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RESEARCH ARTICLE

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Environmental, social, and governance ratings and financial performance: Evidence from the European food industry

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Abstract

Long-term value creation is expected not only to be concerned with maximizing shareholder value but also includes the impact on other stakeholders and the environment. Environmental, social, and governance (ESG) issues are therefore gaining increasing importance, in line with the growing demand for corporate sustainability. ESG ratings foster the comparison of companies with respect to their sustainable practices. This study aims to investigate how ESG ratings impact financial performance in the European food industry. Ordinary least squares regression is applied to analyze the relation between ESG ratings and financial performance over a 4-year period from 2017 to 2020. The profitability measures Return on Assets (ROA) and Return on Equity (ROE) are employed as financial performance measures, while ESG ratings are obtained from the database CSRHub. Results show that higher ESG ratings are associated with better financial performance. Although the effect is modest in the present study, the findings support previous results that ESG ratings are positively related to financial performance. Nonetheless, they also highlight that ESG ratings strongly converge to the mean, which depicts the need to reassess whether ESG ratings are able to measure actual ESG behavior.

KEYWORDS
ESG ratings, firm performance, food industry

1 | INTRODUCTION

Firms have often allowed business decisions leading to short-term profits at the expense of negative environmental, social, and governance (ESG) impacts (Patalano & Boffo, 2020). From a strategic perspective, it is increasingly important to align non-financial issues, such as social and environmental aspects with the creation of long-term financial value as the public's concern for sustainability increases (Barman, 2018; de Carvalho Ferrei et al., 2016; Dyllick & Muff, 2016; Schoenmaker & Schramade, 2019).

Recently, a movement towards socially responsible investments (SRI) stirred up the world of finance and set new standards with regards to added value. In 2018, close to 50% of professionally managed assets in Europe originated in SRI. In this respect, investors' motivation for sustainable finance includes lowering risk, achieving steady financial improvement, and making a positive impact. With

Abbreviations: CSR, Corporate Social Responsibility; ESG, Environmental, social and governance; ETF, Exchange traded funds; EU, European Union; FEM, Fixed effect model; FTSE, Financial Times Stock Exchange; GRI, Global Reporting Initiative; HQ, Headquarter; IIRC, International Integrated Reporting Council; MSCI, Morgan Stanley Capital International; POLS, Pooled Ordinary Least Square Model; REM, Random effect model; ROA, Return on Assets; ROE, Return on Equity; S&P, Standard & Poor's; SDG, Sustainable Development Goals; SRI, Socially responsible investment; UK, United Kingdom; UN, United Nations.

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rising global awareness for ESG issues, sustainable investments are rapidly increasing in numbers shown by the diverse offers of SRI across asset classes (Global Sustainable Investment Alliance, 2018). European investors in particular attach great importance to SRI. Europeans account for about 60% of the funds invested in sustainable exchange traded funds (ETF) (Riedl, 2021). Some studies argue that, in order to invest sustainably, a sacrifice of return on investment has to be accepted (Auer & Schuhmacher, 2016; Friede et al., 2015). However, the MSCI World SRI index has in fact outperformed the regular MSCI World over the last 3 years, showing that sustainable investments can lead to higher yields (Riedl, 2021). Moreover, investing in SRI portfolios is not necessarily accompanied by a risk of lower returns (De Spiegeleer et al., 2021; Revelli & Viviani, 2015). ESG portfolios can even outperform regular portfolios also in times of crisis (Broadstock et al., 2021). With a higher demand for sustainable investments, companies may feel more obliged to improve or implement their sustainability strategy.

Based on non-financial reporting and publicly available information, rating institutions establish objective ESG ratings for companies. In addition to governments, investors, and consultancy firms, ESG rating institutions cater to corporations by providing benchmark information (CSRHub, 2021a). ESG ratings measure how resilient companies are towards specific ESG risk factors (MSCI, 2021). The goal of ESG ratings is to reflect a firm's ability to respond to environmental and societal changes and their transparent communication in dealing with such challenges. Thereby, ESG ratings facilitate sustainable decisions in everyday life (CSRHub, 2021b).

Given the significant role of environmental, social, and governance factors on financial performance, several previous literatures argued the relationship between ESG ratings and financial performance with regards to different indicators and industries. For example, the effect of environmental, social, and governance activities on financial performance was investigated in 11 sectors including industry, materials, energy, health, finance, and telecom services in the United States, China, Japan, and European countries (Xie et al., 2019). However, the food sector has not been targeted so far. In addition, the impact of ESG on corporate efficiency was revealed. According to Minutolo et al. (2019), an ESG score was considered for a demonstration of a strategic choice of transparency. Hence, 467 firms on the S&P 500 were investigated. This study claimed that ESG influences on Tobin's Q are high for large companies as measured by sales, whereas in the smaller companies, the ESG influence on return on asset and Tobin's Q was measured by market capitalization. Nevertheless, the need for legitimacy and the level of disclosure varies by industry. Furthermore, the previous literature opened a door to investigate the relationship between ESG ratings and financial performance in other sectors, such as the food industry. The trend of the industry towards circular economy and sustainability has led to an increased investigation of ESG activities with financial performance of Chinese listed companies (Zhou et al., 2022). Besides, the impact of ESG activities on the financial risks of 500 large companies in the U.S. was investigated (Landi et al., 2022). Finally, according to the systematic review articles and meta-analyses of the literature on ESG and financial performance (e.g., Huang, 2021; Lim et al., 2022; Widyawati, 2020), no study investigating the relationship between ESG ratings and financial performance has been carried out in the food sector yet.

The food industry is distinguished compared to other industries, such as finance, energy, health, and others. For example, the food industry differs in regards to production and transportation (Rajic et al., 2022). In addition, the food sector has different regulatory restrictions and supply requirements. In this context, the food industry is a complex network of businesses and commercial practices that provide food to the world's population. The food industry is extremely diverse and ranges from small activities at the family firm level to large activities that require large investments (Usmani et al., 2022). Therefore, this sector has a huge impact on consumption. Hence, the food industry is a major contributor to environmental pollution and greenhouse gas emissions (Sirohi et al., 2022). However, previous research and ongoing investigations in the food industry focus on market regulation, environmental pollution, consumption habits, and other related topics (Zhang & Wen, 2022). Investigating the relationship between ESG ratings and financial performance in the food industry will provide scholars and practitioners with insight into mitigating environmental pollution and greenhouse gas emissions (Roukas & Kotzekidou, 2022).

To date, the food industry has not been a focus in sustainable finance studies. Yet, within the EU, the food and drink industry represents the largest manufacturing sector as measured by turnover, investments, jobs, and added value (FoodDrinkEurope, 2020). In worldwide comparison, the EU ranks first by turnover and exports of food and drinks (FoodDrinkEurope, 2020). At the same time, the sector generates 26% of global greenhouse gasses and faces diverse sustainability issues. Covering 43% of cultivable land, today's agriculture is characterized by a very high use of natural resources (Poore & Nemecek, 2018). In addition, food companies encounter social and governance issues regarding equality, fair trade, and labor practices along the entire supply chain. All these issues are substantial ESG risk factors for companies in the food industry, which will continue to play a major role in the future. Aiming at an environmentally friendly and socially responsible planet in line with the Sustainable Development Goals (SDGs), improvements in corporate ESG practices are essential.

Concerning sustainability, the expectations for food companies are high. With the new approach to value creation, it is relevant to know whether more sustainable companies are doing better financially. If confirmed, it would also encourage more companies to become more involved with the topic. Against this background, this study aims to analyze the relationship between ESG ratings and financial performance of food-related companies in Europe. How are a firms's sustainability practices, reflected through ESG ratings, related to financial performance? To answer this research question, ESG ratings are derived from CSRHub for European food companies. The database combines corporate social responsibility (CSR) performance measures from over 800 sources, including MSCI and Bloomberg (CSRHub, 2021a). The sample covers 83 European companies, 69 of which are headquartered in the European Union. Annual reports from the 4-year period (2017 to 2020) are used to retrieve financial information, specifically Return on Assets (ROA) and Return on Equity (ROE), for the selected companies.

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2 | THEORETICAL FRAMEWORK

2.1 | Current ESG state of the art

Scholarly publications and empirical evidence regarding the relationship between ESG ratings and performance have strongly increased (Minutolo et al., 2019). Therefore, controversy is unsettled among ongoing research regarding the relationship between ESG ratings and performance. ESG ratings have been stressed in 2004 by the UN Global Compact Initiative in a study titled "Who Cares Wins" (UN, 2004). Furthermore, investments in ESG activities are estimated to reach more than 20 trillion US$ in assets under management. To this end, theoretical and empirical contributions to investigate the effect of ESG on performance reached the maximum peak for many sectors, such as energy, materials, consumer staples, health care, industrials, financial, consumer discretionary, and information technology (Xie et al., 2019). Manrique and Martí-Ballester (2017) and Derwall et al. (2004) outline insights into the relationship of ESG to stock returns in large corporations from both developed and developing countries. The literature revealed an impact of ESG activities on the financial performance of Chinese and American companies in the banking sector (Brogi & Lagasio, 2019; Zhao et al., 2018). According to Aureli et al. (2020) ESG disclosure is a major determinant of the market value of the 55 companies listed in the Dow Jones Sustainability World Index. Therefore, the disclosure of ESG information affects the performance and evaluation of financial companies (Giese et al., 2019).

ESG initiatives also affect the stock value of listed financial companies in China (Lo & Kwan, 2017). Previous literature has provided an in-depth analysis of the ESG rating criteria used by prominent agencies. ESG rating affects asset prices and financial performance (Billio et al., 2021). The role of ESG issues on corporate returns on the Italian Stock Exchange was investigated. However, it was found there is no significant relationship between ESG and corporate return (Landi & Sciarelli, 2019). Likewise, ESG activities are a vital contributor affecting the share prices of commercial banks (Miralles-Quirós et al., 2019). For this, 3,719 credit rating reports were investigated indicating that ESG considerations control capital market reactions and are a determinant of stock revenue (Kiesel & Lücke, 2019). For small businesses, the literature has revealed the association of ESG activities with the credit market as ESG information is linked with corporate risk (Jang et al., 2020). In the Indian context, the impact of ESG activities on credit ratings of companies listed in the S&P BSE 500 was investigated. According to this research, ESG activities contribute to creditworthiness (Bhattacharya & Sharma, 2019). The financial sector has remained controversial by many scholars. Therefore, fossil fuel financing affects the operations and activities of ESG in global banks (Bernardelli et al., 2022). Recently, previous literature has argued that ESG activities are related to financial losses during crises, such as COVID-19, for ETFs (Folger-Laronde et al., 2022).

To date, investigations into the relationship between ESG activities and financial performance in other sectors, such as the food industry, remain inconclusive. According to Lee and Suh (2022), many issues and challenges still need an immediate solution. Furthermore, the sector, variables, and statistical methods are open issues in the ongoing literature. Therefore, the investigation of the food sector for the European context remains a critical issue. As mentioned previously, the food sector contributes to high levels of pollution and greenhouse gas emissions. In this context, distinguishing the food sector from other sectors contributes to bridging the existing research. To this end, this study complements the work of the previous literature by investigating the relationship between ESG ratings and financial performance in the context of the European food industry.

2.2 | Non-financial reporting and ESG ratings

Increased awareness, interest, and pressure from investors, society, and politics for concerns outside the financial spectrum provoked the appearance of non-financial reporting practices (Adams, 2017). The resulting ESG movement has been shaping the business landscape for the past 20 years and is becoming increasingly important for corporate strategies (Hübel & Scholz, 2020). ESG disclosure can lead to a competitive advantage (Taliento et al., 2019). Therefore, integrated or sustainability reporting is steadily gaining attention and becomes more value relevant for its users (del Mar Miralles-Quiros et al., 2017; Mervelskemper & Streit, 2017).

In April of 2021, the European Commission presented a proposal for a new corporate sustainability reporting directive, which is intended to lead to the amendment of the non-financial reporting directive formerly implemented in 2014 and currently in force in the European Union (EU). Whereas the old Directive 2014/95/EU only required large public-interest companies with more than 500 employees to disclose ESG topics, the new directive proposal also includes all large companies and all companies listed on regulated markets. This could lead to a further harmonization of sustainability reporting and measuring sustainable value creation, as the number of affected companies would increase substantially (European Commission, 2021). In this context, the proposal for a new corporate sustainability reporting directive by the EU highlights the importance of ESG issues through the implementation of mandatory disclosure of non-financial information.

Long-term value creation is no longer geared solely to maximize shareholder value, but also to deal with its impact on other stakeholders and the environment (Barman, 2018; Dyck & Silvestre, 2018; Dyllick & Muff, 2016; Kurznack et al., 2021). This new era of value creation requires adequate accounting and reporting practices that can measure the impact companies have on their environment. Non-financial reporting aims to include positive and negative societal and environmental factors of its operation, products, and services (Busco et al., 2020). Unlike financial reporting, however, reporting for non-financial matters currently lack comparability, consistency, and uniformity (Cerioni et al., 2021; Melloni et al., 2017). To tackle these problems, several reporting frameworks have emerged, for example, by the Global Reporting Initiative (GRI) or the International Integrated Reporting Council (IIRC) (Wu et al., 2018). Nevertheless, challenges in

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comparing this information among companies still remain, as it is not always quantifiable and ESG risks do not affect all companies equally. To evaluate firms regarding these ESG factors, several rating institutions have emerged in recent years. ESG ratings create a scoring framework for non-financial information relevant for companies and allow comparisons with other businesses. Although differences in the methodology of ESG rating institutions can lead to the divergence of ESG scores for individual firms (Escrig-Olmedo et al., 2010), ESG ratings have been widely used in research of sustainability and financial performance. In addition, ESG ratings are a valuable source of information for businesses, investors, regulators, and consumers (Pagano et al., 2018). In particular, increased competition in the area of sustainability through non-financial reporting and benchmarking of ESG ratings can enhance firms' productivity and engagement to implement responsible corporate policies (Escrig-Olmedo et al., 2010; Kapelko et al., 2021).

2.3 | ESG risk factors in the food industry

Sustainability efforts have shifted the focus to long-term value creation rather than prioritizing short-term financial success over potential negative impacts (Barman, 2018; Dyck & Silvestre, 2018; Dyllick & Muff, 2016). Corporate strategy has to include ESG measures to incorporate both shareholders' and other stakeholders' interests (Kurznack et al., 2021). The COVID-19 pandemic has further highlighted the importance for companies to manage ESG risk factors effectively. Additionally, ESG investments during this time have increased considerably, marking the relevance of sustainability from both a consumer and investor perspective (Díaz et al., 2021).

Hence, companies operating in the food industry are exposed to a number of different ESG risk factors, which offer opportunities but also pose significant threats (Stewart, 2015). Current agricultural systems are focused on producing high yields, disregarding potential environmental harm. Particularly water and land pollution, deforestation, degrading soil quality, loss of biodiversity, and the extinction of species can be the consequences of this negligence (Tiberius et al., 2019). Furthermore, climate variations and weather changes can have a negative impact on crops and thus affect the entire food value chain (Shand & Johnson, 2019; Stewart, 2015). Contamination of food supply or disease outbreaks among livestock can lead to considerable shortages. Moreover, the use of pesticides not only poses a threat to the environment but also to the safety of workers (Shand & Johnson, 2019). For example, only 8% of agricultural land in the EU was cultivated organically in 2018 (FoodDrinkEurope, 2020). The shift to sustainable agricultural systems is essential to realize the United Nation's SDGs (Havemann et al., 2020). As part of the Paris Climate Agreement, the EU aims to reduce emissions by at least 40% by 2030 (Council of the European Union, 2016). Due to the increasing external pressure, agribusiness companies are forced to change their strategies.

Nevertheless, there is also high potential for reducing environmental impact during food consumption. In the EU, approximately 20% of total food production is lost or wasted annually (FoodDrinkEurope, 2020). Individual households are not the only reason for wasting food. Food is also lost or discarded along the entire value and supply chain. Insofar, food waste accounts for about 16% of the environmental impact of the entire food industry (Scherhaufer et al., 2018). Packaging waste poses a further issue, creating incentives for innovation of more environmentally conscious packaging (Shand & Johnson, 2019).

Changes in dietary patterns require the reinvention of food companies. Consumers are becoming increasingly health conscious, which entails a shift in consumption patterns (Schwark et al., 2020). In particulary, ingredients with negative health impacts are gradually being avoided by consumers (Shand & Johnson, 2019; Smetana et al., 2020). Engaged firms in the food sector exceeding the minimum CSR standards are more likely to evoke positive associations. Additionally, they experience a higher chance of selling their products than firms with passive CSR practices (Kim, 2017; Wei et al., 2018).

Combating hunger and malnutrition continues to be an issue on a global level, integrated in the agenda of the SDGs (United Nations, 2021). Concurrently, increasing numbers of obesity have been declared a worldwide health problem (Jaacks et al., 2019). Other social issues include respect for workers' rights, safety, equality, and diversity in the workplace as well as demographic changes. Attending to stakeholder issues and promoting an adequate company culture is also a priority at the corporate governance level. Online presence and social media can pose further risks for companies through new data protection laws but also the threat of data theft and cyber-attacks (Studen & Tiberius, 2020). Simultaneously, consumers are increasingly concerned with the factual correctness of information and respectful interaction with different groups of society (Shand & Johnson, 2019).

Safety management plays a major role in the food industry. However, the risk for product recalls is rather low given that regulatory requirements and quality demands in Europe are strict (Stewart, 2015). Nevertheless, irreversible reputational brand damages can occur as a result, which can affect sales. The increased transparency of food supply chains may have detrimental effects for some companies in terms of their sourcing of raw materials, dealing with livestock and labor practices (Shand & Johnson, 2019). Consumers' increasing awareness and preferences play an important role in this context and are decisive for their purchasing behavior (Manning & Soon, 2016). Ethical behavior, compliance, and transparency are also of importance for corporate governance.

Figure 1 provides an overview of the mentioned risks, which not only have a negative impact on the environment and society but can also cause serious financial and reputational damage to companies. Firms that actively pursue ESG activities (Tiberius et al., 2021) and approach ESG risks can obtain a competitive advantage (Branco & Rodrigues, 2006) and are potentially better positioned in the market when these threats materialize (Stewart, 2015). These include the implementation of CSR practices at all levels and the promotion of a more sustainable and efficient use of natural resources and products during production and consumption to mitigate environmental impacts such as pollution and greenhouse gas emissions, as well as

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FIGURE 1 Overview of ESG risk factors in the food industry. Source: own creation

potential risks to the food supply of future generations (Smetana et al., 2020).

3 | LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

3.1 | ESG disclosure and financial performance

To date, there has been extensive research on the relationship between ESG performance and financial performance. One area of research addresses this matter by analyzing whether disclosure of ESG data leads to better financial performance. The relationship of ESG disclosure and financial performance is based on the idea that companies that disclose more information about ESG issues, and thus devote more resources to CSR, actually adopt sustainable business practices, which may result in corporate improvement, competitive advantages, and strengthened reputation (Branco & Rodrigues, 2006; Bui et al., 2020). For example, the sustainable use of resources and satisfied employees can cause increased efficiency, which, in turn, may drive innovations (Ning et al., 2021; Xie et al., 2019). Concurrently, this can have a positive impact on financial performance by avoiding unnecessary costs and thereby generating higher profits.

With regard to disclosure, the main sources of public CSR communication are integrated and sustainability reports as well as press releases. The quantity of publications is not decisive. Rather, the quality and validity of the provided ESG information is relevant. Previous research has shown that some companies embellish their reports with wording or unverifiable data to improve the company's reputation and possibly distract from the actual poor ESG performance (Partalidou et al., 2020). According to Xie et al. (2019), the moderate ESG disclosure level has the highest positive impact on corporate efficiency compared to low and high disclosure levels. The authors also detect positive relations with financial performance compared to peers for different ESG policies, such as sustainable packaging, environmental supply chains, reduced demographic discrimination, equal training programs, independent directors, and inclusion of women on the board of directors.

Fatemi et al. (2018) demonstrate that ESG-related strengths are associated with rising firm value, whereas weaknesses indicate a value reduction. However, ESG disclosure in general is related to decreasing company value. The authors show different results for several ESG subcategories. Environmental factors display a positive relationship with firm value, while strengths in social and governance factors do not.

The results by Mądra-Sawicka and Paliszkiewicz (2020) indicate relevant differences in financial performance between companies from the food industry engaging in CSR and those which do not. The authors also note that larger companies are more likely to invest in CSR. This could emanate from their financial stability and capability to invest parts of their profits in ESG matters without experiencing deteriorated performance. Similarly, Charlo et al. (2017) highlight that socially responsible firms are larger in size and do not experience deteriorating financial performance in a setting for Spanish listed firms.

Alareeni and Hamdan (2020) find a positive relation between ESG disclosure of S&P 500 firms and financial performance. Although certain ESG subcategories show contrary results towards profitability and firm value, generally, it appears that higher levels of ESG disclosure result in better financial performance. Albitar et al. (2020)

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examine FTSE 350 firms before and after the introduction of integrated reporting in 2013. The results suggest a positive relationship between ESG disclosure and financial performance in both periods.

Moreover, a number of studies find that ESG disclosure is related to better financial performance, specifically higher share prices (de Klerk et al., 2015; Reverte, 2016), higher firm value (Oprean-Stan et al., 2020; Yu et al., 2018; Zuraida et al., 2018), increased ROA as well as ROE (Buallay, 2019; Moneva et al., 2007), and lower cost of equity (Kim et al., 2015; Raimo et al., 2020).

3.2 | ESG ratings and financial performance

To investigate the interplay of ESG factors with financial performance, another research field is dedicated to the study of ESG ratings in this context. The question is whether higher ESG ratings imply better financial performance. As described earlier, companies actively engaging in ESG issues, as measured by ESG ratings, are assumed to be able to achieve better financial performance. This is in line with stakeholder theory, which hypothesizes that companies have a responsibility towards all stakeholders (Clarkson, 1995). The dissatisfaction of one of these stakeholder groups can, in turn, contribute to a deterioration of financial performance (Barman, 2018).

In this context, Partalidou et al. (2020) analyze ESG ratings in relation to financial performance for companies in the food industry listed in the Global Equity Index. According to this study, firms with better ESG performance are achieving better financial results. La Torre et al. (2020) examine ESG ratings and the relationship with financial performance, specifically stock returns of EURO STOXX 50 companies. The authors find that performance is only marginally impacted by ESG ratings and other factors more likely affect the volatility of stock returns. Yu and Zhao (2015) demonstrate that companies included in the Dow Jones Sustainability Index experience higher firm values. Therefore, corporate sustainability is valued by the market. At the same time, this effect seems to be more pronounced in countries with strong investor protection and high levels of disclosure. Engelhardt et al. (2021) show a positive relationship between ESG ratings and stock price performance during the COVID-19 pandemic. Higher rated European companies display higher abnormal returns and lower stock volatility. Kim and Li (2021) find that ESG scores have a positive impact on profitability and credit ratings. Their study suggests a stronger effect for larger companies and highlights the different influences of individual ESG components on corporate performance.

Duque-Grisales and Aguilera-Caracuel (2021) investigate whether a firm's financial performance is associated with above-average ESG scores in emerging markets among Latin American multinationals. The analysis conveys a negative relationship between ESG ratings and financial performance. Consequently, higher ESG performance is associated with lower profitability, according to this study. Contrary to these results, another study by Yoon et al. (2018), in an emerging market setting, finds that higher ESG scores are related to higher firm value for Korean publicly listed firms. Consequently, a uniform pattern in emerging markets is not present.

Additionally, the individual ESG subcategories have been examined seperately according to their individual impacts. For example, corporate environmental responsibility has proven to boost firm value in the long term. Strategies such as corporate innovation focusing on emission reduction and the sustainable use of resources can achieve financial and competitive advantages (Fatemi et al., 2018; Lee et al., 2016; Li et al., 2020; Partalidou et al., 2020). Some studies depict that the social component of the ESG triad may have the greatest positive impact on financial performance (Engelhardt et al., 2021; Kim & Li, 2021). Gender equality, training offers, and equal opportunities regarding career development have been positively related to financial performance in prior research (Ning et al., 2021; Xie et al., 2019). In regards to corporate governance, women as board members have a positive influence on financial performance (Albitar et al., 2020; Madaleno & Vieira, 2020). The independence of the board also represents an important influence for financial performance (Xie et al., 2019). As the majority of studies in the research field of sustainable finance have thus far identified a positive relation between ESG subcategories and financial performance (Brooks & Oikonomou, 2018; Friede et al., 2015; van Beurden & Gössling, 2008), a positive relationship can be predicted for the overall ESG rating and financial performance.

ESG activities include mandatory commitments and administrative management. The previous literature revealed a relationship between government and CSR. Regarding environmental activities, environmental regulations reduce profits because such activities require more spending. However, previous research has discovered that strict environmental regulation also foster managerial and technological innovations. Therefore, disclosure of enhanced environmental regulations for revenue and financial performance needs to be investigated in greater depth (Ambec et al., 2013). Adopting stringent environmental standards increases market value. Therefore, companies making low environmental endeavors achieve low-level ambitious goals (Haque & Ntim, 2018). Adopting strict environmental standards increases market capitalization and return on assets. In this context, environmental performance enhances profitability. In terms of social activities, the social performance of industries is a vital contributor to financial performance. For example, charitable donations and financial grants contribute to enhancing the long-term reputation of a company (Brammer & Millington, 2008). However, many industries consider social activities to be similar to environmental activities that incur additional costs for companies. To this end, investigating the contribution of social activities to financial performance is an urgent need (Xie et al., 2019). Regarding government activities, the previous literature sheds light on the relationship of the structure of the board of directors and financial performance. Previous research showed a positive relationship between governance practices and financial performance. According to Zhu et al. (2016) and Luan and Tang (2007), the independence of the board of directors increases the market capitalization of the company. Diversity in the board of directors, number of meetings, and ownership structure are also vital to increasing financial performance (Hoobler et al., 2016). However, investigation into the impact of government activities in the food industry of European context is

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considered rare (Xie et al., 2019). Figure 2 displays the research model.

Hypothesis H1. ESG ratings are positively related to financial performance.

Hypothesis H1a. Environmental activities are positively related to financial performance.

Hypothesis H1b. Social activities are positively related to financial performance.

Hypothesis H1c. Governance activities are positively related to financial performance.

4 | RESEARCH DESIGN AND EMPIRICAL METHODOLOGY

4.1 | Data

Oursample includes annual data for firms operating in the food industry. The sample was generated through the database CSRHub, a provider of ESG ratings with valuations for over 18,000 companies worldwide, established through the assessment of more than 700 sources. The CSRHub ESG Rating is comprised of four main categories and 12 subcategories. The main categories are: Environment, Community, Employees, and Governance. The Environment category represents all interactions between a company and its environment. It includes the subcategories "Energy and Climate Change," "Environment Policy and Reporting," and "Resource Management". For the social sphere, "Community and Employee Matters" are considered. The Community category considers "Community Development & Philanthropy," "Products," and "Human Rights & Supply Chains." With regards to the Employee category, companies' behavior in terms of "Compensation & Benefits," "Diversity & Labor Rights," and "Training, Health & Safety" are relevant. In the Governance category, firms are rated according to the subcategories "Board," "Leadership Ethics," and "Transparency & Reporting". The available data points are normalized by CSRHub to express the rating on a scale of 0 to 100. After the companies have been evaluated in the individual subcategories, a rating is created for the four main categories, which is then used to determine the overall ESG rating (CSRHub, 2021a).

Our study focuses on the period from 2017 to 2020. This timeframe was chosen to represent several company years on the one hand and to have sufficient data points on the other hand. Companies in CSRHub are not always rated continuously and retrospectively. In the years before 2017, missing data would not have ensured comparability of firms over several years. For this reason, the four-year period was considered an adequate sample size concerning data availability.

With the help of the database's advanced search, European companies from the food industry have been identified. To reflect the entire value chain of the food industry, the industry filter was applied to select "Agriculture & Mining," "Cattle Ranching and Farming," "Fishing and Forestry," "Beer, Wine & Distilled Alcohol Beverage Wholesalers," "Grocery and Related Product Wholesalers," "Beverage Manufacturing," "Food Products," and "Supermarket, Food and Beverage Stores". The companies were manually screened according to their headquarters and their primary business activity to ensure that companies were selected appropriately. Subsequently, financial data were collected manually from the annual reports of selected companies. The initial sample comprised 117 firms. After eliminating firms due to missing financial or ESG information, the sample reached a size of 83 companies. Over the 4-year period, this results in the inclusion of 332 firm-year observations in the study.

Table 1 shows the distribution of the sample by countries. The United Kingdom (UK), Switzerland, and France account for the largest share of the sample with 23%, 26%, and 11%, respectively. Thus, these three countries make up 49% of the sample. For the purpose of this study, the UK is categorized as an EU member state. Although the UK has withdrawn from the EU as of 31 January 2020, the EU and UK have agreed on a transition period up until 31 December 2020. Until that date, EU regulation was still applied in the UK despite not being represented in the institutions and bodies of the EU any longer (European Commission, 2020). Overall, firms headquartered in the EU account for 83% of the study's population, while companies located in other parts of Europe make up 17%. As previously mentioned, data were collected based on panel data. Panel data contain more variance and information and are more efficient than time-series data. The panel data allow for discovering statistical effects and relationships stronger than time-series data (Bell & Jones, 2015).

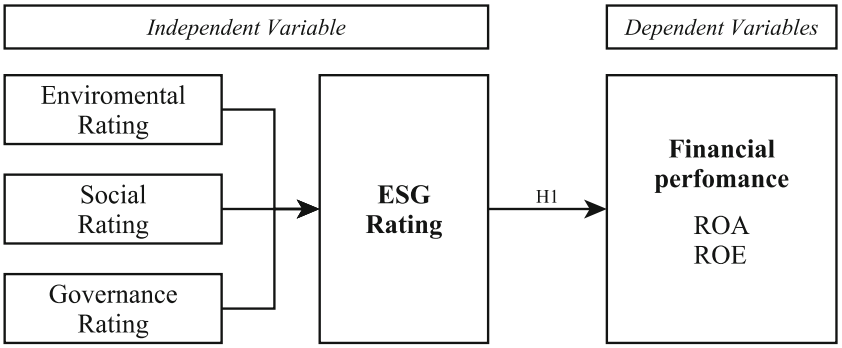

FIGURE 2 Research model. Source: own creation.

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TABLE 1 Country distribution of sample population

Headquarter		Number of firms	Number of firm-year observations	Percentage (%)
United Kingdom	EU	19	76	23%
France	EU	13	52	16%
Switzerland	Europe	9	36	11%
Sweden	EU	6	24	7%
Denmark	EU	4	16	5%
Finland	EU	4	16	5%
Ireland	EU	4	16	5%
Italy	EU	4	16	5%
Netherlands	EU	4	16	5%
Norway	Europe	4	16	5%
Germany	EU	3	12	4%
Belgium	EU	2	8	2%
Spain	EU	2	8	2%
Austria	EU	1	4	1%
Greece	EU	1	4	1%
Poland	EU	1	4	1%
Portugal	EU	1	4	1%
Ukraine	Europe	1	4	1%
Total		83	332	100%

4.2 | Methods

Ourstudy includes two different dependent variables to measure financial performance. The first one considers ROA, which is defined by Net Income divided by Total Assets. The second variable refers to ROE, measured by Net Income divided by Equity. These financial figures have been widely used to represent financial performance (Alareeni & Hamdan, 2020; Aouadi & Marsat, 2018; Duque-Grisales & Aguilera-Caracuel, 2021). Both variables show the profitability of a company in relation to its assets and equity, respectively. The overall ESG rating employed by CSRHub acts as the independent variable. Several commonly used control variables are included in the model. Larger companies are found to disclose more ESG data, which could impact the ESG rating (Drempetic et al., 2020; Taliento et al., 2019). Company size is also related to economies of scale and scope. To control for this effect, the natural logarithm of total revenue is used as the control variable for size, following numerous previous studies (Alareeni & Hamdan, 2020; Albitar et al., 2020; Duque-Grisales & Aguilera-Caracuel, 2021; Fatemi et al., 2018). Capital intensity is used as a control variable for associated company risk (Fatemi et al., 2018) to account for differences between production companies and service-oriented companies in the sample. Similarly to prior studies, a proxy for unsystematic firm risk using the Debt-to-Equity Ratio for Leverage is included (Alareeni & Hamdan, 2020; Albitar et al., 2020; Duque-Grisales & Aguilera-Caracuel, 2021; Kim & Li, 2021). Furthermore, dummy variables are employed for the COVID-19 impact in 2020 and companies headquartered in an EU member state, to mitigate effects resulting from EU regulation. Table 2 shows an overview of the variables employed in the regression models. To gain insights into the central hypothesis, correlation tests are first conducted between the variables under investigation.

Ordinary least squares regression analysis is applied to investigate the relationship between ESG ratings and financial performance. The generalized regression formulas used for this study are as follows:

$$\begin{aligned}\mathrm{ROA} &= \alpha + \beta_1(\mathrm{ESG\ Rating}) + \beta_2(\mathit{Leverage}) + \beta_3(\mathit{Size}) \\ &\quad + \beta_4(\mathit{Capital\ Intensity}) + \beta_5(\mathit{EU\ HQ}) + \beta_6\,(\mathit{COVID} - 19),\end{aligned}$$

$$\begin{aligned}&= \alpha + \beta_1(\mathit{ESG\ Rating}) + \beta_2(\mathit{Size}) + \beta_3(\mathit{Capital\ Intensity}) + \beta_4(\mathit{EU\ HQ}) \\ &\quad + \beta_5\,(\mathit{COVID} - 19).\end{aligned} \qquad (\mathrm{ROE})$$

For the linear regression analysis, two regression models, one for ROA and one for ROE, are constructed. The regression statistics are applied in Stata software. Influential outliers are determined using Cooks' Distance and eliminated, respectively, in the ROA and ROE regression model.

5 | RESULTS

5.1 | Descriptive statistics

Descriptive statistics are shown in Table 3 for all variables employed in the study. In the sample, ROA has a mean of 0.047, with values ranging from −0.320 to 0.270. Average ROE for the sample is 0.174,

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TABLE 2 Overview of model variables

Variable	Category	Measure	Computation	Source
Independent variable	ESG rating	Overall ESG rating and E, S, G score	Assessment by CSRHub based on environment, community, employee and governance rating	CSRHub
Dependent variables	Financial performance	Return on assets	$\frac{Net\ Income}{Total\ Assets}$	Calculation based on annual report numbers
		Return on equity	$\frac{Net\ Income}{Total\ Equity}$	Calculation based on annual report numbers
Control variables	Leverage	Debt-to-equity ratio	$\frac{Total\ Liabilities}{Total\ Equity}$	Calculation based on annual report numbers
	Size	Total Revenue	$ln\ (Total\ Revenue)$	Calculation based on annual report numbers
	Capital intensity	Capital intensity ratio	$\frac{Total\ Assets}{Total\ Revenue}$	Calculation based on annual report numbers
	EU HQ	Dummy variable	Dummy Variables: "1" for companies headquartered in EU, "0" for companies residing in rest of Europe	Headquarter indication
	COVID-19	Dummy Variable	Dummy Variables: "1" for firm-year observations in 2020, "0" for years without COVID-19 impact	-

TABLE 3 Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
ESG score	332	58.651	6.316	41.000	77.000
E score	332	59.199	8.793	33.000	82.000
S score	332	58.533	6.905	42.000	79.000
G score	332	58.464	6.583	41.000	80.000
ROA	332	0.047	0.060	−0.320	0.270
ROE	332	0.174	1.017	−4.510	17.560
Leverage	332	1.888	9.690	−68.300	158.400
Size	332	22.164	1.674	18.460	25.560
Capital intensity	332	1.294	0.832	0.250	5.320
EU HQ	332	0.831	0.375	0.000	1.000
COVID-19	332	0.250	0.434	0.000	1.000

Abbreviations: E, environmental; ESG, environmental, social and governance; EU HQ, headquarter indication; G, governance; ROA, return on assets; ROE, return on equity; S, social.

with a maximum of 17.560 and a minimum of −4.510, indicating significant variation. This is also reflected in the high values for skewness and kurtosis. The ESG ratings vary from 41.000 to 77.000, with a mean of 58.651. This is slightly above the average CSRHub rating of 50 (CSRHub, 2021b), indicating that the European food industry performs somewhat better in terms of ESG matters compared to the overall economy. The mean for leverage, measured as the debt-to-equity ratio, resulted in 1.888. Similar to ROE, leverage shows some outliers as depicted in the values for minimum, maximum, and a standard deviation of 9.690. Size, as measured by the natural logarithm of revenues, is spread between −18.460 and 25.560, with a mean of 22.164. The average capital intensity is 1.294, with values between 0.250 and 5.320. As described earlier, 83% of the sample population are headquartered in an EU member state, while COVID-19 affects one fourth of the sample population in the year 2020.

5.2 | Correlation analysis

This step of the analysis consists of estimating the correlation matrix to avoid bias in the model. Table 4 shows the correlation coefficients for all variables to check the statistical relationship between the dependent and independent variables and to determine whether there is evidence of collinearity. ROA is positively correlated with ROE, ESG, and leverage, and negatively correlated with size, capital intensity, EU HQ, and COVID-19. The analysis also demonstrates a significant negative correlation with COVID-19, indicating that the consequences of the pandemic indeed have a negative impact on returns. ROE shows positive correlation with the variables ROA, ESG, leverage, and EU HQ. ESG is positively correlated with ROA, ROE, leverage, size, capital intensity, and EU HQ and negatively correlated with COVID-19. To avoid multicollinearity, highly correlated variables

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TABLE 4 Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10	11
(1) E	1										
(2) S	0.842*	1									
(3) G	0.930*	0.669*	1								
(4) ESG	0.761*	0.501*	0.593*	1							
(5) Size	0.265*	0.293*	0.307*	−0.011	1						
(6) Capital intensity	0.041	0.090	0.066	−0.079	−0.067	1					
(7) Leverage	0.020	0.041	−0.019	0.077	−0.018	−0.042	1				
(8) Headquarter indication	0.021	0.033	0.002	0.021	−0.102	−0.032	0.020	1			
(9) COVID-19	−0.090	0.008	−0.014	−0.312*	−0.004	0.066	−0.055	0.000	1		
(10) ROA	0.168*	0.144*	0.123*	0.206*	−0.048	−0.080	0.064	−0.043	−0.146	1	
(11) ROE	0.016	0.026	−0.029	0.098	−0.041	−0.072	0.923	0.025	−0.078	0.121*	1

*Statistically relevant.

are excluded (Gujarati & Porter, 2009). This applies to ROE and leverage, with a significant correlation, due to the inclusion of equity in both variables. Furthermore, correlations are low to moderate, and no strong relations are identified, which leads to no further exclusions in the regression models.

5.3 | Regression analysis

First, Cook's Distance measures are obtained for each point and each regression to identify potential outliers. As mentioned before, Cooks' Distance is applied prior to the regression analysis to eliminate influential outliers. The presence of outliers in the sample can significantly affect the regression results. Observations with Cook's Distance higher than $4/n$ are removed, where n is the number of observations. This threshold is frequently applied when using Cook's Distance for the identification and elimination of outliers (Baboukardos, 2017; Balugani et al., 2020). Subsequently, this leads to the elimination of 17 observations in the case of the regression for ROA. Consequently, the final sample for the ROA regression consists of 315 firm-year observations. Regarding ROE, two outliers are identified with Cook's Distance, resulting in a final sample of 330 for the second regression. Although ROE revealed very strong extreme values in the descriptive statistics, only two values were identified as outliers using Cook's Distance, since both the minimum and maximum value are very far from other observations. In contrast, observations for ROA are more closely distributed around the mean. However, there are some outliers, although not as severe as in the case of ROE. The exclusion of these values in both regression models ensures that they do not influence the results. The normal distribution of the independent variable ESG is given in both regression models.

The panel static estimators, including ordinary least square (POLS), fixed effect model (FEM), and random effect model (REM), are adopted. This study adopts three stages in order to obtain the suitable model for investigating the relationships between ESG rating and financial performance. First, the Prob test was used to determine the best model between the POLS model and the FEM model. When the Prob test of the FEM model is less than 0.05, the FEM model is considered better than the POLS model. Second, the REM model is estimated to explore the best model between the POLS model and REM model. Furthermore, when the Prob test of the REM model is less than 0.05, the REM model is considered better than the POLS model. Third, the Hausman test was used to assess the best model between the FEM model and REM. Hence, when the Prob test of the Hausman test is greater than 0.05, the REM model is considered more suitable for regression analysis than the FEM model. However, several previous studies confirmed the need to adopt the robust model to FEM or REM model in order to obtain more accurate and stronger results. Furthermore, when serial correlation and heteroscedasticity values are lower than 0.05, this indicates a homogeneity and correlation problem that can be addressed by adopting a robust model. Table 5 illustrates the regression analysis (Gujarati & Porter, 2009; Strike et al., 2006).

Based on these steps, the Poolability test showed that FEM is better than the POLS model. Besides, the Prob test shows that the REM model is superior to the POLS model. However, the Hausman test reveals that the REM model is better than the FEM because the Hausman test is insignificant. Thus, the REM model is appropriate for exploring the relationship between ESG rating and financial performance. Nevertheless, the heteroskedasticity test and serial correlation are less than 0.05, which indicates a problem with the REM model results. Moreover, to overcome such issues, this study used a robust REM model, as shown in Table 6.

Table 6 presents the results of the regression for ROA. The model is statistically significant ($p < 0.05$), and the value for R squared is 0.077. ROA is positively and significantly related to ESG ($p = 0.05$). The variable ESG shows the strongest effect on ROA as demonstrated by the standardized coefficients beta of 0.012. Additionally, there are

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TABLE 5 Results of the ROA and ROE for determining best regression model

	Return on assets				Return on equity			
Variables	POLS model	FEM model	REM model	Robust REM Model	POLS model	FEM model	REM model	Robust REM Model
Constant	0.043	0.035	0.043	0.043	0.160	0.192	0.160	0.160
ESG	0.012*	0.013*	0.012**	0.012**	0.127	0.119*	0.127**	0.127**
E	0.004*	0.031*	0.004***	0.004***	0.108	0.105*	0.108**	0.108**
S	0.006*	0.007*	0.006***	0.006***	0.117	0.113*	0.117**	0.117**
G	0.004*	0.002*	0.004**	0.004**	0.101	0.101*	0.101**	0.101**
Size	−0.003*	−0.004*	−0.004**	−0.004**	−0.010	−0.011	−0.010	−0.010
Capital intensity	−0.007*	−0.006	−0.007*	−0.007**	−0.034	−0.035	−0.034	−0.034
Leverage	0.001	0.002	0.001	0.001	0.096**	0.096**	0.096**	0.096**
HG	−0.010	−0.009	−0.010	−0.010	0.008	0.009	0.008	0.008
COVID-19	−0.016**	0.000	−0.016**	−0.016**	−0.031	0.000	−0.031	−0.031
Prob test (POLS vs. FEM)			0.016				0.000	
Prob test (POLS vs. REM)			0.001				0.000	
Hausman test (FEM vs. REM)			0.443				0.717	
Serial correlation			11.357*** (0.000)				14.537*** (0.000)	
Heteroscedasticity			148.147*** (0.000)				92.195*** (0.000)	
R square	0.0767	0.056	0.077	0.077	0.855	0.854	0.855	0.855

Abbreviations: E, environmental; ESG, environmental, social, and governance; EU HQ, headquarter indication; FEM, fixed effects model; G, governance; POLS, ordinary least-squares model; S, social; REM, random effects model; ROA, return on assets; ROE, return on equity.
*Statistical significance at the 10%.
**Statistical significance at the 5%.
***Statistical significance at the 1%.

relationships between the environmental, social, governance measures, and ROA ($\beta = 0.004$, $p < 0.001$; $\beta = 0.006$, $p < 0.001$; $\beta = 0.004$, $p < 0.05$). For the control variables, the results revealed that size, capital intensity, and COVID-19 have a negative and significant effect on ROA. However, there are no significant effects between leverage, headquarters location, and ROA.

Table 6 depicts the results of the regression analyses performed for ROE. The model shows statistical significance ($p = 0.05$) and an *R*-squared value of 0.855. ESG is significantly related to ROE ($p = 0.000$). Furthermore, there are relationships between the environmental, social, governance measures and ROE ($\beta = 0.108$, $p < 0.05$; $\beta = 0.117$, $p < 0.05$; $\beta = 0.101$, $p < 0.05$). Of the control variables, only leverage displays statistical significance ($p = 0.05$). The findings reveal that there are insignificant relationships between EU HQ, size, capital intensity, COVID-19, and ROE. Overall, the positive and significant relation between ROA, ROE, and ESG support the main hypothesis H1. The effect is more prominent for ROE. Despite the positive and significant relation between ESG ratings and financial performance, measured through ROA and ROE, the effect is moderate in both regression models.

The panel is analyzed based on a panel data model. Since COVID-19 is considered a dummy variable and the pandemic started in 2019, this study has conducted the analysis including and excluding COVID-19 as a variable. The findings reveal a slight difference, and the observations of the years 2017 and 2018 have no effect on the results regarding COVID-19. Therefore, there is no concern regarding such an issue. However, year-fixed effects, company-fixed effects, and country-level differences are still open issues that need to be addressed. Furthermore, year-fixed effects and company-fixed effects were conducted as illustrated in Table 7.

For the ROA model, the results reveal that the year 2019 has a significant and negative effect on ROA by −0.016. In this context, the reason for the impact of 2019 on the financial performance of the food industry in Europe is due to the emergence of the COVID-19 pandemic. Many retailers had to face closure in order to follow safety restrictions. Therefore, 2019 had a strong impact on the food industry in the European context. However, the results confirmed that the years 2018 and 2019 had a positive and significant impact on the ROE model. The results reveal that the year 2018 had the greatest impact on ROE, and this indicates that environmental stability plays a

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TABLE 6 Results of the ROA and ROE Regression Analysis

	Return on assets Robust REM model					Return on equity Robust REM model				
Variables	**Coef.**	**St. Err.**	***t* value**	***p* value**	**Sig**	**Coef.**	**St. Err.**	***t* value**	***p* value**	**Sig**
Constant	0.043	0.044	0.990	0.324	-	0.160	0.154	1.040	0.298	-
ESG	0.012	0.005	2.490	0.013	**	0.127	0.058	2.190	0.000	**
E	0.004	0.001	3.280	0.001	***	0.108	0.018	6.000	0.000	**
S	0.006	0.002	2.690	0.007	***	0.117	0.028	4.179	0.000	**
G	0.004	0.002	2.210	0.027	**	0.101	0.013	7.769	0.000	**
Size	−0.004	0.001	−2.800	0.005	***	−0.010	0.006	−1.600	0.110	-
Capital intensity	−0.007	0.002	−3.590	0.000	***	−0.034	0.012	−2.910	0.004	-
Leverage	0.001	0.002	0.050	0.297	-	0.096**	0.011	8.440	0.000	**
Headquarter indication	−0.010	0.012	−0.830	0.407	-	0.008	0.026	0.330	0.744	-
COVID-19	−0.016	0.005	−3.160	0.002	***	−0.031	0.018	−1.770	0.077	-
R squared			0.077					0.855		

Abbreviations: E, environmental; ESG, environmental, social, and governance; EU HQ, headquarter indication; FEM, fixed effects model; G, governance; POLS, ordinary least-squares model; S, social; REM, random effects model; ROA, return on assets; ROE, return on equity.
*Statistical significance at the 10%.
**Statistical significance at the 5%.
***Statistical significance at the 1%.

TABLE 7 Results of the year and company fixed effects

ROA	**Coef.**	**St. Err.**	***t* value**	***p* value**	**Sig**
2017b	0.000	-	-	-	-
2018	−0.002	0.002	−1.420	0.156	-
2019	−0.016	0.001	−16.190	0.000	***
2020o	0.000	-	-	-	-
Constant	0.045	0.038	1.200	0.230	-
Company-fixed effects			Yes		
Mean ROA	0.047	0.047	0.047	0.047	0.047
Overall *r* squared	0.087	0.087	0.087	0.087	0.087
ROE	**Coef.**	**St. Err.**	***t* value**	***p* value**	**Sig**
2017b	0.000	-	-	-	-
2018	0.086	0.022	3.840	0.000	***
2019	0.024	0.003	7.300	0.000	***
2020o	0.000	-	-	-	-
Constant	0.164	0.177	0.930	0.355	-
Company-fixed effects			Yes		
Mean ROE	0.174		SD ROE		1.02
Overall *r* squared	0.856		Number of obs		332

Abbreviations: ROA, return on assets; ROE, return on equity.
*Statistical significance at the 10%.
**Statistical significance at the 5%.
***Statistical significance at the 1%.

positive role on companies. However, the impact of 2019 on the ROE was reduced by the onset of the pandemic. Hence, 2018 and 2019 were the most influential years on the relationship between ESG and financial performance. In addition, the analysis of the company-fixed effects shows that there are nine types of food companies, namely, beverage manufacturing; food products; supermarkets food and beverage stores; beer, wine, and distilled alcoholic; wholesalers grocery and related product wholesalers; hotels, motels, and restaurants; forestry and fishing; household products; and cattle ranching and farming. Hence, the industry type of food companies for the European

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TABLE 8 Results of the country-level differences

ROA	Coef.	*t* value	*p* value	Sig	ROE	Coef.	*t* value	*p* value	Sig
United Kingdom base 1	0.000	-	-	-	United Kingdom base 1	0.000	-	-	-
Sweden	0.001	0.330	0.742	-	Sweden	0.035	1.140	0.256	-
Austria	−0.052	−5.030	0.000	***	Austria	−0.078	−2.390	0.017	**
Belgium	0.028	7.300	0.000	***	Belgium	0.053	1.410	0.159	-
Switzerland	0.002	0.070	0.941	-	Switzerland	−0.058	−0.950	0.342	-
Finland	−0.053	−3.030	0.002	***	Finland	−0.167	−4.810	0.000	***
France	−0.033	−7.560	0.000	***	France	−0.106	−4.600	0.000	***
Denmark	0.045	5.700	0.000	***	Denmark	0.152	3.020	0.003	***
Italy	0.006	0.800	0.426	-	Italy	−0.030	−1.320	0.188	-
Ireland	−0.007	−0.790	0.428	-	Ireland	−0.112	−1.370	0.170	-
Greece	−0.013	−1.930	0.053	*	Greece	−0.075	−3.040	0.002	***
Netherlands	0.000	0.000	0.999	-	Netherlands	−0.030	−0.520	0.606	-
Spain	−0.084	−3.140	0.002	***	Spain	0.014	1.570	0.117	-
Poland	−0.041	−4.170	0.000	***	Poland	−0.512	−14.730	0.000	***
Norway	0.059	2.370	0.018	**	Norway	0.168	2.000	0.046	**
Portugal	−0.031	−3.810	0.000	***	Portugal	−0.049	−1.120	0.262	-
Germany	−0.045	−2.750	0.006	***	Germany	−0.314	−5.730	0.000	***
Ukraine o	0.000	-	-	-	Ukraine o	0.000	-	-	-
Constant	0.092	1.340	0.180	-	Constant	0.293	1.620	0.105	-

Abbreviations: ROA, return on assets; ROE, return on equity.
*Statistical significance at the 10%.
**Statistical significance at the 5%.
***Statistical significance at the 1%.

context had an impact on ROA and ROE. To highlight differences between countries regarding ESG and financial performance indicators, Table 8 shows country-level differences.

Different results on the country-level reveal that the countries with the most positive impact on ROA were Norway, Denmark, and Belgium, respectively. However, Spain, Finland, and Austria had the most negative impact on ROA. For the ROE, the findings confirmed that Norway, Denmark, and Belgium show a positive effect on ROE, respectively. Nevertheless, Poland, Germany, and Finland had the most negative effect on ROE.

6 | DISCUSSION

The existing literature about ESG and financial performance has not yet found consensus on the relationship between ESG corporate behavior and financial key figures. In addition, most studies focus on cross-sectoral data or specific indices (Alareeni & Hamdan, 2020; Albitar et al., 2020) to draw inferences. This does not take into account that each sector is subject to different ESG risks, each with a varying level of significance for the respective industry. Therefore, the focus of this paper lays on a specific sector, the food industry, to ensure a reasonable comparability of ESG ratings in the sample. Furthermore, the food sector is a particularly interesting area in terms of sustainability, as not only regulatory requirements but also consumer demands are challenging for companies.

Surprisingly, the size of companies in this study is not a decisive factor influencing ESG ratings and financial performance. In contrast to the findings of Charlo et al. (2017), larger firms are not associated with better financial performance and higher ESG ratings as the variable size shows negative signs in both the ROA and ROE regression.

Both regression analyses reveal a mild but significantly positive effect between ESG ratings and financial performance. The results are consistent with studies by Alareeni and Hamdan (2020), Buallay (2019), and Mądra-Sawicka and Paliszkiewicz (2020), indicating a positive relation between ESG and ROA as well as ROE, respectively.

The rather low effect could be caused by the low variance in the spread of ESG ratings, which range from 41.15 to 76.56, with a mean of 58.68. This confirms that ESG ratings are closely spread around the mean, with no particularly outstanding companies. According to one of the co-founders of CSRHub, Gidwani (2020), it is quite rare for a firm to keep a particularly good or poor ESG rating over a long period. He analyzed a CSRHub sample of 8,000 companies over a period of 9 years. The findings show that ESG ratings regress towards the mean over time. Gidwani (2020) also notes that this pattern does not necessarily imply that bad companies improve or that good companies deteriorate regarding ESG quality. This study implies similar results. The

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standard deviations for the observed four years demonstrate that the value decreases from year to year.

This could be the case because CSRHub makes use of more than 700 sources in their assessment, including most other commercial ESG rating institutions (CSRHub, 2021b; Gidwani, 2020). Therefore, it could be plausible that the inclusion of several sources produces an ESG rating value that naturally falls somewhere in the middle. This goes along with the validity criticism that ESG ratings do not measure what they are designed to rate or that they cannot give a true and fair view of their ESG position by only analyzing public data (Escrig-Olmedo et al., 2019). In addition, multinational companies in particular act both socially responsible and socially irresponsible in different areas (Strike et al., 2006). In line with that, there is potential for rating disagreement among different ESG rating providers. The rating differences may occur because the methodology or algorithm used by individual rating institutions is not transparently disclosed (Conway, 2019). As CSRHub also refers to other ESG rating institutions, this could be an issue, as it could produce contradictions in the ESG assessment.

According to the results of this study, food companies behaving as good corporate citizens (Kruggel et al., 2020) and that are subject to environmental policies and procedures to independent evaluation have a superior financial performance. Environmental strategies stimulate the food industry to increase sustainable competitive advantage because intense competition in the market pushes many companies to hostile behaviors towards consumers. Moreover, environmental policies increase the protection of customers. Independent evaluation of environmental policies and strategies increases return on assets and corporate efficiency. In this context, the profitability and financial efficiency of companies increases. Practicing climate change activities, reducing emissions, and generating environmentally friendly products are closely related to the ROA and ROE. Therefore, environmental policies are related to the market value of companies. However, the focus on climate change, while neglecting the operational issues of companies, further exacerbates environmental problems. The results support the fact that the food industry in Europe has operating procedures that are environmentally sensitive.

Social practices and activities are considered as stimulating methods of corporate efficiency. Furthermore, the results of this study confirm that social activities create superior financial performance. The results confirm that social activities, such as training, career development programs, and human rights policy, are positively related to the ROA and market value. European food companies attract skilled employees because they have equal working conditions and promote the recruitment of employees with greater productivity. In addition, the European food industry guarantees the protection of all employees' rights in the company. It has an exemplary corporate culture that enhances profitability and financial efficiency. Policymakers and practitioners must realize that the practice of social activities, such as health and safety procedures, are the main handler of financial performance, enhance the reputation of firms, and attract skilled employees. In terms of policy makers, the findings confirm the tendency of management to pay attention to the strategies of shareholders and stakeholders, increasing the financial performance in the food industry. European food companies adhere to many global standards and measures of governance, such as the GRI, GRI Checked, and United Nations Global Compact Signatory. Food companies strive to adhere to governance standards, mitigate corruption, and create a comfortable and environmentally friendly work context in order to achieve superior financial performance. The results prove that the food industry is striving to publish sustainability reports to enhance the management of ESG activities. In conclusion, the European food industry's ESG activities are characterized by a high level of implementation. Therefore, there is a relationship between ESG rating activities and financial performance in the food industry.

From your insights, several implications can be concluded. First, practitioners should develop programs, training courses, and workshops that encourage the disclosure of non-financial information, such as social and environmental information. Corporate governance also plays a vital role for companies. Furthermore, regulatory reputation and competitiveness are related to the disclosure of financial and non-financial information. Many companies are struggling to escape from being stuck in the middle over the disclosure of social and environmental information. Therefore, less disclosure of social and environmental information reduces the efficiency and financial performance of companies. The results of this study claim that moderate strategic disclosure of financial and non-financial information enhances financial performance. Policymakers and decision makers must realize excessive or limited disclosure exacerbates administrative problems and reduces financial performance.

Second, many organizations have developed guidelines to mitigate social and environmental risks and achieve high financial performance. For example, according to the Committee of Sponsoring Organizations of the Treadway Commission and the World Business Council for Sustainable Development, the risks associated with environmental and social problems are a critical factor for firms to be out of competition. However, companies suffer from the low effectiveness and feasibility of implementing environmental guidelines. To this end, the decline in efforts to adopt effective policies within the organizational operations is considered a reason for the decline in financial performance. Practitioners should strive to develop comprehensive implementation and adoption of environmental activities. Paying attention to one issue over another exacerbates long-term financing problems. Many companies and industries tend to pay attention to climate change and neglect other environmental issues. Furthermore, practicioners should develop comprehensive environmental and social strategies to pursue the adoption and implementation of the environmental guidelines in an efficient manner.

Third, industries are experiencing issues and challenges of financial support for ESG activities, as ESG activities require large investment in research and development. Moreover, successful industry leaders play a vital role in creating robust sustainability. Therefore, combating the industry alone is not sufficient without the support of stakeholders. Increasing cooperation between industry and governmental and non-governmental organizations by conducting training courses, workshops, and seminars would alleviate ESG problems.

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Furthermore, motivating practitioners and policymakers for stakeholder collaboration regarding CSR activities affects the financial performance of the industry and achieves consistent levels of sustainability activities.

Fourth, ESG serves as a proxy for stakeholder communication to practitioners and policymakers. For example, waste scales, such as water flow and greenhouse gas emissions, also governance indiators, such as meetings, and board diversity, are considered environmental and governance issues. However, law and consumer rights are social requirements. Overall, ESG rating are highly important to the market. In all cases, ESG ratings affect ROA and ROE. Practitioners and decision makers in food companies around the world must realize that providing services to the community is key to financial performance. The European food industry is a vital part of economic recovery. By adopting and implementing ESG guidelines, the financial performance of companies would be improved.

7 | CONCLUSION

The increasing importance of ESG matters particularly affects the food industry. On the one hand, increasing regulations and reporting requirements are being implemented by policy makers and regulators. On the other hand, consumers and investors also demand greater transparency with regard to firms' ESG issues. This concerns the supply chain, the production and marketing of products, and the treatment of employees, impact on society, brand image, and company presentation. All these aspects represent relevant ESG factors that are becoming the focus of attention for food companies. The value creation of a company should increasingly take into account the impact of ESG factors, in addition to financial aspects. In this context, this study contributes to the literature by examining the relationship between ESG ratings and financial performance for firms in the European food industry between 2017 and 2020. Results suggest a significant positive but modest relation between ESG ratings and financial performance, specifically profitability measured through ROA and ROE. Most studies of ESG and financial performance are cross-sector analyses. This study stands out because it specifically addresses the ESG behavior and financial performance of firms across the entire food value chain.

Limitations in this study arise from the observation of only four consecutive firm-years and one specific sector. As mentioned before, missing data did not allow for a longer period. However, future research could use other data sources. Additionally, it is possible that other factors or variables influencing ESG ratings and financial performance have not been considered. Due to the used database, the results could have been different if other ESG ratings had been used, as each rating institution uses a different approach and there is no homogeneous process to date (Conway, 2019; de Spiegeleer et al., 2021; Dorfleitner et al., 2015, 2020). For this reason, it is necessary to reconsider the ESG valuation schemes. The present study shows that the ESG ratings are strongly clustered around the mean value. Whether this corresponds to the actual ESG behavior of the individual companies, especially in the case of multinationals, remains unsure.

The practical implications for investors focused on SRI are hence twofold. First, the results confirm prior findings that firms dealing with ESG matters, reflected through good ESG ratings, are doing better financially. In particular, more sustainable firms show better profitability in terms of ROA and ROE. Second, the findings confirm previous evidence from Gidwani (2020) that ESG ratings shift towards the mean value over time. For investors, this may imply that companies selected for SRI based on their ESG rating do not reflect desired sustainability aspects. At the same time, investors may want to reconsider whether ESG ratings reflect their own perception of sustainability, especially in the case of multinationals.

For future studies, this consequently means that it is necessary to revisit the measurement and comparability of sustainability performance among companies. This is difficult due to the lack of measurability through qualitative rather than quantitative data in the ESG field. ESG ratings could become more value relevant and meaningful if they are designed more transparently and based on uniform criteria and international standards. Alternatively, a combination of financial and non-financial performance indicators could be a future solution to fulfill the new concept of value creation. Moreover, it would be interesting to see whether the observed effect of ratings shifting towards the mean is present in other industries as well.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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