Greenwashing: Analysing the Discrepancy Between Environmental Rhetoric and Corporate Practices

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ABSTRACT

Amid the global spotlight on environmental, social, and governance (ESG) practices, companies are increasingly challenged to align their sustainability initiatives with tangible results and transparent communication. This paper examines the extent to which the marketing language used in corporate reports aligns with the documented substantive environmental initiatives. The study analyses data from twenty-four major food and beverage companies, exploring the extent to which these firms fulfil their plastic pledges and the potential impact on their ESG risk ratings. Findings reveal that while companies are progressing toward their green goals, many fall short of achieving at least 30% of their intended initiatives. With only 20% of companies attaining this benchmark, the paper delves into the fine line between sustainability adaptation and greenwashing. The findings highlight the important alignment of marketing claims with real-world actions, and the adoption of multifaceted approaches to assess corporate sustainability in the pursuit of a more sustainable future for businesses and the environment.

Keywords: *ESG practices, ESG risk ratings, Food and beverages companies, Greenwashing*

INTRODUCTION

Following the 2015 signing of the Paris Agreement, businesses have actively worked to reduce their carbon emissions. This presents them with a strategic decision, that is to actively engage in a well-planned global transition or face the potential consequences of a more chaotic and disruptive transformation (World Economic Forum, 2022a). The Paris Agreement has urged

governments to craft policies and implement measures to enhance regulatory supervision of carbon-intensive economic activities. These initiatives aim to align national actions with the agreement's defined objectives (Xu, Li, & Xu, 2023).

As governments devise policies and incentives to promote eco-friendly practices among businesses, it has opened up new avenues for companies to capitalize on. Firms are already reaping rewards by providing eco-conscious products and services. This rapidly growing market for sustainable offerings has surged past the significant milestone of $100 billion (de Freitas Netto, Sobral, Ribeiro, & Soares, 2020). According to Shook, Lacy, Monck, & Dutton (2022), firms that exhibit a high degree of innovation along with "sustainability and trust" do better than their counterparts in the industry by generating 3.1% higher operating profits and larger returns for investors. Firms that thrive on innovation alone experience very little change in their operational performance.

Furthermore, the prevailing global societal sentiment towards sustainability and the mounting concerns surrounding climate change have fostered a discernible shift in consumer preferences and behaviours (Jakubczak & Gotowska, 2020). Consumers globally are more aware of the relationship between their lifestyles, health, and the environmental impact of the products they use. This increased consciousness has resulted in a surge in demand for eco-friendlier products and services, reflecting widespread support for sustainability principles worldwide (de Freitas Netto et al., 2020; KPMG International, 2023).

The merging of individual lifestyles and technology is progressively blending together, aiming to create greener and sustainable urban environments. This integration is made possible by the thoughtful implementation of technological solutions (International Organisation of Employers, 2015; Pearl-Martinez & Gore, 2016).

In response to the prevailing shift in market sentiments toward sustainability, enterprises find themselves impelled to distinguish their offerings from those of their competitors through the implementation of sustainability initiatives (de Freitas Netto et al., 2020; Li, Li, Seppänen, & Koivumäki, 2023; Sensharma, Sinha, & Sharma, 2022). Businesses are earnestly striving to lead the charge in ecological sustainability. Meanwhile, consumers, showing a growing inclination towards environmental awareness, are increasingly willing to allocate more resources to support environmental causes and mitigate the impacts of climate change (Du, 2015; Jakubczak & Gotowska, 2020; Schaper & Wong, 2022). Therefore, this amalgamation of elements has led to the emergence of a new trend often known as "greenwashing."

‘Greenwashing’ is formally defined as the deliberate dissemination of deceptive information, strategically employed by businesses to persuade consumers of the organisation's profound commitment to environmental and social responsibility (EDHEC, 2022; Jakubczak & Gotowska, 2020; KPMG International, 2023). Specifically, greenwashing involves the practice of conveying

misleading information to consumers regarding a company's environmental practices or the environmental benefits associated with a product or service. It serves as a conduit for concealing any form of communication that leads individuals to embrace overly sanguine perceptions of an organisation's environmental performance, practices, or product attributes (Aggarwal & Kadyan, 2014; Torelli, Balluchi, & Lazzini, 2020).

The term 'greenwashing' was originally coined by Jay Westerveld in 1986, following a notable incident in the hotel industry known as the "Save the towel" campaign (de Freitas Netto et al., 2020). This campaign involved hotels placing notices in guest rooms, urging patrons to reuse towels as a measure to ostensibly protect the environment. However, the underlying motive was to realise cost savings in laundry operations (Rai, 2021). In essence, greenwashing pertains to the dissemination of incomplete or fabricated information, strategically orchestrated to enhance an organisation's public image (Jakubczak & Gotowska, 2020; Rai, 2021).

As the field of green marketing garners increasing prominence, numerous enterprises have resorted to the practice of greenwashing as a means to reduce operational costs (Butt, Khan, Zakir, Rana, & Laila, 2021; Jakubczak & Gotowska, 2020; Schaper & Wong, 2022). This is despite the escalating societal pressure for corporate entities to act in a responsible manner toward environmental preservation. Nevertheless, it is essential to acknowledge that embracing environmentally conscientious practices often necessitates a higher financial outlay, which, in turn, may encumber a firm's primary objective of profit maximisation. A study conducted by Li et al. (2023) has highlighted that involvement in environmental initiatives may increase operational expenses, potentially causing unfavourable abnormal returns for businesses. As a result, greenwashing has become a part of corporate strategies, allowing companies to maintain profitability while also promoting sustainability to meet the growing demand for environmentally friendly products in the market (Aggarwal & Kadyan, 2014; EDHEC, 2022; Li et al., 2023).

It is important to highlight that greenwashing can serve as an effective strategy to balance shareholders' financial expectations with the environmental responsibilities imposed on businesses. However, the widespread nature of this practice poses challenges in terms of measurement. Notably, the European Commission has identified that over 40% of seemingly dubious green assertions found on corporate websites are either misleading or factually inaccurate (Schaper & Wong, 2022).

Moreover, greenwashing is already widespread among numerous businesses across various Southeast Asian regions. This trend poses a tangible risk to the genuine emergence of environmentally responsible enterprises (Chua, Thien, Lim, Tan, & Guan, 2020; Schaper & Wong, 2022). Hence, the present study aims to investigate the marketing language employed by firms and compare it with the substantive environmental initiatives they have undertaken, thereby shedding light on the alignment between rhetoric and practice in the context of green marketing strategies.

This study's importance lies in addressing the urgent matter of greenwashing, focusing on the genuineness and transparency of corporate sustainability practices. By scrutinising the congruence between the marketing language employed in corporate reports and the substantive environmental initiatives undertaken by companies, this study contributes to a deeper understanding of the integrity of green marketing strategies.

Secondly, this study holds significant relevance in the contemporary business landscape where sustainability is a cornerstone of corporate strategies. As companies increasingly emphasise their environmental commitment, it becomes imperative to assess the actual progress made in achieving green initiative goals. Understanding the extent to which companies have realised their environmental objectives in line with their reported targets is crucial for stakeholders, including investors, consumers, and policymakers.

The structure of this paper is outlined as follows. The subsequent section offers an ESG concept overview, encompassing prior literature reviews, theories, and the development of the theoretical framework and hypotheses. This is succeeded by an elaboration of the research methodology, including the sampling design and variable definitions. Following that, the descriptive and regression analysis findings are presented and discussed. Lastly, the concluding section incorporates study limitations and recommendations for future research.

LITERATURE REVIEW

The majority of sustainability literature cites the 1987 Brundtland Report from the World Commission on Environment and Development, also known as Our Common Future, as the primary driving force behind the sustainability movement (Collins, Roper, & Lawrence, 2010). Following that, the Paris Agreement's ratification in 2015, more businesses have adopted green marketing and corporate sustainability initiatives, influenced by external factors like government regulations, regulatory agencies, consumer demands, and competitive pressure (Aggarwal & Kadyan, 2014; The United Nations' High-Level Expert Group, 2022; World Economic Forum, 2022a). This proactive stance reflects a concerted effort to address the challenges posed by climate change and global warming. Consequently, firms are consistently endeavouring to present themselves as conscientious environmental stewards through diverse modalities of marketing communication, all aimed at securing a competitive edge over others (World Economic Forum, 2022a). Simultaneously, such endeavours serve to mitigate the risk of incurring penalties from regulatory authorities in the event of non-compliance with established environmental benchmarks (Butt et al., 2021).

The global ecological transformation has engendered conspicuous shifts in consumer preferences, behavioural dynamics, value systems, and decision-making processes. This transformation has been primarily catalysed by the widespread embrace of environmentally-conscious lifestyles (de

Jong, Huluba, & Beldad, 2020). The unceasing surge in demand for eco-friendly products imposes sustained imperatives upon organisations to cultivate an image of environmental responsibility (Butt et al., 2021). This demand arises from the growing consciousness of environmental concerns and the preference for sustainable practices in consumer decisions. Organisations are under pressure to embrace eco-friendly initiatives, including the utilisation of renewable energy, waste reduction, and the advocacy of sustainable manufacturing methods. This is due to the need in meeting consumer demands for environmentally friendly products and practices.

In accordance with stakeholder theory, diverse external advocacy groups exert their influence on an organisation's strategic orientation (Schaltegger, Hörisch, & Freeman, 2019). The adoption of environmentally sustainable production strategies is fundamentally driven by consumer demand. Beyond consumers, various other external forces impel firms to embrace ecologically responsible practices (Butt et al., 2021; Gupta, 2022). Many research investigations have identified the imperatives of addressing challenges related to climate change and global warming as compelling motivations for the adoption of eco-friendly practices (Butt et al., 2021; de Jong et al., 2020; Torelli et al., 2020).

Further, stakeholder theory plays a significant role in sustainability management, emphasising the consideration of various stakeholders beyond shareholders in business decision-making. It highlights the importance for firms to engage and balance the interests of customers, employees, communities, suppliers, and others impacted by a company's actions (Herold, 2018). Accordingly, in sustainability management, this theory drives firms to address environmental, social, and governance concerns holistically, ensuring that their practices align with the broader interests of stakeholders while maintaining long-term viability (Hörisch, Freeman, & Schaltegger, 2014).

Additionally, the concept of legitimacy theory is often utilised to explain greenwashing (Berrone, Fosfuri, & Gelabert, 2017; Guo, Tao, Li, & Wang, 2017). In this context, greenwashing occurs when firms engage in deceptive or misleading practices, presenting themselves as more environmentally friendly than they truly are to gain public approval or meet societal expectations without implementing substantive changes in their operations (Zhang, Ahmed, Wang, & Gu, 2023). Legitimacy theory suggests that organisations may resort to such actions to maintain or enhance their perceived legitimacy in the eyes of stakeholders.

As firms aim to build robust relationships, they actively seek legitimacy through disclosure, often strategizing to shape stakeholder perception (Testa, Boiral, & Iraldo, 2018). Research consistently shows that a company's disclosure of its social and environmental responsibilities significantly impacts stakeholders (Walker & Wan, 2012). These disclosures not only serve as a medium for establishing trust but also pave the way for fostering a positive corporate image, thereby influencing stakeholders' attitudes and decisions towards the firm (Michaels & Grüning, 2018). This level of transparency lead to trust among various stakeholders, encompassing investors,

customers, employees, and the community, resulting in an improved reputation and increased engagement from stakeholders.

Green Marketing and Green Consumerism

Green marketing is a conceptual and strategic framework employed by enterprises to communicate their environmentally responsible initiatives, signifying a genuine commitment to ecological concerns (Esa, Abdul Rahman, Ahmad & Haron, 2023). It is an all-encompassing marketing paradigm, serves as a vehicle through which organisations proactively convey their eco-friendly product attributes and overall corporate commitment to environmental preservation (Gupta, 2022). This encompassing approach entails substantial innovation and adaptation within product conceptualisation, production processes, packaging methods, and promotional endeavours. In essence, green marketing represents a strategic instrument wielded by enterprises to vie for competitive advantage within the global marketplace (Aggarwal & Kadyan, 2014).

Conversely, green consumerism denotes a discernible pattern of consumer conduct oriented toward the preservation of consumptive opportunities for succeeding generations (Jakubczak & Gotowska, 2020). This behavioural inclination is marked by the avoidance of products that pose health risks to consumers and their environments, as well as those products that engender environmental harm across various phases, encompassing production, utilization, and post-consumption (Gupta, 2022; Jakubczak & Gotowska, 2020). Furthermore, green consumerism is characterized by a conscientious approach to resource utilisation, with a focus on mitigating unwarranted resource depletion, exemplified by instances of gratuitous waste stemming from excessive packaging, superfluous features, or excessively abbreviated product shelf-life (Gupta, 2022). This conscientious approach mirrors the increasing trend of consumers seeking eco-friendly products. Besides, it also encourages companies to adopt sustainable strategies to align with the evolving consumer preferences.

Why is Greenwashing a Concern?

In response to various external pressures, a considerable number of enterprises resort to the practice of greenwashing. Defined by The Oxford English Dictionary as the dissemination of deceptive information by an organisation with the intent of cultivating a false public perception of environmental conscientiousness, greenwashing involves the creation of misleading environmental communications, ultimately masking illicit activities concealed beneath the veneer of purportedly eco-friendly initiatives (EDHEC, 2022).

Another salient concern pertains to the selective disclosure of information to stakeholders. This practice involves the dissemination of misleading data to foster the erroneous belief among consumers that their products possess superior environmental attributes (de Jong et al., 2020; Gupta, 2022). Consequently, it engenders heightened levels of consumer scepticism, dissuading

them from purchasing such goods. Furthermore, it perpetuates the occurrence of substantial environmental harm under the guise of "green marketing" (Du, 2015; Gupta, 2022; Sensharma et al., 2022). This misleading practice underscores the significance of transparency, accountability, and sincere dedication to sustainable practices in green marketing endeavours. Such measures are crucial for avoiding the deception of consumers and minimising adverse environmental effects.

Moreover, the phenomenon of greenwashing diminishes consumer power and undermines the judicious allocation of consumer expenditures (Gupta, 2022). Although consumers are often willing to pay a premium for products aligned with their environmental values, they are averse to being exploited by expending their resources on deceptive assertions that yield no tangible environmental benefits (Du, 2015). The inherent challenge lies in the consumers' limited ability to readily substantiate a company's proclamations regarding the environmental attributes of its products, even post-consumption. This inherent opacity significantly favours companies making such claims, engendering considerable confusion among consumers and eroding trust in products labelled as green, as well as in companies purporting to adhere to environmental standards (Li et al., 2023; Rai, 2021).

In the realm of green marketing, a common occurrence of greenwashing arises when companies release environmental policy statements. These statements often employ sweeping and ambitious language, asserting the company's commitment to environmental preservation (Vos, 2009). The term ‘eco-friendly’ has emerged as a ubiquitous catchphrase in contemporary global marketing strategies. With that, consumers are seen to express the desire to purchase environmentally friendly products and services which results in a growing frequency in written marketing, electronic media and digital media that contains environmental claims (OECD, 2011).

Green marketing, a subject of increasing significance, has garnered substantial interest from both marketing practitioners and consumers alike. Given that a meticulously devised green marketing strategy possesses the capacity to establish credibility with customers and serve as a catalyst for revenue expansion, it warrants further in-depth examination. It is essential to underscore that the scope of green marketing extends beyond a company's promotional claims (Shil, 2012).

In the contemporary business landscape, there is an emerging trend of environmentally conscious corporations, with an increasing number of companies promoting their environmentally friendly stances. For instance, Ford Motor Company has prominently featured in television advertisements, pledging a substantial intensification of its commitment to environmentally safer vehicles, notably gasoline-electric hybrids. However, it is imperative to acknowledge that such rhetoric often presents a partial narrative of the corporate landscape (Furlow, 2013; Vos, 2009). In retrospect, Ford's history reveals instances such as the decision in 2003, wherein the company renounced its prior commitment to enhance the average fuel efficiency of its sport utility vehicle fleet. This historical context underscores the complexity of corporate environmental claims (Vos, 2009).

Environmental policy statements, typically devoid of specific implementation details, frequently serve as vehicles for generating favourable publicity without mandating substantive operational alterations. The absence of precise commitments within these statements does not tether the corporation to any quantifiable benchmarks that could be employed to gauge its progression toward the declared objectives (OECD, 2011; Vos, 2009). The absence of precise details can hinder accountability, transparency, and the assessment of corporate initiatives' effectiveness in reaching their intended goals.

ABC Model

The ABC model, when applied to a company's attitude toward greenwashing and green consumerism, provides a framework to understand and analyse how organisations respond to environmental concerns and consumer behaviours (Lindström & Liu, 2020).

The ABC model, adapted from Stern et al. (1999) typically involves three components which are Affective, Behavioural, and Cognitive. These elements assess the emotional impact (Affective), the intended actions or behaviours (Behavioural), and the level of understanding or knowledge (Cognitive) that green advertisements aim to evoke or influence in their audience. This model helps evaluate the effectiveness of eco-friendly ads in terms of eliciting emotional responses, driving desired actions, and enhancing understanding or awareness of environmental issues among viewers or consumers.

In the context of a company's attitude, ‘Affective’ (A) refers to the emotional and ethical aspects related to environmental responsibility. This component involves the company's values, beliefs, and emotional connection to sustainability and corporate responsibility. A positive ‘Affective’ indicates a company's genuine commitment to environmental sustainability and a strong ethical stance against greenwashing (Ertz, Karakas, & Sarigöllü, 2016; Mudassir, Balasubramanian, & Safiuddin, 2022). Hence, companies with a positive ‘Affective’ are genuinely committed to environmental sustainability, which can lead to more responsible behaviour and communication (Ogiemwonyi & Harun, 2020). Through their emphasis on environmental sustainability, these companies exhibit a sincere commitment to eco-friendly practices, influencing their conduct, communication approaches, and overall corporate culture towards greater responsibility and sustainability.

The ‘Behaviour’ (B) component represents the actions and strategies a company takes in response to consumer expectations and environmental issues. Positive ‘Behaviour’ implies that the company is actively engaged in environmentally responsible practices, avoids greenwashing, and takes actions to address consumer concerns regarding green consumerism (Al-sharouf & Naesae, 2022). With a positive "Behaviour”, the company reflects commitment and genuineness to sustainability practices, which can lead to improved brand reputation and consumer trust (Ertz et al., 2016; Mudassir et al., 2022).

'Cognition' (C) relates to the knowledge and understanding a company possesses about greenwashing, green consumerism, and environmental issues. Companies with a strong 'Cognition' component are well-informed about the importance of transparent communication, the consequences of greenwashing, and the motivations behind green consumerism (Lindström & Liu, 2020). Strong 'Cognition' helps companies make informed decisions and avoid the pitfalls of greenwashing, ensuring that their actions align with their stated values and that their messaging is transparent and accurate (Leung, Guan, & Lau, 2023).

In short, the ABC model with a company's attitude toward greenwashing and green consumerism serves as a framework for understanding how firms navigate the complex landscape of environmental responsibility, consumer expectations, and ethical marketing. It underscores the interconnectedness of attitudes, behaviours, and cognitive within the context of environmental sustainability, ultimately shaping a company's approach to greenwashing and its engagement with green consumerism (Demdoum et al., 2021; Leung et al., 2023). By grasping the connections among these elements, companies can apply their strategies to counter greenwashing, develop authentic environmental initiatives, and interact successfully with environmentally aware consumers. The comprehensive perspective offered by the ABC model assists companies in navigating the complication of sustainability, consumer viewpoints, and ethical conduct within the realm of environmental responsibility.

The Environmental, Social and Governance Framework (ESG)

The ESG framework, which stands for Environmental, Social, and Governance, is a set of criteria that investors, stakeholders, and businesses use to evaluate a company's sustainability and ethical practices (World Business Council for & Sustainable Development, 2019).

Environmental (E) factors evaluate a company's environmental impact and practices. It involves assessing a company's efforts to reduce its carbon footprint, manage waste and resources responsibly, and minimize any adverse environmental effects associated with its operations. This includes a company's environmental practices which focuses on a company's environmental impact. It encompasses initiatives related to reducing carbon emissions, energy efficiency, waste reduction, resource conservation, and sustainable sourcing. Companies are expected to disclose their environmental performance and progress towards sustainability goals. Thus, transparency and accountability in this area are crucial (Gaussel & Le Saint, 2020; World Business Council for & Sustainable Development, 2019).

Social (S) factors in ESG pertain to how a company manages relationships with its employees, customers, suppliers, and local communities. It also covers aspects related to human rights, diversity and inclusion, labour practices, and product safety. This includes workplace practices such as a company's treatment of employees, diversity and inclusion efforts, labour practices, and safety (Lindström & Liu, 2020; Xu et al., 2023). Sustainable companies prioritize fair labour

practices, employee well-being, and fostering a diverse and inclusive workforce. Besides that, companies are assessed on their engagement with local communities, philanthropic activities, and initiatives to promote social welfare. Social factors also include product safety, quality, and customer satisfaction. Sustainable companies ensure that their products meet high ethical and safety standards (Torres, Ripa, Jain, Herrero & Leka, 2023). Hence, it is measured by employee satisfaction and well-being, diversity and inclusion initiatives, labour practices, community engagement, and product safety and quality (Xu et al., 2023).

Governance (G) factors evaluates how a company is managed and governed. It focuses on the company's leadership, board structure, financial transparency, compliance with laws and regulations, and ethical conduct (Global Systematic Investors, 2021; World Business Council for & Sustainable Development, 2019). Governance aspects address the company's leadership and board structure. Sustainable companies have ethical leadership, maintain a diverse and independent board, and adhere to strong governance principles. Which means, transparent financial reporting, compliance with regulatory requirements, and accountability mechanisms are all important to boost this aspect. Sustainable companies prioritize honesty and openness in their governance practices. Companies are also assessed for their commitment to anti-corruption measures, ethical business conduct, and policies that prevent conflicts of interest (Global Systematic Investors, 2021).

Hence, the ESG framework is an integral part of sustainability practices in a company. By considering environmental, social, and governance factors, businesses can not only contribute to a more sustainable world but also strengthen their own performance, reputation, and resilience in an increasingly conscientious and competitive business environment.

ESG Risk Rating

ESG Risk Ratings is a derivative from the ESG rating, which gauge the extent to which a company's financial stability is susceptible to ESG-related factors, or, in more technical terms, the extent of ESG risks that a company has not adequately addressed (Gaussel & Le Saint, 2020). Each ESG Risk Rating consists of two components: a quantitative score and a risk category. The quantitative score quantifies the magnitude of unaddressed ESG risk, with lower scores indicating a lower level of unmanaged risk. Unaddressed risk is assessed on an unbounded scale, commencing at zero (indicating no risk) and, for 95% of cases, reaching a maximum score below 50. This method of rating was introduced by Sustainalytics (Sustainalytics, 2019).

Based on their quantitative scores, companies are classified into one of twenty-four risk categories, namely negligible, low, medium, high, and severe. These risk categories are universal, meaning that a 'high risk' classification signifies a comparable degree of unmanaged ESG risk across all the subindustries examined. Therefore, it enables a direct comparison between different types of

companies, such as a bank and an oil company, to assess their relative exposure to unaddressed ESG risk (Sepulveda, 2021).

The ESG Risk Ratings consist of three fundamental elements that collectively influence a company's overall rating. These elements encompass Corporate Governance, significant ESG matters referred to as Material ESG issues (MEIs), and unforeseeable ESG concerns identified as idiosyncratic ESG issues (Sustainalytics, 2019, 2021).

Corporate Governance constitutes a foundational component in the ESG Risk Ratings. It underscores our belief that suboptimal corporate governance presents notable risks for companies. This criterion applies uniformly across all companies in our rating universe, irrespective of their specific subindustry. Exposure to corporate governance risks is relatively consistent across the board, with only Category 4 or 5 events leading to adjustments in a company's exposure score (Gaussel & Le Saint, 2020; Global Systematic Investors, 2021; Sepulveda, 2021). On average, unmanaged corporate governance risk contributes approximately 20% to a company's overall unmanaged risk score. The precise weight may vary based on the individual selection of material ESG issues tailored for that company (Gaussel & Le Saint, 2020).

Material ESG issues pertain to specific subjects or groups of related topics that necessitate a common set of management strategies or a similar form of oversight. For instance, the material ESG issue of human capital encompasses diverse themes related to employee recruitment, development, diversity, engagement, and labour relations, as they all involve human resources initiatives and oversight. The common thread among these human capital topics is the attraction and retention of qualified employees (Sustainalytics, 2021).

Conversely, occupational health and safety, while also employee-centric, centres on ensuring the well-being and safety of employees in their workplace. The associated business risks differ from general human capital risks and are managed through distinct activities. Material ESG issues are evaluated at the subindustry level and are subjected to an annual, comprehensive, and structured review process. At the company level, these issues can be omitted from the rating if they are not pertinent to the company's business model (World Economic Forum, 2022b).

The material ESG issues component, based on the premise that ESG issues can influence a company's economic value within a given subindustry in a reasonably predictable manner. The Sustainalytics rating is forward-looking, identifying these issues based on the typical business model and environment in which a company operates. Nonetheless, some issues may emerge as significant or material unexpectedly. These unforeseeable issues are categorized as 'Idiosyncratic Issues,' forming the third building block of the ESG risk ratings (Sustainalytics, 2019).

Idiosyncratic Issues are characterised by their unpredictability and lack of specific association with a particular subindustry or business model. For example, accounting scandals are not inherently

more predictable in certain industries than in others; they can potentially occur in any company across various sectors (Sepulveda, 2021). Therefore, they deviate from the logic used to capture subindustry-specific Material ESG issues. Such issues are often event-driven and can be likened to 'black swan' events. Idiosyncratic Issues are considered material ESG concerns if their associated event assessments surpass a significance threshold, typically set at a Category 4 or 5 level (Sustainalytics, 2021). Importantly, idiosyncratic issues are deemed material only for the specific company in question, rather than for the entire subindustry to which the company belongs. This distinction sets them apart from the second building block of risk ratings, the material ESG issues (Sustainalytics, 2020).

RESEARCH METHODOLOGY

This section outlines the data collection process, the criteria used for company selection, and the methods for gathering information about pledges and goals related to plastic packaging. The selection process involved the compilation of a list of twenty-four food and beverage companies headquartered in Europe with reference from the Fooddrink Europe data and trends in 2020 (Fooddrink Europe, 2020).

The selection is based on convenience sampling. Convenience sampling known as a type of nonprobability or non-random selection that involves selecting a portion of the target population who meet particular useful criteria (Obilor, 2023). European food and beverage companies were chosen based on their ESG ratings based on their sustainability performance and level of transparency. The selection criteria included evaluating the companies' ESG ratings, which serve as benchmarks within their industry peer group and constitute a substantial portion of the demand for ESG data (European Commission, 2020). This study utilises a metric of sales or revenue as a measure of company significance as well as the ESG Risk Ratings from Sustainalytics. This method has the advantage that data is quickly assembled and fast available for further evaluation (Marshall, 1996).

The companies selected represent a variety of European regions, including Italy, Slovenia, and Germany. The selection criteria were determined based on the ease of accessibility to company reports and sustainability reports from websites, annual reports and ESG risk ratings, with slight variations to maintain homogeneity across the chosen companies (Van Dam, Guillon, Robinson, Allais, Sacks & Vandevijvere, 2022). This method guarantees that the companies chosen for analysis maintain a consistent standard of transparency and disclosure concerning their ESG practices and performance.

The search process covered the period from the year 2000 to the present for each of the selected firms. The objective is to identify any public commitments, pledges, or goals related to plastic packaging sustainability. These commitments encompassed a range of topics, including but not

limited to: reduction or replacement of plastic packaging, integration of recycled content in packaging, improvements in recyclability, enhanced plastic waste, management practices, and other objectives aimed at mitigating plastic pollution

To gain a comprehensive understanding of each company's commitments, various sources were employed, encompassing company records like Sustainability Reports and Annual Reports, scrutiny of company websites (including archived versions accessible via the Internet Archive), assessment of both current and archived press releases, and analysis of available online news articles.

For each pledge identified, a set of key data points were collected, which included the year in which the commitment was made (pledge year), the year in which the commitment is set to be achieved (goal year), a detailed description of the specific indicator or objective, the target value associated with the goal, source links that direct back to the origin of the commitment, any additional notes or comments relevant to the pledge.

Furthermore, this involved assessing the reporting status in both the baseline year (the year in which the commitment was made) and the goal year (the year in which the commitment is to be achieved). This approach ensures a thorough evaluation of each company's progress towards their plastic packaging sustainability goals.

The dependent variables that assess how much each company has accomplished in terms of its green initiative goals is reliant on the activities of the companies. The dependent variables are divided into four categories which are achieved, failed, unclear and future. If the pledge is classified as failed, it means that the business has either replaced the pledge with another effort or has not succeeded in achieving its goals for the goal year. On the other hand, if the pledge's status is listed as unclear, it indicates that neither its state nor its value have been disclosed. If a commitment is considered "future" and the goal year is after 2023, the initiative is still ongoing.

The variable uses the 3Rs which are reduce, recycle, and reuse to classify company initiatives. Every commitment is scrutinized to determine its objectives, such as reducing, recycling, or reusing a specific quantity of ecologically detrimental items or substituting these resources with eco-friendly alternatives. However, if certain efforts might not fit into one of these three categories they will be classified as "other."

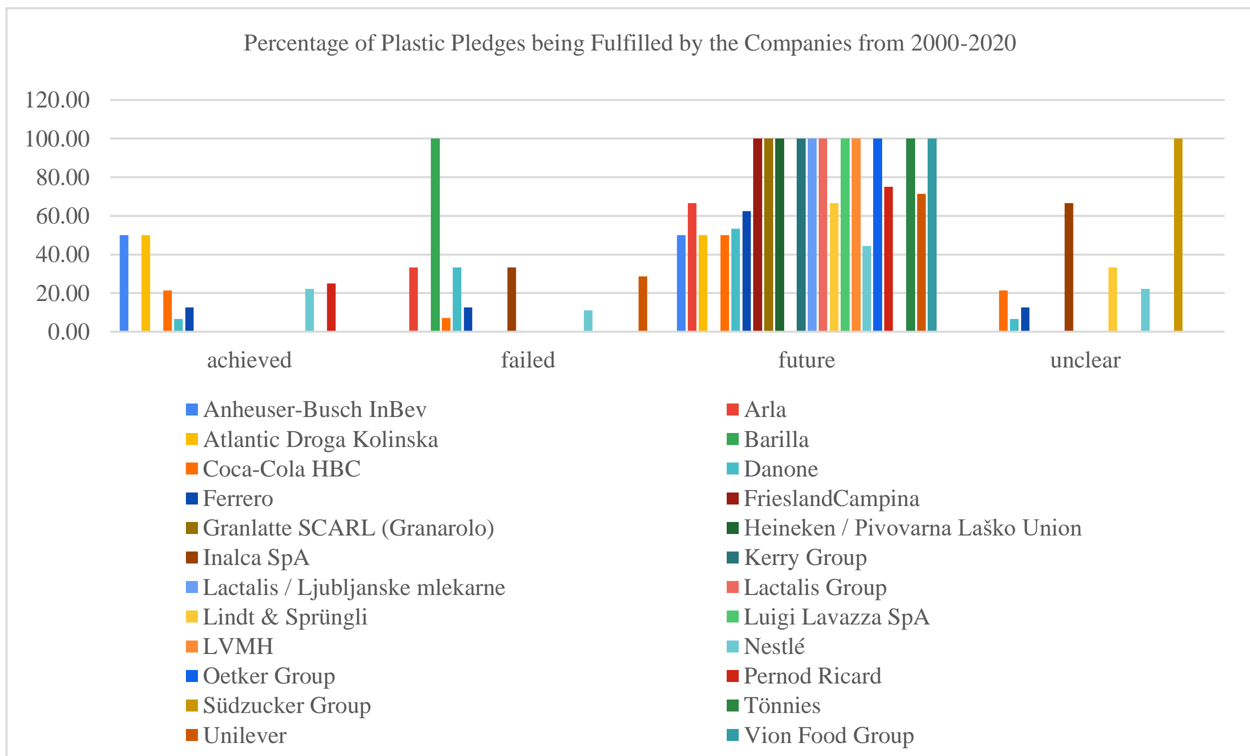
FINDINGS

A total of 98 plastic pledges were collated from twenty-four companies, showcasing their commitments to various green initiatives. These pledges are categorized into ‘achieved’, ‘failed’, ‘future’, and ‘unclear’. The analysis focuses on the percentage of green pledge achievements for

twenty-four prominent companies. The dataset includes information on pledges that have been achieved, failed, earmarked for future accomplishment, and those with unclear statuses.

Anheuser-Busch InBev and Atlantic Droga Kolinska are the only company in the dataset that has achieved at least 30% of its plastic pledges. With a 50% achievement rate, both have demonstrated a strong commitment to fulfilling its environmental goals. The other twenty-two companies have not achieved the 30% threshold for their pledges. These companies exhibit varying levels of achievement.

The presence of 'Future' commitments is notable in all companies except for Barilla, Inalca Spa and Südzucker Group, indicating that they have ongoing environmental initiatives planned. Barilla faces a relatively high rate of failed pledges (100.00%), reflecting challenges in meeting its plastic pledges. The 'Unclear' category suggests that there may be issues with transparency or tracking of pledge achievements in some companies. Based on Table 1, only two out of the twenty-four companies have achieved at least 30% of their green initiative goals. This represents 20% of the companies in the dataset.



Source: Self-conduct by the authors based on data from certain sources

Fig 1 Percentage of Plastic Pledges being Fulfilled by the Companies from 2000-2020

Table 1 State of the pledges in percentage

Company	Achieved	Failed	Future	Unclear	Achieved at least 30%
Anheuser-Busch InBev	50.00%	0.00%	50.00%	0.00%	Yes
Arla	0.00%	33.33%	66.67%	0.00%	No
Atlantic Droga Kolinska	50.00%	0.00%	50.00%	0.00%	Yes
Barilla	0.00%	100.00%	0.00%	0.00%	No
Coca-Cola HBC	21.43%	7.14%	50.00%	21.43%	No
Danone	6.67%	33.33%	53.33%	6.67%	No
Ferrero	12.50%	12.50%	62.50%	12.50%	No
Friesland Campina	0.00%	0.00%	100.00%	0.00%	No
Granlatte SCARL (Granarolo)	0.00%	0.00%	100.00%	0.00%	No
Heineken / Pivovarna Laško Union	0.00%	0.00%	100.00%	0.00%	No
Inalca Spa	0.00%	33.33%	0.00%	66.67%	No
Kerry Group	0.00%	0.00%	100.00%	0.00%	No
Lactalis / Ljubljanske mlekarne	0.00%	0.00%	100.00%	0.00%	No
Lactalis Group	0.00%	0.00%	100.00%	0.00%	No
Lindt & Sprüngli	0.00%	0.00%	66.67%	33.33%	No
Luigi Lavazza Spa	0.00%	0.00%	100.00%	0.00%	No
LVMH	0.00%	0.00%	100.00%	0.00%	No
Nestlé	22.22%	11.11%	44.44%	22.22%	No
Oetker Group	0.00%	0.00%	100.00%	0.00%	No
Pernod Ricard	25.00%	0.00%	75.00%	0.00%	No
Südzucker Group	0.00%	0.00%	0.00%	100.00%	No
Tönnies	0.00%	0.00%	100.00%	0.00%	No
Unilever	0.00%	28.57%	71.43%	0.00%	No
Vion Food Group	0.00%	0.00%	100.00%	0.00%	No

Source: Self-conduct by the authors based on data from certain sources

Correlation Analysis

This analysis explores the relationship between the percentage of green initiative goals achieved (% achieved) and ESG Risk Ratings for a dataset of 24 companies with a total of 98 pledges related to their plastic pledges. The analysis reveals a weak positive correlation ($\rho = 0.151$)

between the percentage of plastic pledges achieved and ESG Risk Ratings. This suggests that there is almost no linear relationship between the percentage of plastic pledges achieved and the ESG Risk Rating for these companies. In other words, as the companies' success in achieving their plastic pledges increases (or decreases), there is almost no corresponding change in their ESG Risk Ratings. The magnitude is so close to zero that it can be considered negligible. Therefore, from this data, it cannot be concluded that there is a substantial or meaningful relationship between the companies' achievement of green goals and their ESG Risk Ratings.

The R Square value ($r2 = 0.023$) suggests that only about 2.30% of the variance in ESG Risk Ratings can be explained by the percentage of green initiative goals achieved, indicating a limited explanatory power. This is a very low proportion, indicating that goal achievement has limited explanatory power for ESG Risk Ratings. In addition, the adjusted R Square value (adjusted $r2 = - 0.052$) suggests that the model does not fit the data well, further emphasizing the complexity of the relationship. The Standard Error ($\sigma = 6.699$) reflects the average distance between observed and predicted values in the regression model.

Table 2 Output of Regression Analysis between % of Achieved Plastic Pledges with ESG Risk Rating

Regression Statistics	
Correlation Coefficient	0.151
R Square	0.023
Adjusted R Square	-0.052
Standard Error	6.699
Observation	15

Source: Table by authors

ANOVA (Analysis of Variance)

To ascertain whether the regression model is a good fit for the data, an analysis of variance (ANOVA) was carried out to assess the independent variable (% of achieved plastic pledges) on the dependent variable (ESG Risk Rating). Based on the analysis, the F-statistic is quantified at 0.305 and the corresponding Significance F value is 0.590. The high "Significance F" value suggests that the model lacks statistical significance, implying that the independent variable which is % achieved plastic pledges does not substantially elucidate the variations observed in ESG Risk Ratings.

The P-value associated with the regression model is high ($P = 0.590$), indicating that the model is statistically insignificant. This means that the independent variable which is % achieved plastic pledges does not significantly explain the variation in the dependent variable which is ESG risk rating.

Table 3 ANOVA results

	df	SS	MS	F	Significance F
Regression	1	13.666	13.666	0.305	0.590
Residual	13	583.323	44.871		
Total	14	596.989			

Source: Table by authors

Table 4 ANOVA results that show P-value

	Coefficient	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	22.812	2.061	11.067	0.000	18.359	27.265
% achieved	-0.067	0.122	-0.552	0.590	-0.331	0.196

Source: Table by authors

Therefore, based on the two analyses, it can be concluded that less than one third of the companies have attained at least 30% of their intended green initiative goals and the results shows that there are about two out of twenty-four companies that achieved at least 30% of their intended green initiative goals.

However, the correlation coefficient between % achieved and ESG risk rating is 0.151. This shows that there is almost no relationship between the percentage of plastic pledges achieved and the ESG Risk Rating for these companies since the value is so close to zero that it can be considered negligible.

CONCLUSION

The analysis results suggest that the percentage of achieved plastic pledges (% achieved) has a weak, statistically insignificant correlation with ESG risk ratings. The high p-value for % achieved (0.590) indicates that there is no meaningful relationship between the two variables. Since this coefficient is not statistically significant, it implies that changes in the percentage of achieved plastic pledges do not significantly impact a company's ESG risk rating. The statistical insignificance of the model, as indicated by the high P-value in the ANOVA analysis, underscores the need for a more comprehensive understanding of the factors that influence ESG Risk Ratings. The data also suggests that pledge achievement varies widely among companies, reflecting different levels of commitment to green initiatives. This may be affected by the complex ESG risk rating, small sample size, measurement errors and other outlier data points.

Complex ESG risk ratings are multifaceted and consider a wide range of factors, including governance, social responsibility, and financial performance (Sustainalytics, 2021). Green goal

achievement is just one element of the broader ESG framework. The complexity of ESG risk ratings can dilute the impact of green initiatives on overall ratings. Furthermore, ESG risk ratings are influenced by a myriad of factors not considered in this analysis (Sepulveda, 2021). Unmeasured or unaccounted for variables can weaken the observed correlation.

In addition, the dataset comprises only twenty-four companies. Small sample sizes can lead to less robust correlations. A larger dataset would provide more statistical accuracy. With that, the possibility of data collection or measurement errors which can potentially introduce noise into the analysis, thus, weakening the correlation. Since there are only four data points, it is inevitable to have outliers. The extreme data points can skew the correlation. Adding to that, unique characteristics or behaviours of specific companies can also impact the relationship.

ETHICS STATEMENTS

Informed consent was not needed from respondents because this study did not use a questionnaire or interview method.

AUTHOR STATEMENTS

All authors have contributed significantly to the research and preparation of the paper. Author 1 contributes to the data collection, data analysis and interpreted the results. Author 2 wrote the introduction, literature review, and conclusion. Author 3 wrote the research methodology, and do the formatting including the references.

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DECLARATION OF INTERESTS

The authors state that none of the work described in this article may have been influenced by any known competing financial interests or personal relationships.

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