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The relationship between ESG performance and European firms' market value: the role of assurance of non-financial information

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BUSINESS
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Department of Accounting

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Resumo

O debate sobre o impacto do desempenho em matéria de ESG no valor de mercado das empresas tem-se intensificado ao longo dos últimos anos, gerando diferentes perspetivas e a discussão de possíveis variáveis moderadas desta interação. O presente estudo analisa o papel que o *assurance* de informação não-financeira desempenha na relação entre o desempenho ESG e o valor de mercado de empresas europeias.

O valor da empresa foi medido através do Tobin's Q, o desempenho ESG foi medido através de ESG *Scores*, e a presença de *assurance* consiste numa variável *dummy*. Todos os dados, incluindo as variáveis de controlo incluídas na análise, foram obtidos na base de dados Refinitiv Eikon.

Com base numa amostra de 3700 observações composta por empresas cotadas no índice STOXX Europe 600, durante o período de 2014 a 2022, conclui-se que, individualmente, tanto o desempenho ESG como o *assurance* de informação não financeira, apresentam um efeito negativo e estatisticamente significativo sobre o valor de mercado. No entanto, o termo de interação, que integra o efeito do *assurance* na relação entre o desempenho ESG e o valor de mercado, revela uma relação positiva e estatisticamente significativa. Assim, conclui-se que os mercados valorizam mais o desempenho de ESG quando as empresas apresentam relatórios de sustentabilidade auditados.

Palavras-chave: *Assurance* de informação não-financeira, Desempenho ESG, Valor de Mercado, Empresas europeias, Responsabilidade Social Corporativa

Classificação JEL: M14; M41

Abstract

The debate on the impact of ESG performance on the market value of companies has intensified in recent years, generating different perspectives and the discussion of possible moderating variables in this interaction. This study examines the role of non-financial information assurance in the relationship between ESG performance and the market value of European companies.

The firm's market value was measured using Tobin's Q, ESG performance was measured using ESG scores, and the presence of assurance was captured through a dummy variable. All the data, including the control variables included in the analysis, were obtained from the Refinitiv Eikon database.

Based on a sample of 3700 observations of companies listed on the STOXX Europe 600 index, over the period from 2014 to 2022, it is concluded that, individually, both ESG performance and the assurance of non-financial information have a negative and statistically significant effect on market value. However, the interaction term, which includes the effect of assurance on the relationship between ESG performance and market value, reveals a positive and statistically significant relationship. It can therefore be concluded that markets value ESG performance more highly when companies present assured sustainability reports.

Keywords: Assurance of non-financial information, ESG performance, Market value, European firms, Corporate Social Responsibility

JEL classification: M14; M41

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Glossary of Acronyms

<IR>	Integrated Reporting
Big Four	The four largest accounting firms (Deloitte, EY, KPMG and PwC)
CDP	Carbon Disclosure Project
CDSB	Climate Disclosure Standards Board
CSRD	Corporate Sustainability Reporting Directive
CSP	Corporate Sustainability Performance
CSR	Corporate Social Responsibility
CSRA	Corporate Social Responsibility Assurance
CSDDD	Corporate Sustainability Due Diligence Directive
EC	European Commission
EFRAG	European Financial Reporting Advisory Group
ESG	Environmental, Social, and Governance
ESRS	European Sustainability Reporting Standards
EU	European Union
GDP	Gross Domestic Product
GRI	Global Reporting Initiative
IFRS	International Financial Reporting Standards
IFRS S1/S2	IFRS Sustainability Disclosure Standards 1 and 2
IIRC	International Integrated Reporting Council
ILO	International Labour Organization
ISSB	International Sustainability Standards Board
KPI	Key Performance Indicator
NFRD	Non-Financial Reporting Directive
NFI	Non-Financial Information
PIE	Public Interest Entity

ROA	Return on Assets
SASB	Sustainability Accounting Standards Board
SDGs	Sustainable Development Goals
SFDR	Sustainable Finance Disclosure Regulation
SIC Code	Standard Industrial Classification Code
SME	Small and Medium-sized Enterprise
SRI	Socially Responsible Investment
SPSS	Statistical Package for the Social Sciences
TCFD	Task Force on Climate-related Financial Disclosures
USA	United States of America

Introduction

In recent years, sustainability has gained significant relevance, given the urgency of addressing global issues such as climate change, environmental degradation, and social inequality. More than ever, companies are expected to act responsibly, not only by regulators and policymakers, but also by investors and consumers who seek transparency and accountability (Li et al., 2018). As a result, disclosing information on environmental, social, and governance (ESG) has become an essential way for firms to communicate how they create long-term value and contribute to societal sustainability goals (Candio, 2024).

However, the lack of consistency and comparability across sustainability reports often limits their value to stakeholders (Breuer et al., 2024). To address this issue, the external assurance of non-financial information (NFI) has emerged as a crucial tool to enhance the credibility and relevance of ESG disclosures (Hazaea et al., 2022). Despite the increasing adoption of assurance in practice in the corporate world, particularly with the upcoming enforcement of the Corporate Sustainability Reporting Directive (CSRD), its role in influencing how the market perceives ESG performance remains underexplored in the academic field. Similar studies focusing on the impact of corporate social responsibility assurance (CSRA) on the relationship between corporate social responsibility (CSR) performance and firms' market value have already been conducted (Choi et al., 2025; Kim et al., 2019). However, neither of them is referent to European landscape.

Grounded on agency theory, stakeholder theory, and legitimacy theory, this study aims to fill this gap by examining the relationship between ESG performance and the market value of European firms, and whether this relationship is positively influenced by the presence of external assurance of NFI. Together, they provide a framework to allow an understanding of the motivations behind ESG reporting and non-financial information assurance, and how these practices affect investor perceptions and firm legitimacy. Using panel data from firms listed on the STOXX Europe 600 index between 2014 and 2022, main findings reveal a negative and statistically significant relationship between ESG performance and market value, particularly within the environmental and governance pillars. Similarly, assurance of NFI, when analyzed individually, produces a statistically significant negative impact on firm value. However, when ESG performance is combined with assurance, the interaction term impacts firm value positively. This suggests that investors value ESG disclosures more when they are externally assured, perceiving them as more reliable and useful for decision-making.

This research presents several contributions. First, it provides empirical evidence on how ESG performance and assurance interact to influence firm value, focusing on the European context and under the Non-Financial Information Reporting Directive (NFRD) scope. This way it differentiates from the studies analyzing similar variables conducted by Kim et al. (2019) and Choi et al. (2025), which respectively provide USA and international (including 45 countries around the world) perspectives. In addition, by focusing exclusively on European companies listed on the STOXX Europe 600 index, this study enables us to capture the effects of the mandatory disclosure of non-financial information under the NFRD, in force during the period of analysis (until 2022). Moreover, it captures a transitional period, immediately before the implementation of CSRD, serving as a useful landmark for future studies on its impact. By complementing the scarce literature that combines ESG performance and non-financial information assurance with market value, this study makes important contributions to managers and investors, supporting their decision-making regarding the incremental benefits of a firm's ESG performance and the hiring of external assurance for non-financial information. It is also relevant for professionals, regulators, and society in general.

This thesis is structured as follows: initially, a European regulatory framework regarding non-financial information disclosure is presented; then, the second chapter contains a literature review on sustainability, CSR, ESG reporting, and assurance of non-financial information; subsequently, the theoretical framework and research hypotheses are developed; after that, the methodology is presented, including sample, variables, and econometric model; followed by the presentation of the results and its discussion; and lastly, the study main conclusions are disclosed, as well as its limitations and suggestions for future research.

1 - Regulatory Framework in the European Union

1.1 - Background

Supporters of CSR argue that effective CSR reporting can enhance social and environmental outcomes through market competition, particularly as companies seek the attention of socially responsible investors. For this to work, decision makers need comparable information from harmonized standards to make informed, socially responsible choices (Tschopp & Nastanski, 2014). However, multiple CSR reporting standards can create trade barriers and delay economic growth, as well as social and environmental performance.

The Global Reporting Initiative (GRI), introduced in 1997 in the United States of America (USA), is a fundamental guideline for assessing the effects of GRI compliance in sustainability reporting on a firm's value (Nguyen, 2020). Its foundation was motivated by the environmental scandal related to the Exxon Valdez oil spill[1] (GRI, 2025). In 2015, over 90% of the world's top 250 companies published a sustainability report, most of them using the GRI framework, considered the standard model in this field (King & Bartels, 2015). However, it was only in 2016 that GRI "transitioned from providing guidelines to setting the GRI Standards" (GRI, 2025). The GRI Standards enable organizations to publicly disclose their significant economic, environmental, and social impacts, including those related to human rights. This fosters transparency and accountability, allowing for consistent and credible CSR reporting containing these impacts (GRI, 2021).

Integrated reporting (<IR>) was another development contributing to non-financial information reporting in the global landscape. However, <IR> is more related to the final outcome, rather than its content: the type of reporting. The International Integrated Reporting Council (IIRC) introduced in 2013 the <IR>, intending to benefit "stakeholders interested in an organization's ability to create value over time" but focusing on "explaining to providers of financial capital how an organization creates value over time" through both financial and non-financial information (IRRC, 2013). This way, <IR> is revealed to be more useful to shareholders, rather than the remaining stakeholders. <IR> combines, in a single report,

[1] In 1989, an Exxon Valdez oil tanker spilled over 11 million gallons of oil in Alaska, impacting more than 1.300 miles of shoreline. The disaster had severe consequences for fish, wildlife, and their habitats, as well as for local industries and communities. An estimated 250.000 seabirds, 2,800 sea otters, 300 harbor seals, 250 bald eagles, and as many as 22 killer whales were killed, along with billions of salmon and herring eggs. Years later, several species remain unaccounted for. This incident is considered one of the largest environmental disasters in USA history (National Oceanic and Atmospheric Administration, 2020).

sustainability and financial aspects to disclose the economic value of implementing sustainability initiatives.

However, it has faced criticism for not sufficiently distinguishing itself from traditional financial reports. De Villiers & Sharma (2020) state that <IR> is unlikely to replace traditional financial statements and will not encompass all information included in GRI-type reports. Even though it is a relatively new development, other reporting forms, such as the GRI Sustainability Guidelines, which is the leading framework basis for CSR reporting, show more adherence.

1.2 - Non-Financial Reporting Directive (NFRD)

Since the EU acknowledges that the information quality is insufficient to balance what organizations provide and what users need, in the last years, several directives have been developed in order to construct a robust regulatory framework regarding non-financial/sustainability reporting and ESG issues. This particularly impacts investors who require clear disclosures on risks and opportunities for their investment decisions. In sustainability reporting, stakeholder interests are aligned through reporting frameworks that standardize how materiality is understood, how organizations describe and communicate their sustainability performance, and their responsibilities regarding the impact of their activities (Oliveros Fontaine et al., 2024).

In the scope of the EU's agenda, the EU Action Plan on Financing Sustainable Growth (European Commission, 2018) was developed by the European Commission (EC). This strategy consists of a series of actions aligned to improve capital flow toward the transition to a sustainable economy. Moreover, in 2019, the EC introduced the European Green Deal (European Commission, 2019) which is a strategic growth initiative that aims to transform the EU into a fair and prosperous society, characterized by a modern, resource-efficient, competitive economy, while achieving net-zero greenhouse gas emissions by 2050 and decoupling economic growth from resource consumption. But before these strategies were applied, a very impactful initiative was taken, resulting in reporting regulations for EU firms.

In 2014, the EU introduced Directive 2014/95/EU (The European Parliament and The Council of the European Union, 2014), commonly known as the Non-financial Information Reporting Directive (NFRD), which established mandatory non-financial reporting requirements for certain organizations: public-interest entities (PIEs) and parent companies of large groups that employ an average of over 500 employees at the end of their financial year.

Companies are required to include non-financial information in their management report or present it separately, such as in a sustainability report (SR) (de Villiers et al., 2024; Eugénio et al., 2022; Monteiro et al., 2024).

The NFRD signifies a crucial development in the EU context in corporate sustainability, particularly concerning international climate change agreements that highlight the importance of corporate behavior and sustainability in finance (Pantazi, 2024). The directive encourages companies to utilize non-financial key performance indicators (KPI) related to environmental issues such as greenhouse gas emissions, water and air pollution, and energy use, along with health and safety metrics. Larger organizations are expected to implement the International Labour Organization (ILO) conventions to ensure fair working conditions. Non-financial reporting should include information on stakeholder dialogue, trade union rights, gender equality, and efforts to prevent human rights abuse and combat corruption, therefore covering the three ESG pillars – Environmental, Social, and Governance (Camilleri, 2015). This requirement applies to annual reports for periods starting on or after January 1, 2017. For companies outside this scope, non-financial reporting was still voluntary.

The implementation of NFRD enhanced CSR performance, but it had its limitations. Its lack of detailed rules diminished its effectiveness in practice. According to Pantazi (2024), the "*comply or explain*" principle led to vague reporting, which reduced stakeholder engagement. Additionally, the NFRD's reporting flexibility was a significant weakness due to the non-uniformity of reporting across companies. As the exact content and format of the information was not specified in the Directive, companies were free to follow any widely recognized reporting framework (Picciau & Rimini, 2019). This increases the diversity of reporting, decreases the comparability of information, and increases information processing costs for investors and financial analysts. Therefore, the Directive was not relevant in mitigating information asymmetry and in helping stakeholders identify companies' social and environmental performance (de Villiers et al., 2024). In the study performed by de Villiers et al. (2024) comparing the CSR performance before and after the implementation of NFRD, the results indicate that the Directive failed to achieve its desired effect of enhancing EU companies' social and environmental performance.

1.3 - Corporate Sustainability Reporting Directive (CSRD)

The CSRD, officially known as Directive 2022/2464/EU (The European Parliament and The Council of the European Union, 2022), was introduced on December 14, 2022, being applied

from financial years starting on or after 1 January 2024, reporting in 2025, with the first companies applying being those that were already subject to NFRD. This regulation marks a notable change in Europe regarding the disclosure of sustainability information, as it replaced the NFRD and turned the reporting requirement from practically "voluntary" to mandatory. As previous frameworks did not adequately meet the information needs of stakeholders, the CSRD is essential for ensuring reliable and transparent sustainability information (Pantazi, 2024).

The NFRD targeted large EU PIEs with over 500 employees, including EU-listed companies, credit institutions, and insurance firms, impacting around 12,000 companies. In contrast, the CSRD applies to all large EU companies, those listed on EU-regulated markets, regardless of location, and non-EU companies with substantial EU activities, affecting approximately 50,000 companies.

While the NFRD allows less standardized reporting frameworks, the CSRD mandates standardized reporting through the ESRS, which specifies the required disclosures and their presentation, as exhibited in Table 1.1. It consists of 12 standards, of which 2 are from general character, and the remaining 10 are topical standards for ESG. Sector-specific standards, Small and Medium-sized Enterprise (SME)-proportionate standards, and standards for non-EU companies will be published in the next years. ESRS were developed by the European Financial Reporting Advisory Group (EFRAG), appointed as technical advisor to the EC.

Table 1.1 – European Sustainability Reporting Standards (ESRS)

Structure	***Standards***	
Cross-cutting	ESRS 1	General requirements
Cross-cutting	ESRS 2	General disclosures
Environmental	ESRS E1	Climate Change
Environmental	ESRS E2	Pollution
Environmental	ESRS E3	Water and marine resources
Environmental	ESRS E4	Biodiversity and ecosystems
Environmental	ESRS E5	Resource use and circular economy
Social	ESRS S1	Own workforce
Social	ESRS S2	Workers in the value chain
Social	ESRS S3	Affected communities
Social	ESRS S4	Consumers and end-users
Governance	ESRS G1	Business conduct

Source: Own elaboration, data from The European Parliament and The Council of the European Union (2023)

This regulation is crucial for promoting trustworthiness in sustainability-related information, thus addressing information asymmetries and agency problems. CSRD is also interlinked with two mandatory EU sustainable finance regulations, the EU Taxonomy, formally designated as Regulation (EU) 2020/852 (European Commission, 2020) and the Sustainable Finance Disclosure Regulation (SFDR), corresponding to the Regulation (EU) 2019/2088 (European Commission, 2019a). The EU Taxonomy is a system that classifies environmentally sustainable economic activities. Companies covered by the CSRD must report EU Taxonomy KPIs in their sustainability statements, which are subject to third-party assurance by statutory auditors. The SFDR aims to improve transparency and standardization of sustainability disclosures in the financial services sector. It establishes rules for financial market participants and advisers regarding sustainability risks and the impact of their processes on sustainability, and requires sustainability-related information about financial products. The lack of regulatory standards for CSR reporting over the past decade has created information gaps, fostering distrust among stakeholders about companies' sustainability claims, which motivated the EU to introduce the SFDR and Taxonomy for Sustainable Finance in order to improve transparency, support investor decision-making, and direct more funds toward sustainable initiatives (Breuer et al., 2024).

So, CSRD aims to enhance sustainability reporting and support the transition to a sustainable economic system. It seeks to harmonize and improve the quality of sustainability information through ESRS and third-party assurance. The initiative provides relevant and reliable information to financial undertakings, investors, and the public while promoting sustainable investments aligned with the European Green Deal and EU Action Plan on Financing Sustainable Growth, thus enabling better capital allocation by financial institutions (European Commission, 2018, 2019b).

1.4 - International Initiatives

Parallel to EU initiatives, global efforts have also emerged apart from the IIRC and GRI previously mentioned. In addition to these reporting frameworks, there are the CDP (formerly known as Carbon Disclosure Project), the Climate Disclosure Standards Board (CDSB), the Task Force on Climate-related Financial Disclosures (TCFD), and the Sustainability Accounting Standards Board (SASB), now part of the IFRS Foundation.

In 2020, the GRI, the SASB, the CDP, and the CDSB joined forces and set the frameworks for sustainability and climate-related reporting, with TCFD’s recommendations.

Moreover, the IIRC aligned with these entities providing the <IR> framework, which connects sustainability disclosure to financial reporting. This alignment was made to meet the growing stakeholders' needs and promote advances in the standardization of sustainability information disclosure (CDP, CDSB, GRI, IIRC & SASB, 2020).

The International Sustainability Standards Board (ISSB), established by the Trustees of the International Financial Reporting Standards (IFRS) Foundation, developed sustainability standards to address climate-related and other sustainability risks (IFRS S1, 2023; IFRS S2, 2023), which became effective in January 2024. These standards introduce a cohesive international reporting framework.

In the EU, ESRS were developed considering a constant dialogue with the ISSB and the GRI to make sure EU and global standards effectively work when combined, which is crucial to prevent EU companies from reporting the same information twice (Directorate-General for Financial Stability, 2023). This close relationship between ISSB and EU proves to be even more relevant considering that ISSB and ESRS follow different concepts of materiality. The double materiality principle, intrinsic to ESRS, implies that companies should not only disclose information about how sustainability matters affect companies, but also consider the impact caused by companies in society and the environment. These perspectives are respectively designed as "*outside-in*" and "*inside-out*". Contrariwise, single materiality followed by simply reflects how ESG matters affect companies' value, thus focusing merely on a financial assessment, and is more investor-oriented (Mitrović, 2024).

1.5 - External Assurance regulation

Without mandatory disclosure requirements or control mechanisms, such as non-financial audits, it is impossible to fully eliminate the inherent information asymmetry that comes from voluntary disclosure (Breuer et al., 2024). The EU's CSRD is changing the role of auditors by requiring, at least initially, a limited assurance and, in the future, a more comprehensive reasonable assurance of sustainability reports under the ESRS (Harrer & Lehner, 2024).

Uniform publication rules and mandatory external assurance will improve the comparability and credibility of sustainability reports. Under this directive, auditors will provide a limited opinion on the compliance of sustainability reports with the directive's requirements and applicable standards. Initially, the directive does not demand reasonable assurance, which is challenging due to the lack of sustainability assurance standards and the burdens it imposes on companies (Eugénio et al., 2022). In a limited assurance engagement,

the practitioner obtains sufficient appropriate evidence to acquire a significant level of assurance to conclude whether the subject matter information is materially misstated and provides a report in the form of negative assurance. In a reasonable assurance engagement, the practitioner obtains sufficient appropriate evidence to conclude that the subject matter information is prepared, in all material respects, following the applicable criteria and provides a report in the form of positive assurance.

1.6 - Recent Developments: Omnibus Proposal

The EU has recently acted to modify the regulatory framework, specifically the CSRD and Corporate Sustainability Due Diligence Directive (CSDDD)[2], issuing the first Omnibus Proposal. The EC's Omnibus Sustainability Proposal was enacted on 26 February 2025 and aims to reduce administrative and reporting burdens on companies while unlocking their investment potential (Accountancy Europe, 2025). The importance of this measure relies upon the need to improve European competitiveness, especially with the recent geopolitical events, including leadership changes in the USA and the ongoing conflict in Ukraine, which have raised concerns regarding economic stability and regulatory feasibility. Thus, a simplified reporting system is proposed with these modifications, since the EU recognizes that in the current context in which there are significant price rises in energy, raw materials, and also eventual rises on commercial tariffs, this is a fragile moment for EU firms to follow CSRD as it was designed, given the demanding costs associated with its implementation (Draghi, 2024).

Therefore, the proposal regarding modifications to CSRD results in a reduction of 80% of the firms initially scoped, thus excluding from the large firm definition those with up to 1000 employees and either exceeding 25M€ on the balance sheet or 50M€ in turnover, and listed SMEs. This revised threshold would align the CSRD more closely with the CSDDD. The proposal postpones by two years the entry into force of CSRD for companies that would start applying the directive in their disclosures in 2026 and 2027, to report for fiscal years 2025 and 2026, respectively. Additionally, the established transition from limited to reasonable

[2] The CSDDD, adopted on June 13, 2024, has as its goal to support the European Union's wider ambition of transitioning to a sustainable and climate-neutral economy, as highlighted in the European Green Deal. The directive requires companies to identify and address negative impacts on human rights and the environment in their operations, as well as in those of their subsidiaries and supply chains.

assurance is set to 2028 (European Commission, 2025). The proposal is now under consideration by the European Parliament and the Council of the EU for possible approval.

2 - Literature Review

2.1 - Sustainability, CSR and ESG: definition of concepts

2.1.1 - Sustainability

Sustainability was originally defined by the United Nations Brundtland Commission as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 2025). Although it has become a dominant theme for environmental issues nowadays, its origins can be traced back to the eighteenth century (Breuer et al., 2024). Issues such as climate change, gender inequality, and child labor are just a few examples of pressing global challenges to which the EU has responded with several corporate social and environmental initiatives in recent years in response to growing stakeholder demands for non-financial information and increased awareness of companies' social and environmental impacts (de Villiers et al., 2024).

In general, stakeholder interest in implementing sustainability activities has increased along with the interest of regulators and their encouragement of institutions to develop sustainable activities due to their importance for various economic aspects (Mensah, 2019). Additionally, Harrer and Lehner (2024) emphasized that investors demand reliable sustainability information given its influence on long-term financial stability and risk management.

While environmental practices and employee relations have been extensively studied, research has broadened to consider a company's engagement with local communities, product safety standards, charitable contributions, and respect for diversity and human rights. Furthermore, corporate sustainability performance (CSP) plays a role in significant corporate decisions, such as executive compensation, mergers, and acquisitions (Brooks & Oikonomou, 2018).

Companies disclose their implementation of sustainability to balance the three pillars that compose it: environmental, social, and economic aspects. These pillars were later translated into ESG, thus allowing companies to engage with these concepts, which is crucial for research and practice (Breuer et al., 2024).

The literature on CSP has matured to the point where the focus has shifted from questioning whether CSP influences financial performance to understanding how it does so (Brooks & Oikonomou, 2018). While profitability continues to be a primary goal for companies, there is a growing emphasis on social sustainability. This requires businesses to consider the well-being of the communities impacted by their operations. The commitment to

sustainability involves collaboration among companies, government, and society to protect the environment and the people (Durana, 2020).

2.1.2 - CSR

As Tsang et al. (2023) indicated, CSR has emerged as one of the most impactful and vital areas of accounting research of the last decade. CSR, defined by the European Commission (2001), involves voluntarily integrating social and environmental concerns into business operations and stakeholder interactions (Pantazi, 2024) and has been described as firms' responsibility for their impacts on society (Camilleri, 2015). The EC supports CSR advancement at national and European levels through regulations and facilitation.

CSR has transformed finance and accounting, guiding both institutional and individual investors towards sustainable finance focused on companies with strong ESG practices. As a result, managers are increasingly highlighting ESG indicators to demonstrate their commitment to sustainability and improve their reputation (Candio, 2024). Shareholders are also increasingly urging companies to integrate CSR into their business practices, which is reflected in the proposals they present (Tsang et al., 2023). Socially responsible investment (SRI) is connected with CSR. Funds often use ethical reasoning to exclude companies with poor CSR records for their stock selection, and analysts are increasingly pressured to research SRI issues (Brammer et al., 2008).

Barnett (2005) presents a contingent perspective suggesting that not all CSR activities are profit-maximizing. Even though CSR practices are already widespread, studies should focus on understanding that CSR can bring financial benefits to certain companies at certain times. Additionally, the author posits that the challenge of proving the financial value of CSR mirrors the difficulties in justifying investments in intangible assets.

Büyükaksoy et al. (2006) refer that in the EU context, industrial restructuring and privatization have led to significant social costs, including high unemployment rates, inadequate access to healthcare, and increased social exclusion, thus resulting in low levels of trust among the population towards businesses and investors. In response to these social challenges, CSR policies have emerged to address these issues.

It is important to highlight that the EU acknowledges the role of economic and financial measures in promoting CSR among businesses. These measures can include financial incentives, such as tax rebates, reductions, subsidies, and awards, which leverage market dynamics to encourage greater CSR engagement (Camilleri, 2015).

Several factors are considered determinants for non-financial information disclosures. Tsang et al. (2023) refer to future performance, reputation insurance, reduction in information asymmetry, managerial attributes, stakeholder demands, and disclosure cost. Büyükaksoy et al. (2006) also point out that companies pursue CSR for a number of internal reasons, including risk management, costs reduction, improved employee motivation, better stakeholder relationships, and enhanced long-term profitability. Externally, CSR promotes transparency in reporting and meets investor demands.

2.1.3 - ESG

Currently, the most common framework for measuring companies' sustainability performance is the ESG perspective. Unlike CSR, ESG encompasses a broader range of issues related to environmental concerns, social responsibility, and governance. Despite the growing attention given to this topic, it remains challenging to compare the results and fully understand what determines and drives ESG performance (Martiny et al., 2024).

In the last decade, there has been an exponential increase in the disclosure of ESG practices (Li et al., 2018). The growing relevance of the topic of ESG is further highlighted by the fact that institutional programs are starting to focus on shifting economic activities toward the integration of ESG aspects into strategic political decision-making processes, thus enabling a green transformation. Major projects, such as the Paris Agreement of 2015 and the United Nations' launch of its Sustainable Development Goals (SDGs), led by international politics, demonstrate the increased regulatory and societal pressure on firms to transition their activities toward more ecological sustainability. They also mirror the rising demand within society for such initiatives (Breuer et al., 2024).

Overall, ESG performance improves when any one of its three dimensions is enhanced (Husted & Sousa-Filho, 2017). Environmental performance encompasses practices that benefit the environment, such as pollution control, environmental investments, and policy development. Social performance focuses on community investments and internal social policies. In turn, governance performance highlights ethical practices, anti-corruption measures, diverse board structures, and the importance of transparency and sustainability (Martiny et al., 2024).

Many studies traditionally focused on how corporate governance influences stock price performance (Gompers et al., 2003; Morck et al., 1988). More recently, research has expanded to include in this relationship environmental and social performance, completing all

ESG pillars, and switching into broader financial performance measures, such as firm value, ROE, and profitability (Brooks & Oikonomou, 2018; Fatemi et al., 2018; Li et al., 2018; Yoon et al., 2018). Additionally, the COVID-19 pandemic has shifted attention to the impact of demographics and social issues on financial performance, particularly concerning health, safety, well-being, and human capital management, including employee satisfaction, diversity, and inclusion (Aydoğmuş et al., 2022).

2.2 - Non-Financial Information Reporting

When non-financial information is readily available, stakeholders are more likely to take it into account in their decision-making processes (for example, in making their investment or consumption choices), and therefore, information may help interested parties to align their strategies accordingly (Picciau & Rimini, 2019). Sustainability reporting has become widespread among the G250 companies (the world's largest 250 companies), with 96% disclosing information on ESG and sustainability matters in 2024. The N100 (top 100 companies, by revenue, across 58 countries) reporting rate increased from 64% in 2013 to 79% in 2024. The growing public and investor expectations are prompting companies to align with global sustainability goals and address climate risks (KPMG, 2024).

According to the GRI framework, sustainability reports involve measurement, disclosure, and accountability to both internal and external stakeholders regarding organizational performance aimed at achieving sustainable development. Non-financial information provides a comprehensive overview of a company's performance in various critical areas. This type of information is predominantly found in Sustainability Reports and encompasses the efforts and outcomes made by companies related to social responsibility, environmental management, corporate governance practices, and human resources management. By highlighting these aspects, non-financial information offers valuable insights into how a company operates beyond just financial metrics, reflecting its commitment to ethical practices and sustainable development (Eugénio et al., 2022).

Unlike financial disclosure, rules, standards, and metrics for non-financial information disclosure are still, to some extent, underdeveloped (Picciau & Rimini, 2019). There is a lack of convergence in definitions of non-financial reporting between regulators and standard setters (Stolowy & Paugam, 2018). The diversity of sustainability reporting guidelines can create confusion about their quality and impact on firm value. Different frameworks highlight various aspects, which may lead to misinterpretations in analysis. Moreover, the flexibility in

choosing guidelines and disclosing non-financial information can result in significant variations in how firms communicate their sustainability efforts. When sustainable reporting demonstrates exceptional performance, it underscores the firm's significant responsibility to its stakeholders and reinforces the principles of sustainable development. This, in turn, can improve the firm's reputation and overall image within the market (Nguyen, 2020).

The introduction of mandatory reporting requirements in many countries has led to a marked increase in disclosure levels as regulatory frameworks have developed (Brooks & Oikonomou, 2018; Ioannou & Serafeim, 2016). Major advancements were recently developed globally, supporting sustainability disclosure standards. The ISSB requires climate change disclosures for investors starting January 1, 2024. Meanwhile, the EFRAG promotes broader sustainability concepts for all stakeholders. These disclosure mandates aim to enhance corporate accountability regarding social and environmental impacts. While companies provide essential goods and services, their operations can harm society and the environment through toxic emissions and inequities in supply chains. As such, investors and stakeholders consider sustainability disclosures essential (de Villiers et al., 2024).

A potential connection to financial performance may arise when firms proactively create the impression of pursuing socially responsible practices by highlighting the parts of their operations that meet or exceed stakeholder expectations. However, the increasing interest in ESG topics may induce companies to exaggerate their commitments without making substantive changes. Additionally, competitive pressures can drive managers to resort to greenwashing as a rapid response, despite evidence linking this practice to prejudicial financial outcomes. Greenwashing is prevalent in corporate communications with stakeholders and happens when firms claim to have integrated ESG issues into their strategic decision-making while withholding negative information that is critical for stakeholders, thus misleading stakeholders and undermining a firm's reputation. While greenwashing traditionally pertains to environmental aspects, it now also encompasses social and governance dimensions. Current research indicates that greenwashing results in negative repercussions for firms (Breuer et al., 2024; Brooks & Oikonomou, 2018).

This leads non-financial information to often face skepticism, with some observers questioning the sincerity of companies' disclosures and expressing concerns about greenwashing. ESG disclosure can harm firm value if investors recognize it as insincere or as a form of greenwashing (Fatemi et al., 2018). The primary objective of corporate disclosure appears to be influencing external stakeholders' perceptions of a firm's future financial prospects rather than genuinely tackling environmental or social issues. Additionally, some

critics argue that corporate sustainability reporting tends to focus more on aligning with company interests than on actual sustainability efforts (Brammer & Millington, 2008; Gray, 2010; Schaltegger & Burritt, 2010).

Nonetheless, accurate sustainability reporting is crucial in mitigating greenwashing and ensuring firms acknowledge their impact on the bottom line. Thus, studying sustainability reporting practices is essential for enhancing the quality of sustainability reports. Practices that can improve sustainability reporting quality include creating sustainability reports, following specific reporting frameworks, and ensuring the reliability of these reports through the external assurance of NFI (Khatri & Kjærland, 2023). Gomes et al. (2015) observed in their study a consistent improvement in the quality of the reports, including both the absolute and relative increase in integrated reports, as well as a rise in the number of reports achieving an A+ level, for those following the GRI guidelines.

A company's legitimacy is established by its stakeholders, such as regulators, investors, customers, and employees. As defined by Suchman (1995), legitimacy is the general perception that an entity's actions are desirable and appropriate within socially constructed norms. To maintain this legitimacy, companies must disclose their efforts on social and environmental issues to maintain stakeholder support and resource flows (de Villiers et al., 2024). Firms may utilize sustainability reporting practices primarily for legitimacy. This means they may use these tools as strategies to boost their sustainability performance's positive aspects while downplaying negative outcomes (Diouf & Boiral, 2017). Legitimacy theory suggests that CSR reporting assurance is a tool for companies to manage social pressures. While many view voluntary CSR reporting assurance positively, some academics contend that legitimacy is shaped by management's actions to enhance the credibility of their reports (Quick & Inwinkl, 2020).

For Fatemi et al. (2018), the underlying assumption is that the benefits of ESG activities do not exceed their costs. Recent studies indicate that firms participating in environmentally friendly initiatives or receiving green awards frequently experience negative abnormal returns. This evidence implies that investors may penalize these companies for what they perceive as costly investments.

Despite extensive research and the popularity of NFI reporting, the impact of sustainability applications and disclosures on firm value remains split (Nguyen, 2020). While recent studies mostly show a positive impact of ESG performance on firms' financial performance (Fatemi et al., 2018; Li et al., 2018; Tsang et al., 2020; Yoon et al., 2018), many

papers present negative results (Brammer et al., 2008; Landi & Sciarelli, 2019; Marsat & Williams, 2011). Additionally, mixed results are also found (Aydoğmuş et al., 2022).
Shareholders, investors, creditors, governments, and other stakeholders expect firms to reinforce their ESG efforts. When companies meet or exceed these expectations, the market is likely to reward them (Aydoğmuş et al., 2022). As awareness of sustainability grows, investors are more inclined to favor companies with strong sustainability reporting when making investment decisions (Cormier et al., 2009; Nguyen, 2020).

ESG disclosures are strongly linked to enhanced ESG performance and improved firm performance. There is a positive and statistically significant relationship between CSP and financial performance at the firm level, even if the economic impact is modest (Brooks & Oikonomou, 2018). As stated by Monteiro et al. (2024), the disclosure of sustainability reports can enhance financial performance and firms' legitimacy. However, sustainability reporting may take years to show returns and impact financial performance. Policymakers should therefore encourage the adoption of SR as a long-term strategy, provide incentives for sustainable goals, and consider introducing sustainability-related taxes, such as carbon taxes (Cerciello et al., 2023).

Li et al. (2018) additionally found that ESG disclosures can improve a firm's value by enhancing transparency, accountability, and stakeholder trust. This relationship is even stronger when the CEO has significant power, as shareholders view ESG disclosures from powerful CEOs as indicative of a stronger commitment to ESG practices.

With an additional perspective, Hui & Matsunaga (2015) add that a higher quality of disclosure is indicative of executives' ability to comprehend the underlying competitive environment and to effectively forecast future outcomes, and consequently, a higher level of disclosure quality may serve as a signal of their capacity to enhance firm value.

As noted by Khatri & Kjærland (2023) in their study scoping Nordic firms, sustainability reporting practices have improved considerably over the past decade, especially since the NFRD came into effect in 2017. According to Boiral et al. (2019), based on the GRI, the quality of sustainability reports refers to information transparency and adherence to essential reporting principles, including materiality, stakeholder inclusiveness, completeness, comparability, balance, accuracy, and reliability.

A variety of potential business benefits may arise for firms that disclose sustainability information, including enhanced transparency, improved reputation and brand value, increased employee motivation, and support for the firm's control processes (Hahn & Kühnen, 2013). In addition to the impact of European regulation as a driver for non-financial

information disclosure, governments play a crucial role in enhancing the environmental and social practices of businesses and industries within their country, as they realize that positive social and environmental actions can drive economic growth, strengthen social cohesion, and promote even more sustainable practices (Camilleri, 2015). On the other hand, Martiny et al. (2024) identify all the financial and non-financial characteristics as internal determinants, such as structure, resources, mindsets, CEO, and board attributes.

Eugénio et al. (2022) concluded in their study that there is a clear agreement from the Portuguese statutory auditors that the company management or the board of directors should be responsible for the preparation of non-financial reporting, with a representation of 75% of those surveyed. However, the involvement of sustainability departments and the presence of a multidisciplinary team were also consensual.

The transparency surrounding a company's commitment to ESG issues remains insufficient, creating informational asymmetries between companies and their stakeholders. Although current regulations attempt to address this challenge, their effectiveness in resolving the issue appears limited, indicating an ongoing problem. As a result, companies still have the opportunity to leverage this asymmetric information, leading to persistent concerns about potential greenwashing (Breuer et al., 2024).

CSR reports that receive independent assurance are viewed as more credible than those not assured (Abernathy et al., 2017). The demand for assurance, influenced by corporate governance, also serves as a signal of credibility (Brown-Liburd & Zamora, 2014). The absence of audits for CSR reports and the lack of mandatory disclosures inhibit stakeholders from effectively validating companies' claims, allowing firms to engage in unethical behavior without accountability (Breuer et al., 2024).

2.3 - Assurance of Non-Financial Information

Sustainability assurance, beyond financial audits, is becoming a valuable tool for assessing long-term risks and opportunities. This broader approach reflects the need for companies to manage risks over the long term while making forward-looking decisions (Andrus et al., 2023; Harrer & Lehner, 2024). The assurance engagement enables practitioners to gather sufficient evidence to express a conclusion that increases user confidence in the evaluation of sustainability information against established criteria (Simnett, 2012).

As defined by GRI, assurance results from a professional engagement carried out by an independent and technically competent practitioner(s), following appropriate quality control

procedures. The GRI requires companies to disclose their policies and practices to obtain assurance for their sustainability reports. This can include the use of external audit services alongside internal controls and panel reviews by stakeholders regarding the overall approach to sustainability reporting and the content of the sustainability reports (GRI, 2014). Just like an audit of financial statements, the practitioner aims to understand the subject matter to evaluate the risk of significant misstatements. Based on this assessment of risk and the determined level of materiality, testing procedures are conducted to support an opinion on the subject matter (Maroun, 2020).

This area of research has emerged, driven by institutions seeking to evaluate sustainability risks. However, there is a notable gap in research on certain developed and developing countries, highlighting the need for further investigation. The review of Hazaea et al. (2022) shows that credible sustainability reports enhance an institution's reputation and add significant value to planning, monitoring, and accountability. The growth in CSRA appears to be driven by assurance firms promoting CSR's economic legitimization, emphasizing assurance's value as a control mechanism (O'Dwyer, 2011). Additionally, both external and internal stakeholders are making efforts to increase the credibility of reporting (Brown-Liburd & Zamora, 2014).

Since non-financial reporting assurance is a relatively new practice, with regulation still pending in most countries, there are various types of assurance providers and different standards available to guide the assurance services (Junior et al., 2014). According to Eugénio et al. (2022) there is a strong consensus on the need for enhanced training in non-financial information assurance, as well as the implementation of incentives to encourage the preparation and publication of non-financial reports.

The swift expansion of the assurance process highlights the growing demand for increased credibility of disclosed information among stakeholders. In 2015, two-thirds of the reports from the world's 250 largest companies underwent verification by external auditors, a significant rise from just 30% in 2005 (King & Bartels, 2015).

Disclosures in this area still lack generally accepted standards, resulting in challenges related to comparability and credibility. Engaging independent experts to assure the content and structure of sustainability reports is a widely adopted practice that enhances these reports' relevance, reliability, and comparability. This, in turn, increases their overall credibility and helps address the skepticism that often surrounds them. By offering independent verification, sustainability assurance enables organizations to communicate their commitment to sustainability effectively (Simnett, 2012).

CSRD, the new EU directive for corporate sustainability reporting, which replaces the NFRD, marks a new era for sustainability reporting since companies covered by the directive must provide limited assurance on their reported sustainability information. Auditors will be tasked with expressing a limited opinion on the compliance of the sustainability report with the directive's requirements and applicable standards (Eugénio et al., 2022).

Furthermore, stakeholders should encourage companies and assurance providers to disclose more detailed information about the verification and assurance process (Boiral et al., 2019). CSRA becomes more valuable to investors when companies link managerial pay to sustainability, incentivizing managers to display strong CSR performance strategically. This way, managers may seek independent assurances on their positive disclosures to enhance credibility, recognizing that investors often reward such information. Consequently, investors are likely to value more consistently positive CSR performance when backed by independent assurance (Brown-Liburd & Zamora, 2014).

The CSRA is conducted by an external third party independent of the audited firm's management. This party will verify the accuracy and completeness of the CSR report (Velte, 2021). Regarding CSRA providers, there are two main groups of external parties: professional accountants, including the Big Four audit firms, and strategic consultants (Simnett et al., 2009; Velte & Stawinoga, 2017). In comparison to consultants, professional accountants, particularly those from the Big Four audit firms, are typically more independent, possess greater financial and auditing expertise, and ensure a high quality of their assurance procedures. Therefore, it is logical to conclude that the Big Four audit firms play a significant role in CSRA in the current landscape (Velte, 2021). Another observed difference is that accountants tend to prefer the International Standard on Assurance Engagements (ISAE) 3000, while non-accountants choose the AccountAbility's AA 1000 Assurance Standard. Additionally, accountants focus primarily on verifying the reliability of the content within sustainability reports. In contrast, non-accountants are more inclined to offer opinions on the content's reliability and the overall balance of the sustainability report (Farooq & de Villiers, 2017). Quick & Inwinkl (2020) also noted that assurance from an accounting firm has a greater positive impact than that from the technical control board. Furthermore, reasonable assurance is prioritized over limited assurance, effectively lowering the engagement risk to an acceptable level (ISAE 3000.12).

While voluntarily applied, management can choose between a reasonable or limited assurance level under ISAE 3000. A reasonable assurance engagement refers to when the assurance provider reduces assurance risk to an acceptably low level based on the

circumstances of the engagement. In contrast, a limited assurance engagement means that the assurer reduces engagement risk to an acceptable level given the circumstances. However, this risk is higher than that of a reasonable assurance engagement. Therefore, stakeholders may perceive the credibility of the findings differently depending on whether the engagement is classified as limited or reasonable assurance (Velte, 2021; Velte & Stawinoga, 2017).

In a comprehensive literature review, Farooq & de Villiers (2017) identify the factors driving and inhibiting the demand for sustainability assurance (SA). The primary external drivers influencing SA are the demands from stakeholders for credible reporting, the size and listing status of reporters, their industry affiliations, intense media scrutiny, and the country of origin. Internally, financial indicators and the recognized value added by sustainability reporting drive this process. On the other hand, several factors inhibit the demand for SA, including its associated costs, some managers' misconceptions that it lacks value, the belief that it is excessively burdensome, insufficient regulatory pressure on both sustainability reporting and SA, concerns about litigation risks, and the perception that viable alternatives, such as internal audits, exist.

Firm value and performance measures may serve as significant determinants of CSRA while also acting as outcomes of an effective CSRA strategy, highlighting a bidirectional relationship. Compared to other research areas, the volume of studies focusing on firm value outputs remains limited (Clarkson et al., 2019). Research that finds and does not find the benefits of external CSR reporting assurance is evenly divided (Quick & Inwinkl, 2020). Even though some studies (Cho et al., 2014; Fazzini & Dal Maso, 2016) eventually obtained evidence that CSRA does not develop positive effects on firm value, there is also evidence of the opposite (Casey & Grenier, 2015; Martínez-Ferrero & García-Sánchez, 2017).

Assurance positively influences confidence in CSR reporting, leading bankers to make favorable decisions regarding reporting companies. This includes approving credit applications, investing in the company, or purchasing shares (Quick & Inwinkl, 2020).

Research on CSRA has highlighted its potential to influence the long-term financial performance of firms. Companies that make adequate CSRA decisions may experience improved financial benefits, such as increased cash flow and liquidity, leading to better overall performance and more accurate reporting. Stakeholders utilize CSRA to assess the quality of a firm's CSR management and the associated risks. When stakeholders' interests are met, and the likelihood of greenwashing and information overload is minimized, firms present a greater reputation among stakeholders which can be linked to a higher firm value.

Therefore, CSRA should reduce the risks of greenwashing and information overload, making it relevant to the capital market (Velte, 2021; Velte & Stawinoga, 2017).

Companies are under increasing pressure from stakeholders to disclose their social and environmental impacts, even when reporting is voluntary. Given the EU's significant population and economy, understanding the Directive's effects on social and environmental performance is essential. With rising demands for sustainability regulations, including initiatives from the IFRS/ISSB and the EU's EFRAG and NFRD, it is crucial to assess their effectiveness in improving performance. In their analysis regarding the effectiveness of NFRD, de Villiers et al. (2024) found that the Directive has not significantly impacted social and environmental performance, suggesting it has not been pivotal in advancing these areas.

Research regarding auditing professionals' perceptions of non-financial reporting and its assurance is limited, with the majority of existing studies paying little attention to the assurance component. In Portugal, for Eugénio et al. (2022) two particular issues are more problematic: the adequacy of the development of non-financial reporting and assurance practices, and whether statutory auditors receive adequate training in this specific area of assurance. Only three out of 68 statutory auditors (four percent) reported having experience with this type of assurance.

While the literature has been slow to recognize it, there is a growing consensus about the overall picture of ESG practices. However, we still need to understand the specific dynamics, including the factors that influence this relationship and the corporate decisions affected by the policies and culture associated with distinct levels of ESG (Brooks & Oikonomou, 2018), which includes assurance of NFI.

3 - Research Hypotheses Development

3.1 - Theoretical Framework

Many theories support ESG/CSR disclosure and the assurance of NFI, including the agency, stakeholder, and legitimacy theories. These frameworks provide insights into how the assurance of NFI reduces information asymmetry and augments firms' credibility and confidence among investors and stakeholders. All these statements and perspectives contribute to the argumentation about the role of assurance of NFI in the relationship between ESG performance and firms' market value.

3.1.1 - Agency Theory

The agency theory (Jensen et al., 1976) suggests that managers are inclined to disclose social information only when it serves to enhance their welfare. This occurs when the advantages of disclosure exceed the associated costs. Agency costs arise when the manager (acting as the agent), in pursuit of their interests, takes actions that negatively impact the financial well-being of the principal (the shareholder) (Ness & Mikza, 1991).

According to Tsang et al. (2023), the agency theory describes CSR in terms of the agent's own interests, which may bias firms' reputations by manipulating their CSR disclosures to appear to be better in terms of their performance than they are. This perspective aligns with Friedman's (1970), who critically stated that managers' primary objective must be to boost shareholder profits while simultaneously creating enduring value for the company, thus prioritizing shareholders over remaining stakeholders.

Giannarakis (2014) concluded that the agency theory posits a positive relationship between a firm's size and its sustainability performance and disclosure. Pulino et al. (2022) add that higher levels of non-financial information disclosure lead to increased principal satisfaction due to greater.

The literature exploring the impact of governance on sustainability and the effects of audit committees on corporate sustainability used agency theory as the theoretical basis (Hazaea et al., 2022). Moreover, ESG reporting assurance reinforces transparency and credibility, aligning with the goals of early voluntary financial statement audits to reduce agency costs (Sun et al., 2024). In summary, referencing one of the initial studies on agency theory, using external auditing as a monitoring mechanism increases a firm's value (Jensen et al., 1976).

3.1.2 - Stakeholder Theory

From a distinct perspective, including other stakeholders, besides shareholders only, as in the agency theory, the stakeholder theory (Freeman, 1984) is one of the most widely used frameworks to explain the adoption of sustainability practices to address stakeholders' interests (Khaled et al., 2021). This theory provides insights into various dynamics such as corporate governance, managerial perspectives, and CSR committees. It also suggests that firms make CSR disclosures in response to the demands of non-investor stakeholders (Tsang et al., 2023), including a wide range of information users such as customers, suppliers, creditors, and regulators, besides only investors and shareholders, and thus not prioritizing exclusively profit-centered objectives (Roberts, 1992).

Additionally, it proposes that successful companies are those that can align the interests of all stakeholders, thereby enhancing their sustainability (Freeman, 1984). Hazaea et al. (2022) states that stakeholder theory emphasizes management's role in understanding the environmental context of their organizations, including regulations that manage stakeholder relationships.

According to Dal Maso et al. (2020), under the stakeholder view, companies are responsible for more than maximizing shareholder value. They must prevent environmental harm, produce safe products, support employee development, pay taxes, and choose ethical suppliers. This shift is evident as more companies respond to stakeholder demands for non-financial information by releasing CSR reports that address environmental impact, social responsibility, and corporate governance (Stolowy & Paugam, 2018).

3.1.3 - Legitimacy Theory

Similarly to the stakeholder theory, legitimacy theory considers a company's role in a social system, however, it focuses on society as a whole, while the first theory is restricted to specific, more powerful groups of society related to the firm (Reverte, 2009). Both theories provide a comprehensive view of the disclosures and interactions between a firm and its environment (Monteiro et al., 2024).

The legitimacy theory emphasizes the external pressures tied to sustainability performance, which are influenced by societal norms and regulations. Legitimacy is understood as a widespread perception that an entity's actions are appropriate based on the norms, values, beliefs, and definitions constructed by society (Suchman, 1995).

Sustainability activities can help a firm reinforce its legitimacy by showing that it can meet the competing needs of its stakeholders while also operating profitably. This way, the firm is perceived as a member of its community, and its operations gain acceptance (Buallay, 2019). It has become important to recognize that companies are embedded in the environment in which they operate, and what affects their performance (Branco et al., 2014).

By delivering transparent and credible sustainability reports, firms can effectively demonstrate their strong CSR performance and commitment to good business practices. This transparency can positively influence stakeholders' perceptions of the firm's social responsibility performance, ultimately enhancing its overall value through increased stakeholder support and perception (Nguyen, 2020).

Stakeholders seek reliable and objective CSR reports to mitigate the risks of greenwashing and information overload. While the primary objective of CSRA is to enhance the decision-making usefulness of CSR reporting, legitimacy theory posits that CSRA can serve as a symbolic or substantive management tool (Mahoney et al., 2013).

There appears to be a trade-off between CSR and financial success, particularly when considering the role of CSRA. Financial determinants and consequences significantly influence the business case, which is also shaped by governance-related pressures. Companies that demonstrate successful performance and develop their reporting practices, as well as those experiencing increased firm size and industry sensitivity, are more likely to adopt CSRA to meet stakeholder expectations and maintain legitimacy. Evidence suggests that firms tend to embrace CSRA, motivated by both financial factors and governance pressures, in alignment with legitimacy theory (Velte, 2021).

From a distinct perspective, Simnett et al. (2009) anticipated that firms operating in stakeholder-oriented jurisdictions are more likely to utilize CSRA. However, they recognize that having independent assurance is not enough to increase stakeholders' confidence in CSR reporting, leaving some doubt about their commitment to long-term sustainability. Consequently, the costs associated with assurance may outweigh the benefits, leading to a decrease in the use of CSRA as the legal environment worsens (Maroun, 2020).

The legitimacy theory suggests that during periods of low profitability, firms adopt more sustainable practices to convince financial stakeholders that their current sustainability initiatives will lead to long-term success and competitive advantage. Contrarily, according to the agency theory, companies with fewer economic resources tend to prioritize activities that directly impact their earnings over producing social and environmental disclosures (Reverte, 2009).

3.2 - Research Hypotheses

Improved stakeholder relationships lead to better financial performance (Freeman, 1984). CSR, influenced by stakeholder management, is positively linked to shareholder value, reflecting financial performance while considering social issue participation (Kim et al., 2019). As stated by Carroll & Shabana (2010), CSR enhances firm value by mitigating risks and costs, thereby improving corporate reputation, competitive advantages, and creating synergies with stakeholders.

Previous studies generally indicate that ESG performance positively affects firm value, allowing firms to benefit from such performance in the capital market (Kim et al., 2019). However, if CSR disclosures are opportunistic or undervalued by the market, they may be unrelated or negatively correlated with firm value (Cahan et al., 2016). Mixed research results may indicate endogeneity bias regarding the relationship between CSR activities and firm performance, suggesting that either CSR improves performance, or positive performance enables greater CSR investment (Waddock & Graves, 1997). Furthermore, inconsistent measurement of CSR performance complicates these findings, as different measures reflect various components of CSR (Peloza, 2009).

Along with Waddock & Graves (1997), those who claim a negative relationship between CSR performance and financial performance argue that firms experience competitive disadvantages in the short term. This is due to the lack of readily measurable economic benefits to socially responsible behavior, while the associated costs are numerous (Friedman, 1970). According to this perspective, these costs lead to reduced profits and, consequently, shareholder wealth. On the other hand, the perspective supporting a positive relationship between CSR performance and financial performance asserts that, from a stakeholder point of view, a company that tries to reduce its implicit costs through socially irresponsible actions will incur higher explicit costs, leading to a competitive disadvantage.

Nonetheless, according to the legitimacy theory, given that stakeholders are focused on developing and implementing effective ESG strategies, it's crucial to turn those strategies into actual practice, and therefore, firms will continue to take necessary actions to legitimize these strategies (de Villiers & Van Staden, 2011). Since reporting ESG information and scores helps legitimize ESG performance, firms expect better financial performance (M. T. Lee & Raschke, 2023), especially first-order firm financial performance, which is captured through increased revenue and reduced costs, and consequently higher profits, which in turn transfer to the firm's market valuation (Peloza, 2009).

In another stream of literature, some authors indicate better financial performance of companies that adopt ESG practices, reflecting a positive relationship between both variables, by mitigating conflicts of interest between owners and managers, and hence increasing their market value, which is in line with the agency theory (Chauhan & Kumar, 2018; Garcia et al., 2017). Similarly, Wong et al. (2021) state that when companies implement ESG practices, this sends a positive signal to the market that attracts potential investors.

Therefore, the first research hypothesis is derived, supported by the stakeholder theory, legitimacy theory, and agency theory, aiming to analyze the relationship between ESG performance and market value:

Hypothesis 1*: The ESG performance is associated positively with firms' market value.*

According to the agency theory, agency costs influence management's motivation to have their financial statements audited. Assurance helps to reduce agency costs and increases user confidence in the accuracy and validity of the provided information, while also mitigating information asymmetry with stakeholders (Chow, 1982; Huang & Watson, 2015) and ensuring that agents preserve principals' interests (Choi et al., 2025).

Some authors argue that CSR disclosures can influence firm valuation since higher CSR disclosure quality, obtained through assurance, can have positive implications for investor perceptions and intentions toward disclosing firms, which may help to provide legitimacy, and thus make investors obtain more trust in firms' audited reports (Cohen & Simnett, 2015; Elliott et al., 2013; Stuart et al., 2023). Traditional financial auditing serves as a contractual facilitator in agency theory, where assurance acts as a mechanism for evaluating the information provided by managers and for clarifying executive compensation agreements, as with CSRA. CSRA is employed by companies to demonstrate their commitment to aligning sustainability strategies with corporate actions, signaling their dedication to stakeholders (Dalla Via & Perego, 2016).

Additionally, from the legitimacy theory's perspective, managers often pursue independent assurance for their disclosures to strengthen the credibility of the information they present (Emma et al., 2024; Martínez-Ferrero & García-Sánchez, 2017). O'Dwyer et al. (2011) also state that CSRA significantly boosts the credibility of reports and shows a company's dedication to CSR. Thus, assurance is revealed to be crucial since investors tend to view such disclosures with skepticism, often discounting their reliability due to potential bias or hidden purposes. By obtaining independent verification, managers can significantly

enhance the perceived trustworthiness of their ESG performance claims (Brown-Liburd & Zamora, 2014).

Hence, the second research hypothesis is grounded in the agency theory and the legitimacy theory, and aims to explain the association between assurance of non-financial information and firms' market value:

Hypothesis 2*: The assurance of CSR reports is associated positively with firms' market value.*

Shareholders need relevant CSR information to effectively monitor management and estimate future earnings and the firm's valuation. CSR disclosure helps managers communicate the company's environmental and social performance, potentially attracting long-term institutional investors (Cormier et al., 2005; Healy & Palepu, 2001).

In line with agency theory, managers are likely to disclose CSR information that can positively impact the firm's financial performance. This is achieved by providing investors with information that helps them reassess the firm's expected cash flow and risk profile (Healy & Palepu, 2001). By offering the necessary information for investors to evaluate future cash flow and risk accurately, increased CSR disclosure helps reduce information asymmetry and mitigates adverse selection, ultimately leading to positive economic outcomes (de Villiers & Van Staden, 2011).

Maroun (2020) adds that CSRA is expected to improve CSR disclosure quality and Clarkson et al. (2019) indicate in their study regarding the voluntary adoption of assurance of CSR reports that even though CSR reports by itself is not valued by capital markets, when assured, especially by a Big Four firm, they are considered value relevant. Therefore, assurance of CSR reports enhances CSR valuation, as investors recognize the information as more valuable (Choi et al., 2025). Moreover, companies seek high-quality assurance, aiming to demonstrate their commitment to being held accountable for their ESG performance, enhancing their legitimacy, and rebuilding trust with stakeholders (Emma et al., 2024).

According to de Villiers & Marques (2016), the level of CSR disclosure is likely to be higher when there is a strong perceived need for organizations to conform to social norms, as suggested by legitimacy theory. If there is CSR information that can positively influence financial returns, as indicated by the agency theory, managers may also be more inclined to increase their CSR disclosures and the quality of these disclosures. Thus, if investors find CSR disclosures more credible (for example, those that are assured), a more significant and

positive relationship is expected between the incremental information in CSR disclosures (through assurance) and firm value (Cahan et al., 2016). Conversely, if stakeholders do not perceive CSR disclosures as reliable, they might undervalue them, which would result in a lack of relationship between CSR disclosure and firms' performance outcomes (Tsang et al., 2023).

This way, the third research hypothesis that aims to investigate the role of assurance of non-financial information in the relationship between ESG performance and firms' market value is supported by the agency theory and legitimacy theory, and is stated as follows:

Hypothesis 3*: The positive relationship between ESG performance and firms' market value is more significant among firms with non-financial reporting assurance.*

4 - Methodology

This study aims to analyze the relationship between ESG performance and European firms' market value, focusing on the role of assurance of non-financial information in enhancing firm valuation, through the interaction term with ESG performance. The methodology follows a quantitative approach, focusing on inferential analysis to test the relationship between variables.

4.1 - Database and sample

Due to its broad representation of European companies, the sample consists of companies listed on the STOXX Europe 600 Index. It provides a diverse and comprehensive sample, including large, mid-cap, and small companies from various sectors across 17 countries (Bifulco et al., 2023a). Furthermore, the selection of the largest European firms is based on their relevance to the current regulatory framework within the EU, considering that EU Directive 2014/95 mandates large companies to disclose non-financial information (Candio, 2024).

Additionally, this Directive influenced the period covered by the sample, from 2014 to 2022, which captures the period after its release, followed by the subsequent years of its implementation by firms, with reporting becoming mandatory in 2017 (Mio et al., 2020). Moreover, given the developments of ESG matters in the last decade, accompanied by the relevance and scrutiny of the theme by researchers, this period catches observations with more significance for this analysis, by having more companies with available data on Refinitiv Eikon. Ending in 2022, as this was the year up to which we would have obtained all the necessary information when the study was conducted, this sample only considers the impact of Directive 2014/95, with the CSRD being enacted in 2022 and only becoming effective in 2024.

Of the 600 companies included in the STOXX Europe 600, after removing public companies and companies from the financial and insurance sectors due to their differences and lack of comparability with the remaining sectors, companies without information in the Eikon database were also removed from the sample. This corresponds to an unbalanced panel since observations are missing for some periods and variables. A sample of 3700 observations was obtained.

We refer to Standard Industrial Classification (SIC) Codes to segment the companies in scope by industry. In the selected sample, the most representative sector is Manufacturing

(SIC 2 and 3) with 51,76%, followed by Services (SIC 7 and 8) with 16,43%, and representing 6,24% of the final sample, being the least representative, arises the Mining and Construction sector (SIC 1).

The companies constituting our sample are distributed across different countries. This geographical identification was made considering companies' country of domicile, comprehending Austria, Belgium, Denmark, Faroe Islands, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, the United Kingdom (UK) and the United States of America (USA). The UK is the most representative, with 125 companies, followed by France (75) and Germany (70).

Table 4.1 - Sample selection and characterization

	Number of Companies									No. Of Observations	%
	2014	2015	2016	2017	2018	2019	2020	2021	2022		
Panel A - Sample selection criteria											
Companies included in the STOXX Europe 600	600	600	600	600	600	600	600	600	600	5 400	100,00
Financial and insurance companies	-137	-137	-137	-137	-137	-137	-137	-137	-137	-1 233	22,83
Companies without information in the Eikon database	-115	-99	-89	-56	-31	-26	-20	-11	-20	-467	8,65
Final sample	348	364	374	407	432	437	443	452	443	3 700	68,52
Panel B - Distribution of the sample by sector of activity (SIC Codes)											
SIC Code 1 - Mining and Construction	24	24	24	25	27	27	27	27	26	231	6,24
SIC Code 2/3 - Manufacturing	185	192	196	211	223	225	226	231	226	1 915	51,76
SIC Code 4 - Transportation & Public Utilities	56	59	60	62	62	63	63	64	63	552	14,92
SIC Code 5 - Wholesale & Retail Trade	36	39	40	44	46	45	48	48	48	394	10,65
SIC Code 7/8 - Services	47	50	54	65	74	77	79	82	80	608	16,43
Final sample	348	364	374	407	432	437	443	452	443	3 700	100,00
Panel C - Distribution of the sample by country											
Austria	5	5	5	5	5	5	5	5	5	45	1,22
Belgium	6	6	6	6	6	6	6	8	8	58	1,57
Denmark	14	14	15	17	18	18	18	18	18	150	4,05
Faroe Islands	0	0	0	0	1	1	1	1	1	5	0,14
Finland	15	15	15	16	16	16	16	16	16	141	3,81
France	51	52	53	59	60	62	62	63	62	524	14,16
Germany	42	45	46	53	56	57	58	59	59	475	12,84

Table 4.1 - Sample selection and characterization (Continuation)

	Number of Companies									No. Of Observations	%
	2014	2015	2016	2017	2018	2019	2020	2021	2022		
Panel C - Distribution of the sample by country											
Ireland	10	10	10	10	10	10	10	10	10	90	2,43
Italy	11	13	15	19	21	21	21	21	21	163	4,41
Luxembourg	5	6	6	6	6	6	7	8	8	58	1,57
Netherlands	17	17	19	21	24	24	26	27	25	200	5,41
Norway	7	7	7	9	10	10	10	10	10	80	2,16
Poland	3	3	3	5	5	4	5	5	5	38	1,03
Portugal	3	3	3	3	3	3	3	3	2	26	0,70
Spain	15	17	17	17	17	17	17	17	16	150	4,05
Sweden	26	28	30	31	38	40	41	43	43	320	8,65
Switzerland	31	31	31	37	42	43	43	43	40	341	9,22
United Kingdom	86	91	92	92	93	93	93	94	93	827	22,35
United States	1	1	1	1	1	1	1	1	1	9	0,24
Final sample	348	364	374	407	432	437	443	452	443	3 700	100,00

Source: Own elaboration, data from Refinitiv Eikon database

4.2 - Variables

The dataset for this study was obtained from Refinitiv Eikon, which provides financial and ESG scores data for all companies listed in the EU (Bifulco et al., 2023a). It is considered one of the most comprehensive ESG datasets on the market, providing up-to-date ESG information. It evaluates ESG performance across 10 themes and 3 pillars with more than 600 criteria (Aydoğmuş et al., 2022). Refinitiv applies a transparent and consistent methodology to assess companies' ESG performance, considering both the level of ESG disclosure and the effectiveness of a company's management of ESG-related risks and opportunities. This methodology combines two metrics: the ESG score, which measures performance based on ESG data reported by firms across its three pillars; and the ESG combined score, which adjusts this performance by incorporating news controversies that materially impact companies (Refinitiv, 2022).

As the dependent variable of this study, market value is measured through Tobin's Q, equally used by many researchers in similar studies (Aydoğmuş et al., 2022; Kim et al., 2019) reflecting the relationship between a company's market value and the replacement value of its assets (Li et al., 2018) serving as an indicator of market performance and value creation. In other words, Tobin's Q reflects how the market views a company's future cash flows, and the risks associated with those cash flows (Cahan et al., 2016). As the Refinitiv database does not provide directly the values for Tobin's Q, in this study, it was calculated using the following formula:

$$Market\ Value = \frac{Market\ Value * 1000 + Preferred\ Stocks + STDebt\ and\ Current\ Portion\ of\ LTDebt + LTDebt}{Total\ Assets} \quad (4.1)$$

The first independent variable, ESG performance, is assessed through the aggregation of ESG Score (TRESGS), ESG Combined Score (TRESGCS), ESG Environmental Pillar (ENSCORE), ESG Social Pillar (SOSCORE), and ESG Corporate Governance Pillar (CGSCORE), all of them on a scale of 0 to 100 based on the quality and transparency of non-financial reporting, as provided by Refinitiv Eikon (Khaled et al., 2021). Within Refinitiv Eikon, the three pillars of ESG Score are weighted as follows: environmental (0.44), social (0.31), and governance (0.25) (Refinitiv, 2022). The second independent variable, assurance of NFI (Kim et al., 2019; Martínez-Ferrero & García-Sánchez, 2017), is represented as a

binary dummy variable, with "1" indicating the presence of external assurance of firms' CSR reports and "0" indicating the absence of external assurance.

Control variables are included in this analysis to examine other factors influencing firm value. These firms' characteristics, which are known to influence firm valuation and financial performance (Aggarwal et al., 2009), include firm size (Li et al., 2018; Martiny et al., 2024; Nguyen, 2020; Simnett et al., 2009), expressed as the natural logarithm of total assets. This control variable is relevant to this analysis since smaller firms might have access to fewer resources and might invest less than bigger firms (Bifulco et al., 2023a; Waddock & Graves, 1997).

Profitability (Fatemi et al., 2018; Nguyen, 2020; Simnett et al., 2009), measured by return on assets (ROA), is represented in this study by the ratio of Net Income to Total Assets. It demonstrates the effectiveness with which the company utilizes its resources to produce profit (Aydoğmuş et al., 2022). Nguyen (2020) indicates that some researchers find profitability to be favorable information for investors, facilitating the decision-making process and their perception of firms' prospects, and is therefore considered firm value-enhancing.

Leverage (Aydoğmuş et al., 2022; de Villiers et al., 2024; Li et al., 2018; Nguyen, 2020), calculated as the ratio of total liabilities to total assets, refers to the use of debt or borrowed funds to amplify returns from an investment or project (Hayes, 2025). Aydoğmuş et al. (2022) obtained as a result of their study that the positive influence of leverage on profitability is six times the impact of firm size in absolute terms, and its impact on firm value is twice the impact of firm size.

A loss variable (Barth et al., 2017) determined by earnings before interest and taxes (EBIT) was also considered and presented as a dummy variable, assuming "1" if firms present positive results and "0" otherwise. According to Huber & Hirsch (2017), EBIT is a widely accepted economic performance measure, representing a key metric to assess a company's profitability by being linked to the operating result (Pulino et al., 2022). As postulated by Collins et al. (1999), firm's financial performance is negatively associated with negative earnings.

The model also considers firm complexity, indicated by the number of segments in which companies operate, identified by the respective SIC codes. Companies with higher organizational complexity tend to have a stronger positive relationship between their organizational structure and overall firm valuation (K. W. Lee & Yeo, 2016). Gross domestic product (GDP) per capita annual growth rate (Buallay, 2019), used as a country's macroeconomic control variable, was extracted from the World Bank Group (2024). By

dividing ESG disclosures in the sample into two groups: high-GDP countries and low-GDP countries, Buallay (2019) concluded that ESG scores tend to be higher in firms located in low-GDP countries.

Finally, the existence of a CSR sustainability committee (Candio, 2024; Martiny et al., 2024) is included in the model as a dummy variable, assuming "1" if the company has a sustainability committee, and "0" otherwise. A CSR Committee has as its goal to guide and set direction for firms' CSR issues and strategy (Bifulco et al., 2023a). In their study, the authors concluded that the presence of a CSR committee as a moderating variable in the relationship between ESG performance and firm market value does not generate significant evidence of positive correlation.

Table 4.2 - Variables

Dependent Variable	**Expected signal**	**Measurement**	**References**
Market Value		Measured through Tobin's Q	(Aydoğmuş et al., 2022; Brooks & Oikonomou, 2018; Li et al., 2018; Wolfe et al., 2003)
Independent Variables		**Measurement**	**References**
ESG performance	+	Measured through ESG Scores, on a scale from 0 to 100	(Aydoğmuş et al., 2022; Candio, 2024; Pulino et al., 2022)
Assurance of NFI	+	Dummy variable that assumes "1" if the non-financial information is assured, and "0" otherwise	(Kim et al., 2019; Martínez-Ferrero & García-Sánchez, 2017)
Control Variables		**Measurement**	**References**
Size	-	Natural logarithm of total assets	(Li et al., 2018; Martiny et al., 2024; Nguyen, 2020)
Profitability	+	Measured through return on assets (ROA)	(Fatemi et al., 2018; Nguyen, 2020; Simnett et al., 2009)
Leverage	+	Total debt to total assets	(Aydoğmuş et al., 2022; de Villiers et al., 2024; Li et al., 2018; Nguyen, 2020)
Loss	-	Dummy variable that assumes "1" if the company presented positive results, and "0" otherwise.	(Barth et al., 2017; Chauhan & Kumar, 2018; Collins et al., 1999)
Complexity	+	Number of segments	(K. W. Lee & Yeo, 2016)
CSR committee	?	Dummy variable that assumes "1" if the company has a sustainability committee, and "0" otherwise.	(Candio, 2024; Martiny et al., 2024)
GDP	?	Gross domestic product per capita growth rate	(Buallay, 2019)

Source: Own elaboration

4.3 - Econometric model

The econometric model combines the three previously presented research hypotheses, intending to evaluate the relationship between ESG performance and firms' market value, the impact of assurance of NFI on Firms' market value, and lastly, the role of assurance in the relationship between ESG performance and firms' market value. The equation below summarizes the multiple linear regression considered:

$$Firm's\ Market\ Value_{it} = \beta_0 + \beta_1\ ESG\ performance_{it} + \beta_2\ Assurance_{it} + \beta_3\ ESG\ performance_{it} *\ Assurance_{it} + \Sigma_{j=1}^{7}\ \beta_j\ Control\ Variables_{jit} +\ \varepsilon_{it} \quad (4.2)$$

To support the first research hypothesis, asserting the positive relationship between ESG performance and firms' market value, β_1 must be positive and statistically significant. This hypothesis is supported by stakeholder theory, legitimacy theory, and agency theory, considering that better ESG practices are generally linked to improved financial performance by enhancing stakeholder relationships (Kim et al., 2019), mitigating agency costs (Garcia et al., 2017), and legitimizing firm actions (de Villiers & Van Staden, 2011).

Then, to support the second research hypothesis, which analyzes the relationship between assurance of NFI and firms' market value, β_2 must be positive and statistically significant. This hypothesis is grounded in both the agency theory and the legitimacy theory. Assurance reduces agency costs and information asymmetry, enhancing the credibility of CSR disclosures (Huang & Watson, 2015), which strengthens legitimacy and investor trust by signaling commitment to sustainable and transparent practices (Dalla Via & Perego, 2016).

Finally, to support the third research hypothesis, aiming to investigate the role of assurance of NFI in the relationship between ESG performance and firms' market value, β_3 must be positive and statistically significant. This hypothesis is substantiated by the agency theory and legitimacy theory. CSR disclosure, especially when assured, decreases information asymmetry and raises credibility, enabling investors to better assess firm value and risk to drive positive economic outcomes (de Villiers & Van Staden, 2011).

5 - Results and Discussion

5.1 - Descriptive statistics

Statistical analysis was conducted in the Statistical Package for the Social Sciences (SPSS) Statistics and STATA Software using a database elaborated in Excel. Continuous variables were winsorized at percentiles 5% and 95%, aiming to reduce the standard deviation given the effects of extreme values and outliers in the sample.

Table 5.1 displays the descriptive statistics of all variables used in the study, covering the period between 2014 and 2022. The dependent variable, market value, measured by Tobin's Q ratio, presents a mean of 2,017, with the lowest value being 0,351 and the highest being 15,464.

The average ESG performance of European firms is 66,416, with a minimum of 2,600 and a maximum of 95,570 on a scale of 0 to 100. A higher ESG score means that the company invested more in ESG practices, obtaining a higher score, while a lower value means lower investments in ESG practices (Bifulco et al., 2023b). Regarding this independent variable articulated by its three pillars, the Environmental pillar has a mean of 64,253, a minimum value of 0,000, and a maximum value of 98,750. The Social Pillar presents a mean of 70,558, and 0,250 and 98,200 as the lowest and highest points, respectively. Finally, the Corporate Governance Pillar, with a mean of 61,799, the lowest among the three pillars, has a minimum of 1,450 and a maximum of 98,560.

The mean size of the companies under analysis is 15,969, measured by the natural logarithm of total assets. This variable ranges from a minimum size of 10,588 to a maximum size of 20,129. Profitability, represented by ROA, presents a mean value of 0,065, with a minimum of -0,195 and a maximum of 0,495. On average, the leverage of European firms is 0,258, and the minimum and maximum are, respectively, 0,000 and 1,319.

Concerning the sampled firms' complexity, the mean is 4,839, the lowest observation is 0,000, and the highest value for the variable is 10,000. The GDP variable shows that European firms verified during the period under analysis an annual wealth increase of 1,344%, with a maximum growth of 23,305%, while other firms decreased their GDP, with the highest decrease of 11,600%.

Regarding dummy variables used in this study, the independent variable assurance of NFI is verified in 71,800% of the total sample, corresponding to 2656 observations. Additionally,

81,700% (3022) of the firms have a CSR Committee, while only 8,500% (316) of the observations indicate financial losses through negative EBIT.

Table 5.1 – Descriptive Analysis

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Market Value	3 700	0,351	15,464	2,017	2,065
ESG performance	3 700	2,600	95,570	66,416	16,662
ESG Environmental Pillar	3 700	0,000	98,750	64,253	22,624
ESG Social Pillar	3 700	0,250	98,200	70,558	19,533
ESG Corporate Governance Pillar	3 700	1,450	98,560	61,799	20,497
Size	3 700	10,588	20,129	15,969	1,458
Profitability	3 700	-0,195	0,495	0,065	0,076
Leverage	3 700	0,000	1,319	0,258	0,154
Complexity	3 700	0,000	10,000	4,839	2,151
GDP per capita growth (annual %)	3 700	-11,600	23,305	1,344	3,737
		N	%		
Assurance	Dummy = 1	2 656	71,800%		
	= 0	1 044	28,200%		
CSR Committee	Dummy = 1	3 022	81,700%		
	= 0	678	18,300%		
Loss	Dummy = 1	3 384	91,500%		
	= 0	316	8,500%		

Continuous variables winsorized at the percentil 5% and 95%

Source: Own elaboration, data from Refinitiv Eikon database

5.2 - Correlation matrix

Table 5.2 demonstrates the correlations between the dependent variable, market value, the independent variables, ESG performance and assurance of NFI, and the control variables. Panel A shows Pearson coefficients for continuous variables. It is possible to evaluate the association between quantitative variables through Pearson correlation coefficients. Panel B presents Spearman coefficients to assess the correlations involving categorical variables.

Market value presents a statistically significant correlation with all variables except GDP per capita at a 1% significance level. The dependent variable is correlated positively with only two variables: loss and GDP per capita. The remaining variables, including both independent variables, negatively correlate with market value.

The independent variables of this model, ESG performance and assurance, present a positive and significant correlation at a 1% significance level. This relationship may be indicative of the results for the third research hypothesis under analysis, in which assurance of NFI is expected to drive the relationship between ESG performance and market value.

The ESG performance variable is fundamentally explained by the environmental and social pillars rather than the corporate governance pillars since they present correlations of 0,822, 0,874, and 0,649, respectively. In the model, these variables are never considered together, as they are always entered individually, which minimizes potential multicollinearity problems. Among these three pillars, corporate governance correlates highest with market value.

The correlations between the independent and control variables are low, suggesting that multicollinearity issues are minimal. This conclusion is further supported by the Variance Inflation Factor (VIF) analysis, which shows that all VIF values are below 10.

Table 5.2 – Correlations

		(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)		(12)		(13)
Panel A: Pearson correlations for continuous variables																										
(1)	Market Value	1,000																								
(2)	ESG performance	-0,269	**	1,000																						
(3)	ESG Environmental Pillar	-0,295	**	0,822	**	1,000																				
(4)	ESG Social Pillar	-0,211	**	0,874	**	0,665	**	1,000																		
(5)	ESG Corporate Governance Pillar	-0,170	**	0,649	**	0,287	**	0,344	**	1,000																
(6)	Size	-0,525	**	0,538	**	0,531	**	0,471	**	0,283	**	1,000														
(7)	Profitability	0,585	**	-0,167	**	-0,153	**	-0,141	**	-0,115	**	-0,367	**	1,000												
(8)	Leverage	-0,175	**	0,152	**	0,103	**	0,127	**	0,125	**	0,247	**	-0,282	**	1,000										
(9)	Complexity	-0,179	**	0,201	**	0,223	**	0,161	**	0,080	**	0,299	**	-0,153	**	0,136	**	1,000								
(10)	GDP per capita growth (annual %)	0,020		-0,056	**	-0,035	*	-0,057	**	-0,035	*	-0,016		0,097	**	-0,038	*	-0,026		1,000						
Panel B: Spearman correlations for categorical variables																										
(11)	Assurance?	-0,229	**	0,489	**	0,480	**	0,434	**	0,260	**	0,430	**	-0,171	**	0,155	**	0,194	**	0,043	**	1,000				
(12)	CSR Committee?	-0,159	**	0,465	**	0,399	**	0,409	**	0,303	**	0,327	**	-0,128	**	0,135	**	0,121	**	0,013		0,367	**	1,000		
(13)	LOSS	0,200	**	-0,018		0,012		0,005		-0,053	**	-0,080	**	0,484	**	-0,083	**	-0,040	*	0,092	**	0,000		-0,032	*	1,000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Continuous variables winsorized at the percentil 5% and 95%

Source: Own elaboration, data from Refinitiv Eikon database

5.3 - Regression model

Table 5.3 displays the coefficients and summary of the regression model, allowing for conclusions to be drawn regarding the hypotheses under analysis - the relationship between ESG performance and market value, and the impact of assurance of NFI in this interaction. The assumptions of normality were verified.

The F-test for the overall significance of the model indicates that it adequately explains the relationship between market value and the independent variables (F Value = 60,130, p-value < 0.01). The results also show that the Adjusted R^2 is 0,515, i.e., the model explains 51,5% of the market value variation. This allows us to conclude that there is a very reasonable explanatory power between the variable firms' market value and the respective independent and control variables.

The Durbin-Watson value, 1,751, suggests no serious autocorrelation in the residuals. The highest VIF is below 3,964, indicating that there are no multicollinearity problems, being much lower than the benchmark 10 for multicollinearity.

Analyzing the regression model, we observe that ESG performance is negatively associated with market value, by presenting a negative and statistically significant coefficient ($\beta_1 = -0{,}009$, p-value $< 0{,}01$). H1 indicates that a positive relationship exists between ESG performance and market value. Therefore, the results do not support this hypothesis. These findings are concordant with a minority strand of the literature stating that ESG lowers firms' financial performance or firm value (Brammer et al., 2008; Landi & Sciarelli, 2019; Marsat & Williams, 2011). In research conducted by Marsat & Williams (2011) considering a worldwide sample, the authors concluded that the higher the degree of CSR performance, the lower the stock value of the firm, and therefore, it was discussed that ESG increases costs and has economic effects, leading to lower market values for companies. Moreover, when assessing the impact of ESG rating on corporate financial performance, Landi & Sciarelli (2019) reiterate that, in the Italian landscape, these variables present a negative and statistically significant relationship. Research in the UK shows that companies with higher social performance scores usually earn lower returns. In contrast, companies with the lowest CSR scores significantly outperform the market (Brammer et al., 2008).

In contrast to the results obtained, most studies examining the impact of ESG performance on firm value have shown positive outcomes (Aydoğmuş et al., 2022; Fatemi et al., 2018; Li et al., 2018; Tsang et al., 2020; Yoon et al., 2018). Li et al.

(2018) support that the improved transparency and accountability, allied to superior stakeholder trust, obtained through favorable ESG performance, play a role in boosting firm value. ESG performance positively impacts firm value, but by examining the moderating role of disclosure, Fatemi et al. (2018) uphold that simply disclosing ESG information can reduce a company's valuation. However, disclosure is important because it helps reduce the negative impact of ESG weaknesses and attenuates the positive impact of ESG strengths.

The results observed in this study may be attributed to the fact that this research analyzes the relationship between ESG performance with market value in a short-term (a period of a yearlong) perspective. However, ESG may only reward firms financially in the long term, since there are few readily measurable economic benefits and high associated costs for firms socially responsible (Friedman, 1970). Environmental projects typically require several years to generate positive impacts on firm value (Aydoğmuş et al., 2022). Thus, a firm may intentionally sacrifice some current profitability to participate in CSR activities that will benefit the firm in the long run (Servaes & Tamayo, 2013).

The second research hypothesis indicates that the assurance of CSR reports has a positive relationship with firms' market value. This hypothesis is not confirmed by the model, with the coefficient being negative and statistically significant (β_2 = -0,552, p-value < 0,05). This result is concordant with other authors' results, stating that the assurance of CSR reports does not generate positive effects on firm value (Cho et al., 2014; Fazzini & Dal Maso, 2016). The basis for this outcome may derive from the fact that non-financial information assurance remains limited and voluntary, rather than reasonable and/or mandatory. Choi et al. (2025) note that in societies with stricter CSR regulations, the incremental contribution of non-financial information assurance to firm value may be negligible, as stakeholders constantly monitor firms' CSR reports and investors are more knowledgeable in acquiring credible CSR-related information, relying less on non-financial information assurance to assess the quality of CSR reports. Additionally, studies indicate a contrasting relationship between the assurance of NFI and the cost of capital (Casey & Grenier, 2015; Martínez-Ferrero & García-Sánchez, 2017), suggesting that by mitigating information asymmetries and investors' uncertainties through assurance of NFI, companies' cost of capital is reduced.

Finally, the results indicate a positive and statistically significant relationship between the interaction of variables ESG performance and assurance (ESG

performance*Assurance) and the variable market value (β3 = 0,010, p-value < 0,05). This result supports H3. In companies that have their sustainability reports audited, the higher the level of ESG performance, the higher their market value. This result indicates that the assurance variable moderates the positive relationship between ESG performance and market value. This conclusion is consistent with previous studies suggesting that adopting NFI assurance enhances the positive relationship between ESG performance and market value, from a USA point of view (Kim et al., 2019). CSRA improves non-financial reporting quality and therefore builds stakeholder trust and promotes both firm stability and economic stability (Choi et al., 2025). Moreover, when CSR performance is linked to executive pay, i.e., managers are remunerated for firms' performance, and CSR investment is high, investors assign a higher value to firms only when CSRA is also provided (Brown-Liburd & Zamora, 2014).

Regarding the control variables included in this model, firm size presents a negative and statistically significant association with market value (β = -0.451, p-value < 0.01). This finding is similar to Li et al. (2018) study on the impact of ESG on firm profitability, Servaes & Tamayo (2013) study on the impact of CSR on firm value, and Buchanan et al. (2018) study involving how CSR, jointly with influential institutional ownership, affects firm value. However, Nguyen (2020) found a positive influence of this variable in the relationship between firm value and GRI adherence in environmentally friendly industries. Additionally, Yoon et al. (2018) obtained a positive impact of firm size while examining whether a firm's CSR significantly contributes to enhancing its market value in Korea.

As expected, following previous studies' results, profitability has a statistically significant positive association with market value (β = 14,741, p-value < 0,01), supporting the idea that more profitable firms are more valuable. For example, when analyzing the positive effect of diversified CSR structures on firm value in public USA firms, Bouslah et al. (2023) identified a positive and significant interaction of profitability with firm value. Additionally, profitability presents a positive and statistically significant relationship with firm value, as indicated by the results of the study conducted by Fatemi et al. (2018). The findings indicate that ESG disclosures, when analyzed in isolation, decrease a firm's value.

Firms reporting losses exhibit lower market values (β = -1,122, p-value < 0,01), which is consistent with prior literature indicating that market participants penalize firms with poor financial performance (Collins et al., 1999). However, there is evidence

that studies also report negative interactions between a loss variable and firm value, in a study demonstrating a positive valuation of Indian firms associated with non-financial disclosure (Chauhan & Kumar, 2018). Regarding the remaining control variables, results indicate that the existence of a CSR Committee, leverage, complexity, and GDP per capita growth are not statistically significant at conventional levels.

Table 5.3 - Regression Model Analysis for ESG performance

	Predicted Signal	Market Value	
Intercept		8,951	***
ESG performance	+	-0,009	***
Assurance?	+	-0,552	**
ESG performance*Assurance?	+	0,010	**
CSR Committee?	?	-0,085	
Size	-	-0,451	***
Profitability	+	14,741	***
Leverage	+	0,422	
Complexity	+	0,001	
LOSS	-	-1,122	***
GDP per capita growth (annual %)	?	0,010	
Industry-fixed effects		Included	
Year-fixed effects		Included	
Model Fit:			
R^2		0,515	
F value		60,130	***
Durbin-Watson value		1,751	
VIF		<3,964	
Observations		3700	
Statistically significant at the level of ***0,01, **0,05, and *0,1 (2-tailed)			
Continuous variables winsorized at the percentil 5% and 95%.			
Standard errors are heteroskedasticity-adjusted and clustered at the firm level.			

Source: Own elaboration, data from Refinitiv Eikon database

5.4 - Additional analyses

The regression model was additionally applied to each ESG dimension (environment, social, and governance) to further analyze the previous results. The results from the regression model analysis for ESG pillars are presented in Table 5.4. The normality assumptions were verified.

The results shown in Table 5.4 demonstrate that the regression model is generally valid. This model is statistically significant (F for Environmental=60,940; F for Social=60,300; F for Governance=59,110; p-value<0,01). Therefore, the environmental pillar has the greatest influence on a firm's market value. The explanatory power of each ESG pillar concerning the variation of market value is 51,6% (adjusted R^2 = 0,516) for the environmental pillar, and 51,5% (adjusted R^2 = 0,515) for both the social and corporate governance pillars.

Based on the results, with market value as the dependent variable, our analysis revealed that both the environmental and corporate governance pillars exhibit negative and statistically significant relationships with market value. Conversely, the social pillar does not present a statistically significant association with market value.

Considering the impact of the variable assurance, the environmental and social pillars present a positive and statistically significant interaction with market value. These positive interactions indicate that when firms have their sustainability reports assured, the impact of the ESG Environmental Pillar and ESG Social Pillar on their market value is higher.

Table 5.4 – Regression Model Analysis for ESG pillars

	Predicted Signal	Market Value					
Intercept		8,858	***	9,078	***	8,567	***
ESG Environmental Pillar	+	-0,010	***				
ESG Social Pillar	+			-0,005			
ESG Corporate Governance Pillar	+					-0,006	*
Assurance?	+	-0,515	**	-0,677	***	0,003	
ESG Environmental Pillar*Assurance?	+	0,011	***				
ESG Social Pillar*Assurance?	+			0,011	***		
ESG Corporate Governance Pillar*Assurance?	+					0,001	
CSR Committee?	?	-0,064		-0,143	*	-0,097	
Size	+	-0,445	***	-0,472	***	-0,435	***
Profitability	+	14,738	***	14,626	***	14,826	***
Leverage	+	0,407		0,411		0,449	*
Complexity	+	0,001		0,000		0,000	
LOSS	-	-1,105	***	-1,124	***	-1,141	***
GDP per capita growth (annual %)	?	0,010		0,012		0,012	
Industry effects		included		included		included	
Year effects		included		included		included	
Model Fit:							
R^2		0,516		0,515		0,515	
F value		60,940	***	60,300	***	59,110	***
Durbin-Watson value		1,751		1,752		1,748	
VIF		<3,895		<3,459		<4,547	
Observations		3700		3700		3700	

Statistically significant at the level of ***0,01, **0,05, and *0,1 (2-tailed)
Continuous variables winsorized at the percentil 5% and 95%.
Standard errors are heteroskedasticity-adjusted and clustered at the firm level.

Source: Own elaboration, data from Refinitiv Eikon database

Conclusion, Limitations and Future Research

The present study aims to analyze the relationship between ESG performance and the market value of European firms, as well as the role of assurance of non-financial information in this interaction. The European firms contemplated in the sample are listed on the STOXX Europe 600 index. The data collected from Refinitiv Eikon, covering the period from 2014 to 2022, resulted in 3700 firm-year observations in the final sample.

Through the linear regression model conducted, the findings indicate that ESG performance is negatively and significantly associated with market value, thus not supporting the first research hypothesis. Hence, firms' efforts to perform better in terms of ESG are not compensated by investors, since it does not result in a higher firm market value in a short-term analysis. This is consistent with prior literature indicating that ESG may negatively affect firm value in the short term (Brammer et al., 2008; Landi & Sciarelli, 2019; Marsat & Williams, 2011). From the analysis of each ESG pillar's impact on market value individually, the environmental and governance pillars evidence a negative and statistically significant relationship with market value. In its turn, the social pillar did not demonstrate a statistically significant relationship with market value.

Regarding the second hypothesis, the results reveal a negative and statistically significant relationship between assurance of NFI and firm marketL value. This finding contradicts the expectation that assurance enhances report credibility and investor confidence but aligns with the literature suggesting that assurance may not always produce value-enhancing effects, especially when it remains voluntary or limited in scope (Cho et al., 2014; Fazzini & Dal Maso, 2016). Moreover, in jurisdictions with more developed sustainability reporting environments, such as the EU, investors may already possess the tools and experience to evaluate ESG disclosures without heavily relying on third-party assurance (Choi et al., 2025).

However, the interaction between ESG performance and assurance over firm value was found to be positive and statistically significant, confirming the third hypothesis. This suggests that assurance moderates the relationship between ESG performance and market value, and firms with assured sustainability reports and high ESG scores tend to be more valued by investors. This finding aligns with previous research (Brown-Liburd & Zamora, 2014; Kim et al., 2019), which emphasizes the role of assurance in reducing

information asymmetry, strengthening stakeholder trust, and enhancing the perceived quality of ESG disclosures.

These findings can be explained by the theoretical framework adopted in this study. From the stakeholder theory perspective, the negative link between ESG performance and market value may happen because companies have not fully matched their ESG practices with what stakeholders expect, which means it has not translated into increased market value (Cahan et al., 2016). Moreover, the negative relationship between ESG performance and financial performance observed may be attributed to the perception that socially responsible practices impose substantial costs without generating immediate financial benefits (Waddock & Graves, 1997). In contrast, through its positive moderating effect, assurance appears to reduce information asymmetry and improve the credibility of ESG disclosures, as proposed by agency theory (Chow, 1982; Huang & Watson, 2015), while also serving as a symbolic mechanism to legitimize firms' sustainability efforts in the eyes of stakeholders and society at large, as suggested by legitimacy theory (Martínez-Ferrero & García-Sánchez, 2017). Thus, while ESG efforts alone may not be fully rewarded by the market, assurance helps reinforce their credibility, leading to higher firm value.

Despite the existing literature exploring the relationship between ESG (or CSR) performance and a firm's market value (or other measures of financial performance) (e.g., Aydoğmuş et al., 2022; Fatemi et al., 2018; Li et al., 2018; Servaes & Tamayo, 2013; Yoon et al., 2018), studies have not been conducted under the EU scope to analyze the impact of NFI assurance on this relationship. This way, the results capture the effect of the mandatory disclosure of non-financial information under the NFRD. Therefore, this study is relevant for managers, investors, professionals, regulators, and society in general by providing evidence from a European context, highlighting the importance of credible NFI disclosures in capital markets.

A limitation of this study arises from the fact that the sample used in the study only extends until 2022, given the information available at the time of data collection. Therefore, the study does not capture the effects of recent regulations that have already been disclosed, namely IFRS S1 and S2, and CSRD in the EU context. Furthermore, since this study exclusively focuses on EU firms, it may not be generalized to other regions and countries subject to different regulatory frameworks and socio-economic contexts.

In future research in this field, a different period could be used, namely the period after the implementation of CSRD. Additionally, a comparison of the periods using NFRD and CSRD could be made to elucidate the academic community, stakeholders, and regulators the effects and practical differences between both directives. Lastly, further exploration into the role of the type and quality of assurance providers, especially Big Four versus non-Big Four firms, could provide a deeper understanding of the value investors assign to different assurance mechanisms.

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