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SUSTAINABILITY PRACTICES AND NON-PECUNIARY
INCENTIVES: Their Impact on the performance and value of
European Companies.

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Abstract:

Socially responsible corporations, striving for a balance between their profits, people, and the planet, are better esteemed by all stakeholders and enhance their performance in the short and long term. This work aims to study the impact of specific social and environmental practices on the value and business performance. Leveraging data provided by various European companies from 2017 to 2022 and consulting previous literature from other authors, an empirical analysis has been conducted to discern the relationship between different sustainable practices and their individual and collective effects on the profitability indicators ROA and Tobin's Q. The obtained result reveals that companies making decisions efficiently and prioritizing the implementation of practices that improve the situation of employees, specifically through non-monetary incentives and environmental practices focusing on emission reduction and efficient resource utilization, receive higher evaluations from investors, society, and their employees.

Keywords: Company value, corporate social responsibility, environmental practices, ROA, social practices, sustainability, Tobin's Q

Resumen:

Las corporaciones socialmente responsables, que buscan un equilibrio entre sus beneficios, las personas y el planeta, son mejor valoradas por todas las partes interesadas y mejoran su rendimiento a corto a largo plazo. Este trabajo trata de estudiar el impacto que determinadas prácticas sociales y medioambientales tienen en el valor y en el rendimiento empresarial. A partir de los datos proporcionados por varias empresas europeas durante los años 2017 a 2022, y tras consultar documentación previa de otros autores, se ha realizado un análisis empírico para averiguar la relación existente entre las distintas prácticas sostenibles y su efecto individual y conjunto en los indicadores de rentabilidad ROA y Q de Tobin. El resultado obtenido muestra que aquellas empresas que toman las decisiones de forma eficiente y en cuya estrategia organizativa se priorizan la implantación de prácticas que mejoren la situación de los empleados, concretamente con incentivos no pecuniarios y prácticas medioambientales de reducción de emisiones y de uso eficiente de recursos, son mejor valoradas por los inversores, por la sociedad y por sus trabajadores.

Palabras clave: Valor de empresa, responsabilidad social corporativa, prácticas medioambientales, Prácticas sociales, ROI, sostenibilidad y Q de Tobin.

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1   Introduction.

Sustainability has generated considerable interest in recent years, emerging as a central element in contemporary society. Companies have been growing in tandem with environmental and social awareness, making efforts to adapt to new changes and gradually adjusting their strategies so that their growth does not pose a risk to the future of the planet.

The origins of sustainability as a concept can be traced back to the 1980s, where it began to be understood as a development that meets the needs of the present without compromising the abilities of future generations, ensuring a balance between economic growth, environmental preservation, and social well-being. Over the years, it has evolved and is now a global priority, leading governments, businesses, and society as a whole to integrate sustainable practices into all aspects of life. Human growth must be in harmony with the preservation of the planet.

Especially in the business world, sustainability has become a necessity but also an opportunity to increase the value of the company. Being an essential element for long-term survival also enhances the company's image and the value that external stakeholders have of it. Therefore, it is important to analyze how companies can increase their value and economic performance while contributing to creating a better world for all.

This study will be examined from the perspective of sustainability based on three fundamental pillars: economic, social, and environmental. The objective is to analyze the relationship between the implementation of social and environmental practices in the business context and to study the individual and combined effects that each of them has on the value and performance of the company. The purpose is for companies to understand, on one hand, the importance of implementing Corporate Social and Environmental Practices (CSEP) in their organization and use this information to make strategic and organizational decisions, improve corporate image, and gain a competitive advantage over their competitors.

The research methodology employed adopts a quantitative approach, wherein numerical relationships will be analyzed using a database comprising 9907 observations from various publicly traded European companies spanning the years 2017 to 2022. The study focuses on the financial indicators of Return on Assets (ROA) and Tobin's Q, and the

hypothesis posits that companies with sustainable practices exhibit higher value and business performance.

To conduct this study, an initial theoretical review of the sustainability concept based on its three pillars will be undertaken, with particular emphasis on the influence of social and environmental practices on the value and performance of European companies. Subsequently, guided by several research questions, the empirical analysis will explore the relationships between social practices, environmental resource practices, and environmental emissions practices. Multiple linear regression models will be employed to examine the impact of each practice on the value and performance of the company. Furthermore, the study will explore the complementarity between these practices, aiming to understand whether their simultaneous implementation enhances the long and short-term value of companies, or if, conversely, the effect diminishes. Lastly, the results will be discussed, and conclusions will be presented.

With this work, I hope to obtain relevant and useful results that encourage companies to implement sustainable practices in their organizational strategy, and to confirm the hypothesis that reflects the positive effect these practices have on the value of the company.

2   Theoretical model and hypothesis.

2.1   Sustainability Concept: Three pillars of Sustainability, ESG.

Before tackling the research on environmental practices and non-pecuniary incentives, it is necessary to conduct a prior theoretical review. The concept of sustainable development has been defined and named on multiple occasions in recent years. However, the origin of the concept as we understand it now is quite recent. It dates to 1987 when the term first appeared in the Brundtland Report. This report was prepared by several countries for the United Nations Organization. Initially titled "Our Common Future," they eventually decided to name it the Brundtland Report in honor of Dr. Gro Harlem Brundtland, the former Norwegian Prime Minister, who chaired the commission. The objective was to delineate the impact of human activities on the environment. (López, 2016)

This report marked a significant change, not only because it coined the term sustainability for the first time, as a simple concept encompassing economic development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs. The complexity of sustainability shifted away from

the idea of sustainability primarily associated with the environmental concept to also include its integration into the economic and social context of ongoing human and business development. Gradually, the term became institutionalized, as seen in the Rio de Janeiro Declaration of 1992, with the goal of reaching international agreements that respected all interests and protected the environment and global development.

From that moment on, awareness grew about the negative impact of an overexploited economy with limited resources, and the notion that inaction would lead to disastrous consequences. Policies and practices that considered economic, social, and environmental aspects began to be promoted. The concept of sustainable development has been widely adopted internationally and has become a fundamental objective for governments, organizations, and businesses worldwide. Goals and objectives have been established to promote sustainable development, such as the United Nations Sustainable Development Goals, which aim to address global challenges such as poverty, climate change, environmental issues, among others.

However, it remains an ambiguous and complicated concept to grasp, with few historical precedents before the Brundtland Report. Some authors in their literature approached the topic from different perspectives. The theory of the three fundamental pillars (Barbie et al. 1987) allows understanding sustainable development as three individual circles: economy, environment, and social, which interact with each other to achieve sustainability. This is also known as ESG (Environmental, Social, and Governance).

The three-circle model or the three pillars, represented in figure 1, are the key elements that support sustainable practices by not solely focusing on the physical environment and human resource management but also considering the economic and social context of businesses. This encompasses the necessary business models and behaviors for long-term value creation. Other authors proposed the concept of sustainability as a planning triangle (Campbell 1996) or a triple bottom line (Elkington 1997).

Figure 1. Three pillars of sustainability

The three dimensions of sustainability reflect that sustainable development requires considering economic, human, and natural capital, or in other words: planet, people, and profits (Elkington, 1997). The economic dimension aims to generate profits and prosperity without harming society or the environment. Socially, it focuses on how the company impacts people, specially in relation to employees, including motivations or incentives related to health, work-life balance, or corporate governance. Lastly, the ecological dimension refers to practices that seek to conserve the environment and ensure the proper use of natural resources (Baumgatner et al., 2010). A good example could be the development of renewable energies, which creates jobs while not depleting resources and generating significant economic benefits.

In the business context, sustainable development within an organization is known as corporate sustainability (Baumgatner et al. 2010). A sustainable business strategy aims to have a positive impact on both the environment and society while benefiting shareholders. Branco y Rodrigues (2006) defined CSR as the business's role in sustainable development involves satisfying the requirements of both direct and indirect stakeholders, including employees, clients, and communities, among others. This should be done without jeopardizing the company's capacity to fulfill the needs of future stakeholders. (Dyllick and Hockerts 2002).

Delvina et al. (2023) present two different approaches to implementing ESG practices in a company. The first approach is the Stakeholder Theory (Freeman, 1984), which suggests that companies need the support of all stakeholders to sustain their operations and achieve their goals. It moves beyond the economic interests of shareholders to create value for the benefit of all stakeholders (customers, suppliers, employees, shareholders...). Understanding the context and values of stakeholders is crucial to implementing sustainable practices with the aim of meeting the needs of all stakeholders. This approach fosters stakeholder interest in the company, translating into a positive impact, either through investments or by attracting new stakeholders. The other theory is the Legitimacy Theory (Schuman, 1995) based on the idea that implementing sustainable practices enhances the legitimacy and reputation of the company. If a company portrays an image of being socially responsible, stakeholders will have confidence in its business activities, leading to a better assessment of the company's value. Therefore, Freeman's stakeholder theory, which was developed earlier, focuses on meeting the needs of all stakeholders, whereas Schuman's legitimacy theory, introduced in 1995, concentrates on building a socially responsible image to enhance the company's perception in the market.

During the Industrial Revolution, economic and demographic growth was unstoppable. However, when interactions with social and environmental aspects began, the situation became complicated. These elements are not comparable and involve different values, such as costs versus health or biodiversity versus profits, which are difficult to reconcile to satisfy the interests of all groups. Some studies argue that sustainable development is the one that seeks a balance between these three factors (Hammons et al. 1995) and aims to maximize goals in all systems by balancing biological productivity with improvements in equity, social justice, and the satisfaction of basic needs (Barbier 1987).

Several studies (Mina You and Zhao, 2014; Delvina and Hidayah, 2023) demonstrate that companies with well-developed sustainable practices have higher corporate values and better financial outcomes. The truth is, investors are interested in companies' potential to create value, and nowadays, sustainable development represents a significant value creation.

As mentioned earlier, if a company presents a positive sustainable image to investors and the public, investors' reactions to these sustainable practices will influence the company's value and performance. Some authors (Delvina and Hidayah, 2023) have demonstrated how sustainable practices in the economic, social, and environmental spheres have a real

and valuable impact on the organization, using two important indicators: ROA (Return on Assets) and Tobin's Q. The results show that companies incorporating ESG practices into their corporate strategy have higher corporate values, better financial performance, and a significant competitive advantage over their competitors. Furthermore, socially responsible companies appear to be less prone to aggression and benefit from aspects such as brand reputation, employee productivity, and better relations with society (Mina You and Zhao, 2014).

2.2 Environmental practices and company values and performance.

The initial sustainable initiatives were environmental practices (Purvis et al., 2017), the environmental pillar has been developing prior to the other two pillars. Companies have been implementing practices for years to reduce emissions, promote recycling, minimize product waste, and ensure the responsible use of natural resources. However, the reality is that, beyond benefiting the planet and addressing climate change, these practices have a significant impact in short- and long-term value.

Environmental responsibility is a concern for everyone, but companies bear a significant portion of the blame due to the development of their activities, initially focused solely on economic profit. A study by Harvad Business (2020) demonstrated that out of a total of 1800 companies, more than 250 generate profits much lower than the environmental damages they cause. From the large emissions of greenhouse gases needed for machinery and energy operation, the deforestation of forests to create corporate materials, hindering nature's ability to generate oxygen and absorb C02, to the transportation of goods and the unlimited use of resources for industrial product manufacturing… All these activities together contribute negatively to climate change.

However, some previous studies insist that for the same reason, companies have a significant influence in driving change. They can implement environmental management systems to reduce their environmental footprint, become more efficient, and identify the negative effects of their business activities to rectify them. There are multiple reasons that can lead a corporation to adopt environmental practices, ranging from legal requirements or seeking public assistance, to environmental awareness or initiatives from the value chain. Cordeir and Sarkis (2008) indicate that corporate leadership commitment to environmental management is valued by stakeholder groups, including investors and shareholders. This enhances the public image, leading to a higher corporate valuation and a higher short-term performance.

Large corporations must learn to prioritize the environmental focus of the company in their planning (Abrams et al.,2021) because it will be a valued aspect for stakeholders. If investors perceive that the company's environmental practices are scarce or nonexistent, they will view it as a financial risk and a threat to the company's future (Wilhelm, 2014). On the other hand, if companies can establish effective environmental strategies to better manage their environmental issues and concerns, they can expect significant financial returns because they will be prepared to face future environmental challenges and, consequently, will be better valued by investors and shareholders (Hart,1997).

Corporate sustainability practices are a new priority for both large and small businesses. Now, financial objectives must align with sustainable development goals by adopting the ESG (Environmental, Social and Governance) model to reduce environmental impact and achieve other objectives that benefit society.

2.3 Social practices: non-monetary rewards and the value and the performance of the company.

The social concept is ambiguous, and so is its scope of action. From the literature, we can derive some foundations of what is understood as the "social" pillar in sustainability. Murphy et al. (2012) summarizes it in four organizational dimensions: Equity, sustainability awareness, participation, and social cohesion, from which more specific objectives can be derived. Winston et al. (2022) understand that social practices focus on realizing human well-being or that social sustainability depends on the context in which it is studied (Kordi et al. 2021) if it has a social impact. Blanco et al. (2006) relate ethical and moral issues to decision-making and corporate behavior.

The second pillar, explores how corporate social responsibility, reflected through social practices, directly influences its value and its performance. It is important for the company to identify employees, consumers, and the community as stakeholders and recognize the social impact that falls upon them with each business move. Some studies (Sutto et al.2001) focus on understanding how CSR interacts with human resources management through non-pecuniary and pecuniary incentives. However, in this study, we will pay special attention to corporate social practices through non-pecuniary incentives, delving into business ethics and understanding how companies can impact their economic performance and value, thus contributing once again to sustainability.

Sutto et al., (2001) reflects in their study that Corporate Social Responsibility from a social dimension, hereafter referred to as social CSR, is a competitive advantage in relationships with stakeholders because it represents an element of intangible value for the company, unique and irreplaceable. When talking about CSR socially oriented, we refer to workplace safety, healthcare, human resources, relationships with suppliers and consumers, relationships among employees, workplace flexibility, and recognition (Branco & Rodrigues, 2006). CSR strategies for managing stakeholder interests are critical for the long-term success of companies (Sutto et al., 2001).

However, to implement useful socially responsible practices that contribute to increasing the company's value and company's performance, impeccable human resources management is required. The role of human resources is to organize and coordinate employees, ensuring their well-being, to guide them in understanding and achieving corporate objectives, including being a socially responsible company.

One of the main functions of human resources is to keep employees motivated, so that they can be creative and innovative. One of the incentives to achieve this is the aforementioned non-monetary practices, which create value in the company and achieve short-term satisfaction by promoting the intellectual capital of businesses and the sustainable development of organizations (Barrena-Martinez et al., 2019).

These practices, also known as intrinsic motivations, impact human capital by allowing workers to feel equal, with opportunities for growth, in a positive work environment, ultimately enhancing the firm's productivity (Khan et al., 2019). However, this sustainability pillar might not be viewed as positively by investors. Sitto et al. (2021) explain in their study that investors might perceive these socially responsible practices as an attempt to enhance the company's reputation and avoid social criticism, which might not align with business objectives. Instead of being seen as a genuine enriching element of business value, they could be viewed differently.

Based on these ideas and supported by various theories, which have contributed to the understanding and promotion of social practices, demonstrating that they are not only ethical but also strategically advantageous for both the company and society, it could be argued that socially responsible business practices, oriented towards employees and based on stakeholder theory, enhance motivations for creative and innovative performance. This

innovation, crucial for survival in the business competition, has a positive impact on the company's performance and value.

3 Research Questions:

After studying the theoretical framework of sustainable practices and non-pecuniary incentives, and supported by numerous authors, it could be argued that there exists a strong relationship between companies' value and performance and their ESG practices.

It is worth considering the hypothesis that companies with corporate social responsibility strategies have higher market values and better economic performance. By integrating a well-developed sustainable strategy with environmental, social, and economic initiatives, future risks are reduced, the company's image is enhanced, and investor tend to provide more favorable evaluations.

From this standpoint, it is necessary to address several important and enlightening research questions. Firstly, the relationship between environmental practices and social practices will allow determining whether there is a connection between a company deciding to implement environmental practices and its decision to also implement social practices. This issue is crucial for understanding the dynamics of the company, its organizational and competitive strategy, and facilitating the understanding of the following research questions.

The subsequent research questions will seek to study the effect that both environmental practices and non-monetary compensations, individually, have on the value and financial performance of the company. These investigations are essential for decision-making and understanding their impact on stakeholder valuation. Finally, it is interesting to study whether there is complementarity between social and environmental practices to determine if, together, they increase short and long-term performance or if, on the contrary, they decrease it. In summary the research questions are the following:

RQ1: Relationship between environmental and social practices, RQ2: Effect of environmental practices on company performance and value, RQ3: Effect of non-cash compensation on company performance and value, and RQ4: Complementarity between non-monetary rewards and environmental practices on company value and performance.

4 Empirical Analysis.

4.1 Data base:

This type of research requires a qualitative and quantitative analysis of the data to determine whether there is a relationship between ESG practices and the company's value and performance. To test the hypothesis, the Refinitiv Eikon Database is used. This database is designed to provide comprehensive and objective information about a company's ESG relative performance, its commitment, and effectiveness. Ratings are available for over 7,000 companies worldwide from 2002 to the present.

There are over 400 ESG measures, grouped into 10 items, which are further organized into the three fundamental pillars of sustainability. This data are processed and standardized to ensure comparability across all companies.

Specifically, data from 2,268 European publicly traded companies will be analyzed from 2017 to 2022, These companies located throughout Europe, have been grouped into European geographic regions: North, South, East, and West Europe, which will allow drawing conclusions based on geographical areas (Annex I). In addition to the sector, country, and geographic region, other important variables such as the number of full-time employees, total assets, and ROA and Tobin's Q ratios will be considered for each company.

Regarding the ESG practices under study, we need to assess which of them are integrated within the companies and in what quantity. Out of the 10 main items (Annex II) used in the Refinitiv ESG score, which are based on the information provided by companies regarding their ESG performance and grouped into three categories, or as mentioned previously, into three pillars; social, governance and environmental. Of these 10 items, only three will be analyzed in-depth with their different practices: workforce within the social pillar, and emissions and resource use within the environmental pillar. (Further definition in the annex. II.). Table 1 reflect the practices under study.

Table 1: ESG practices

ESG Practices under study		
Social practices	**Resource Use practices**	**Emissions practices**
(i) Policy Employeee Health & safety	(i)Resource Reduction Policy	(i)Policy Emissions
(ii) Training and Development Policy	(ii)Policy Water Efficiency	(ii)Waste Reduction Iniciative
(iii) Policy Skills Training	(iii)Policy Energy Efficiency	(iii)ISO 14000 or EMS
(iv) Policy Career Development	(i)Policy Environmental Supply Chain	(iv)Environm. Inv.Initiative
(v) Policy Diversity and Opportunity	(v) Environm. Supply Chain Management	(v)Environm. Restoration Initiative
(vi) Internal Promotion	(vi)Environmental materials	
(vii) Flexible Working Hours		

Source: Own elaboration

4.2   Methodology

4.2.1   Variables: Definition and descriptives.

The following table contains basic information about all the European companies from 2017 to 2022. To describe Table 2, we will focus on the following variables: geographic region, percentage of companies in each region, number of companies, average number of full-time employees, average total assets, average ROA, and average Tobin's Q. ROA (Return on Assets) is a ratio in percentage that reveals a company's short-term profitability concerning its assets, it is calculated using the following formula: Profits earned by the company before interest and taxes divided by total assets, while Tobin's Q is calculated as the ratio between the market value and the book value of an asset, determining whether assets are overvalued or undervalued. Tobin's Q was developed by economist James Tobin in 1970, it serves as a long-term profitability indicator. Previous researchers have used this ratio to assess a company's relative market valuation.

Table 2: Companies basic description

	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Total
% Zone	3.38%	47.50%	11.86%	37.26%	100.00%
Nº of Companies	335	4706	1175	3691	9907
Full-Time Employees Average	38388.67	12555.62	14923.98	27932.45	19448.16
Total Assets Average (millions)	1277849.359	51803.77	45338.00	37655.71	87223.9324
ROA Average	5.01	3.73	3.44	2.82	3.40
TOBIN'S Q Average	0.99	2.04	1.15	1.54	1.71

Source: Own elaboration

Firstly, this is a study of publicly traded European companies. The collected data includes a total of 45 European countries grouped into 4 zones based on their location (Information developed in Annex I): the Northern area, including countries like Norway and the UK;

the Eastern area, with countries like Russia and Poland; the Southern area, where Spain is located; and the Western Area, including France or Belgium. The percentage of companies per zone is quite significant, with 47.50% of the analyzed companies situated in Northern Europe, compared to only 3.38% in Eastern Europe. The rest are divided between the Southern and Western regions, with a substantial difference in the latter case. In terms of numbers, out of the total 9.907 observations, 3691 belong to the Western zone, while 1175 are in the Southern zone.

The companies' under-study have an average of 19,448.16 full-time employees, indicating that these are large-sized companies. Table 2 provides the average number of employees per geographic zone. From the provided figures, it is known that the company with the highest number of full-time employees has 675,805.00 employees.

The next variable in Table 2 is the average total assets. Total assets of a company represent the portion of the balance sheet that includes the company's properties, rights, and resources with economic value. The table details that the average total assets of European companies are 88,005.65 (millions) with the highest average in Northern Europe, followed by the Southern area. It's worth noting that the company with the maximum total assets has an approximate value of 27,553,384 million.

Finally, the table presents two important economic indicators ROA and Tobin's Q. ROA indicates the profits generated from investments made, with higher ROA indicating higher profitability. The average ROA in percentage for the companies is 3.40%. It's noteworthy that the maximum ROA value is 236.78%, belonging to companies without physical assets, while the minimum ROA value is -98.10%, indicating negative profitability for a specific company. Regarding Tobin's Q, the average for the analyzed European companies is 1.71. A higher Tobin's Q reflects a company with a higher market valuation (Busch and Hoffmann, 2011).

The following Graphic displays the environmental innovation score by years and geographic zones. The Environmental Innovation category score reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed products.

Graphic 1: Environmental Innovation Score Average per year and per area
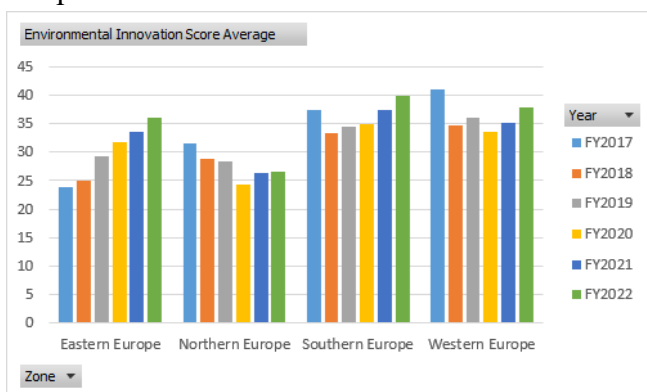
Source: Own elaboration

Notable findings from the data include that the average environmental score, considering the different geographic areas, was higher in 2017 and gradually decreased until it started to rise again in 2021. The variable ranges from 0 to 100 and never exceeds an average of 40. Additionally, the geographic area with the highest average environmental score throughout the analyzed years is Western Europe, followed by Southern Europe.

Table 3: Global Environmental Innovation Score Average per year

Environmental Innovation Score Average							
	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	Total
Eastern Europe	23.91	25.04	29.28	31.81	33.49	36.07	29.74
Northern Europe	31.62	28.86	28.45	24.33	26.26	26.61	27.03
Southern Europe	37.49	33.35	34.55	34.98	37.45	39.92	36.04
Western Europe	40.91	34.80	35.98	33.55	35.24	37.95	35.91
Total	**35.58**	**31.70**	**32.23**	**29.16**	**30.99**	**31.94**	**31.50**

Source: Own elaboration

At a global level across all the companies under study, similar information to the geographical distribution is extracted. The year with the highest innovation score was in 2017 with an average value of 35.58, and the year with the lowest values was in 2020, coinciding with the global pandemic. From that point, the innovation score average has been progressively increasing until the latest available data in 2022.

Table 4 illustrates the implementation of various social practices in the studied companies and their relationship with each geographic zone. The table shows the percentage of observations applying each social practice.

Table 4: Implementation of Social practices by geographic area.

	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Total general
Policy Employee &safety	90.75%	89.93%	96.43%	90.06%	90.77%
Training and Development Policy	94.63%	86.38%	94.38%	90.71%	89.22%
Policy Skills Training	94.63%	80.03%	92.43%	87.67%	84.84%
Policy Career Development	88.66%	80.71%	89.96%	86.37%	84.18%
Policy Diversity and Opportunity	89.55%	94.58%	93.28%	91.95%	93.28%
Internal promotion	44.48%	35.13%	41.87%	43.65%	39.42%
Flexible Working Hours	41.79%	40.14%	60.00%	63.23%	51.16%

Source: Own elaboration

Table 4 reflects the percentage of observations in each region that implement the mentioned practices. The following insights can be drawn from the data. Almost all observations, regardless of geographical area, implement job security practices. It is particularly noteworthy that 96.43% in Southern Europe claim to have initiatives to promote a safe work environment, compared to 89.93% in the Northern area.

Regarding projects promoting employee training and development, 94.63% of the observations of the eastern zona have such initiatives, as do 94.38% of those in Southern European. Additionally, 94.63% of those in the Eastern region confirm having training in political skills, compared to 80.03% in the Northern region and 87.67% in the Western region.

On the other hand, 94.58% of Northern observations have policies promoting diversity and equal opportunities, followed by 93.28% of Southern European observations and 91.95% of Eastern observations. However, the data regarding internal promotion practices and flexible working hours vary significantly. Only 44.48% in Eastern Europe claim to have internal promotion policies, and 41.79% report having policies allowing flexible working hours. In Southern and Western Europe, the percentages are slightly higher. About 60% in both regions claim to have flexible working hours, and around 40% in both areas have promotion policies for their employees.

Table 5: Implementation of environmental resources practices by geographic area.

	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Total general
Resource Reduction Policy	94.33%	88.25%	94.64%	89.38%	89.63%
Policy Water Efficiency	68.66%	42.67%	67.57%	55.95%	51.45%
Policy Energy Efficiency	88.96%	79.41%	89.62%	84.18%	82.72%
Policy Environmental Supply Chain	63.88%	63.77%	76.94%	70.90%	67.99%
Environmental Supply Chain Management	56.42%	54.80%	75.83%	65.65%	61.39%
Environmental Material Sourcing	32.54%	38.67%	51.66%	49.17%	43.92%

Source: Own elaboration

Table 5 presents diverse information. On one hand, around 90% of all observations claim to have policies to reduce resource consumption, especially in Southern and Eastern Europe, where 94% of those under study state that they carry out initiatives to be more resource efficient. Regarding efficient water usage, 68.66% of Eastern European observations are conscious of this issue, compared to 42.67% in the Northern area. In contrast, energy concerns European companies more, with 89.62% of Southern European observations and 88.96% in the Eastern European region confirming the implementation of energy-saving and efficiency practices.

Other extracted data shows that only 32.54% of Eastern observations and 48.67% in the Northern confirm employing sustainable criteria when obtaining or disposing of their materials. Or for example, 70.90% in Western Europe and 76.94% in the Southern region have implemented policies to reduce the environmental impact of their supply chains.

Next table addresses the environmental practices that companies can promote to reduce gas emissions.

Table 6: Implementation of environmental emissions practices by geographic area.

	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Total general
Policy Emissions	82.39%	80.13%	84.17%	82.47%	81.56%
Waste Reduction Initiatives	88.36%	77.03%	88.09%	78.89%	79.42%
ISO 14000 or EMS or BOTH	54.93%	47.11%	71.40%	57.46%	54.11%
Environmental Investments Initiatives	36.12%	14.73%	29.87%	20.02%	19.22%
Environmental Restoration Initiatives	38.51%	13.51%	29.19%	22.24%	19.47%

Source: Own elaboration

The environmental emissions table shows varied results. Nearly 80% of European companies in all geographical regions have committed to limiting and reducing greenhouse gas emissions, as it is one of the joint objectives of the European Union (Decision 406/2009/EC).

On the other hand, 88.09% of observations in Southern Europe, compared to 77.03% in Northern Europe, claim to be implementing innovative initiatives to reduce waste production. Regarding environmental practices certification, 54.93% in Eastern Europe, 47.11% in the North, 71.40% in the South, and 57.46% in the West have ISO 14000 or EMS certifications, verifying their environmental practices within the company.

When it comes to investment and environmental restoration initiatives, few companies are actually carrying them out. Particularly noteworthy is Northern Europe, where only 14.73% and 13.51%, respectively, confirm having investment or environmental restoration initiatives. In Eastern and Southern Europe, the number of companies with these initiatives is slightly higher, but the figures are not extremely high either.

To understand the research under study thoroughly, it is essential to gain an overview of all the provided information. For this purpose, it is crucial to analyze the variables individually, but especially their relationships.

4.2.2 RQ1: Relationship between environmental and social practices.

The first research question addresses the existing relationship between social and environmental practices. Based on the previous tables, three correlation matrices were created to study how all possible pairs of values in the tables relate to each other and to identify patterns of correlation.

The three matrices summarize the relationships between social policies and environmental resource policies, social policies with environmental emissions policies, and the two pairs of environmental practices. Each individual value in the correlation matrix indicates the Pearson correlation coefficient between each pair-wise combination of variables.

Table 7: Correlation matrix between social practices and environmental resource practices:

	1. PEH&S	2.T&Dev P	3. PST	4. PCD	5.PD&O	6.IP	7. FWH	8.RRP	9.PWE	10.PEE	11.PESC	12.ESCM	13.EMS
1.Policy Employee Health & Safety	1.00												
2. Training and Development Policy	0.40	1.00											
3. Policy Skills Training	0.38	0.82	1.00										
4. Policy Career Development	0.36	0.80	0.64	1.00									
5. Policy Diversity and Opportunity	0.40	0.40	0.37	0.37	1.00								
6. Internal Promotion	0.17	0.28	0.27	0.34	0.15	1.00							
7. Flexible Working Hours	0.18	0.27	0.28	0.29	0.19	0.18	1.00						
8. Resource Reduction Policy	0.43	0.41	0.39	0.39	0.39	0.20	0.18	1.00					
9. Policy Water Efficiency	0.26	0.26	0.27	0.28	0.20	0.20	0.17	0.35	1.00				
10. Policy Energy Efficiency	0.37	0.40	0.40	0.40	0.35	0.22	0.23	0.74	0.41	1.00			
11. Policy Environmental Supply Chain	0.35	0.32	0.32	0.36	0.29	0.23	0.22	0.50	0.36	0.39	1.00		
12. Environmental Supply Chain Manager	0.32	0.32	0.33	0.36	0.27	0.23	0.23	0.42	0.38	0.36	0.81	1.00	
13. Environmental Materials Sourcing	0.24	0.26	0.29	0.29	0.19	0.21	0.21	0.30	0.37	0.30	0.58	0.60	1.00

Source: Own elaboration

From the table, it can be inferred that the strongest linear correlation occurs between practices within the same sustainable pillar. For instance, the highest correlation coefficient is found between social practices, specifically between policy skills training and training and development policy. In other words, having more initiatives promoting political skills is strongly related to having training and professional development policies within the company.

On the other hand, the highest correlation between social practices and environmental resource practices is between the resource reduction policy and health and safety policies in employment, with a correlation coefficient of 0.435. However, no correlation coefficient between variables approaches 1; all coefficients are between 0 and 0.5. This indicates that there is no close relationship between having social practices and, at the same time, implementing environmental resource practices.

Table 8: Correlation matrix between social practices and environmental emissions practices:

	1.PEH&S	2.T&Dev.P	3.PST	4.PCD	5.PD&O	6.IP	7.FWH	14.PE	15.WRI	'O 14000 or	17.EII	18.ERI
1.Policy Employee Health & Safety	1.00											
2.Training and Development Policy	0.40	1.00										
3. Policy Skills Training	0.38	0.82	1.00									
4.Policy Career Development	0.36	0.80	0.64	1.00								
5.Policy Diversity and Opportunity	0.40	0.40	0.37	0.37	1.00							
6. Internal Promotion	0.17	0.28	0.27	0.34	0.15	1.00						
7. Flexible Working Hours	0.18	0.27	0.28	0.29	0.19	0.18	1.00					
14.Policy Emissions	0.40	0.40	0.40	0.40	0.38	0.23	0.23	1.00				
15.Waste Reduction Initiatives	0.36	0.38	0.37	0.38	0.35	0.23	0.21	0.49	1.00			
16.ISO 14000 or EMS	0.27	0.22	0.24	0.24	0.18	0.13	0.07	0.29	0.29	1.00		
17.Environmental Investments Initiatives	0.13	0.15	0.16	0.16	0.11	0.12	0.13	0.20	0.19	0.22	1.00	
18.Environmental Restoration Initiatives	0.13	0.15	0.16	0.17	0.11	0.16	0.17	0.20	0.20	0.17	0.27	1.00

Source: Own elaboration

On the lowest correlation are environmental restoration initiatives or environmental investment initiative and diversity and opportunity policies, with a value of 0.111. But overall, all scores are close to 0. In other words, there is truly little association between

social practices and environmental emission practices. It is especially striking the almost nonexistent relationship between flexible working hours and ISO 14000 environmental certifications; there is hardly any connection between the two.

Again, the strongest relationship occurs between practices within the same pillar. In the case of environmental emission practices, the highest association, with a score of 0.491, is between emission policies and waste reduction policies.

Table 9: Correlation matrix between environmental emissions practices and environmental resources practices:

	14.PE	15.WRI	IO 14000 or	17.EII	18.ERI	8.RRP	9.PWE	10.PEE	11.PESC	12.ESCP	13.EMS
14.Policy Emissions	1.00										
15.Waste Reduction Initiatives	0.49	1.00									
16.ISO 14000 or EMS	0.29	0.29	1.00								
17.Environmental Investments Initiatives	0.20	0.19	0.22	1.00							
18.Environmental Restoration Initiatives	0.20	0.20	0.17	0.27	1.00						
8.Resource Reduction Policy	0.54	0.49	0.27	0.15	0.14	1.00					
9.Policy Water Efficiency	0.35	0.40	0.36	0.29	0.26	0.35	1.00				
10.Policy Energy Efficiency	0.55	0.51	0.26	0.19	0.17	0.74	0.41	1.00			
11.Policy Environmental Supply Chain	0.40	0.42	0.38	0.22	0.19	0.50	0.36	0.39	1.00		
12.Environmental Supply Chain Managemen	0.37	0.39	0.39	0.23	0.20	0.42	0.38	0.36	0.81	1.00	
13.Environmental Materials Sourcing	0.32	0.33	0.32	0.25	0.21	0.30	0.37	0.30	0.58	0.60	1.00

Source: Own elaboration

In this matrix, all practices are environmentally friendly, but that doesn't mean there is a strong relationship between these practices. There doesn't seem to be a significant connection between resource practices and environmental emission practices. In other words, the table does not reflect a link between a company implementing initiatives to reduce emissions into the environment and having policies to reduce resource usage.

The highest correlation between resources and environmental emissions lies in initiatives for energy efficiency and policies to reduce greenhouse gas emissions, with a correlation coefficient of 0.552. Companies implementing emission policies tend to also implement energy efficiency policies. Similar values are shown for initiatives to reduce gas emissions and waste reduction policies.

Once again, the trend of association between practices of the same category repeats itself. This happens with the close relationship between policies to reduce resource usage and energy efficiency policies. There seems to be a strong association that commonly leads companies to have both practices together.

4.2.3   RQ2: Effect of environmental practices on company performance and value and
RQ3: Effect of non-cash compensation on company performance and value.

The following research questions aim to address the effect of environmental practices and non-economic compensations on the performance and value of companies. To analyze how the implementation of various sustainable practices affects the ROA and TOBIN's Q indicators, a multiple linear regression model will be employed.

This multiple lineal regression model describes the relationship between a variable Y, alternatively termed endogenous, dependent, or explained, and several variables X, alternatively termed independent, exogenous, or explanatory.

Multiple linear regression is a statistical method used to understand the relationship between multiple predictor variables and a response variable. However, to carry out this model, five assumptions must be met: (i) Linear relationship between each independent variable and the dependent variable, (ii) Absence of multicollinearity among independent variables, (iii) Independence in observations, (iv) Homoscedasticity, and (v) Normality.

The methodology of the study involves, on one hand, determining the Variable ROA as the dependent variable to assess the overall effect that certain sustainable practices have on the Company's short-term value. On the other hand, conducting the same study by selecting Tobin's Q as the dependent variable and studying its relationship with other conditioning variables. Finally, both studies are repeated, analyzing the relationships between variables based on geographical zones.

The independent variables considered will be three: social practices, resource practices, and emission practices. The remaining variables will serve as control variables, including geographical zones, company size, and the years from which the data are obtained. The formulas used in the multiple regression model will be as follows:

$ROA = \alpha + \beta_1 SP + \beta_2 RUP + \beta_3 EUP + \beta_4 Size + \beta_5 Northern + \beta_6 Southern + \beta_7 Western + \beta_8 Y18 + \beta_9 Y19 + \beta_{10} Y20 + \beta_{11} Y21 + \beta_{12} Y22 + \varepsilon$

$Q = \alpha + \beta_1 SP + \beta_2 RUP + \beta_3 EUP + \beta_4 Size + \beta_5 Northern + \beta_6 Southern + \beta_7 Western + \beta_8 Y18 + \beta_9 Y19 + \beta_{10} Y20 + \beta_{11} Y21 + \beta_{12} Y22 + \varepsilon$

The partial correlation coefficients (β) will indicate the strength and direction of the relationship between the dependent variable and the independent variable. These coefficients represent the specific contribution of an independent variable X to the

dependent variable Y, independently of the other variables or at least while holding them constant. The further away from 0, the stronger the relationship.

SP variable is the sum of all social practices and ranges from 0 to 7, RUP variable is the sum of all resource practices ranging from 0 to 6, and EUP is the sum of emission practices ranging from 0 to 5. Geographical zones and years are dummy variables that takes the value 1 if the firm belongs to a specific geographical zones or year and 0 otherwise. Eastern geographical zone and 2017 are taking as reference. Finally, for company size, logarithms have been used to homogenize the database due to their high values.

Subsequently, the study will focus on examining the effect of environmental practices on the company's value and performance based on geographical zones. This aims to determine whether the effect on the company's value and performance differs depending on the geographical zone in which the companies are located. The formula used in the analysis is similar to the previous one, but with the exclusion of the geographical coefficients.

$$ROA = \alpha + \beta_1 SP + \beta_2\ RUP + \beta_3 EUP + \beta_4\ Size + \beta_5\ Y18 + \beta_6\ Y19 + \beta_7\ Y20 + \beta_8 Y21 + \beta_9 Y22 + \varepsilon$$

$$Q = \alpha + \beta_1 SP + \beta_2\ RUP + \beta_3 EUP + \beta_4\ Size + \beta_5\ Y18 + \beta_6\ Y19 + \beta_7\ Y20 + \beta_8 Y21 + \beta_9 Y22 + \varepsilon$$

Another essential element of the model is the coefficient α, which represents the level of significance or measure of error. Its inverse ($1-\alpha$) indicates the confidence level in the measurement. In this case, the confidence level used is 95%.

To conduct the study, we will formulate two hypotheses:

H0: Null hypothesis. The variable is not significant and, therefore, does not have a significant effect on the company's value.

H1: Alternative hypothesis. The variable is significant.

The p-value is used for hypothesis testing. Therefore, for all variables analyzed, any p-value above the significance level of 0.1 indicates that the null hypothesis H0, stating that the variable is not significant, cannot be rejected. On the other hand, any p-value below the significance level indicates that the null hypothesis H0 can be rejected, and hence the variable is considered significant. Significance is necessary for determining whether the variable is considered a predictor or not.

The first model to examine is the relationship between social practices, resource practices, emission practices, along with control variables of years, geographical zones, and company size on the ROA of the companies.

Table 10: Effect of Environmental and social practices on company performance.

ROA					
Variables	**Total**	**Northern**	**Southern**	**Western**	**Eastern**
SP	0.97 ***	0.97***	-0.095	1.008***	-0.008
RUP	0.19**	0.044	0.39**	0.43***	-0.67**
EUP	0.22	0.45**	-0.08	0.18	0.91**
Size	0.44**	0.32	0.29	-0,45**	0.99**
Y18	0.07	-1.15	1.94***	-1.43**	0.94
Y19	-1.06**	-2.19***	1.28*	-2.94***	0.77
Y20	-3.9***	-5.57***	-0.18	-5.83***	-0.54
Y21	-1.47***	-3.45***	1.88***	-2.85***	2.07
Y22	-2.36***	-4.49***	2.59***	-3.97***	2.68
Northern	-0.05	-----	-----	-----	-----
Southern	-1.56**	-----	-----	-----	-----
Western	-1.87***	-----	-----	-----	-----
R^2	0.049	0.107	0.196	0.13	0.325
Number of observations	9726	4603	1160	3637	326

It is relevant to note that the asterisks in the table reflect the level of significance:
* Indicates significance at the 10% level.
** indicates significance at the 5% level.
*** indicates significance at the 1% level.
no asterisk indicates that the coefficient is not significant.

Source: Own elaboration

From this table, several deductions can be drawn. Globally, after 9726 observations, it is noteworthy that the variable representing the sum of social practices is highly significant. This indicates a strong relationship between companies with a high ROA and sustainable practices, as the coefficient is close to 1 and positive. Higher levels of social practices are associated with a higher ROA value. On the contrary, emission practices globally are not considered a predictive variable for the ROA value in companies, therefore changes in a company's emission practices cannot be associated with changes in the return on assets value.

In relation to the control variable of years under study, it is highly significant; thus, the passage of time is closely linked to variations in the ROA of the company. In comparison with the reference year 2017, all coefficients from 2020 onward have been negative and elevated. The year 2020 was particularly marked by the Covid pandemic, which would explain the tendency for the ROA index to decrease. Regarding geographical zones, the most significant value is found in the West zone with a negative beta coefficient, meaning it is less likely that the ROA will increase if the company is located in the West zone compared to the East zone, marked as the reference in this analysis. On the other hand, the location of the company in the North zone does not show evidence of having an effect on the ROA value of the companies under study.

The effect of social and environmental practices on the value ROA of the company by geographical zones yields different results. In the North zone, with a total of 4603 observations, the statistical significance allows for the interpretation of a strong positive association between the company's performance and the implementation of social practices. As social practices increase, the ROA also increases. There is also a robust relationship between emission practices and their impact on the company's short-term performance. Regarding the variable "years," similar conclusions to the global analysis can be drawn. It remains a highly significant variable. In comparison with the year 2017, the ROA decreased in 2020, slightly increased in 2021, and decreased again in 2022.

In the South, only resource practices are observed as a significant variable at the 5% level. Promoting and advocating for resource practices in the company seems to be associated with changes in the ROA value by 0.39 points, in this case, positively. In this geographical zone, unlike other areas, the control variable of years has shown negative trends during 2020. However, from the year 2021 onward, the ROA has been positive and ascending.

The Western area presents highly significant coefficients, indicating that in this zone, significant changes in the independent variables correspond to substantial changes in the dependent variable of corporate value. It is particularly noteworthy that a smaller company size is associated with a higher ROA, while greater implementation, especially of social and resource practices, is associated with a higher ROA. Again, the annual trend is similar to previous cases, with 2020 standing out for its negative coefficients.

Finally, in the East region, previously designated as a reference, no highly predictive variables for the ROA value are identified. There seems to be only an inverse relationship

between resource practices and the dependent variable, as well as a strong and robust positive relationship between large-sized companies and their impact on asset performance. In this area, companies that increase in size tend to be more efficient.

The second multiple regression model examines the effect of environmental practices and non-monetary incentives on the Tobin's Q profitability indicator.

Table 11: Effect of environmental and social practices on company value.

TOBIN'S Q					
Variables	**Total**	**Northern**	**Southern**	**Western**	**Eastern**
SP	0.026	0.09**	0.04	0.13***	0.04
RUP	-0.02	-0.01	0.11***	-0.063***	-0.011
EUP	-0.15***	-0.37***	-0.131***	-0.1***	-0.11
Size	-0.13***	0.15**	0.06	0.14***	0.16
Y18	0.55***	1.9***	0.72***	0.82***	0.55
Y19	0.40***	1.79***	0.58***	0.69***	0.52
Y20	0.57***	2.13***	0.65***	0.82***	0.495
Y21	0.75***	2.33***	0.71***	1.01***	0.617*
Y22	0.18*	1.65***	0.47***	0.51***	0.48
Northern	2.29***	----	----	----	----
Southern	1.54***	----	----	----	----
Western	1.86***	----	----	----	----
R^2	0.33	0.27	0.52	0.44	0.203
Number of observations	9572	4514	1144	3589	325
It is relevant to note that the asterisks in the table reflect the level of significance: * Indicates significance at the 10% level. ** indicates significance at the 5% level. *** indicates significance at the 1% level. no asterisk indicates that the coefficient is not significant.					

Source: Own elaboration

This second table explores the impact that environmental practices and non-economic compensations have on the long-term value of the company. The Tobin's Q financial measure evaluates the efficiency and profitability of investments, and this analysis aims to reflect whether there is any variable on which the increase or decrease of this value depends.

The number of observations in this case amounts to 9572. From the overall analysis, it can be inferred that the sum of emission practices is highly significant as a predictor of

Tobin's Q value. However, the inverse relationship is very subtle, while it may not be the variable that explains the most about the corporate value, it does suggest that lower emission practices are associated with a higher Tobin's Q value.

Regarding the control variable of years, they are significant because the years in which the information was collected have a significant impact on the company's value. This impact may be influenced by trends, macroeconomic factors, or temporal changes affecting the variable under study. In relation to the year 2017, Tobin's Q has been progressively increasing every year, indicating that the variable "years" is having a growing impact on the company's value.

The geographical zones are highly significant variables for the company's value. This indicates that the geographic location is an important predictor of Tobin's Q value, which could be attributed to various political and economic factors and can be highly useful for making business decisions. The North zone, which presents a very high coefficient, suggests that companies located in that geographic area have a very high financial performance, followed by companies in the West, and subsequently those in the South. Therefore, it is more likely that Tobin's Q will be higher in these zones than those in the reference East zone.

From the zone-wise analysis, several insights can be gleaned. The North zone, with a total of 4514 observations, reflects a meaningful relationship between the value of Tobin's Q and emission practices; a lower level of emission practices tends to increase Tobin's Q. In this area, once again, the control variable of years is an explanatory variable for the dependent variable. The passage of years and the consequent increase in the value of Tobin's Q are not a causal fact but may be due to temporal patterns that strongly and positively impact the company's value.

The South zone shows the same temporal and significant trend in the control variable of years seen globally and in the North zone with respect to 2017. It is noteworthy that, in all cases, although the relationship remains positive, the value in 2022 is slightly lower than in other years. The sum of emission practices is highly significant for the company's value; however, it is less likely that Tobin's Q will be higher in the South than in the reference East zone.

In the Western European area, the variable of company size has a significant impact on the company's value, and understanding this relationship can be advantageous for

business strategies. A higher number of employees will have a certain relationship with efficiency in business investments. In general, in this zone, all variables are highly significant, indicating a real relationship with Tobin's Q to a greater or lesser extent. Finally, the East zone, where only 325 observations, does not present remarkable significant values.

In this comprehensive and complex research, the coefficient of determination (R^2) explains the correlation between the set of variables X and Y. The closer the value is to 1, the more explanatory the model will be. In the studies conducted, it could be said that globally, the R^2 of the first study indicates that the model explains 4.9% of the variance in the ROA variable. Meanwhile, in the second case, the R^2 indicates that the correlation between all independent variables and Tobin's Q is 33%. Therefore, the independent variables explain some of the dependent variable, or in other words, environmental practices and non-monetary incentives influence in some way the company's value and performance.

4.2.4 *RQ4: Complementarity between non-monetary rewards and environmental practices on company value and performance.*

After conducting individual analyses on the impact of each environmental and non-monetary practice on the ROA performance indicator and the Tobin's Q company value indicator, the following research question emerges as intriguing. This question seeks to investigate the complementarity between environmental practices and non-monetary incentives to ascertain whether their joint implementation leads to an increase in the company's value and performance or, conversely, a decrease compared to their individual effects.

To execute this study, the methodology mirrors that utilized in the preceding research questions. The multiple linear regression model will be employed to discern and quantify relationships between variables, with a specific emphasis on exploring complementarity. Once again, the dependent variable will be the short-term profitability indicator ROA. Subsequently, the study will be replicated using the Q of Tobin indicator as the dependent variable, and finally, both studies will be duplicated based on geographical regions.

The independent variables will be the three previously studied, which are social practices of workforce, resource practices, and emission practices. Following this, there will be control variables including geographical zones, company size, and years of study. The

distinctive element of this research question lies in the introduction of three new variables into the study, which determine the complementarity between social and environmental practices.

These variables, from which obtaining their specific partial correlation coefficient will be of interest, will indicate whether there is a positive complementarity between social and environmental practices. Consequently, determining if their joint implementation increases the value and performance of the company or, conversely, whether they do not mutually reinforce each other and, when applied together, decrease the value of ROA or Tobin's Q.

The new independent variables under study will be:

SP * RUP = Sum of social practices x Sum of Resources practices

SP * EUP = Sum of social practices x Sum of Emissions practices

RUP * EUP = Sum of resources practices x Sum of Emissions practices.

These variables signify the interaction effects arising from the aggregated sums of social practices, resource practices, and emission practices. The research endeavors to explore how these combined practices influence the dependent variables, with the objective of discerning whether a positive complementarity exists between social and environmental practices.

The values obtained in each case will indicate, on one hand, whether the obtained value is significant, that is, if there is a relationship between jointly implementing two types of practices and the impact they have on the value or performance of the company. On the other hand, they will indicate the magnitude, whether positive or negative, of that relationship.

The multiple lineal regression model used in this research questions is as follows:

$$ROA = \alpha + \beta_1 SP + \beta_2 RUP + \beta_3 EUP + \beta_4 SP*RUP + \beta_5 SP*EUP + \beta_6 RUP*EUP + \beta_7 Size + \beta_8 Northern + \beta_9 Southern + \beta_{10} Western + \beta_{11} Y18 + \beta_{12} Y19 + \beta_{13} Y20 + \beta_{14} Y21 + \beta_{15} Y22 + \varepsilon$$

$$Q = \alpha + \beta_1 SP + \beta_2 RUP + \beta_3 EUP + \beta_4 SP*RUP + \beta_5 SP*EUP + \beta_6 RUP*EUP + \beta_7 Size + \beta_8 Northern + \beta_9 Southern + \beta_{10} Western + \beta_{11} Y18 + \beta_{12} Y19 + \beta_{13} Y20 + \beta_{14} Y21 + \beta_{15} Y22 + \varepsilon$$

Table 12: Complementary between non-monetary rewards and environmental practices on company performance.

	ROA				
Variables	**Total**	**Northern**	**Southern**	**Western**	**Eastern**
SP	1.59***	1.49***	0.66**	1.2***	0.43
RUP	0.85***	-0.35	2.27***	2.04***	0.29
EUP	2.25***	3***	0.53	0.48	0.70
SP*RUP	-0.11*	0.07	-0.34***	-0.24***	-0.19
SP*EUP	-0.34***	-0.51***	-0.03	0.07	0.06
RUP*EUP	-0.05	0.02	-0.07	-0.15	-0.02
Size	0.01	-0.05	-0.37	-0.68***	0.57
Y18	-1.04**	-2.21***	0.33	-2.32***	0.53
Y19	-2.15***	-3.27***	-0-16	-3.87***	0.30
Y20	-5.03***	-6.76***	-1.70**	-6.75***	-0.92
Y21	-2.61***	-4.64***	0.39	-3.79***	1.67
Y22	-3.45***	-5.64***	1.11	-4.88***	2.32
Northern	-2.93***	-----	-----	-----	-----
Southern	-3.98***	-----	-----	-----	-----
Western	-4.18***	-----	-----	-----	-----
R^2	0.13	0.11	0.23	0.14	0.32
Number of observations	9726	4603	1160	3637	326

It is relevant to note that the asterisks in the table reflect the level of significance:
 * Indicates significance at the 10% level.
** indicates significance at the 5% level.
*** indicates significance at the 1% level.
no asterisk indicates that the coefficient is not significant.

Source: Own elaboration

The table gauges the relationship between a company's profitability in relation to its assets and the impact of specific sustainable practices on its value. And the new variables measure the effect on ROA of implementing these practices collectively.

Of the total observations analyzed and concerning the new complementarity variables, the variable SP*EUP is particularly noteworthy. This implies that such a variable has a relevant impact on the ROA value. With a negative value of -0.34, it can be interpreted that the simultaneous implementation of emission practices and social practices has an effect on the company's value that is lower than the effect produced when implementing

them individually. A similar deduction could be made regarding the variable of social practices*resource practices, although it is a less significant variable.

If we focus the study on the effect of complementarity by geographical regions, the Northern region yields results similar to the overall findings. In this case, the most significant variable is SP*EUP, once again with a negative sign. It's important to note that the negative sign does not imply a negative effect on the company's performance.

In the Southern European region, the variable SP*RUS is highly significant, suggesting it can be considered a predictor variable for the value of ROA. Again, the relationship is negative, indicating that the joint application of these practices decreases the value of the company in terms of ROA. A similar interpretation applies to the Western European region, with a variable value of SP*RUS at -0.24.

On the other hand, the Eastern region, previously used as a reference, does not warrant special mention as it lacks any particularly relevant variable.

By introducing new variables that study complementarity, the coefficients of the variables examined in the previous research questions have undergone changes. It is particularly noteworthy that the independent variables of social practices, resource practices, and emission practices, which were already significant in the second and third investigations, have now increased in magnitude, enhancing their impact on ROA even further.

For example, globally, the effect of the emission variable on ROA was not significant previously; now, not only is it highly significant, but its value has increased by 2.25. A similar case occurs in the Northern region, where the correlation coefficient of emission practices has increased from 0.45 to 3, exponentially raising the effect on ROA. The same pattern is observed with the effect of resource practices in the West or the South. Therefore, it could be asserted that, when studying complementarity between variables, the individual effects of these variables on the value of ROA have generally increased.

Table 13: Complementary between non-monetary rewards and environmental practices on company value.

TOBIN'S Q					
Variables	**Total**	**Northern**	**Southern**	**Western**	**Eastern**
SP	0.13***	0.34***	0.16***	0.24***	0.14
RUP	0.03	0.12	0.35***	0.10	0.63**
EUP	-0.14	-0.01	0.22	0.04	-0.38
SP*RUP	-0.02**	-0.04**	-0.04**	-0.04***	-0.10**
SP*EUP	-0.03	-0.10***	-0.04	-0.04	0.09
RUP*EUP	0.03***	0.05*	-0.02	0.02	-0.05
Size	-0.15***	0.01	-0.07*	0.08**	0.00
Y18	0.49***	1.5***	0.41***	0.64***	0.37
Y19	0.35***	1.4***	0.3***	0.51***	0.30
Y20	0.52***	1.7***	0.36***	0.64***	0.33
Y21	0.7***	1.9***	0.43***	0.83***	0.45
Y22	0.13	1.23***	0.19	0.35***	0.31
Northern	2.14***	----	----	----	----
Southern	1.42***	----	----	----	----
Western	1.75***	----	----	----	----
R^2	0.34	0.28	0.55	0.44	0.22
Number of observations	9572	4514	1144	3589	325

It is relevant to note that the asterisks in the table reflect the level of significance:
 * Indicates significance at the 10% level.
 ** indicates significance at the 5% level.
 *** indicates significance at the 1% level.
 no asterisk indicates that the coefficient is not significant.

Source: Own elaboration

The following table presents the same study as in the previous paragraphs but establishes the financial indicator Q of Tobin as the dependent variable, and the emerging results are as follows:

From the overall analysis, paying particular attention to the new variables studying complementarity, the variable SP*RUP is significant at 5%, indicating a relationship between this variable and its effect on the Tobin's Q indicator. The value is negative but exceedingly small, suggesting that although not with a substantial effect, non-monetary incentives and environmental resource practices do not seem to generate an improvement

in the company's value relative to their individual effect. On the other hand, the variable RUP*EUP, besides being significant, has a positive value, indicating that implementing both practices together has a superior effect on the company's value. As both are environmental practices, they mutually reinforce each other, and they contribute to enhancing the business value.

In the Northern region, the variables SP*RUP and SP*EUP act as predictors for the long-term financial indicator Tobin's Q. Their negative sign indicates that both together produce an effect on the company's value that is lower than what they would produce individually. In this region, once again, the variable RUP*EUP demonstrates that both environmental practices applied simultaneously have a positive effect on the company and its valuation.

The Southern, Eastern, and Western geographical regions exhibit similar results, with only the variable SP*RUP being significant in those areas. Therefore, the joint application of social and resource practices is linked to variations in the Q of Tobin value. As the relationship has a negative sign, it seems to indicate that, although both practices are individually beneficial and positive for the company's value, they do not mutually reinforce each other; instead, they diminish, resulting in a lesser combined effect.

By introducing three new variables that study complementarity, the coefficients of the initial variables of social practices, resource practices, and emission practices, as well as the coefficients of the control variables, are modified. It is particularly striking that the variable of social practices has become closely related, in all geographical regions, to the value of the Q of Tobin, while in the case of the emission variable, the opposite has occurred, and it has lost its relationship with the company's value.

In conclusion, and summarizing the overall findings, it could be indicated that environmental practices related to resources and emissions mutually reinforce each other, and their joint implementation generates a positive effect on both the value and performance of the company. On the other hand, social practices and environmental practices generally do not positively reinforce each other. When applied together, the effect on the company's value is usually inferior to that generated by each practice individually.

5 Conclusions

This study reflects several interesting contributions on the impact of sustainable practices on the value of European companies. This work emphasizes the importance of sustainable practices within a company as typically intangible elements, valuable, and at times challenging to quantify.

The main objective of the study was to determine the impact of environmental practices and non-monetary incentives on the value and performance of companies. The aim was to confirm the hypothesis that the effect is positive on the value of companies, so that organizations could use this information as a competitive advantage and enhance the value they deliver to stakeholders.

From the obtained results, it cannot be affirmed that there is a relationship between the implementation of social practices in a company and having environmental practices related to emissions or resources. This lack of relationship may be due to the company lacking a robust organizational strategy that focuses on all fundamental pillars of sustainability, or it could simply be that their business is more involved with social practices aimed at improving a positive work environment, or conversely, they are more conscious of environmental aspects.

From the following research questions, regarding the effect of individual practices on asset profitability, it can be confirmed that there is a strong relationship between the implementation of social practices in a company and its impact on high levels of ROA. This could be attributed to the implementation of practices that enhance job positions and employee motivation, leading to increased productivity, talent retention, and improved business performance. It can also be concluded that a higher number of employees in the company correlates with higher asset profitability.

Concerning the long-term business value reflected in the Tobin's Q indicator, a negative relationship with the implementation of practices reducing emissions can be observed. This might be due to investors finding it challenging to expect that costly investments in emission reduction generate significant long-term benefits. Therefore, it is crucial for companies to learn how to effectively focus these investments to be valued by the market.

Regarding the complementarity of practices, the value of companies is lower when both practices are applied together compared to the individual effect of each on company value.

However, this effect diminishes in the long term. This can be interpreted as the initial implementation incurring excessive costs, requiring significant structural and organizational modifications, and facing numerous challenges that decrease the value of the company. However, as the practices mature and become integrated into the business strategy, they start generating benefits, enhancing corporate image, and increasing the value attributed by stakeholders to the company.

It can also be concluded that the years under study and the geographical location have been determining factors for the company's value. However, it is important to note the limitation present in this aspect. The database, composed of 9907 observations, exhibits an uneven distribution of geographical areas, with 47.50% of the investigated companies from the northern European zone compared to 3.38% from the eastern European zone. Additionally, the studied data has been collected based on voluntary responses from different companies, so the conclusions are conditioned by the limitation of information provided.

The relevance of this research lies in the utility that these results can provide for companies. Positive outcomes can aid companies in strategic decision-making and enhancing their position in the market. In turn, this will enable them to align business objectives with sustainable ones and achieve survival, growth, and value creation for all stakeholders both in the short and long term. Meanwhile, negative results will prompt reflection on strategies, investment in practices yielding positive effects for the company, more efficiently redirecting resources, mitigating unforeseen risks, and staying active for continuous improvement and the pursuit of opportunities.

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Annex

Annex I: Geographic areas

Geographic areas			
Northern Europe	**Southern Europe**	**Eastern Europe**	**Western Europe**
United Kingdom	Italy	Slovak Republic	France
Norway	Malta	Poland	Austria
Sweden	Spain	Czech Republic	Belgium
Finland	Croatia	Russia	Luxembourg
Ireland; Republic of	Greece	Hungary	Netherlands
Guernsey	Gibraltar	Romania	Germany
Jersey	Macedonia	Ukraine	Monaco
Estonia	Slovenia	Bulgaria	Switzerland
Denmark	Cyprus		Liechtensten
Lithuania	Portugal		
Isle of Man	Republic of Montenegro		
Latvia	Republic of Serbia		
Iceland	Bosnia and Herzegovina		
Faroe Islands	Albania		

Annex II ESG categorization.

The Refinitiv ESG score, based on the three sustainable pillars: social, governance and Environmental. Those pillars can be divided into 10 main items. Emissions, resource uses and innovation for environmental pillar. Workforce, human rights, community and product responsibility for social pillar and management, shareholders an CSR strategy for governance pillars. The three main items used in this analysis are Workforce, emissions, and resource use. Each of them can be studied through different practices that company can implement within the organization.

- Environmental
  - **Emissions**
    - **Policy Emissions:** Practices to improve emissions reduction to the land or establish processed to control these emissions.
    - **Waste Reduction Initiatives:** Initiatives can include efforts to reduce, recycle, reuse, substitute, or eliminate waste generated by business activities.
    - **ISO 14000 or EMS or Both:** A way to measure a company's environmental practices is through obtaining certifications such as ISO 14000 or idem.
    - **Environmental Investment Initiative:** Environmental investments or expenses to reduce future risk or increase future environmental opportunities.
    - **Environmental Restoration Initiative:** Initiatives to restore and aid the environment through cleaning activities, waste collection, or any other initiative that helps repair the environment.
  - **Resource Use**
    - **Resource Reduction Policy:** Practices consisting of implementing policies for efficient resource usage.
    - **Policy water Efficiency and Policy Energy Efficiency:** Policies to enhance water and energy efficiency through mechanism that improve the use of water of energy in operations.
    - **Policy Environmental Supply Chain:** Policies to reduce the environmental impact of their supply chains.

- - **Environmental Supply Chain Management:** Use environmental criteria such as ISO 14000 or energy consumption when selecting suppliers.
    - **Environmental Material Sourcing:** Whether companies use environmental criteria for sourcing or disposing of materials.
  - Innovation
- Social
  - **Workforce**
    - **Policy Employee Health& safety:** This practice examines whether the company has a policy to improve the health and safety of employees, reducing workplace accidents, illnesses, or injuries.
    - **Training and Development Policy:** Is related to the company's policies for employee promotion and professional development.
    - **Policy skills training:** Involves having programs or processes focused on developing employees' skills to meet organizational strategies, including continuous and specific training for all workers.
    - **Policy career development:** These practices addressed policies to enhance employee's career paths, developing professional skills that allow career progression.
    - **Policy diversity and opportunity:** Initiative of diversity and equal opportunity policies regardless of gender, disability, race, religion, or any other discriminatory factor.
    - **Internal promotion:** Initiative that make it possible to move forward within the company itself.
    - **Flexible working hours:** Flexible working hours that allow work-life balance, including options such as reduced hours or telecommuting.
  - Human Rights
  - Community
  - Product responsibility
- Governance
  - Management
  - Shareholders
  - CSR strategy