	Industrials	2.226322453e+10
Robert Half Inc	False	5694663130	0	0.0	0	0.0	66.51	82.38	0.19	United States of America	Industrials	6121252833
Cintas Corp	False	8633438483	0	0.0	0	0.0	62.71	60.85	0.2	United States of America	Industrials	6.714872284e+10
Equifax Inc	False	4962342912	0	0.0	0	0.0	37.49	44.86	0.06	United States of America	Industrials	2.923907268e+10
Expeditors International of Washington Inc	False	8252424678	0	0.0	0	0.0	55.42	60.88	0.2	United States of America	Industrials	1.55279636e+10
Fastenal Co	False	6895087174	0	0.0	0	0.0	82.18	63.14	0.34	United States of America	Industrials	3.435507942e+10
Finning International Inc	False	6974236460	0	0.0	0	0.0	46.28	51.89	0.1	Canada	Industrials	3844701103
Global Payments Inc	False	8194503993	0	0.0	0	0.0	45.31	41.33	0.02	United States of America	Industrials	2.280780032e+10

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Knight-Swift Transportation Holdings Inc	False	6783816564	0	0.0	0	0.0	23.82	38.9	0.02	United States of America	Industrials	7391516395
Moody's Corp	False	5792484620	0	0.0	0	0.0	65.18	66.97	0.13	United States of America	Industrials	7.46710638e+10
Old Dominion Freight Line Inc	False	5457265258	0	0.0	0	0.0	35.53	35.47	0.32	United States of America	Industrials	3.789852169e+10
Paychex Inc	False	4916881443	0	0.0	0	0.0	69.07	60.04	0.21	United States of America	Industrials	3.906398123e+10
XPO Inc	False	7283735310	0	0.0	0	0.0	51.05	72.07	0.04	United States of America	Industrials	1.142936616e+10
TransDigm Group Inc	False	6773435410	0	0.0	0	0.0	23.14	46.48	0.09	United States of America	Industrials	6.374293736e+10
TFI International Inc	False	6991438104	0	0.0	0	0.0	11.2	27.83	0.11	Canada	Industrials	1.160601051e+10
Thomson Reuters Corp	False	6456231620	0	0.0	0	0.0	55.62	51.17	0.1	Canada	Industrials	6.812066553e+10
Watsco Inc	False	6794476515	0	0.0	0	0.0	4.51	29.18	0.22	United States of America	Industrials	2.047304986e+10

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Wallenius Wilhelm-sen ASA	False	4796980180	0	0.0	0	0.0	48.06	59.71	0.12	Norway	Industrials	3599614169
Spirit Airlines Inc	False	4902568394	0	0.0	0	0.0	11.26	40.41	-0.06	United States of America	Industrials	320292314
Kerry Logistics Net-work Ltd	False	5979559865	0	0.0	0	0.0	62.42	49.25	0.04	Hong Kong	Industrials	1547457066
Aena SME SA	False	5348434000	0	0.0	0	0.0	82.5	74.11	0.13	Spain	Industrials	2.887105618e+10
Interglobe Aviation Ltd	False	7671393312	0	0.0	0	0.0	27.95	46.22	0.11	India	Industrials	1.836587692e+10
Doosan Bobcat Inc	False	6768715809	0	0.0	0	0.0	69.11	57.87	0.13	Korea; Re-public (S. Korea)	Industrials	3653651999
Schneider National Inc	False	4994932693	0	0.0	0	0.0	29.98	41.83	0.07	United States of America	Industrials	3910455594
SG Holdings Co Ltd	False	8204203557	0	0.0	0	0.0	74.57	60.35	0.1	Japan	Industrials	5467068790
Epiroc AB	False	5256177970	0	0.0	0	0.0	83.63	87.31	0.19	Sweden	Industrials	2.236798951e+10
Parsons Corp	False	5409922386	0	0.0	0	0.0	64.75	55.04	0.06	United States of America	Industrials	7682647284

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APi Group Corp	False	6414149170	0	0.0	0	0.0	0.0	18.5	0.03	United States of America	Industrials	9547014458
GFL Environmental Inc	False	5132074895	0	0.0	0	0.0	79.39	68.73	0.01	Canada	Industrials	1.300043988e+10
ZTO Express (Cayman) Inc	False	4999149138	0	0.0	0	0.0	71.26	64.34	0.13	China	Industrials	1.527476755e+10
Concentrix Corp	False	8052787886	0	0.0	0	0.0	53.05	52.05	0.04	United States of America	Industrials	4192547195
Core & Main Inc	False	6353166970	0	0.0	0	0.0	5.67	18.28	0.13	United States of America	Industrials	9461563554
HD Hyundai Heavy Industries Co Ltd	False	8548457404	0	0.0	0	0.0	69.18	68.5	0.0	Korea; Republic (S. Korea)	Industrials	9338807982
Shenzhen Overseas Chinese Town Co Ltd	False	7368570992	0	0.0	0	0.0	36.17	39.71	-0.02	China	Real Estate	2081766157
Beijing Capital Development Co Ltd	False	6153299067	0	0.0	0	0.0	17.15	35.98	-0.02	China	Real Estate	697434526.7
Kaisa Group Holdings Ltd	False	8291984182	0	0.0	0	0.0	48.65	37.11	-0.08	China	Real Estate	102991647.6

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China Overseas Grand Oceans Group Ltd	False	7180553896	0	0.0	0	0.0	87.47	50.79	0.02	Hong Kong	Real Estate	794259884.8
Sumitomo Realty & Development Co Ltd	False	5964583340	0	0.0	0	0.0	85.74	61.97	0.04	Japan	Real Estate	1.3981296e+10
Prologis Inc	False	6478336565	0	0.0	0	0.0	72.09	72.2	0.04	United States of America	Real Estate	1.019994368e+11
Equinix Inc	False	7739588497	0	0.0	0	0.0	51.34	54.12	0.04	United States of America	Real Estate	7.003871781e+10
Welltower Inc	False	6449962472	0	0.0	0	0.0	84.19	80.74	0.01	United States of America	Real Estate	5.712736851e+10
Host Hotels & Resorts Inc	False	5019199530	0	0.0	0	0.0	95.32	85.05	0.06	United States of America	Real Estate	1.175293582e+10
Iron Mountain Inc	False	5237602885	0	0.0	0	0.0	83.11	75.97	0.01	United States of America	Real Estate	2.577357656e+10
Crown Castle Inc	False	6325603640	0	0.0	0	0.0	76.59	67.81	0.04	United States of America	Real Estate	4.125715518e+10
Anywhere Real Estate Inc	False	5217857610	0	0.0	0	0.0	26.98	48.26	-0.02	United States of America	Real Estate	403433081.4

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Tokyu Fudosan Holdings Corp	False	6800451267	0	0.0	0	0.0	71.66	77.23	0.04	Japan	Real Estate	4540855270
Iida Group Holdings Co Ltd	False	8832587506	0	0.0	0	0.0	48.07	37.21	0.03	Japan	Real Estate	3534150099
Micro-Star International Co Ltd	False	5392135609	0	0.0	0	0.0	59.77	59.42	0.1	Taiwan	Technology	4311042270
Wingtech Technology Co Ltd	False	8122730630	0	0.0	0	0.0	18.07	48.59	0.03	China	Technology	4632012921
Naver Corp	False	6911166236	0	0.0	0	0.0	44.31	78.51	0.04	Korea; Republic (S. Korea)	Technology	1.894978136e+10
Innolux Corp	False	6310124122	0	0.0	0	0.0	97.85	82.89	-0.04	Taiwan	Technology	4003753715
AUO Corp	False	7459593642	0	0.0	0	0.0	93.2	86.37	-0.06	Taiwan	Technology	4298788141
Telenor ASA	False	6986354192	0	0.0	0	0.0	48.78	67.53	0.0	Norway	Technology	1.441259861e+10
Acer Inc	False	7172729583	0	0.0	0	0.0	64.3	77.75	0.04	Taiwan	Technology	4109933489
Alps Alpine Co Ltd	False	6018304713	0	0.0	0	0.0	71.6	57.73	-0.02	Japan	Technology	1980269630
Qisda Corp	False	5781631640	0	0.0	0	0.0	61.7	61.36	0.03	Taiwan	Technology	2151738352
Advanced Info Service PCL	False	5064234834	0	0.0	0	0.0	59.7	75.03	0.09	Thailand	Technology	1.669987286e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Kakao Corp	False	5453440100	0	0.0	0	0.0	74.2	80.89	-0.07	Korea; Republic (S. Korea)	Technology	1.250600661e+10
Dassault Systemes SE	False	6016900000	0	0.0	0	0.0	76.45	65.04	0.09	France	Technology	4.597576355e+10
Semiconductor Manufacturing International Corp	False	6124670368	0	0.0	0	0.0	47.27	65.07	0.03	China	Technology	2.484606085e+10
Proximus NV	False	6060000000	0	0.0	0	0.0	72.01	68.0	0.04	Belgium	Technology	2589641376
SKNetworksCoLtd	False	6499223870	0	0.0	0	0.0	52.65	58.76	0.01	Korea; Republic (S. Korea)	Technology	696423649.5
Telia Company AB	False	7786290910	0	0.0	0	0.0	68.75	81.63	0.0	Sweden	Technology	9734670034
Taiwan Mobile Co Ltd	False	5441333630	0	0.0	0	0.0	79.83	87.22	0.08	Taiwan	Technology	1.063083138e+10
United Internet AG	False	6246459000	0	0.0	0	0.0	34.79	55.4	0.06	Germany	Technology	3997714777
United Microelectronics Corp	False	6488085523	0	0.0	0	0.0	72.12	78.7	0.13	Taiwan	Technology	1.877155753e+10
FIH Mobile Ltd	False	5882729524	0	0.0	0	0.0	54.3	62.22	-0.02	Taiwan	Technology	805617190.2

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Amkor Technology Inc	False	5947660223	0	0.0	0	0.0	32.12	43.73	0.07	United States of America	Technology	9507363813
CACI International Inc	False	6799961162	0	0.0	0	0.0	42.75	73.86	0.07	United States of America	Technology	8979726707
Constellation Software Inc	False	8182671480	0	0.0	0	0.0	12.37	25.04	0.03	Canada	Technology	5.911810731e+10
Electronic Arts Inc	False	6891208860	0	0.0	0	0.0	47.77	67.29	0.12	United States of America	Technology	3.549650264e+10
Fortinet Inc	False	5015673383	0	0.0	0	0.0	67.34	58.53	0.2	United States of America	Technology	4.171344571e+10
Gartner Inc	False	5537805451	0	0.0	0	0.0	47.71	75.21	0.15	United States of America	Technology	3.241472483e+10
Garmin Ltd	False	5077309584	0	0.0	0	0.0	51.99	64.39	0.15	Switzerland	Technology	2.972936355e+10
Marvell Technology Inc	False	4918626922	0	0.0	0	0.0	49.53	57.61	-0.03	United States of America	Technology	5.84079862e+10
NCR Voyix Corp	False	5398053710	0	0.0	0	0.0	60.9	60.98	-0.05	United States of America	Technology	1894802463
NetApp Inc	False	5766530780	0	0.0	0	0.0	53.24	65.24	0.13	United States of America	Technology	2.456383512e+10

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
ON Semiconductor Corp	False	7576671205	0	0.0	0	0.0	52.04	68.73	0.2	United States of America	Technology	3.032464047e+10
Open Text Corp	False	5465477334	0	0.0	0	0.0	73.69	76.76	0.02	Canada	Technology	7805132630
EchoStar Corp	False	8389119184	0	0.0	0	0.0	0.0	5.56	-0.06	United States of America	Technology	4879754680
Synopsys Inc	False	5694735412	0	0.0	0	0.0	72.73	63.79	0.13	United States of America	Technology	8.626692176e+10
SS&C Technologies Holdings Inc	False	5190874295	0	0.0	0	0.0	15.98	27.87	0.05	United States of America	Technology	1.481087983e+10
Take-Two Interactive Software Inc	False	4929241672	0	0.0	0	0.0	24.21	43.88	-0.26	United States of America	Technology	2.409870744e+10
Xerox Holdings Corp	False	6178365200	0	0.0	0	0.0	76.17	66.09	-0.0	United States of America	Technology	1217390758
Amadeus IT Group SA	False	5626100000	0	0.0	0	0.0	73.43	87.72	0.12	Spain	Technology	2.832861289e+10
Palo Alto Networks Inc	False	7186154108	0	0.0	0	0.0	50.27	45.53	0.04	United States of America	Technology	9.990750079e+10
ServiceNow Inc	False	8773499700	0	0.0	0	0.0	52.13	59.26	0.07	United States of America	Technology	1.425738583e+11

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Workday Inc	False	6962924481	0	0.0	0	0.0	65.0	49.71	0.02	United States of America	Technology	5.595315961e+10
Telefonica Deutschland Holding AG	False	8614000000	0	0.0	0	0.0	60.63	68.71	0.01	Germany	Technology	6425038785
Science Applications International Corp	False	6708262810	0	0.0	0	0.0	34.4	75.67	0.11	United States of America	Technology	5530881697
CommScope Holding Company Inc	False	5434059193	0	0.0	0	0.0	66.45	70.35	-0.07	United States of America	Technology	297803539.1
Lens Technology Co Ltd	False	7756524884	0	0.0	0	0.0	36.68	31.57	0.04	China	Technology	1.240911647e+10
Shopify Inc	False	6896969850	0	0.0	0	0.0	8.96	38.88	0.02	Canada	Technology	7.667617739e+10
Altice USA Inc	False	8562784711	0	0.0	0	0.0	0.0	16.56	0.0	United States of America	Technology	860375466.7
Wiwynn Corp	False	6861203738	0	0.0	0	0.0	57.57	75.38	0.17	Taiwan	Technology	1.206020997e+10
DoorDash Inc	False	8482887060	0	0.0	0	0.0	19.01	47.74	-0.05	United States of America	Technology	3.93693195e+10
AUTO1 Group SE	False	5411213000	0	0.0	0	0.0	30.73	38.25	-0.07	Germany	Technology	1500518572
Frontier Communications Parent Inc	False	5352065850	0	0.0	0	0.0	9.16	32.13	0.01	United States of America	Technology	6217242545

Company Name	Aligned Flag	Total Revenue	Aligned Revenue	Aligned Revenue Percent	Eligible Revenue	Eligible Revenue Percent	E Score	ESG Score	Pretax ROA	Country	TRBC Economic Sector Name	Market Cap
Energy of Minas Gerais Co	False	6902396637	0	0.0	0	0.0	96.32	71.97	0.13	Brazil	Utilities	5550340242
Neoenergia SA	False	8235394833	0	0.0	0	0.0	62.31	57.99	0.05	Brazil	Utilities	3936440734
Energisa SA	False	5359386560	0	0.0	0	0.0	45.75	46.77	0.06	Brazil	Utilities	4206353346
Equatorial Energia SA	False	7540421705	0	0.0	0	0.0	52.99	71.28	0.03	Brazil	Utilities	6642354600
CPFL Energia SA	False	7430421242	0	0.0	0	0.0	67.45	70.63	0.11	Brazil	Utilities	6576471192
AltaGas Ltd	False	8593204143	0	0.0	0	0.0	64.52	63.69	0.04	Canada	Utilities	6159983852
Fortis Inc	False	7740416012	0	0.0	0	0.0	68.46	79.2	0.03	Canada	Utilities	1.814088817e+10
Southwest Gas Holdings Inc	False	5004582245	0	0.0	0	0.0	37.04	49.93	0.02	United States of America	Utilities	4747293827
Hydro One Ltd	False	5400677011	0	0.0	0	0.0	52.09	62.86	0.04	Canada	Utilities	1.622846815e+10
Brookfield Renewable Corp	False	4808482260	0	0.0	0	0.0	56.38	59.92	0.01	United States of America	Utilities	5137808530

Data Set Content Analysis

Table 21: Company Data with Aligned and Non-Aligned Flags in Different Regions

Company Name	Aligned Flag	Total Revenue	Market Cap	Region
EDP Energias de Portugal SA	True	2.065076e+10	1.486196e+10	EU
A2A SpA	True	2.316600e+10	5.909768e+09	EU
Rexel SA	True	1.870160e+10	7.248380e+09	EU
Bureau Veritas SA	True	5.650600e+09	1.190747e+10	EU
Eni SpA	True	1.325120e+11	4.649653e+10	EU
Bechtle AG	False	6.835238e+09	5.146580e+09	EU
Technip Energies NV	False	6.129000e+09	4.233090e+09	EU
SKF AB	False	8.838545e+09	8.580526e+09	EU
Banco de Sabadell SA	False	6.103000e+09	1.033550e+10	EU
Peab AB	False	5.183491e+09	1.672489e+09	EU
Magellan Midstream Partners LP	True	2.990454e+09	0.000000e+00	Rest of the World
Genting Bhd	True	4.753484e+09	3.440656e+09	Rest of the World
Vistra Corp	True	1.460000e+10	2.961588e+10	Rest of the World
Anhui Conch Cement Co Ltd	True	1.788566e+10	1.571812e+10	Rest of the World
JSW Energy Ltd	True	9.724540e+08	1.397872e+10	Rest of the World
Constellation Software Inc	False	8.182671e+09	5.911811e+10	Rest of the World
Mitsubishi Corp	True	1.282516e+11	7.982524e+10	Rest of the World
Sumitomo Mitsui Trust Holdings Inc	False	7.048445e+09	1.564446e+10	Rest of the World
Micro-Star International Co Ltd	False	5.392136e+09	4.311042e+09	Rest of the World
ANTA Sports Products Ltd	False	7.933263e+09	2.533343e+10	Rest of the World

Table 22: Sustainability Report Links

Company Name	**Sustainability Report Link**
EDP Energias de Portugal SA	https://www.edp.com/en/2023-annual-integrated-report
A2A SpA	https://www.gruppoa2a.it/en/investors/financial-sustainability-documents
Rexel SA	https://www.rexel.com/en/finance/documentation/
Bureau Veritas SA	https://certification.bureauveritas.com/needs/assurance-sustainability-reports
Eni SpA	https://www.eni.com/en-IT/sustainability/performance/sustainability-balance-sheet.html
Bechtle AG	https://www.bechtle.com/dam/jcr:1f54b0ba-ccd4-4f6c-bb90-8cc768606c53/bechtle-short-report-sustainability-2023-en.pdf
Technip Energies NV	https://www.ten.com/sites/energies/files/2024-03/TEN-Sustainability-report-2023.pdf
SKF AB	https://investors.skf.com/en/sustainability-reports
Banco de Sabadell SA	https://www.grupbancsabadell.com/corp/en/sustainability/reports.html

Continued on next page

Company Name	Sustainability Report Link
Peab AB	https://www.peab.com/press/pressreleases/2024/april/peabs-annual-and-sustainability-report-2023-published
Magellan Midstream Partners LP	https://www.magellanlp.com/Sustainability/Default.aspx
Genting Bhd	https://www.gentingmalaysia.com/wp-content/uploads/2024/04/GENM-SR2023.pdf
Vistra Corp	https://vistracorp.com/documents/sustainability/reporting-year/2023/VST-sustainability-report-2023.pdf
Anhui Conch Cement Co Ltd	https://www1.hkexnews.hk/listedco/listconews/sehk/2023/0327/2023032701972.pdf
JSW Energy Ltd	https://www.jsw.in/groups/reports-jsw-energy
Constellation Software Inc	https://www.cbrands.com/pages/reports
Mitsubishi Corp	https://www.mitsubishielectric.com/en/sustainability/reports/pdf/2023/Sustainability_report_2023_all.pdf
Sumitomo Mitsui Trust Holdings Inc	https://www.smth.jp/english/-/media/th/english/sustainability/report/2022/full/all.pdf
Micro-Star International Co Ltd	https://storage-asset.msi.com/file/pdf/2023_msi_csr_eng.pdf

Continued on next page

Company Name	Sustainability Report Link
ANTA Sports Products Ltd	https://ir.anta.com/esg/en/esg_report.php

Code List for Content Analysis

Table 23: Data Set Content Analysis

Code	Topic	Category
clean	Environmental	-
environmental	Environmental	-
epa	Environmental	-
sustainability	Environmental	-
climate	Environmental	Climate Change
warming	Environmental	Climate Change
biofuel	Environmental	Climate Change
biofuels	Environmental	Climate Change
green	Environmental	Climate Change
renewable	Environmental	Climate Change
solar	Environmental	Climate Change
stewardship	Environmental	Climate Change
wind	Environmental	Climate Change
atmosphere	Environmental	Climate Change
emission	Environmental	Climate Change
emissions	Environmental	Climate Change
emit	Environmental	Climate Change
ghg	Environmental	Climate Change
ghgs	Environmental	Climate Change
greenhouse	Environmental	Climate Change

Code	Topic	Category
agriculture	Environmental	Ecosystem Service
deforestation	Environmental	Ecosystem Service
pesticide	Environmental	Ecosystem Service
pesticides	Environmental	Ecosystem Service
wetlands	Environmental	Ecosystem Service
zoning	Environmental	Ecosystem Service
biodiversity	Environmental	Ecosystem Service
species	Environmental	Ecosystem Service
wilderness	Environmental	Ecosystem Service
wildlife	Environmental	Ecosystem Service
freshwater	Environmental	Ecosystem Service
groundwater	Environmental	Ecosystem Service
water	Environmental	Ecosystem Service
cleaner	Environmental	Environmental Management
cleanup	Environmental	Environmental Management
coal	Environmental	Environmental Management
contamination	Environmental	Environmental Management
fossil	Environmental	Environmental Management
resource	Environmental	Environmental Management
air	Environmental	Environmental Management
carbon	Environmental	Environmental Management
nitrogen	Environmental	Environmental Management
pollution	Environmental	Environmental Management

Code	Topic	Category
superfund	Environmental	Environmental Management
biphenyls	Environmental	Environmental Management
hazardous	Environmental	Environmental Management
householding	Environmental	Environmental Management
pollutants	Environmental	Environmental Management
printing	Environmental	Environmental Management
recycle	Environmental	Environmental Management
recycling	Environmental	Environmental Management
toxic	Environmental	Environmental Management
waste	Environmental	Environmental Management
wastes	Environmental	Environmental Management
weee	Environmental	Environmental Management
climate change	Environmental (Addi-ton LMO 2022)	-
conservation	Environmental (Addi-ton LMO 2022)	-
environmentally	Environmental (Addi-ton LMO 2022)	-
footprint	Environmental (Addi-ton LMO 2022)	-
global warming	Environmental (Addi-ton LMO 2022)	-

Code	Topic	Category
pollutant	Environmental (Addi-ton LMO 2022)	-
recycled	Environmental (Addi-ton LMO 2022)	-
sustainable	Environmental (Addi-ton LMO 2022)	-
sustainably	Environmental (Addi-ton LMO 2022)	-
align	Governance	-
aligned	Governance	-
aligning	Governance	-
alignment	Governance	-
aligns	Governance	-
bylaw	Governance	-
bylaws	Governance	-
charter	Governance	-
charters	Governance	-
culture	Governance	-
death	Governance	-
duly	Governance	-
independent	Governance	-
parents	Governance	-
cobc	Governance	Business Ethics

Code	Topic	Category
ethic	Governance	Business Ethics
ethical	Governance	Business Ethics
ethically	Governance	Business Ethics
ethics	Governance	Business Ethics
honesty	Governance	Business Ethics
bribery	Governance	Business Ethics
corrupt	Governance	Business Ethics
corruption	Governance	Business Ethics
crimes	Governance	Business Ethics
embezzlement	Governance	Business Ethics
grassroots	Governance	Business Ethics
influence	Governance	Business Ethics
influences	Governance	Business Ethics
influencing	Governance	Business Ethics
lobbied	Governance	Business Ethics
lobbies	Governance	Business Ethics
lobby	Governance	Business Ethics
lobbying	Governance	Business Ethics
lobbyist	Governance	Business Ethics
lobbyists	Governance	Business Ethics
whistleblower	Governance	Business Ethics
compliance	Governance	Corporate Governance
conduct	Governance	Corporate Governance

Code	Topic	Category
conformity	Governance	Corporate Governance
governance	Governance	Corporate Governance
misconduct	Governance	Corporate Governance
parachute	Governance	Corporate Governance
parachutes	Governance	Corporate Governance
perquisites	Governance	Corporate Governance
plane	Governance	Corporate Governance
planes	Governance	Corporate Governance
poison	Governance	Corporate Governance
retirement	Governance	Corporate Governance
approval	Governance	Corporate Governance
approvals	Governance	Corporate Governance
approve	Governance	Corporate Governance
approved	Governance	Corporate Governance
approves	Governance	Corporate Governance
approving	Governance	Corporate Governance
assess	Governance	Corporate Governance
assessed	Governance	Corporate Governance
assesses	Governance	Corporate Governance
assessing	Governance	Corporate Governance
assessment	Governance	Corporate Governance
assessments	Governance	Corporate Governance
audit	Governance	Corporate Governance

Code	Topic	Category
audited	Governance	Corporate Governance
auditing	Governance	Corporate Governance
auditor	Governance	Corporate Governance
auditors	Governance	Corporate Governance
audits	Governance	Corporate Governance
control	Governance	Corporate Governance
controls	Governance	Corporate Governance
coso	Governance	Corporate Governance
detect	Governance	Corporate Governance
detected	Governance	Corporate Governance
detecting	Governance	Corporate Governance
detection	Governance	Corporate Governance
evaluate	Governance	Corporate Governance
evaluated	Governance	Corporate Governance
evaluates	Governance	Corporate Governance
evaluating	Governance	Corporate Governance
evaluation	Governance	Corporate Governance
evaluations	Governance	Corporate Governance
examination	Governance	Corporate Governance
examinations	Governance	Corporate Governance
examine	Governance	Corporate Governance
examined	Governance	Corporate Governance
examines	Governance	Corporate Governance

Code	Topic	Category
examining	Governance	Corporate Governance
irs	Governance	Corporate Governance
oversee	Governance	Corporate Governance
overseeing	Governance	Corporate Governance
oversees	Governance	Corporate Governance
oversight	Governance	Corporate Governance
review	Governance	Corporate Governance
reviewed	Governance	Corporate Governance
reviewing	Governance	Corporate Governance
reviews	Governance	Corporate Governance
rotation	Governance	Corporate Governance
test	Governance	Corporate Governance
tested	Governance	Corporate Governance
testing	Governance	Corporate Governance
tests	Governance	Corporate Governance
treadway	Governance	Corporate Governance
backgrounds	Governance	Corporate Governance
independence	Governance	Corporate Governance
leadership	Governance	Corporate Governance
nomination	Governance	Corporate Governance
nominations	Governance	Corporate Governance
nominee	Governance	Corporate Governance
nominees	Governance	Corporate Governance

Code	Topic	Category
perspectives	Governance	Corporate Governance
qualifications	Governance	Corporate Governance
refreshment	Governance	Corporate Governance
skill	Governance	Corporate Governance
skills	Governance	Corporate Governance
succession	Governance	Corporate Governance
tenure	Governance	Corporate Governance
vacancies	Governance	Corporate Governance
vacancy	Governance	Corporate Governance
appreciation	Governance	Corporate Governance
award	Governance	Corporate Governance
awarded	Governance	Corporate Governance
awarding	Governance	Corporate Governance
awards	Governance	Corporate Governance
bonus	Governance	Corporate Governance
bonuses	Governance	Corporate Governance
cd	Governance	Corporate Governance
compensate	Governance	Corporate Governance
compensated	Governance	Corporate Governance
compensates	Governance	Corporate Governance
compensating	Governance	Corporate Governance
compensation	Governance	Corporate Governance
eip	Governance	Corporate Governance

Code	Topic	Category
iso	Governance	Corporate Governance
isos	Governance	Corporate Governance
payout	Governance	Corporate Governance
payouts	Governance	Corporate Governance
pension	Governance	Corporate Governance
prsu	Governance	Corporate Governance
prsus	Governance	Corporate Governance
recoupment	Governance	Corporate Governance
remuneration	Governance	Corporate Governance
reward	Governance	Corporate Governance
rewarding	Governance	Corporate Governance
rewards	Governance	Corporate Governance
rsu	Governance	Corporate Governance
rsus	Governance	Corporate Governance
salaries	Governance	Corporate Governance
salary	Governance	Corporate Governance
severance	Governance	Corporate Governance
vest	Governance	Corporate Governance
vested	Governance	Corporate Governance
vesting	Governance	Corporate Governance
vests	Governance	Corporate Governance
ballot	Governance	Corporate Governance
ballots	Governance	Corporate Governance

Code	Topic	Category
cast	Governance	Corporate Governance
consent	Governance	Corporate Governance
elect	Governance	Corporate Governance
elected	Governance	Corporate Governance
electing	Governance	Corporate Governance
election	Governance	Corporate Governance
elections	Governance	Corporate Governance
elects	Governance	Corporate Governance
nominate	Governance	Corporate Governance
nominated	Governance	Corporate Governance
plurality	Governance	Corporate Governance
proponent	Governance	Corporate Governance
proponents	Governance	Corporate Governance
proposal	Governance	Corporate Governance
proposals	Governance	Corporate Governance
proxies	Governance	Corporate Governance
quorum	Governance	Corporate Governance
vote	Governance	Corporate Governance
voted	Governance	Corporate Governance
votes	Governance	Corporate Governance
voting	Governance	Corporate Governance
attract	Governance	Corporate Governance
attracting	Governance	Corporate Governance

Code	Topic	Category
attracts	Governance	Corporate Governance
incentive	Governance	Corporate Governance
incentives	Governance	Corporate Governance
interview	Governance	Corporate Governance
interviews	Governance	Corporate Governance
motivate	Governance	Corporate Governance
motivated	Governance	Corporate Governance
motivates	Governance	Corporate Governance
motivating	Governance	Corporate Governance
motivation	Governance	Corporate Governance
recruit	Governance	Corporate Governance
recruiting	Governance	Corporate Governance
recruitment	Governance	Corporate Governance
retain	Governance	Corporate Governance
retainer	Governance	Corporate Governance
retainers	Governance	Corporate Governance
retaining	Governance	Corporate Governance
retention	Governance	Corporate Governance
talent	Governance	Corporate Governance
talented	Governance	Corporate Governance
talents	Governance	Corporate Governance
brother	Governance	Corporate Governance
clicking	Governance	Corporate Governance

Code	Topic	Category
conflict	Governance	Corporate Governance
conflicts	Governance	Corporate Governance
family	Governance	Corporate Governance
grandchildren	Governance	Corporate Governance
grandparent	Governance	Corporate Governance
grandparents	Governance	Corporate Governance
inform	Governance	Corporate Governance
insider	Governance	Corporate Governance
insiders	Governance	Corporate Governance
inspector	Governance	Corporate Governance
inspectors	Governance	Corporate Governance
interlocks	Governance	Corporate Governance
nephews	Governance	Corporate Governance
nieces	Governance	Corporate Governance
posting	Governance	Corporate Governance
relatives	Governance	Corporate Governance
siblings	Governance	Corporate Governance
sister	Governance	Corporate Governance
son	Governance	Corporate Governance
spousal	Governance	Corporate Governance
spouse	Governance	Corporate Governance
spouses	Governance	Corporate Governance
stepchildren	Governance	Corporate Governance

Code	Topic	Category
stepparents	Governance	Corporate Governance
transparency	Governance	Corporate Governance
transparent	Governance	Corporate Governance
visit	Governance	Corporate Governance
visiting	Governance	Corporate Governance
visits	Governance	Corporate Governance
webpage	Governance	Corporate Governance
website	Governance	Corporate Governance
announce	Governance	Sustainability Management and Reporting
announced	Governance	Sustainability Management and Reporting
announcement	Governance	Sustainability Management and Reporting
announcements	Governance	Sustainability Management and Reporting
announces	Governance	Sustainability Management and Reporting
announcing	Governance	Sustainability Management and Reporting
communicate	Governance	Sustainability Management and Reporting

Code	Topic	Category
communicated	Governance	Sustainability Management and Reporting
communicates	Governance	Sustainability Management and Reporting
communicating	Governance	Sustainability Management and Reporting
erm	Governance	Sustainability Management and Reporting
fairly	Governance	Sustainability Management and Reporting
integrity	Governance	Sustainability Management and Reporting
liaison	Governance	Sustainability Management and Reporting
presentation	Governance	Sustainability Management and Reporting
presentations	Governance	Sustainability Management and Reporting
sustainable	Governance	Sustainability Management and Reporting
asc	Governance	Sustainability Management and Reporting

Code	Topic	Category
disclose	Governance	Sustainability Management and Reporting
disclosed	Governance	Sustainability Management and Reporting
discloses	Governance	Sustainability Management and Reporting
disclosing	Governance	Sustainability Management and Reporting
disclosure	Governance	Sustainability Management and Reporting
disclosures	Governance	Sustainability Management and Reporting
fasb	Governance	Sustainability Management and Reporting
gaap	Governance	Sustainability Management and Reporting
objectivity	Governance	Sustainability Management and Reporting
press	Governance	Sustainability Management and Reporting
sarbanes	Governance	Sustainability Management and Reporting

Code	Topic	Category
engagement	Governance	Sustainability Management and Reporting
engagements	Governance	Sustainability Management and Reporting
feedback	Governance	Sustainability Management and Reporting
hotline	Governance	Sustainability Management and Reporting
investor	Governance	Sustainability Management and Reporting
invite	Governance	Sustainability Management and Reporting
invited	Governance	Sustainability Management and Reporting
mail	Governance	Sustainability Management and Reporting
mailed	Governance	Sustainability Management and Reporting
mailing	Governance	Sustainability Management and Reporting
mailings	Governance	Sustainability Management and Reporting

Code	Topic	Category
notice	Governance	Sustainability Management and Reporting
relations	Governance	Sustainability Management and Reporting
stakeholder	Governance	Sustainability Management and Reporting
stakeholders	Governance	Sustainability Management and Reporting
compact	Governance	Sustainability Management and Reporting
ungc	Governance	Sustainability Management and Reporting
citizen	Social	-
citizens	Social	-
csr	Social	-
disabilities	Social	-
disability	Social	-
disabled	Social	-
human	Social	-
nations	Social	-
social	Social	-
un	Social	-
veteran	Social	-

Code	Topic	Category
veterans	Social	-
vulnerable	Social	-
dignity	Social	Human Rights
discriminate	Social	Human Rights
discriminated	Social	Human Rights
discriminating	Social	Human Rights
discrimination	Social	Human Rights
equality	Social	Human Rights
freedom	Social	Human Rights
humanity	Social	Human Rights
nondiscrimination	Social	Human Rights
sexual	Social	Human Rights
communities	Social	Human Rights
community	Social	Human Rights
expression	Social	Human Rights
marriage	Social	Human Rights
privacy	Social	Human Rights
peace	Social	Human Rights
bargaining	Social	Labor Standards
eeo	Social	Labor Standards
fairness	Social	Labor Standards
fla	Social	Labor Standards
harassment	Social	Labor Standards

Code	Topic	Category
injury	Social	Labor Standards
labor	Social	Labor Standards
overtime	Social	Labor Standards
ruggie	Social	Labor Standards
sick	Social	Labor Standards
wage	Social	Labor Standards
wages	Social	Labor Standards
workplace	Social	Labor Standards
bisexual	Social	Labor Standards
diversity	Social	Labor Standards
ethnic	Social	Labor Standards
ethnically	Social	Labor Standards
ethnicities	Social	Labor Standards
ethnicity	Social	Labor Standards
female	Social	Labor Standards
females	Social	Labor Standards
gay	Social	Labor Standards
gays	Social	Labor Standards
gender	Social	Labor Standards
genders	Social	Labor Standards
homosexual	Social	Labor Standards
immigration	Social	Labor Standards
lesbian	Social	Labor Standards

Code	Topic	Category
lesbians	Social	Labor Standards
lgbt	Social	Labor Standards
minorities	Social	Labor Standards
minority	Social	Labor Standards
ms	Social	Labor Standards
race	Social	Labor Standards
racial	Social	Labor Standards
religion	Social	Labor Standards
religious	Social	Labor Standards
sex	Social	Labor Standards
transgender	Social	Labor Standards
woman	Social	Labor Standards
women	Social	Labor Standards
occupational	Social	Labor Standards
safe	Social	Labor Standards
safely	Social	Labor Standards
safety	Social	Labor Standards
ilo	Social	Labor Standards
labour	Social	Labor Standards
eicc	Social	Labor Standards
children	Social	Public Health
epidemic	Social	Public Health
health	Social	Public Health

Code	Topic	Category
healthy	Social	Public Health
ill	Social	Public Health
illness	Social	Public Health
pandemic	Social	Public Health
childbirth	Social	Public Health
drug	Social	Public Health
medicaid	Social	Public Health
medicare	Social	Public Health
medicine	Social	Public Health
medicines	Social	Public Health
hiv	Social	Public Health
alcohol	Social	Public Health
drinking	Social	Public Health
bugs	Social	Public Health
conformance	Social	Public Health
defects	Social	Public Health
fda	Social	Public Health
inspection	Social	Public Health
inspections	Social	Public Health
minerals	Social	Public Health
standardization	Social	Public Health
warranty	Social	Public Health
endowment	Social	Society

Code	Topic	Category
endowments	Social	Society
people	Social	Society
philanthropic	Social	Society
philanthropy	Social	Society
socially	Social	Society
societal	Social	Society
society	Social	Society
welfare	Social	Society
charitable	Social	Society
charities	Social	Society
charity	Social	Society
donate	Social	Society
donated	Social	Society
donates	Social	Society
donating	Social	Society
donation	Social	Society
donations	Social	Society
donors	Social	Society
foundation	Social	Society
foundations	Social	Society
gift	Social	Society
gifts	Social	Society
nonprofit	Social	Society

Code	Topic	Category
poverty	Social	Society
courses	Social	Society
educate	Social	Society
educated	Social	Society
educates	Social	Society
educating	Social	Society
education	Social	Society
educational	Social	Society
learning	Social	Society
mentoring	Social	Society
scholarships	Social	Society
teach	Social	Society
teacher	Social	Society
teachers	Social	Society
teaching	Social	Society
training	Social	Society
employ	Social	Society
employment	Social	Society
headcount	Social	Society
hire	Social	Society
hired	Social	Society
hires	Social	Society
hiring	Social	Society

Code	Topic	Category
staffing	Social	Society
unemployment	Social	Society
EU Taxonomy	EU Taxonomy	
DNSH (Do No Significant Harm)	EU Taxonomy	
Climate change mitigation	EU Taxonomy	
Water sustainable use	EU Taxonomy	
Circular economy	EU Taxonomy	
Pollution prevention	EU Taxonomy	
Biodiversity protection	EU Taxonomy	
Ecosystem preservation	EU Taxonomy	
Carbon reduction	EU Taxonomy	
Renewable energy sources	EU Taxonomy	
Energy efficiency	EU Taxonomy	
Waste management	EU Taxonomy	
Resource recycling	EU Taxonomy	
Sustainable agriculture	EU Taxonomy	
Sustainable transport	EU Taxonomy	

Code	Topic	Category
Green building	EU Taxonomy	
Low-carbon technology	EU Taxonomy	
Environmental restoration	EU Taxonomy	
Non-toxic materials	EU Taxonomy	
Green infrastructure	EU Taxonomy	
Sustainable water management	EU Taxonomy	
Habitat restoration	EU Taxonomy	
Clean transportation	EU Taxonomy	
Renewable power	EU Taxonomy	
Sustainable product innovation	EU Taxonomy	