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**The Impact of Non-Financial Reporting on
Earnings Management: Evidence from Large
European Public-Interest Entities Before and
After the Adoption of the Directive 2014/95/EU**

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List of abbreviations

BSE	B ucharest S tock E xchange
CCR	C ountry C eiling R ating
CDPs	C ustomer D ata P latforms
CEO	C hief E xecutive O fficers
CFOs	C hief F inancial O fficers
CSA	C orporate S ustainability A ccounting
CSR	C orporate S ocial R esponsibility
CSRD	C orporate S ustainability R eporting D irective
DID	D ifferences- i n- D ifferences
EM	E arnings M anagement
EFRAG	E uropean F inancial R eporting A dvisory G roup
EPS	E arnings p er S hare
ESG	E nvironmental, S ocial, G overnance
ESRS	E uropean S ustainability R eporting S tandards
EU	E uropean U nion
GEI	G ender- E quality I ndex
GRI	G lobal R eporting I nitiative
IIRC	I nternational I ntegrated R eporting C ouncil
ILO	I nternational L abour O rganization
IR	I ntegrated R eporting
KPIs	K ey P erformance I ndicators
NFRD	N on- F inancial R eporting D irective
OLS	O rdinary L east S quares
PPE	P roperty, P lant, and E quipment
SASB	S ustainability A ccounting S tandards B oard
SDGs	S ustainable D evelopment G oals
SFAP	S ustainable F inance A ction P lan
SMEs	S mall and M edium E nterprises
UNGC	U nited N ations G lobal C ompact
USA	U nited S tates of A merica
VIF	V ariance I nflation F actor
WCED	W orld C ommission on E nvironment and D evelopment

Introduction

Understanding if the allocation of internal resources is profitable is essential for the proper functioning of any business activity. The economic performance of a company is important for internal stakeholders as it is for external stakeholders and for this reason information needs must be satisfied. Financial Statements represent the main information and control tool, able to tell the economic history of any entrepreneurial activity. Composed by a set of accounting documents, among which are recalled the Balance Sheet, the Income Statement and the Explanatory Notes, Financial Statements are released periodically at the end of each administrative year to communicate the company's financial position and performance. They allow to keep track of the profitability of investments and the quality of the business management. Furthermore, they are needed by investors, creditors, regulators, customers and employees to make more informed decisions (Watts & Zimmerman, 1990).

Despite Financial Statements represent the tool to satisfy at once the cognitive needs of all stakeholders, the quality of the information provided is increasingly threatened by distortions and manipulations. The phenomenon of earnings management (EM), involving intentional actions taken by firms to influence reported financial results, has received considerable attention from scholars. In particular, attempts have been made over the past three decades to understand its determinants and contributing factors.

In recent years, stakeholders' information requirements have undergone a shift, placing greater emphasis on non-financial factors. Consequently, companies have begun disclosing non-financial data, and particularly environmental, social, and governance (ESG) information. The sustainability theme is relatively new, but it has rapidly gained significant importance. Companies must play a leading role in promoting sustainability, through a change that involves the economic activity they carry out.

As demands for transparency and sustainable practices grow, executives face increasing pressures, and the relevance of ESG ratings intensifies. This raises concerns that companies may attempt to influence non-financial information through information overload or greenwashing, so as to conceal dishonest financial practices.

Using panel data from companies listed on European Stock Exchanges from 2015 to 2021, the Modified Jones Model (1995) is applied with the ultimate goal of analysing the relationship between the dependent variable discretionary accruals, used as proxy for earnings management, and the independent variable ESG disclosure, accounting for a number of control variables. Specifically, we seek to investigate the effects of the adoption of the Non-financial Reporting Directive 2014/95/EU on firms' incentives to manage earnings. We aim to gain a deeper understanding of the underlying dynamics and to contribute to the existing body of knowledge in this field. A sample of listed companies from all twenty-seven European Member States is at heart of this analysis.

The first section of this thesis focuses on the earnings management literature: some definitions and the motivations of listed companies to engage in such practices are provided. A model useful for the interception of the phenomenon is then exposed. Subsequently, a comprehensive definition of corporate sustainability is given, specifically in the context of ESG ratings.

The results of our analysis reveal an interesting pattern, providing valuable insights into the impact of the Directive 2014/95/EU on firms' reporting behaviour and business culture. Firstly, our findings demonstrate that the adoption of the Directive had a positive influence on the non-financial reporting behaviour of mandated firms. The substantial increase in ESG disclosure among treated firms, compared to non-treated firms, serves as compelling evidence that the Directive effectively accomplished its primary objective of enhancing non-financial reporting. Secondly, we provided evidence of a negative significant correlation between ESG

disclosure and earnings management. This implies that companies disclosing a higher amount of non-financial information are also more likely to exhibit greater transparency and accountability in their financial reporting. In essence, firms rely on ESG disclosure to demonstrate to the public adherence to ethical standards and beliefs. However, with the adoption of the Directive, a shift occurs. The relationship between ESG disclosure and earnings management becomes from negative to positive for treated firms, indicating a potential change in business culture. In other words, among the firms obligated to comply with the Directive, higher levels of ESG disclosure are associated with higher levels of earnings management or potentially opportunistic practices. Our last finding demonstrates that there has been an increase in discretionary accruals for treated firms post-adoption, but without statistical significance.

In conclusion, the Directive 2014/95/EU has not significantly influenced the business culture of mandated firms, neither in a positive nor in a negative manner. Its implementation has not resulted into a noticeable change in reporting practices or ethical behaviour among treated firms. The lack of statistical significance indicates that other factors may have contributed to the observed changes in discretionary accruals. Therefore, further investigation is needed to establish a conclusive link.

1. Earnings management: Analysis of the phenomenon

This chapter begins by defining earnings management and delving into the motivations that drive firms to engage in such practices. It further explores the specific context of accrual-based earnings management, which entails the manipulation of accounting accruals to meet financial targets. Additionally, two commonly used models for detecting accrual-based earnings management: the Jones model and the modified Jones model, are deepened. By examining these subjects, this chapter lays the foundation for understanding the complexities of earnings management and its detection.

1.1. Earnings management definition

Ideally, financial reporting plays a crucial role in allowing well-performing firms to differentiate themselves from underperforming ones and facilitating shareholders to make informed decisions (Healy & Wahlen, 1999). Nevertheless, managers can exercise discretion when computing earnings without violating generally accepted accounting principles, as such causing income to appear higher or lower than in reality.

In the academic literature, numerous scholars have examined the earnings management phenomenon. Although the term suggests the simple management of corporate data, it mostly refers to the unethical practices of managers in opportunistically manipulating book values.

One of the most concise definitions comes from Mohanram (2003): “*Earnings management is an intentional misstatement of earnings leading to bottom line numbers that would have been different in the absence of any manipulation.*” Similarly, Schipper (1989) defines it as the “*purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain.*” At the root of this behaviour is the information asymmetry, where internal corporate subjects have an inherent advantage over external corporate subjects.

As defined by Healy and Wahlen (1999), earnings management refers to the practice of using judgment in financial reporting and transaction structuring to modify financial reports, with the aim of either misleading certain stakeholders about the company's true economic performance or influencing contractual outcomes dependent on reported accounting figures. Judgment is especially necessary for values that require estimation and cannot be determined with certainty. Such values, including estimated or presumed values, may only be verified after they occur, or not at all due to being based on unverifiable hypotheses. For instance, receivables and payables in foreign currency are examples of estimated values, while depreciation or inventories are presumed values. Additionally, managers may choose from various accounting methods to record the same economic transaction. If judgments, which are essential for bookkeeping, are made in such a way so as to benefit the company, they fall under the practice of earnings management. However, Healy and Wahlen (1999) go beyond this opportunistic view, suggesting that this practice can be advantageous to companies, especially when there are gaps in accounting principles.

In summary, the practice of earnings management can range from innocuous adjustments or corrections made in good faith to fraudulent or opportunistic manipulation in financial reporting. Whenever it respects the national or international financial reporting rules or standards, it is considered as legitimate. However, if it goes beyond them, it will result as illegitimate (Al-Khabash & Al-Thuneibat, 2009). The agents responsible for it are those in charge of drafting financial statements, able to act with a certain degree of freedom (Florio, 2011).

1.2. Firms' incentives and motivations for earnings management

Due to the information asymmetry between internal and external users of accounting information, managers could use their discretion and control advantage to represent accounting

data in a manner that benefits the company or themselves. This raises the question of what motivates companies to engage in earnings management.

One reason for this practice is the desire to influence the perceptions of lenders and obtain favourable credit terms. Companies routinely enter contracts with employees, suppliers, creditors, and consumers, and sometimes contractual costs can be high as creditors must be protected from any default. In particular, when firms seek financial sources from lenders or financial institutions, creditors often impose restrictions on dividend payments, share repurchases, debt issuances, or require the company to achieve certain performance targets (Beneish, 2001). These restrictions deriving from the contractual relationship are the so-called debt covenants and are designed to limit the company's decision-making power for the protection of creditors. Violating these clauses can directly result in significant risks and costs, such as the need to renegotiate the terms of the agreement, the recall of the loan, or even bankruptcy (Lev, 2003). Given the severe limitation of bargaining power that these clauses entail, managers may have incentives to use accounting manipulation techniques to circumvent debt covenants. Contractual relationships and clauses could either cause an upward or downward manipulation of earnings, depending on the actual performance of the company. Firms with serious financial difficulties are in fact more likely to further aggravate the reported accounting data to obtain more favourable contractual terms (DeAngelo et al., 1994).

Healy and Wahlen (1999) illustrate three motivations for earnings management arising from regulatory issues. The first is related to the specific regulations of the sector in which the company operates. Firms might have an incentive to manipulate accounting data to ensure compliance with rules. The second reason is to reduce the risk of investigation by anti-trust regulators: companies with excessively positive results may desire to appear less profitable to go unnoticed and avoid scrutiny. The third is related to the payment of taxes. One of the main

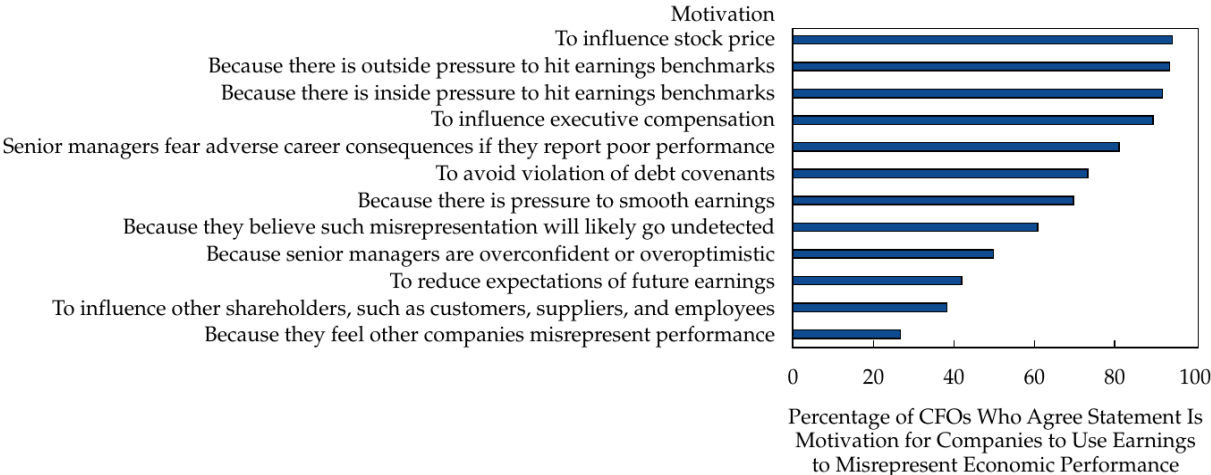
objectives of financial statements is tax determination. Consequently, reported earnings could be affected by the effort to optimize tax planning.

According to Bagnoli and Watts (2000), firms are often incentivized to inflate profits simply because they expect other firms to do so too. As soon as one company in an industry starts manipulating numbers, everyone else follows suit so as not to be left behind.

Arkan (2015) discovered that companies manipulate their profits to gain more social influence and visibility in the political and media arenas. Another reason for earnings management, identified by Duncan (2001), is the fear of poor future performance. Companies tend to manipulate their positive year results downward to create “profit reserves” that can be used during less profitable periods.

Dichev, Graham, Harvey and Rajgopal (2016), by interviewing 12 CFOs and surveying 375 CFOs from both public and private companies, have shed some light on the reasons driving managers to manipulate earnings. Their findings are summarised in the figure below:

Figure 1: Motivations to Use Earnings to Misrepresent Economic Performance (Dichev et al., 2016)



The practice of earnings management is often driven by the desire to influence stock prices for various reasons. Firstly, managers may be pressured to meet or exceed earnings analysts’ expectations to avoid a drop in share value due to consecutive low performances. This may

prompt them to manipulate economic results to communicate better outcomes to the public (Beneish, 2001). Secondly, meeting or exceeding internal targets may give managers access to higher compensations or bonuses. On the other hand, not meeting targets such as revenues and earnings per share (EPS) growth could lead to cuts in already set bonuses (Trainer, 2015). Thirdly, manipulating earnings can help improve financial ratios such as the price-to-earnings (P/E) ratio, making the company's stock more attractive to investors. Finally, companies may engage in earnings management to influence takeover bids, making themselves more appealing and potentially increasing the bid price (Healy & Wahlen, 1999).

1.3. Accrual-based earnings management

The accrual-based earnings management is the most frequently measured in research. Managers may use discretion in financial reporting to structure corporate transactions in a way that allows them to achieve desired outcomes. By applying specific accounting methods, earnings can be managed to deceive investors and other stakeholders, as noted by Healy & Wahlen (1999).

To fully understand how earnings manipulation through accruals works, it is important to examine the role of accruals in accounting. In essence, accruals are accounting entries made in a company's financial statements that reflect the recognition of revenues or expenses before actual cash payments are made or received. They are used to match revenues and expenses in the appropriate accounting period, even if the cash has not been exchanged yet (Tuovila, 2022). The purpose of accruals is to address the discrepancy between the timing of the cash flows and the timing of the accounting recognition of the transaction (Dechow, 1995).

The distinction between discretionary and non-discretionary accruals is crucial when examining the manipulation of earnings through accruals. Non-discretionary accruals are based on objective measurements and are necessary for accurate financial reporting. These are determined by external factors, such as changes in interest rates or inflation, and cannot be

easily manipulated by the management. On the other hand, discretionary accruals are susceptible to managerial discretion and are often used to achieve specific financial goals. Examples of discretionary accruals include the estimation of bad debt expenses, asset write-downs, and revenue recognition.

A distinction can further be made between current and non-current accruals. Current accruals refer to all judgements made for short-term assets and liabilities, such as the measurement of inventories, receivables, or payables. Non-current accruals relate instead to depreciation and amortisation (Healy & Palepu, 2003). The literature on earnings management focuses more deeply on current accruals, as managers have greater control over them than non-current accruals. In addition, according to the study conducted by Kreutzfeldt and Wallace (1986), auditing errors in judgement are most frequently found in receivables, inventory, accounts payables and accrued liabilities.

While the overall accruals of a company can be readily observed in financial reports, it is challenging to determine the proportion of accruals that are discretionary versus non-discretionary. Among the most famous estimation models we find the Jones (1991) model, the modified Jones model (Dechow et al., 2004), and the performance based discretionary accruals model (Kothari et al., 2005).

1.4. Detecting accrual-based earnings management

The earnings management detection technique put forward by Jones (1991), referred to as the Jones model, and the modified Jones model (1995), are possibly the most applied in research. Both are aimed at determining the level discretionary accruals, which act as proxy for earnings management.

1.4.1. The Jones model

Starting with the premise that fluctuations in a company's economic conditions increase the likelihood of accruals, Jones (1991) developed a regression model that correlates total accruals with changes in revenue and tangible fixed assets. This model takes into account the fluctuations in revenue and the level of gross property, plant, and equipment (PPE) as determinants of non-discretionary accruals. It challenges the traditional assumption that non-discretionary accruals are constant, by proposing a model that considers their variability over time.

The first step of the Jones model consists in the determination of total accruals:

$$TA_{it} = (\Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} - DAE_{it}) \quad (1)$$

Where:

- TA_{it} : total accruals in year t for firm i
- ΔCA_{it} : change in current assets in year t for firm i
- ΔCL_{it} : change in current liabilities in year t for firm i
- $\Delta Cash_{it}$: change in cash and cash equivalents in year t for firm i
- DAE_{it} : depreciation and amortisation expense in year t for firm i

The variables necessary for the computation of total accruals can be found in financial statements, such as balance sheets, income statements, and cash flow statements. The reason for using balance sheet information comes from the link between changes in working capital accruals and the accruals of income and expenses in the income statement (Costa & Soares, 2022). The next step after computing total accruals is the estimation of the coefficients to be

used in the calculation of discretionary and non-discretionary accruals. To perform this step, the following equation is used:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_2 \left(\frac{\Delta REV_{it}}{A_{it-1}} \right) + \beta_3 \left(\frac{PPE_{it}}{A_{it-1}} \right) + \epsilon_{it} \quad (2)$$

Where:

- A_{it-1} : total assets in year $t-1$ for firm i
- ΔREV_{it} : changes in revenues in year t for firm i
- PPE_{it} : gross property, plant, and equipment in year t for firm i
- ϵ_{it} : independent and identically distributed error term in year t for firm i

All variables are scaled by total assets to avoid the presence of heteroskedasticity in the distribution. To estimate the coefficients and the prediction error of Equation 2, time-series data by Ordinary Least Squares (OLS) regression are performed (Jones, 1991). However, subsequent studies have adopted a cross-sectional model by industry sector and year to avoid violating the presumption of uncorrelated errors, as suggested by El Diri (2017). According to Defond and Jiambalvo (1994), to estimate discretionary accruals using the cross-sectional modified Jones model, the sample needs at least 6 observations matched on year and industry. For countries with not well-developed capital market, the use of the sector and year approach together can lead to small samples, which in turn might compromise the quality of the results obtained. Hence, when analysing on a country-by-country basis, it might be advised to only consider the year for calculation. While this approach fails to capture the diverging characteristics of each sector, it may be more effective than using both year and industry, as even within the same sector companies' core business may vary (Costa & Soares, 2022).

There is also some discussion on the use of the constant term α_0 . Omitting it implies attributing that the origin of the line formed by the observations is point zero, while including it indicates that there is variability among the other variables. However, part of this variability is constant for each industry sector in a given year i , or at least in each year when using only the year approach (Costa & Soares, 2022). In real-life problems, some circumstances might require regressions from the origin point and others not. In the case of investigations into earnings management, the use of forcing the regression line through the origin varies. But in this context, a critical point of forcing the regression line through the origin is related to the error term, whose mean is typically non-zero. In contrast to other studies that omit the constant term, its inclusion can help mitigate two problems: (a) the inability to control heteroskedasticity through the sole use of scaled variables in asset, and (b) the potential omission of size control through variable scaling (Kothari et al., 2005).

Jones (1991) suggests that in the estimated parameters, we should anticipate a negative coefficient sign for PPE variables. This is due to the correlation between PPE and depreciation expenses, which negatively impact income by reducing accruals. As for the other variables pertaining to variations, there is no clear sign. Discretionary accruals are calculated as the absolute values of the residuals from Equation 2. A lower absolute value of measured accruals suggests higher earnings quality.

According to Dechow et al. (1995), the Jones model is capable of explaining around one quarter of the variation in total accruals. Indeed, several issues are related to it.

First of all, it relies on the assumption that earnings are not managed through revenues, that is, that all revenues are non-discretionary. Consequently, if managers manipulate earnings through revenues, the Jones model will not be able to detect it and will estimate that the level of manipulation tends to zero.

The Jones model also suffers from a simultaneity problem. This because accounts receivables are both a regressor included in revenues and a regressand included in total accruals (Ronen & Yaari, 2008).

Heteroskedasticity still remain a main issue within the model. Indeed, scaling all variables by total assets is not sufficient.

Another limitation is the exclusion of other expenses, including both discretionary and non-discretionary expenses, from the total accruals estimation. This approach presents a theoretical and pragmatic issue due to the omission of variables (El Dirir, 2017). Additionally, in the model described in the original study, the equation lacks an intercept, which can introduce bias in the estimated coefficients (Paulo et al., 2007).

The limitation of performing the analysis by sector and year depends on the availability of data. To minimize errors in earnings management investigations, it is advisable to avoid small samples, in particular type II errors (El Dirir, 2017).

To mitigate these drawbacks, Dechow et al. (1995) introduced a new version of the Jones model: the modified Jones model.

1.4.2. The modified Jones model

The central point of the modified Jones model is to improve the measurement of discretionary accruals. In this varied version, Dechow et al. (1995) consider the possibility that there is manipulation in receivables, adjusting the change in revenue for the change in receivables in the event period, and as such reducing measurement errors. This also resolves the simultaneity problem, as the model starts to also considering cash sales. Revenues are often managed by companies, and this effect can be controlled if the manipulation of credit sales is considered. The standard Jones model assumes that discretion is not exercised over revenue. The modified

Jones model assumes instead that all changes in credit sales in the event period result from earnings management (Costa & Soares, 2022).

To estimate earnings management, the first step is similar to the standard Jones model, but a new variable is included: STD_{it} .

$$TA_{it} = \Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STD_{it} - DAE_{it} \quad (3)$$

Where:

- ΔSTD_{it} : change in debt included in current liabilities in year t for firm i

After computing total accruals, it is necessary to estimate non-discretionary accruals. The firm-specific parameters $\alpha_1, \beta_2, \beta_3$ are estimated according to the standard Jones model, by denoting Ordinary Least Squares (OLS) estimates based on time-series observations. However, as explained for the standard Jones model, the use of a cross-sectional approach is suggested to avoid biases. Firm-specific parameters are calculated for every industry using industry-code classifications. The error term ϵ_{it} covers the margin of error within the statistical model.

The estimated coefficients $\alpha_1, \beta_2, \beta_3$ are then used to estimate non-discretionary accruals:

$$NDA_{it} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{it-1}} \right) + \beta_2 \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} \right) + \beta_3 \left(\frac{PPE_{it}}{A_{it-1}} \right) + \epsilon_{it} \quad (4)$$

Where:

- NDA_t : estimated non-discretionary accruals in year t for firm i
- ΔREC_{it} : changes in net receivables in year t for firm i

After computing non-discretionary accruals and total accruals, discretionary accruals can finally be determined:

$$DA_t = \frac{TA_{it}}{A_{it-1}} - NDA_{it} \quad (5)$$

Dechow et al. (1995) tested the ability of a number of models to detect earnings management, i.e. Healy, DeAngelo, Jones, Modified Jones and Industry model. The authors concluded that the modified Jones provides amongst all the highest testing power.

However, other scholars state that its limitations are rather similar to those of the standard Jones. First, regarding the decision to include or omit the constant term, zero intercept, the statistics literature shows a theoretical justification for no-intercept models. Second, the model assumes that all variations in credit sales are due to earnings management practices, and this is not always the case. In addition, the modified Jones overestimates discretionary provisions more than the Jones model. Lastly, the two models do not control for it, but theoretically there is a relationship between accruals and a company's performance, past and present (Costa & Soares, 2022).

2. The world of sustainability reporting

Corporate sustainability is an increasingly discussed topic, which today plays a fundamental role in the growth of companies, often being one of the keys to their success. This chapter begins by defining the concept of sustainability in the broadest sense, to then apply it to corporate reality. A focus will be made on the European Union's efforts in promoting sustainable business practices, with a particular emphasis on the Directive 2014/95/EU. The chapter concludes with an explanation of the functioning of ESG ratings, and in particular of the Bloomberg ESG disclosure score.

2.1. The concept of sustainability

Sustainability refers to the ability of a system or process to be maintained over a long period of time without depleting resources or causing significant harm to the environment or society. It involves balancing economic, social, and environmental factors to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs (Mähönen, 2020).

The concept finds its roots in the environmental movements of the 1960s and 1970s, which called for greater awareness of the impact of human activities on the surroundings. It is the report issued by the World Commission on Environment and Development (WCED) in 1987, known as "Our Common Future", that popularised the idea of sustainability and sparked a global conversation about how to achieve it. Since then, the sustainability matter has become a central concern in any aspect of our lives (Grimaldi et al., 2020).

The concept of sustainability has always been discussed in relation to the environmental system in a narrow sense. However, this has now become broader and as such can be extended to other types of systems, especially to the business one.

In recent years, companies across various industries have demonstrated a growing interest in sustainability. This trend can be attributed to several factors, including changing consumers expectations, the increasing recognition of environmental and social risks, and the growing demand for corporate social responsibility (CSR). Consumers are becoming more environmentally conscious and expect companies to take responsibility for their impact on the planet. Businesses are recognizing the long-term risks associated with climate change and social inequality, including regulatory and reputational risks. Investors are increasingly demanding companies to demonstrate sustainable practices to ensure long-term profitability. As a result, many companies are integrating sustainability into their business models, developing more sustainable products and services, and committing to reducing their carbon footprint and waste.

Reporting on non-financial activities can support businesses in different areas. In particular in:

- Increasing shareholder trust: The dissemination of qualitative, transparent, and verifiable information has the potential to foster and strengthen trust in an organization among crucial stakeholders such as customers and investors. This information not only offers stakeholders insights into the operational practices of businesses but also demonstrates how businesses address and capitalize on significant environmental and social risks, turning them into opportunities.
- Learning from the reporting process: There is a commonly held but misleading belief that the final report is the most significant aspect of the reporting process. However, it is important to recognize that the process of gathering, analysing, and organizing information is equally valuable.
- Generating continuous improvements in business impact: The pursuit of sustainability goes beyond achieving specific social and environmental targets. It is rather a continuous learning on how to improve social, environmental, and economic impacts.

Companies can learn from their interactions with stakeholders, past results, and experiences, and apply these learnings to future goals. As such, companies can drive continuous improvement and contribute to a more sustainable future.

- **Highlighting their business integrity:** Transparency goes beyond compliance with regulations, standards, and frameworks. It also involves demonstrating responsible business conduct. While regulations and frameworks provide guidance for managing material issues, by embracing transparency companies not only meet their reporting obligations but also communicate their dedication to responsible practices (CSR Europe and GRI, 2017).

2.2. The European Union intervention on sustainable business practices

With the planet facing a growing number of environmental challenges, it is becoming more crucial than ever for companies to acknowledge their impact and take responsibility for their actions. Businesses are nowadays required to identify the issues related to their economic, environmental, and social dimensions, and to define specific sustainable actions into corporate strategies. As these three dimensions are interdependent, it is important not only to consider them singularly, but also to focus on their interrelations (Ebner & Baumgartner, 2006).

The European Union plays an important role in promoting sustainability. In terms of regulation, it has adopted several directives and initiatives to encourage companies to become more responsible in the field. It is worth to mention a few of them.

The *United Nations 2030 Agenda* is set up as a real action plan, with measures and phases to follow-up and monitor progresses. The goal of the Agenda is to provide a universal blueprint for sustainable development that aims to end poverty, protect the planet, and ensure peace and prosperity for all people. It represents a global call to action for all countries, stakeholders, and individuals to work together to achieve a sustainable and equitable future for

everyone. The Agenda includes the well-known 17 Sustainable Development Goals (SDGs) and 169 targets to be achieved by 2030 (Sopact.com, n.d.). The SDGs are regarded as the most positive aspiration for human development, a milestone to align behaviours across the world (Grimaldi et al., 2020). They cover a range of interconnected issues, such as poverty, hunger, health, education, gender equality, clean water and sanitation, renewable energy, sustainable cities, and responsible consumption and production (Sopact.com, n.d.). In particular, 4 of these 17 goals are strictly addressed to businesses:

- SDG 8 – Decent work and economic growth. The objective encourages the establishment of good quality jobs, enhance economic productivity, and ensure the promotion of a safe and healthy work environment. In achieving this, companies play a crucial role as they often are the primary employers.
- SDG 9 – Industry innovation and infrastructure. This objective focuses on promoting technological innovation and fostering investments in sustainable infrastructures.
- SDG 12 – Responsible consumption and production. This objective is meant to promote sustainable consumption and production, including waste reduction and resource efficiency. In particular, the target 12.6 calls on companies to be transparent about their sustainability practices and to adopt reporting frameworks.
- SDG 13 – Climate action. This objective aims to fight climate change and its effects by reducing greenhouse gas emissions. Companies can in this regard invest in low-carbon technologies and promote energy efficiency (United Nations Development Programme, 2023).

The *EU Sustainable Finance Action Plan* (SFAP) is a policy seeking to encourage sustainable investments across the 27 Member States. The Plan was introduced by the European Commission in March 2018, following the signing of the Paris Agreement in December 2015.

The SFAP is part of a broader Sustainable Finance Framework, which is supported by a range of new and enhanced regulations (Robeco, n.d.).

The *Regulation on the Governance of the Energy Union*, established to help the European Union to achieve its 2030 climate and energy objectives. It draws consistent guidelines for planning, reporting and monitoring while also guaranteeing that EU planning and reporting aligns with the Paris Agreement (EU Commission, 2023).

The *LIFE Programme*, a financial instrument of the European Commission, aimed at assisting both private and public innovative projects in environment and climate concerns (Gouvernement Liberté Egalité Fraternité, 2023).

2.3. The reporting of non-financial information

Non-financial reporting, also referred to as Corporate Sustainability Accounting (CSA) or Corporate Social Responsibility (CSR) reporting, involves the disclosure of a company's social and environmental impacts resulting from its activities, alongside with its efforts to mitigate them. It expands the accountability of organizations beyond the traditional role of providing financial information solely to shareholders (Gray et al., 1987).

Approximately 60 years ago, businesses began embracing voluntary reporting as a means to demonstrate consciousness of their actions and obligations towards the environment, and more significantly, towards society.

It was in 1953 when Howard Bowen, widely regarded as the father of corporate social responsibility, published his book "Social Responsibilities of the Businessman." This influential work introduced key concepts of CSR and contributed to the understanding of its dynamics (Bowen, 2013). Since then, increasing societal expectations and pressures have led to the evolution of sustainability reporting. In parallel, there has been progress in the development of standards and guidelines for non-financial reporting.

In response to the demand for non-financial information, numerous reporting frameworks have been made available to companies. The implementation of such frameworks at an international level has become widespread, with some of the most popular ones being:

- The *Global Reporting Initiative* (GRI). By providing a standardised framework, the GRI helps organizations to report on their environmental, social, and governance performance and to communicate their impact on critical sustainability issues. This is widely used by companies and governments around the world and it benefits a wide range of stakeholders as they are able to compare the sustainability performances of different organisations (Global Reporting Initiative, 2023).
- The *Integrated Reporting framework* of the International Integrated Reporting Council (IIRC). The IIRC is a global coalition of regulators, investors, companies, standard setters, and other concerned parties advocating for integrated reporting (IR). Integrated reporting is a process that aims to communicate the value that an organization creates over time by integrating financial and non-financial information. The IIRC framework encourages entities to report on their ESG performance in a way that is integrated with their financial reporting, providing a more comprehensive and holistic view of their overall performance (European Parliamentary Research Service, 2021).
- The *United Nations Global Compact* (UNGC). The UNGC is a voluntary initiative launched by the United Nations to encourage businesses to adopt sustainable and socially responsible policies and practices. By joining the UNGC, companies commit to align their operations and strategies with ten universal principles in the areas of human rights, labour, environment, and anti-corruption. In particular, they are able to demonstrate their commitment to sustainability to stakeholders (Dürr, 2023).
- The *Sustainability Accounting Standards Board* (SASB) *framework*. The SASB is an organization providing industry-specific sustainability disclosure standards. This

framework is designed to help companies report on their sustainability performance in a way that is specific to their industry (Apiday, 2023).

Nevertheless, despite the presence of regulations throughout Europe and the significant increase in the number of reports, the disclosure of non-financial information, predominantly remained a voluntary practice. Recognizing the need for more comprehensive reporting, many jurisdictions started considering reporting mandates.

2.4. The Non-financial Reporting Directive 2014/95/EU

In October 2014, in Strasbourg, France, the European Commission introduced Directive 2014/95/EU, commonly referred to as the “Non-financial Reporting Directive” or “NFRD”. The NFRD resulted from the amendment of the Directive 2013/34/EU, also known as the “Accounting Directive”, setting out financial and non-financial reporting requirements for certain types of undertakings and groups.

This is known as the very first step taken in the direction of requiring corporations to mandatorily disclose non-financial information on their environmental, social and governance engagements. While primarily directed at EU Member States, the impacts of this Directive extends to an international level. Its aim is to improve transparency, significance and comparability of non-financial reports. By requiring transparency on non-financial aspects, companies are encouraged to become more socially responsible and improve their environmental, social, and governance performances.

The European Directive 2014/95 consists of six articles, each concerning:

1. “Amendments to the Directive 2013/34/EU”;
2. “Guidance on reporting”;
3. “Review”;
4. “Transposition”;

5. “Entry into force”;
6. “Addresses”.

2.4.1. Article 1: Amendments to the Directive 2013/34/EU

The primary article of Directive 2014/95/EU concerns the amendments made to the former non-financial reporting Directive 2013/34/EU and outlines the extent, substance, and structure of the non-financial information to be incorporated in Member States’ non-financial reports.

As stated in the initial section of Article 1, titled “Non-financial statement”: *“Large undertakings which are public-interest entities exceeding on their balance sheet dates the criterion of the average number of 500 employees during the financial year shall include in the management report a non-financial statement containing information to the extent necessary for an understanding of the undertaking’s development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters, including:*

- (a) a brief description of the undertaking’s business model;*
- (b) a description of the policies pursued by the undertaking in relation to those matters, including due diligence processes implemented;*
- (c) the outcome of those policies;*
- (d) the principal risks related to those matters linked to the undertaking’s operation including, where relevant and proportionate, its business relationship, products or services which are likely to cause adverse impacts in those areas, and how the undertaking manages those risks;*
- (e) non-financial key performance indicators relevant to the particular business.”*

(European Parliament, 2014).

Organisations must produce a non-financial report if they:

1. Are a large undertaking, as per the Directive 2013/34/EU, defined as exceeding 2 out of 3 of the following criteria for 2 successive accounting periods
 - A balance sheet total of 20 million euros, or
 - A net turnover of 40 million euros, or
 - An average number of employees of 250.
2. Are a public-interest entity, meaning any entity which is:
 - Trading transferable securities on the regulated market of any Member State, or
 - A credit institution, or
 - An insurance undertaking, or
 - Designated by a Member States as a public-interest entity.
3. Have an average number of employees exceeding 500 during the financial year.

The Directive 2014/95/EU does not impose strict requirements, but it rather proposes *where* information should be disclosed and *how* it should be done.

As regards to *where* to disclose, the Directive specifies that undertakings have the option to either include their non-financial statement within the management report, which must be validated by the statutory auditor, or issue it as a separate report based on national, EU, or international frameworks. This separate report needs to be published within 6 months of the balance sheet date, made available on the undertaking's website and referenced in the management report. In the latter case, an additional procedure is needed where the competent Member States ensure adherence to the requirements outlined in the Directive.

This approach aligns with the “flexible non-financial reporting” system recommended by EU legislators, allowing different equally acceptable methods of meeting the requirements without imposing unnecessary administrative burdens.

As regards to *how* to disclose, the text provides general indications without going into specific details. It identifies six CSR-related topics (environmental, social and employee

matters, respect for human rights, anti-corruption, and bribery matters) and explicitly states that reporting on these represents the minimum requirement.

Additional information can be further derived from three points in the preamble. First, when reporting on environmental concerns, the disclosure should encompass both the current and expected impacts of the company's activities on the environment, including aspects related to health, safety, renewable and non-renewable energy usage, greenhouse gas emissions, water utilization, and air pollution. Second, the term "social and employee matters" encompasses a wide range of topics, such as ensuring gender equality, maintaining appropriate working conditions and workplace health and safety, respecting workers' right to information and consultation, upholding trade union rights, fostering social dialogue and engagement with local communities, and implementing fundamental conventions of the International Labour Organization (ILO). Third, concerning human rights, anti-corruption, and bribery, the statement should include information on the prevention of human rights abuses as well as the measures and mechanisms in place within the organization to combat corruption and bribery (European Parliament, 2014).

Furthermore, also the bullet points from (a) to (e) included in the very first part of Article 1 and which have also been reported above, provide somewhat insight on the topics required to be disclosed. The first item (a), focuses on the business model of the undertaking and emphasizes the importance of exclusively reporting elements that are relevant to the undertaking's business. Any activities lacking significant connection to the business activity carried out should not be included. The second item (b), demands for a description of the policies pursued by the undertaking. In addition to the six topics covered by the Directive, companies are free to address additional challenges or issues, and as such decide which of the them to discuss and report to the public. Important is also to disclose the outcomes of the implemented policies (c). The fourth item (d) requires the undertaking to discuss the risks

associated to implemented policies and how those risks are being addressed. Risks should be outlined in terms of how they relate to the operation of the undertaking, encompassing its business relationships, as well as the products and services that are prone to adverse impacts. However, in order to maintain relevance, the disclosure should only include risks that have already materialized or are expected to have significant consequences if they were to materialize. The last statement (e) stipulates that the organization should incorporate Key Performance Indicators (KPIs) that are relevant to its specific business. However, this aspect may appear intricate as no further details are provided regarding the specific indicators that should be used by the organization.

The Directive does not specify in which order information has to be disclosed. It is therefore evident that organizations maintain a significant degree of freedom when it comes to determining the approach for preparing non-financial statements. Moreover, when providing this kind of information, entities have the flexibility to rely on either national, EU-based, or international frameworks, at the condition of clearly specifying in the report which one has been adopted.

The Directive requires the inclusion of the above-stated elements following the principle of “report or explain”. Accordingly, the undertaking is obligated to either publish the information or provide a clear explanation for why the information has not been disclosed: *“Where the undertaking does not pursue policies in relation with to one or more of these matters, the non-financial statement shall provide a clear and reasoned explanation for not doing so.”* (European Parliament, 2014).

2.4.2. Article 2: Guidance on reporting

As observed in the analysis of Article 1, the NFRD gives companies a considerable degree of autonomy and discretion in determining how to implement the Directive based on their own

preferences. Information should be included “*to the extent necessary*” for stakeholders to understand the undertaking’s “*development, performance, position and impact*” of its activities (European Parliament, 2014). This is the so-called “double materiality” principle: companies are required to disclose how their activities impact the environment, but also how sustainability issues may affect their future (Christensen et al., 2021).

To address the potential challenges associated with the “flexible non-financial reporting system”, which may lead to difficulties in comparing reports and analysing them, the Directive includes a provision requesting the European Commission to issue guidelines: “*The Commission shall prepare non-binding guidelines for reporting non-financial information, including non-financial key performance indicators, general and sectoral, with a view to facilitating relevant, useful and comparable disclosure of non-financial information by undertakings. In doing so, the Commission shall consult relevant stakeholders. The Commission shall publish the guidelines by 6 December 2016.*” (European Parliament, 2014).

The primary objective of Article 2 is to enhance the quantity, consistency, and comparability of non-financial information disclosed by organizations. To fulfil this objective, the European Commission released its guidelines in June 2017. However, these are not mandatory and the decision to adopt national, regional or international guidelines is left to the discretion of individual companies, considering their unique characteristics.

In June 2019, the European Commission issued an additional guideline on reporting climate-related information, serving as a supplement to the existing ones, which remained applicable. Its purpose is to provide practical recommendations to organizations on how to improve their reporting on the climate impact of their activities and the effects of climate change on their operations.

2.4.3. Article 3: Review

The European Parliament is responsible for the reviewing of the Directive. The aim is to guarantee that the European Commission puts forth legally binding legislative proposals and information standards.

The text of the Directive states in this regard that: *“The Commission shall submit a report to the European Parliament and to the Council on the implementation of this Directive, including, among other aspects, its scope, particularly as regards large non-listed undertakings, its effectiveness and the level of guidance and methods provided. The report shall be published by 6 December 2018 and shall be accompanied, if appropriate, by legislative proposals.”* (European Parliament, 2014).

2.4.4. Article 4: Transposition

Article 4 announces that Member States are required to enact the necessary laws, regulations, and administrative provisions necessary to comply with the Directive by December 6, 2016, and to inform the Commission promptly about their actions.

The Directive applies to all undertakings covered by Article 1, starting from the financial year that begins on January 1, 2017. This meaning that undertakings must issue their first non-financial report from the beginning of 2018, in relation to the 2017 financial year.

When Member States adopt these provisions, they must reference the Directive or include a reference to it upon official publication, and the specific methods for making such reference will be determined by each Member State. Additionally, Member States are required to communicate to the Commission the main provisions of national law that they adopt in the field covered by the Directive.

2.4.5. Article 5: Entry into force

Article 5 states that the Directive will come into effect on the twentieth day following its publication in the Office Journal of the European Union. This means that once the Directive is officially published, it will become legally binding and enforceable after a period of twenty days (European Parliament, 2014).

2.4.6. Article 6: Addresses

Finally, the last article specifies that the Directive is addressed to all Member States of the European Union. However, it is important to note that due to its international impact, the Directive will have implications beyond the borders of the European Union and will potentially influence non-EU entities as well.

The Directive 2014/95/EU should be seen as a starting point rather than a final outcome. Its adoption and implementation provide an opportunity for Member States to take further steps and lead the way globally in addressing critical sustainability issues. Striking the right balance between effective reporting requirements and comprehensive guidance is essential to enable organizations to generate transparent, comparable, and valuable sustainability information.

2.5. Following measures: the Corporate Social Responsibility Directive

The Directive 2014/95/EU is an important piece of legislation within the European Union, which has fostered:

- Standardization and comparability: It pushed companies to adopt standardized reporting frameworks, increased the comparability of non-financial information across companies and facilitated benchmarking;
- Focus on material ESG issues: It requires companies to disclose information on ESG topics, encouraging them to identify and prioritize ESG risks and opportunities, leading

to a better understanding of the sustainability challenges faced within their respective industries;

- Stakeholder engagement: It promotes dialogue between companies and their stakeholders, ensuring a more comprehensive understanding of their concerns and expectations;
- Investor decision-making: It helps investors making more informed investment decisions by providing them with additional non-financial information;
- Global reporting practices: Inspired from the NFRD's principles and provisions, countries outside of the European Union, such as Canada, Japan, and South Africa, have either adopted or proposed their own non-financial reporting requirements.

While this Directive has led to considerable progress in non-financial reporting, its text suffers from several deficiencies, and as such it has received several criticism. In addition, the Directive did not succeed to achieve all its intended objectives. Despite a significant increase in the quantity of published non-financial reports, their quality remains problematic. Particularly, the information disclosed is still not sufficient to allow stakeholders to have an holistic view over the company sustainability-related risks and opportunities. Given the fact that external stakeholders are sceptical and have difficulties in trusting published information, this concern jeopardises the main objective of the Directive: to achieve a high level of trust, standardization and comparability of non-financial information in Europe (European Parliamentary Research Service, 2021).

The Directive is also perceived and implemented differently across European Member States, due to the pre-existing regulations in each country and their political stability. However, one of the primary reasons for the Directive not achieving its full potential stems from its inherent nature. Specifically, a too high degree of autonomy is granted to Member States, which are only demanded to adhere to minimum guidelines. Companies incur significant and

unavoidable costs to disclose non-financial information to the public, and face uncertainty when deciding what, where and how to report. In addition, pressure is continuously exercised by sustainability rating agencies, data providers, and the civil society.

To address all these concerns, on April 21, 2021, the European Commission proposed to refine the text of the Directive 2014/95/EU, leading to the development of the Corporate Sustainability Reporting Directive (CSRD). The European Parliament adopted it with 525 votes in favour, 60 against and 28 abstentions (Spierings, 2023).

The revision of the NFRD seeks therefore to:

- Ensure that investors are provided with sufficient non-financial information by companies, enabling them to account for sustainability-related risks and opportunities, when making investment decisions;
- Ensuring that civil society organisations and trade unions have sufficient access to non-financial information, so as to hold companies accountable for their societal and environmental impacts;
- Minimizing the burden on businesses concerning non-financial reporting (European Parliamentary Research Service, 2021).

The CSRD introduces significant modifications to the NFRD while preserving its essence.

One of the primary changes relates to the Directive's scope. Indeed, the CSRD is directed to a broader set of large companies, including also listed small and medium enterprises (SMEs) and global businesses having operations or securities in Europe. We are approximately talking about 50,000 companies, compared to the 11,700 previously bounded by the NFRD.

The second major change is that undertakings are now required to report sustainability information according to the European Sustainability Reporting Standards (ESRS), developed

by the European Financial Reporting Advisory Group (EFRAG), a private association established in 2001, bringing together various different stakeholders.

Thirdly, the CSRD introduces more detailed reporting requirements and ensure the provision of reliable non-financial information by mandating companies to be subject to independent auditing and certification. Digital access to sustainability information will also have to be guaranteed (European Parliament, 2022).

Ultimately, the Corporate Sustainability Reporting Directive aims to accomplish the same objectives of the Non-Financial Reporting Directive. On January 5, 2023, it entered into force, and its rules will start applying between 2024 and 2028:

- From January 1, 2024, for large public-interest companies already subject to the Non-financial Reporting Directive, with reports due in 2025;
- From January 1, 2025, for large companies that are not currently subject to the Non-financial Reporting Directive (with more than 250 employees and/or €40 million in turnover and/or €20 million in total assets), with reports due in 2026;
- From January 1, 2026, for listed SMEs and other undertakings, with reports due in 2027. SMEs can opt-out until 2028 (European Parliament, 2022).

2.6. ESG ratings

The oldest concept of rating is the creditworthiness one, which complex analysis methodologies make it possible to evaluate the economic-financial reliability of a company, providing an estimate of the probability of its default (Paolucci, 2016). But today there are also other types of ratings, such as the international credit rating, which evaluates a company's ability to repay the debt contracted with its creditors; or the country ceiling rating (CCR), used to assess the credit risk of a specific country or region. Finally, in the sustainability debate, it is particularly relevant the so-called ESG rating.

The Directive 2014/95/EU aims to enhance non-financial reporting, and ESG ratings provide a framework for measuring and representing sustainability efforts. These contribute to ensure transparency and above all the truthfulness of the information included in non-financial reports.

This acronym comes from the year 1990, when the Global Reporting Initiative (GRI) was established as a non-profit organization to create standards for sustainable reporting frameworks for businesses. The guidelines, established in June 2000, marked an important first step towards sustainability reporting by outlining an initial approach to ESG issues.

ESG ratings can be defined as a synthetic judgment that certifies the strength of an issuer, security, or fund in terms of its environmental, social, and governance performance. This synthetic rating is assigned based on the evaluation of ESG criteria applied to the subject being evaluated (Mio, 2021). This judgment is formulated by specialized rating agencies, data providers and research firms, that collect data from a multitude of resources, both internal (such as company documents) and external (from NGOs or trade unions). Among the main agencies responsible for the processing of ESG ratings, we find: Sustainalytics Company ESG Reports; Vigeo-Eiris; ISS; S&P Global Ratings; Bloomberg ESG Data Service; Thomson Reuters ESG Research Area; and many others. Each organisation uses its own methodologies to reach the final judgment. This often implies that the conclusions drawn on the same entity are different. Nevertheless, final values always show a certain degree of correlation, and consequently it is possible to rely on them to extract substantial and relevant information. Regardless of the rating agency, the process leading to the formulation of a final judgment consists in a series of common steps:

1. Information is collected from both internal and external sources to provide a comprehensive dataset;
2. The collected data is verified and validated to ensure its accuracy and completeness;

3. A combination of quantitative and qualitative methods are used to analyse the data;
4. A value is assigned to the data examined to create an overall rating or score;
5. A final judgment is made and a report is generated for dissemination to investors, stakeholders, and other interested parties (Tóth, 2018).

For the purpose of this thesis, particular attention will be given to Bloomberg ESG ratings, as they are one of the most widely used ESG rating systems in the market.

2.6.1. Bloomberg ESG Data Service

The Bloomberg terminal brings transparency to financial markets by providing fast access to news, financial and non-financial data, knowledgeable insight and trading tools (Bloomberg terminal, 2020). As it provides accurate and timely information, Bloomberg also plays a key role in facilitating corporate ESG reporting.

This cutting edge of innovation releases ESG scores for all sectors and is making a *“decade-long effort to champion useful, comparable, and consistent sustainability disclosures and their use in financial decision-making”* (Bloomberg terminal, 2020).

The rationale for the development of proprietary scores comes from the growing demand for ESG information and the emergence of global sustainability frameworks. In addition, Bloomberg ESG supports stakeholders in better understanding how businesses manage their environmental, social, and governance impact, and especially investors in their daily investment decisions. What is provided is a comprehensive and comparable set of ESG disclosure and performance data for over 11,500 companies across more than 83 countries (Bloomberg terminal, 2019), for a period of 17 years up to today.

In order to ensure accuracy, Bloomberg captures data only from direct sources, including: corporate responsibility and governance reports; annual reports; company websites; surveys submitted to members of the Bloomberg Gender-Equality Index (GEI); and customer

data platforms (CDPs). Furthermore, Bloomberg ESG scores are developed using a rigorous and transparent methodology, based on over 150 KPIs, that are tailored to each industry and cover a wide range of ESG issues (Bloomberg terminal, 2019).

Table 1 summarises the main benefits the Bloomberg ESG solution provides.

Table 1: ESG Bloomberg Score key features and benefits (Bloomberg terminal, 2019)

Broad company coverage (> 11,500 companies)	Extensive coverage of companies worldwide and daily updates to governance data
Broad coverage of ESG topics (> 900 fields)	Broad range of topics across Environmental (e.g. air quality, water), Social (e.g., diversity, health & safety), and Governance (e.g. over boarding, executive compensation) are included
Daily updated content (> 80 fields)	Daily updates on company management (e.g. board committees, tenure, structure) and shareholder rights (e.g. shares held by CEOs)
Historical data (Up to 17 years of history)	Consistent, comparable data based on company reporting since 2006
Bloomberg IDs	ESG data can be easily linked to other company datasets through Bloomberg IDs

This thesis mainly focuses on one metric: the Bloomberg ESG disclosure score. However, the terminal provides many other proprietary ESG scores, such as the ESG performance score, the ESG risk score and the ESG overall score, which can provide a more comprehensive view on a company’s performance in the field. In addition, Bloomberg publishes ESG ratings belonging to other ESG research companies i.e. RobecoSAM and Sustainalytics. Since these are present for a smaller number of companies, it was not possible to deploy them in the current research.

2.6.2. Bloomberg ESG disclosure score

The Bloomberg ESG disclosure score assesses the level of transparency and disclosure of publicly traded companies. This score is computed based on a combination of data and analysis

of a company's public disclosures. It can range from 0 to 100, with a higher score indicating better disclosure practices and greater transparency with respect to environmental, social, and governance risks and opportunities. The score is calculated using a weighted average of four sub-scores:

- Financial transparency sub-score: considers a company's financial reporting practices, including the clarity and accuracy of financial statements, use of standardized accounting practices, and level of disclosure on financial risks and opportunities;
- Sustainability disclosure sub-score: focuses on a company's level of disclosure on environmental and social risks and opportunities, including their impact on stakeholders and the company's strategies to address them;
- Management and governance transparency sub-score: assesses the quality and transparency of a company's reporting on its organizational structure, policies, and procedures, including risk management, code of ethics, and executive compensation;
- Board composition and accountability sub-score: evaluates the composition and effectiveness of a company's board of directors, including their level of independence, diversity, and oversight of management.

Since this score is based on publicly available information, it is subject to some limitations such as the quality and the availability of disclosure made by companies. Some entities might decide not to disclose certain information or may disclose but incompletely or inaccurately. The Bloomberg ESG disclosure score must therefore be used in conjunction with other ESG-related data and tools to get a more complete picture.

3. The influence of ESG disclosure on earnings management

The third chapter of this thesis is devoted to the formulation of four research hypotheses that explore the relationship between earnings management and environmental, social, and governance disclosure.

3.1. Introduction

Over the past 30 years, numerous studies have explored the correlation between several variables and earnings management. The literature has introduced many reasons for the engagement of firms in these practices, including the desire to meet financial targets, boost stock prices and obtaining financing on favourable terms. Other motives include tax minimisation, regulatory compliance, and achieving compensation incentives. What is instead recently capturing scholars' attention is the relationship between this phenomena and reported environmental, social, and governance disclosure.

Due to growing demands for transparency and more sustainable practices, the pressures executives are facing, and the relevance ESG ratings are gaining, companies might be tempted to influence non-financial information through overload or greenwashing in order to cover up dishonest financial practices.

The relationship between EM and ESG can be discussed from a variety of theoretical perspectives: the stakeholder theory, the agency theory, and the legitimacy theory.

According to the *stakeholder theory*, corporate managers are focused on meeting stakeholders' goals, needs, and expectations (Jensen, 2010), which in turn encourages them to refrain from engaging in socially undesirable practices and to report accurate earnings figures. However, when it comes to the stakeholder theory, two effects must be taken into consideration. Firstly, the disclosure of ESG information allows companies to meet stakeholders' desires. Secondly, stakeholders and in particular investors have the ability to assist companies in the

long-term and guarantee their ongoing sustainability (Martínez-Ferrero et al., 2016). Stakeholders are essential to a company's survival and success. Overall, this theory assumes that by giving priority to stakeholders, managers should be more likely to disclose reliable information. However, being such a valuable source, attempts to hide unsustainable practices from them or to deceive them with good operating results, are also likely.

On the other hand, the *agency theory* suggests that the information asymmetries that inevitably exist between the management (agents) and the stakeholders (principals), provide an opportunity to engage in opportunistic behaviours (Koch & Schmidt, 2010; Kruger, 2015). The issue arises when managers prioritize their personal interests. In such a scenario, they may manipulate the company's financial situation and mislead stakeholders by presenting it as either superior or inferior to its actual state. Earlier studies (Zahra et al. 2005; Desai et al., 2006; Prior et al., 2008; Gargouri et al., 2010) have indicated that since engaging in earnings manipulation may have a negative impact on the management, managers try to mitigate such potential adverse consequences by increasing the quantity and altering the quality of disclosed ESG information. This practice, also known as greenwashing, may allow CEOs to cover business model weaknesses (Damodaran, 2021). This suggesting that firms not engaging in earnings management are more likely to be environmentally responsible.

Finally, the *legitimacy theory* proposes that firms should operate in full respect of societal norms and expectations. Therefore, engaging in social, environmental and governance reporting can be seen as a way for firms to protect their legitimacy and to draw a more favourable corporate image.

This study aims at investigating the potential links between ESG disclosure and earnings management. We aim to determine whether companies that disclose greater amounts of non-financial information are more prone to engaging in earnings manipulation and whether such disclosures may be used as means for disguising deceptive practices. An additional objective is

to study the impact of non-financial disclosure mandates on the level of earnings manipulation and in particular what incentives does the Directive 2014/95/EU generate in this regard.

The main focus is on the European context. This choice mainly derives from the fact that the European Union has been at the forefront of global efforts to promote sustainability and corporate social responsibility. The adoption of the Directive 2014/95/EU, which mandates large public-interest entities to disclose non-financial information, is a significant development in this field. Despite this, as of today, there has been a lack of comprehensive research examining the effects of such intervention on companies. Does the Directive 2014/95/EU affects firms' financial performance, other than the non-financial one? Furthermore, does the Directive 2014/95/EU modifies firms' incentives to manage reported earnings? These important questions remain unanswered.

To the best of our knowledge, up to today, only two studies have investigated the impact of this EU intervention on firms' propensity to manipulate earnings.

Nechita (2021) performs a pre-post adoption comparative analysis for firms listed on the Bucharest Stock Exchange (BSE) in the period 2015-2019. The sample of her study is relatively small and includes 31 companies. The investigation is conducted by analysing three earnings management metrics resulted by running multiple linear regression models. All accounting variables used for the purpose of this study were extracted from the S&P Capital IQ database. The first hypothesis studies whether the variability of net income is higher in the post-adoption period, as compared to the pre-adoption period. The metric used in this case is the variability of the change in net income scaled by total assets. A smaller variance is interpreted as evidence of income smoothing. The second hypothesis examines whether the ratio of the variability of net income to the variability of operating cash flows is higher in the post-adoption period, as compared to the pre-adoption period. Therefore, the mean ratio of the variability of the change in net income to the variability of the change in operating cash flows, represents the

second income smoothing metric of this study. The last hypothesis tests instead whether there is a greater correlation between accruals and cash flows post-adoption, always compared to the pre-adoption period. The third earnings management metric is based on the Spearman correlation between accruals and cash flows, where accruals are determined as the difference between net income and cash flows. This research revealed that the adoption of the European Directive 2014/95/EU led to a decrease in the use of earnings management practices for companies listed on the Bucharest Stock Exchange (BSE) in the period 2017-2019, as compared to the period 2015-2016. Findings validate two out of the three hypotheses, therefore suggesting that firms exhibit less income smoothing post-adoption.

Grimaldi et al. (2020) perform a similar research, with a focus on the Italian context. The sample of their study includes 60 companies listed on the Italian Stock Exchange. Discretionary accruals, determined via the DeFond and Park model, are used as proxy for earnings management. Non-financial data and in particular ESG scores, used as proxy for the sustainability engagement, were obtained by relying on Datastream. Economic-financial variables were instead collected through Datastream and AIDA. Lastly, to obtain the necessary corporate governance information, the researchers analysed each sample company's corporate governance reports for the year 2018.

A regression analysis is implemented with as dependent variable discretionary accruals, as independent variable the ESG disclosure score, accounting for a number of control variables i.e. board size, firm's age, size, profitability, leverage, and loss. The results of this study indicate a negative, even if not statistically significant, relationship between ESG disclosure and earnings management. In other words, companies investing more resources into sustainable practices and providing more non-financial data to stakeholders are less prone to manage reported earnings.

This thesis wants to distinguish itself from prior research by examining the impact of the Directive 2014/95/EU throughout Europe, placing emphasis on the European Union as a whole rather than focusing on individual countries. Gathering data at European level can provide valuable insights not only at a regional, but also at a country-specific level. Through a cross-country analysis, it is possible to identify both commonalities and differences in how companies react to sustainability reporting obligations. Furthermore, this can contribute to a more comprehensive and holistic understanding of the impact of the Non-financial Reporting Directive on the broader economy.

This research wants to be the first study to investigate the effects of the NFRD on EM practices with reference to a sample of European listed companies. By expanding the scope of our research, we are addressing a gap in the existing literature.

3.2. Hypotheses development

There is no unanimity in empirical findings as far as the association between earnings management and environmental, social and governance disclosure. Heterogeneity in results can potentially be explained by the different ESG and earnings management proxies employed. ESG disclosure can be measured by a variety of different indicators. Similarly, earnings management measures are divided into accruals and real-based and into some other indicators i.e. accounting conservatism or smoothing. Overall, doubts still remain as to what role sustainability plays on companies' incentives to manage earnings. Divergences in the literature makes it an appealing field to study, and gaining a better understanding of the underlying dynamics is necessary in a market that is becoming increasingly global and sustainable-oriented.

There is some debate as to whether mandatory sustainability disclosure by itself is likely to achieve better and more comparable non-financial reporting. Initially, the reporting of ESG

information was a voluntary practice. However, in recent years, and especially after the 2008-2009 financial crisis, there has been a growing push for companies to disclose this kind of information as a means of promoting transparency and accountability in their operations. Specifically, this pressure stems not only from regulators but also from investors and numerous other stakeholders. Companies not meeting the requirements of the Directive 2014/95/EU, still have some kind of discretion over what and how much non-financial information to disclose. However, voluntary disclosure was found to be repetitive within the same report and in many cases not specific to the reporting firm. Furthermore, disclosure levels tend to vary across industries and firm size. Large firms operating in regulated industries tend to cover more sustainable topics, as compared to smaller firms operating in less regulated industries (Christensen et al., 2021). In the light of this heterogeneity, the introduction of the Directive 2014/95/EU potentially had the effect of increasing the level of harmonisation, primarily within industries, and of increasing the level of non-financial disclosure also for the entities not directly mandated by it. In addition, it made it possible the comparison for best-practices, incentivising firms to be more environmentally responsible and aware.

Hypothesis 1 aims to investigate the proposition that, following the implementation of the Directive 2014/95/EU, firms mandated by it (referred to as “treated firms”) exhibit higher levels of ESG disclosure compared to non-mandated firms (referred to as “non-treated firms”). The goal is to explore the potential impact of the Non-financial Reporting Directive on the disclosure practices of our sample firms.

H_1 : After the adoption of the Directive 2014/95/EU, treated firms exhibit higher levels of ESG disclosure as compared to non-treated firms.

In recent years, there has been a growing demand from stakeholders for companies to provide non-financial information. However, the literature suggests that the validity of such disclosures has been compromised by information overload and greenwashing.

Given that both financial reporting (earnings management) and non-financial reporting (greenwashing) are subject to managerial discretion, the two disclosure areas are likely to be included in an overall stakeholder communication strategy. Thus, the degree of financial reporting quality and the degree of ESG disclosure quality as key management decisions are connected (Khelil-Rhouma & Hamed-Sidhom, 2021).

The literature encompasses two opposite perspectives on the relationship between ESG disclosure and earnings management (Borralho et al., 2022).

The first stream of research accepts that firms voluntarily report this kind of information as ESG concerns are well-integrated into their decision-making processes. Disclosure is in this case used to display to external stakeholders behaviours adhering to socially acceptable norms and compliance with ethical standards. Martínez-Ferrero et al. (2013) argue that managers who are motivated to reduce information asymmetry may seek to minimise earnings management and provide more non-financial information to the public. In line with these findings, Chen et al. (2016) proved that companies committed to honest financial reporting are more likely to report on their sustainable practices.

In contrast, the second stream of research considers ESG disclosure as a way for managers to protect themselves from the repercussions of engaging in earnings management practices for their own benefits. Greater disclosure of environmental, social, and governance activities causes the company to be seen as more ethical and compliant with regulations. This information can be therefore used as a protection against negative reactions and stakeholders' continuous monitoring. Firms might present very low-quality financial data in mandatory documents, but provide voluntarily highly attractive non-financial reports. The latter form of

disclosure aims to redirect attention towards non-financial information with the intention of concealing earnings management (Borralho et al., 2022).

According to Jensen and Meckling (1976), managers may be guided by self-interest when determining which disclosures to provide. While non-financial disclosure aims to promote accountability to stakeholders and to ensure sustainable business practices, prior empirical evidence suggests that firms may also use it to: reduce conflicts of interest between the management and shareholders (Jensen, 2010; Goss et al., 2011; Harjoto & Jo, 2011), divert public attention from their manipulation of reported earnings (Sun et al., 2010), or to conceal any other unethical practice (Chih et al., 2008). Voluntary environmental, social, and governance disclosure is also associated with positive economic outcomes, such as higher share prices (De Klerk & De Villiers, 2012; De Klerk et al., 2015; De Villiers & Marques, 2016).

According to Dowling and Pfeffer (1975), Deegan (2002), and Hooghiemstra (2000), companies may use ESG disclosure to influence stakeholders' perceptions of their ethical behaviour and enhance their public image. Gray (2005) further suggest that this may be used by firms to demonstrate their management's ability to handle social and environmental risks. Patten & Trompeter (2003), by focusing on 40 US chemical firms, found evidence that businesses use corporate environmental disclosure, meaning the reporting of environmental initiatives, impacts and performances, to avoid unwanted scrutiny. This will enable managers *"to hide irregularities behind a curtain of disclosure"* (Jordaan et al., 2018).

Sun et. al (2010), Kiattikulwattana (2014), Grougiou et al. (2014), and Consoni at al. (2017), found instead no significant evidence on such relationship in companies from UK, Thailand, USA, and Brazil. This highlights how a country-by-country basis research would be needed in the field.

The second hypothesis of this thesis aims to investigate whether there is a significant relationship between ESG disclosure and earnings management.

H_2 : There is a significant negative relationship between ESG disclosure and earnings management.

Corporate culture refers to the shared values, beliefs, norms, and practices that shape the behaviour of a company's employees and how the management interacts, performs, and handles business transactions (Tarver, 2023). In the context of financial reporting, a company's culture significantly influences the ethical and opportunistic perspectives that firms may adopt. The topic of earnings management, which is the subject of a long-standing debate about whether managers do behave ethically or opportunistically, is particularly relevant in this context. Some researchers argue that companies should avoid manipulating financial results and instead prioritize ethical behaviours (Kim et al., 2012; Chih et al., 2008; Hong & Andersen, 2011; Yip et al., 2011; Prior et al., 2008; Pyo & Lee, 2013; Bozzolan et al., 2015). Others suggest instead that earnings management may be necessary for companies to survive in competitive markets or meet regulatory requirements (Prior et al., 2008; Hemingway, 2004; Muttakin et al., 2015; Jordaan et al., 2018; Shafai et al., 2018, Sun et al., 2008).

Ethical firms are identified as those driven by a strong business culture, that prioritize the principles of transparency, integrity, and accountability in financial reporting practices. They strive to provide accurate and reliable information to stakeholders, ensuring that financial statements reflect the true financial position and performance of the company. In contrast, opportunistic firms may prioritize short-term gains over long-term sustainability and may engage in earnings management practices to manipulate financial results and present a favourable image of their performance. Such opportunistic behaviour often arises from a culture that places immediate financial success above ethical considerations and long-term stakeholder interests.

Overall, this ongoing debate between ethical and opportunistic perspectives highlights the complex nature of corporate decision-making and the trade-offs involved in balancing short-term goals with long-term sustainability and stakeholders' interests.

The extent to which reporting mandates motivate firms to offer novel and superior information heavily depends on their reporting incentives. Imposing reporting on ESG issues and activities may have little effect if the firms' underlying incentives do not change (Christensen et al., 2021). As the Non-financial Reporting Directive aims to foster responsible business conduct among mandated firms, it can be hypothesized that its implementation has the potential to positively affect the business culture of mandated firms. Through increased transparency and accountability in non-financial reporting, companies are encouraged to cultivate a culture that values ESG factors and integrates them into their decision-making processes.

Examining the financial reporting practices of mandated firms before and after the implementation of the Directive allows for an assessment of any significant change in their business culture, as reflected in their approach towards earnings management. For the purpose of our thesis, earnings management is used as a proxy for business ethics, as it represents a practice that involves the manipulation of financial results to achieve specific pre-defined objectives.

This analysis provides insights into whether the Directive has effectively promoted a more ethical approach to financial reporting, as evidenced by the reduction in earnings management practices, and influenced the company culture of mandated firms towards greater transparency, integrity, and sustainability.

According to Francis et al. (2008), the quality of the accounting results has an impact on business decisions, including also the choice of how much and what kind of environmental,

social and governance information to disclose to the public. They affirm that this relationship can be either of complementary or substitution.

The complementary relationship. The information asymmetry between managers and shareholders and other stakeholders, creates an environment where earnings manipulation is likely to occur. ESG disclosures are supposed to provide greater transparency to financial reporting. Therefore, requiring firms to disclose could help to limit information asymmetry and consequently reduce these practices. Similarly, a company's commitment to social and environmental initiatives is regarded as evidence of its managers' strong ethical beliefs. This sense of morality is supposed to be reflected also in financial reporting and in the quality of the information provided. Managers valuing the reputation of their company and advocating business ethics, should never place themselves in a situation of risk by implementing suspicious practices like earnings management. ESG disclosure can be used in this sense to demonstrate a company sound management and complete disengagement from deceptive practices. In other words, environmentally responsible firms are assumed to be more ethical and to provide better financial reporting. On the contrary, firms engaging in earnings management may use symbolically environmental, social and governance disclosure to create appearance of engagement, when in reality the opposite holds true.

The substitution relationship. The dissemination of ESG information can be used to dispel any doubts stakeholders may have regarding the possibility of manipulation, as managers who engage in dishonest practices often attempt to use social and environmental disclosure to cover their tracks. If manipulation or mismanagement is detected, this type of disclosure can also be employed to gain public support in case shareholders take potential action against the managers. In essence, by satisfying stakeholders' interests and projecting an ethical image to the public, the management can reduce the likelihood of being scrutinised by different stakeholders for its manipulation of earnings (Prior et al., 2008). All these motivations, link

ESG disclosure to a financial reporting not entirely accurate. Such inappropriate utilisation of CSR activities brings into doubts the efficiency of implementing socially responsible policies.

To summarise, the introduction of the Directive 2014/95/EU may either have two major effects:

1. Positively shift the business culture of treated firms, particularly those that already prioritised moral and ethical beliefs.
2. Negatively shift the business culture of treated firms, particularly those that are more prone to using ESG disclosure to mask dishonest conducts.

On one hand, mandatory ESG reporting could increase transparency and accountability, making it more difficult for firms to engage in earnings management practices without detection. This is because ESG reporting requirements often necessitate greater disclosure of non-financial information, which can shed light on a firm's overall performance and risks. On the other hand, some firms may still try to manipulate their reported earnings by selectively disclosing positive ESG-related information and concealing negative one, especially if the ESG reporting requirements are not stringent enough or if there is insufficient regulatory oversight. In some cases, mandatory ESG reporting could also create new opportunities for firms to engage in earnings management, such as by strategically timing the disclosure of ESG-related information to manipulate investor perceptions and stock prices.

The enforcement of the Non-financial Reporting Directive varies across EU Member States. Some have adopted the Directive into their national laws and regulations, while others have yet to fully implement it. In addition, there may be differences in the enforcement and monitoring practices of national authorities responsible for overseeing compliance.

The European Commission periodically reviews the progress of Member States in implementing the Directive, and in its latest report published in 2021, it noted that while there has been significant progress, more needs to be done to ensure consistent and high-quality non-financial reporting across the EU. The report also identified a number of challenges and gaps

in the implementation and enforcement of the Directive, including a lack of clarity in some areas and varying interpretations of the reporting requirements. Therefore, it can be concluded that while the Directive 2014/95/EU has been implemented to varying degrees across the EU, its enforcement is not consistent across Member States and there are still challenges to be addressed.

The third and fourth hypotheses of this thesis analyse whether normative demands for firms to devote more resources into ESG reporting activities have modified incentives to manage reported earnings and affected companies' business culture. By analysing the effects of the Directive, we aim to contribute to the understanding of the impact of non-financial disclosure obligations on corporate culture.

As such, the third and fourth hypotheses of this thesis are formulated as follows:

H₃: The Directive 2014/95/EU led to a change in the business culture of treated firms as compared to non-treated firms.

H₄: After the adoption of the Directive 2014/95/EU, treated firms display lower levels of earnings management as compared to non-treated firms.

4. Research methodology

4.1. Sample selection and data collection

The Non-financial Reporting Directive 2014/95/EU places a burden on companies operating within the European Union, impacting their operations and compliance requirements. For this reason, the sample selected to conduct the research comprises listed companies from all the twenty-seven EU Member States.

All data used in this study was extracted from the Bloomberg Terminal, which makes available comparable financial and non-financial information for both public and private companies around the world. Similar to previous research, sectors such as banking, insurance, and financial services, were excluded from the sample. This because of their different financial structure, the regulations they are subject to, and consequently, their specific accounting and accrual practices.

The study principally focuses on one measure of earnings: discretionary accruals, computed by applying the modified Jones model (1995). In order to ensure reliable data comparability at European level, all measures have been scaled by total assets at the beginning of the-year asset. Firms missing the necessary financial information for the application of the modified Jones model have also been excluded.

From an operational point of view, relevant data has been collected via the Microsoft Excel Software and processed using Stata.

The final sample includes 1,951 (N) European listed firms from twenty-seven countries and consists of 13,657 firm-year observations for the period 2016-2021. Table 2 summarises the sample selection procedure.

Table 2: Sample selection procedure (Bloomberg terminal)

Screening Criteria	Number of firms
Trading Status: Active	526,129
Security Attributes: Show Primary Security of company only	94,395
Exchanges: Eastern Europe, Western Europe	19,434
Exclude: Financial Institutions	11,543
Exclude: Firms missing financial statement information	3,274
Exclude: Firms not established within European Member States	1,951

Table 3 shows the sample distribution for different industry sectors: the total sample of 1,951 firms is categorized into 10 GICS (Global Industry Classification Standard).

Table 3: Industry-wise distribution of sample firms (GICS)

Industry Group	Industry Code	Number of firms
Communication Services	1	129
Consumer Discretionary	2	271
Consumer Staples	3	140
Energy	4	48
Health Care	5	194
Industrials	6	490
Information Technology	7	267
Materials	8	163
Real Estate	9	57
Utilities	10	70
Non-identifiable		122
Total		1,951

4.2. Discretionary accruals and statistical tests for hypotheses testing

In order to analyse the behaviour of European listed companies in the period 2016-2021, discretionary accruals are used as proxy for earnings management. The modified Jones model consists in performing a stepwise calculation. First, total accruals are computed for every sample firm for the years 2016-2021, using Equation (3). Second, firm-specific parameters are estimated by regressing Equation (2). In particular, as suggested by Dechow et al. (1995), a

cross-sectional analysis instead of a time-series analysis is performed. Third, the obtained firm-specific parameters are plugged into Equation (4). This produces the non-discretionary accruals variable for every sample firm. In the final step, discretionary accruals are determined by subtracting non-discretionary accruals from total accruals, as done in Equation (5).

The obtained measure, representative of the ethics employed in business practices, is included in a series of multilinear regressions, with the ultimate goal of analysing its correlation with environmental, social, and governance disclosure. In particular, the Difference-in-Differences estimator (DID) and multiple linear regression models are used for addressing the hypotheses of this research.

Across the whole computations, the discretionary accruals variable is winsorised at the top and bottom 1%, as done by Kothari et al. (2005). Furthermore, the industry effect is controlled for, as suggested by Dechow et al. (1995).

4.2.1. Difference-in-Differences estimator

The Difference-in-Differences estimator is one of the early techniques for causal analysis, that allows us to understand the effect of a treatment of an outcome for a treated group. In other words, it compares the changes in outcomes over a period of time between a population enrolled in a program (namely, the treatment group) and a population that is not (the comparison or control group).

In experimental research, the key idea is that randomisation makes treatment and control groups comparable in large samples, so as to make a valid causal claim. However, if this randomisation is missing, it is possible that the treatment and control groups are different, meaning that it is not possible to say whether there is a difference post-treatment. It is not possible to draw conclusions by simply observing before-and-after changes in outcomes, as factors other than the treatment might influence the outcome over time. It is not possible to

draw conclusions neither comparing treatment and control groups, due to selection bias and differences in observable characteristics between the two.

This method works by measuring two groups before and after the treatment, and randomisation is strictly required. If the difference between the treatment and the control group grows over time after the treatment, the treatment had a positive effect. If the difference between the treatment and the outcome decreases or becomes more negative over time, the causal effect is negative.

The logic behind the DID estimator is that if a certain event never happens, the differences between the treatment and control groups should stay the same overtime. This refers to the so called parallel trend assumption. For the causal inference to be valid, we have to assume that the treatment group would have developed the same way over time as the control group did, had the treatment group not received the treatment. The parallel trend assumption is critical because if not holding, estimates would be inconsistent.

The estimator can be easily explained in a few steps process:

1. Identification of an event;
2. Measurement of the variable of interest before and after the event on a first sample (treatment group);
3. Measurement of the variable of interest before and after the event on a second sample (control group);
4. The difference between (i) the difference pre-post event related to the variable of interest for the first sample and (ii) the difference pre-post event related to the variable of interest for the second sample, is only explicable due to the occurrence of that specific event that is being examined.

This analysis is typically carried out using a simple regression model:

$$y = \beta_0 + \beta_1 D + \beta_2 T + \beta_3 D * T + \varepsilon \quad (6)$$

Where:

- β_1 : initial difference (marginal effect of D at T=0)
- β_2 : baseline change over time (marginal effect of T at D=0)
- β_3 : treatment effect

4.2.2. Multiple linear regression model specifications

A regression analysis is a statistical method used to examine the relationship between two or more variables. In particular, it is important to distinguish between a:

- Dependent or explained variable: variables that do change with changes in other variables; and
- Independent or explanatory variable: variables that do not change with changes in other variables.

In other words, the goal of a regression analysis is to make predictions about the dependent variable(s) based on the values of the independent one(s). Such relation is easily represented fitting a straight line to a set of data points, where the line is determined by estimating the coefficients or slopes that quantify the impact of the independent variable(s) on the dependent variable(s).

The linear regression model assumes a linear relationship between the variables, implying that the change in the dependent variable(s) is directly proportional to changes in the independent variable(s). If there are interactions between variables, the regression model is typically referred to as a multiple linear regression model. An interaction term is expressed as the multiplication of independent variables. Through their inclusion, the model can account for the possibility that the relationship between the dependent variable and the independent

variables is not purely additive but depends on the specific combination or interaction of the variables (Blokhin, 2022).

4.2.3. Variables

Table 4 summarises all variables and their proxies used for the purpose of this research:

Variable	Description	Type	Measurement	Expected relationship
DA	Earnings management	Dependent	Absolute values of discretionary accruals	
ESGDSC	ESG disclosure score	Independent	Value ranging from 0 to 100, with 100 indicating higher and/or better ESG disclosure	+
EDSC	Environmental disclosure score	Independent	Value ranging from 0 to 100, with 100 indicating higher and/or better environmental disclosure	+
SDSC	Social disclosure score	Independent	Value ranging from 0 to 100, with 100 indicating higher and/or better social disclosure	+
GDSC	Governance disclosure score	Independent	Value ranging from 0 to 100, with 100 indicating higher and/or better governance disclosure	+
BODSIZE	Board size	Control	Number of directors on board	-
BODIND	Board independence	Control	Number of independent directors on board / Number of directors on board Value comprised between 0 and 1	-
ROA	Firm profitability	Control	Net income or loss / Total Assets	-
LVRG	Firm leverage	Control	Total liabilities / Total assets	+
COUNTRY	Country	Control	Categorical variable coded into 27 dummy variables	
INDUSTRY	Industry	Control	Categorical variable coded into 10 dummy variables controlling for industry fixed effect	

In order to eliminate the endogeneity problem and to mitigate the impact of other factors that might have an influence on a company's discretionary accruals levels, several control variables are included in the research model. Control variables have been chosen on the basis of prior studies and they have all been retrieved from the Bloomberg Terminal.

First, two corporate governance variables, namely the size of the board of directors (BODSIZE) and the independence of the board of directors (BODIND). The BODIND variable has been computed as the ratio between the number of independent directors and total number of directors on board. Therefore, the BORIND value ranges from 0 to 1, with 0 indicating a board that has no independent directors and 1 indicating a board that is entirely composed of independent directors.

The relationship between board size and earnings management has been the subject of extensive research. One possible explanation for this relationship is that larger boards may provide greater oversight and monitoring of management activities, which in turn can limit the ability of managers to behave opportunistically. On the other hand, smaller boards may be more susceptible to influence and control by top executives, potentially leading to higher levels of earnings management. For example, a study by Li et al. (2014) found that larger boards in Chinese listed companies are associated with lower levels of earnings management. Another study by Ahmed and Duellman (2010) found that smaller boards are associated with higher levels of earnings management in the USA. Similarly, a study by Balsam et al. (2003) found that smaller boards are associated with greater earnings management in firms that are undergoing major changes, such as mergers or acquisitions. Dalton et al. (1999) discovered that larger board members offer more advantages to their companies by sharing diverse managerial experiences, thereby reducing the need for earnings management. However, there are many researchers who oppose these results. For instance, Rahman and Ali (2006), Yermack (1996) and De Andres et al. (2005) suggest that boards with a higher number of components are less

effective in monitoring earnings management activities. Abbott, Park, and Parker (2000) found instead no relationship at all. As far as the BODIND variable is concerned, there is evidence to suggest a negative relationship with earnings management, meaning that as the board independence increases, levels of earnings management may decrease. This is because independent directors are more likely to monitor management activities and have the expertise and experience to detect and prevent them. For example, a study by Lin and Wu (2014) found that board independence is negatively related to earnings management in Taiwanese firms. Similarly, another study by Chung and Zhang (2011) found that independent directors can have a constraining effect on earnings management in Chinese firms. From our research, we expect to find evidence of a negative relationship between the two control governance variables BODSIZE and BODIND and earnings management.

In addition to our two governance variables, two accounting control variables are included.

First, we took into account the profitability of the company, calculated as the Return on Assets (ROA). The profitability of a business refers to the ability to generate profit or earnings in relation to the resources invested in it. Profitability is a crucial aspect of a business' financial performance, as it indicates the company's ability to efficiently use its resources to generate earnings and sustain its operations. A profitable business is typically considered as healthy and successful, whereas an unprofitable business may face financial difficulties and may need to make structural changes to improve its profitability. Earnings management can be affected by profitability, since managers might have more incentives to manipulate earnings when profitability is low. For this reason, a negative relationship is expected between ROA and earnings management.

Second, the firm's leverage (LVRG), calculated as the ratio between total liabilities and total assets. The leverage refers to the use of borrowed funds or debt to finance investments or

operations. In other words, leverage allows companies to use borrowed money to make investments or conduct business activities with the aim of generating a higher return on investment than the cost of borrowing. Leverage can increase potential profits, but it can also amplify potential losses, making it a risky strategy. This control variable is included in order to minimize the influence of external factors associated with debt, such as debt commitments, on the outcomes being studied. Prior studies find that the firm's leverage and external financing are related to earnings management, especially because debt covenants act as incentives for manipulation (Becker et al., 1998; DeAngelo et al., 1994). More specifically, firms with accounting-based covenants are certainly more inclined to increase income so as to avoid their violations (Beatty & Weber, 2003; Dichev & Skinner, 2002). Overall, a positive relationship is expected between a firm's leverage and earnings management.

By incorporating the country variable into our regression models, we can assess its impact on the extent or probability of earnings management, providing insights into the relationship between country characteristics and earnings management.

Finally, we control for the industry fixed effects. This is done by coding the categorical variable of industry-sector classification into 10 variables, numbered from 1 to 10.

4.3. Empirical strategy

4.3.1. Hypothesis 1

The first hypothesis of this study aims to investigate that, after the adoption of the Directive 2014/95/EU, mandated firms disclose more non-financial information to the public as compared to non-mandated firms. To investigate this, we rely on the Difference-in-Differences (DID) estimator, which involves comparing changes in the treatment group to changes in a control group.

The treatment group is composed of companies required to report non-financial information as per the Directive 2014/95/EU. These are entities meeting at least two of the following three size criteria for two consecutive years:

- A balance sheet total of 20 million euros or more;
- A net turnover of 40 million euros or more;
- An average number of employees during the financial year of 500 or more.

The control group, on the other hand, consists of companies that do not meet the above criteria. By comparing the treatment group to the control group, the study can isolate the effect of the Directive 2014/95/EU on the treatment group. The DID estimator controls for other factors that might influence the outcome and it enables to estimate the causal impact of the Directive on firms’ ESG disclosure levels.

The estimator, for the purpose of addressing this first hypothesis, is employed over a period of six years. The year 2016 is considered the pre-treatment period, while the years 2017 onwards constitute the post-treatment period. The sample used for the purpose of this analysis includes a total of 1,951 firms, out of which 1,451 are treated during at least some period of their presence in the sample. Conversely, 500 are the firms that were never treated during the sample period. The sample size allows for sufficient statistical power to detect meaningful differences between the two groups.

Table 5: Number of observations pre- and post-treatment (Stata)

Year	Control group	Treatment group	Total
2016	500	1,451	1,951
2017	500	1,451	1,951
2018	500	1,451	1,951
2019	500	1,451	1,951
2020	500	1,451	1,951
2021	500	1,451	1,951

The following regression model is used in order to assess the impact of the Non-financial Reporting Directive 2014/95/EU on ESG disclosure reporting incentives of treated firms compared to non-treated firms:

$$ESGDSC = \beta_0 + \beta_1 TREAT + \beta_2 POST + \beta_3 TREAT\#\#POST + \beta_4 BODSIZE + \beta_5 BODIND + \beta_6 COUNTRY + \varepsilon \quad (7)$$

Where:

- TREAT: dummy variable that equals 1 if the firm is in the treatment group, and 0 otherwise
- POST: dummy variable that equals 1 if the year is after the adoption of the Directive, and 0 otherwise
- TREAT\#\#POST: interaction term between treat and post

The control variables leverage and ROA have been excluded, as they could potentially induce bias into the analysis. The two are indeed highly correlated with total assets, used as criterion for defining the treatment group. However, it is not advisable to exclude all potential control variables from a regression model. Because there is reason to believe that the variables board size, board independence, and country are related to the outcome variable, they have finally been included.

4.3.2. Hypothesis 2

The second hypothesis of this study seeks to explore the correlation between ESG disclosure and earnings management, and whether this relationship is positive or negative.

The following regression model is used, accounting for a number of control variables: board size, board independence, ROA, leverage and country.

$$DA = \beta_0 + \beta_1 ESGDSC + \beta_2 BODSIZE + \beta_3 BODIND + \beta_4 ROA + \beta_5 LVRG + \beta_6 COUNTRY + \varepsilon \quad (8)$$

To gain further insights into this relationship, three additional separate regressions are run, each using a different independent variable: (1) the environmental disclosure score (EDSC); (2) the social disclosure score (SDSC); and (3) the governance disclosure score (GDSC).

The following regression wants to examine the impact of environmental disclosure on discretionary accruals:

$$DA = \beta_0 + \beta_1 EDSC + \beta_2 BODSIZE + \beta_3 BODIND + \beta_4 ROA + \beta_5 LVRG + \beta_6 COUNTRY + \varepsilon \quad (9)$$

The following regression wants to examine the impact of social disclosure on discretionary accruals:

$$DA = \beta_0 + \beta_1 SDSC + \beta_2 BODSIZE + \beta_3 BODIND + \beta_4 ROA + \beta_5 LVRG + \beta_6 COUNTRY + \varepsilon \quad (10)$$

The following regression wants to examine the impact of governance disclosure on discretionary accruals:

$$DA = \beta_0 + \beta_1 GDSC + \beta_2 BODSIZE + \beta_3 BODIND + \beta_4 ROA + \beta_5 LVRG + \beta_6 COUNTRY + \varepsilon \quad (11)$$

4.3.3. Hypothesis 3

The third hypothesis of this study aims to examine how the Non-financial Reporting Directive 2014/95/EU impacts firms' incentives to manipulate earnings and whether there has been a change in mandated firms' business culture.

To conduct this analysis, a regression model similar to the one used in hypothesis 1 is employed. However, there are a few key differences. Firstly, the sample is limited to observations from the years 2017-2021, representing the post-adoption period of the Directive. Additionally, two new variables are introduced:

- A dummy variable called "Directive" that assigns a value of 0 to firms not mandated by the Directive 2014/95/EU and a value of 1 to firms obligated to comply with it;
- An interaction variable called "Interaction", calculated as the product of the ESG disclosure score and the directive variable (Interaction = ESG disclosure score * Directive).

The following regression model is used to investigate this relationship, while also considering several control variables: directive, interaction, board size, board independence, ROA, leverage and country.

$$DA = \beta_0 + \beta_1 ESGDSC + \beta_2 DIRECTIVE + \beta_3 INTERACTION + \beta_4 BODSIZE + \beta_5 BODIND + \beta_6 ROA + \beta_7 LVRG + \beta_8 COUNTRY + \varepsilon \quad (12)$$

4.3.4. Hypothesis 4

The fourth and final hypothesis of this thesis wants to examine the impact of the adoption of the Directive 2014/95/EU on firms' discretionary accruals, specifically comparing treated firms to non-treated firms. To analyse this, the Difference-in-Differences (DID) estimator is employed. This estimator allows for a comparative analysis before and after the adoption of the

Directive between the treatment and control groups, enabling us to estimate the causal impact of the Directive on firms' earnings management incentives.

By employing the following regression model, we aim to assess whether treated firms exhibit higher levels of discretionary accruals post-adoption compared to non-treated firms, attributing this effect to the Directive itself.

$$DA = \beta_0 + \beta_1 TREAT + \beta_2 POST + \beta_3 TREAT \# \# POST + \beta_4 BODSIZE + \beta_5 BODIND + \beta_6 COUNTRY + \varepsilon \quad (13)$$

5. Results

The findings of this thesis are highlighted below in terms of descriptive statistics, correlation coefficients, regression results and interpretation of the earnings management metric.

5.1. Descriptive statistics

Descriptive statistics are used to provide basic features of a data set in a concise and informative way. They provide a way to describe the central tendency, variability and distribution of data. Follow in Table 6 the information related to the mean, standard deviation, and the minimum and maximum values for the dependent variable earnings management, the independent variables related to ESG disclosure, and the control variables. Before proceeding with the calculation of descriptive statistics, the discretionary accrual variable has been winsorised at the top and bottom 1%, as done by Kothari et. al (2005): values above the 99^o percentile and below the 1^o percentile have been replaced with the 99^o and 1^o percentile values respectively. This was done in order to eliminate the so-called outliers.

Table 6: Descriptive statistics, period 2015-2021 (Stata)

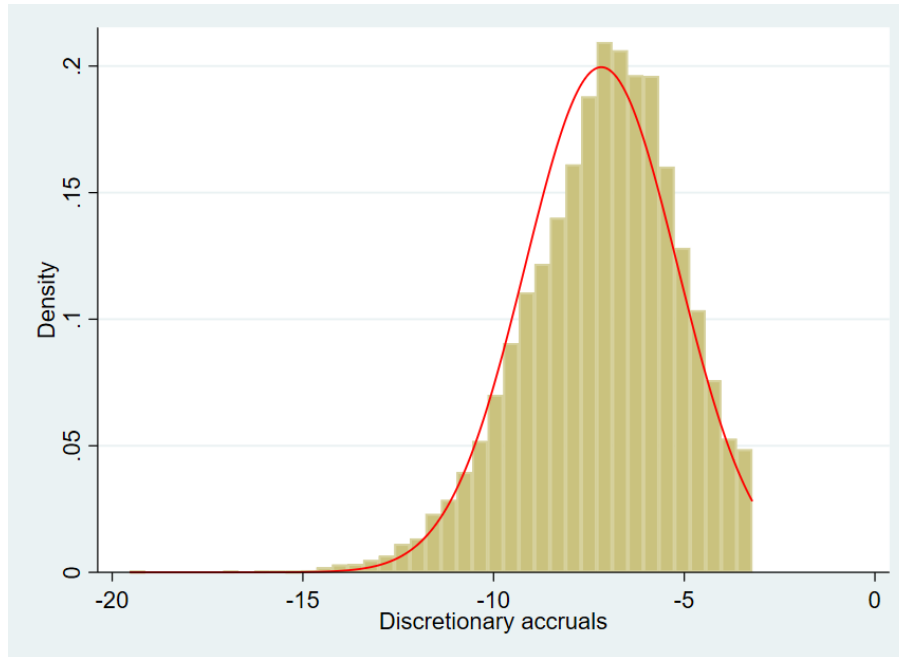
	Variable	N	MEAN	STDEV	MIN	MAX
	Dependent variable					
DA	Discretionary accruals	11,706	0.0031	0.0062	0	0.0402
	Independent variables					
ESGDSC	ESG disclosure score	6,130	37.0999	18.3496	0.8554	83.9758
EDSC	Environmental disclosure score	5,567	27.6623	20.2591	0.3322	84.5619
SDSC	Social disclosure score	6,095	23.2691	14.2396	0.3930	79.6251
GDSC	Governance disclosure score	6,126	61.5583	28.0883	1	99.3765
	Control variables					
BODSIZE	Board size	13,657	4.1139	5.2384	0	25
BODIND	Board independence	6,169	0.4835	0.3102	0	1
ROA	ROA	13,657	0.0102	0.1337	-0.6700	0.3360
LVRG	Leverage	13,657	0.5656	0.3078	0.0005	8.4800
COUNTRY	Country	13,657	15.1807	7.6056	1	27
IND	Industry	12,803	5.2373	2.4182	1	10

The mean of discretionary accruals amounts to 0.0031. The minimum and maximum of observed discretionary accruals are 0 and 0.0402. The mean and the standard deviation of discretionary accruals can vary widely depending on the sample firms, the time period being analysed, and the method used to compute them. For this reason it is extremely important to consider the context of the specific study before comparing it with previous studies in the same field.

The natural logarithm of discretionary accruals allows for an easier visualisation of higher and lower values. The histogram of the dependent variable computed according to the modified Jones model is represented in Figure 2.

Figure 2: Distribution of the dependent variable discretionary accruals (Stata)

Mean = -7.1736 St. Dev. = 1.9990 N = 11,143



5.2. Pearson's correlation coefficients

Pearson's correlation coefficient (r) is a statistical tool that quantifies the strength and direction of the linear relationship between two variables. It provides a numerical value ranging from -1 (perfect negative correlation) to 1 (perfect positive correlation), with 0 indicating no correlation between the variables. A positive correlation means that as one variable increases, the other variable also tends to increase, while a negative correlation means that as one variable increases, the other variable tends to decrease.

The correlation matrix is often used to address the issue of multicollinearity. Generally speaking, it is assumed that a perfect linear relationship results in a Pearson correlation coefficient of 0.7.

To determine which correlation values are significant at the 0.01 level and at the 0.05 level, we need to examine the p-values associated with each correlation coefficient. In general, p-values less than 0.05 indicate statistical significance at the 5% level, while p-values less than

0.01 indicate statistical significance at the 1% level. Therefore, the lower the p-value, the more significant the correlation between the variables.

The correlation matrix represented in Table 7, shows the correlation coefficients and associated p-values for the relationships among the variables: discretionary accruals, ESG disclosure score, environmental disclosure score, social disclosure score, governance disclosure score, board size, board independence, ROA, leverage and country.

The values on the diagonal are always 1.000 since each variable is perfectly correlated with itself. The values off the diagonal represent the correlation coefficients between the respective variables. For example, the correlation coefficient between discretionary accruals and ESG disclosure score is -0.0648, indicating a negative correlation between the two variables. The associated p-values are shown in parentheses below the corresponding correlation coefficient. For example, the p-value associated with the correlation between DA and ESG disclosure is 0.0000, indicating a statistically significant correlation at the level of 1%. Based on the p-values, we can conclude that there are statistically significant correlations at the level of 1% between discretionary accruals and the variables: ESG disclosure score, environmental disclosure score, social disclosure score, governance disclosure score, board size, ROA, and country. In addition, DA appears to be non-statistically correlated with the variables: board independence and leverage.

Closer examining the relationship between the dependent variable of this study and all the others, we observe that:

- ESGDSC has a negative correlation with EM, with a correlation coefficient -0.0648.
- EDSC has a negative correlation with EM, with a correlation coefficient of -0.0763.
- SDSC has a negative correlation with EM, with a correlation coefficient of -0.0547.
- GDSC has a negative correlation with EM, with a correlation coefficient of -0.0599.
- BODSIZE has a negative correlation with EM, with a correlation coefficient of -0.0785.

- BODIND has a negative correlation with EM, with a correlation coefficient of -0.0165.
- ROA has a positive correlation with EM, with a correlation coefficient of 0.0722.
- LVRG has a negative correlation with EM, with a correlation coefficient of -0.0035.
- COUNTRY has a positive correlation with EM, with a correlation coefficient of 0.0365.

The variables ROA and COUNTRY have positive correlations with EM, which means that as those variables increase, EM is likely to increase as well. On the other hand, the remaining variables have negative correlations, meaning that as they increase, EM is likely to decrease.

Although the correlation matrix gives indication as to what extent variables correlate to each other individually, there is no control for the effect of other variables. The multiple linear regression model employed in this study will control for those effects.

Table 7: Pearson correlation coefficients (Stata)

	DA	ESGDSC	EDSC	SDSC	GDCS	BODSIZE	BODIND	ROA	LVRG	COUNTRY
DA	1.0000									
ESGDSC	- 0.0648 (0.0000)	1.0000								
EDSC	-0.0763 (0.0000)	0.5724 (0.000)	1.0000							
SDSC	-0.0547 (0.0001)	0.5016 (0.0000)	0.5473 (0.000)	1.0000						
GDCS	-0.0599 (0.0000)	0.3848 (0.0000)	0.2676 (0.0000)	0.2271 (0.0000)	1.0000					
BODSIZE	-0.0785 (0.0000)	0.3867 (0.0000)	0.4265 (0.0000)	0.3347 (0.0000)	0.2871 (0.0000)	1.0000				
BODIND	-0.0165 (0.2397)	0.2445 (0.0000)	0.1215 (0.0000)	0.1367 (0.0000)	0.2755 (0.0000)	-0.0650 (0.0000)	1.0000			
ROA	0.0722 (0.0000)	0.0172 (0.2210)	0.0403 (0.0041)	0.0020 (0.8850)	-0.0003 (0.9821)	-0.0446 (0.0015)	0.0187 (0.1843)	1.0000		
LVRG	-0.0035 (0.8046)	0.1402 (0.0000)	0.1115 (0.0000)	0.1112 (0.0000)	0.0759 (0.0000)	0.1926 (0.0000)	0.0376 (0.0075)	-0.3626 (0.0000)	1.0000	
COUNTRY	0.0365 (0.0095)	-0.0143 (0.3084)	0.0094 (0.5036)	0.0007 (0.9621)	-0.1152 (0.0000)	-0.1050 (0.0000)	0.0365 (0.0094)	0.0419 (0.0029)	-0.0007 (0.9584)	1.0000

5.3. Test of the first hypothesis

In this section, we present the regression results that examine the impact of the Directive 2014/95/EU on firms' non-financial reporting incentives.

Table 8: Regression model Equation (7) (Stata)

Fixed-effects (within) regression		Number of obs	6,053			
Group variable: Industry		Number of groups	10			
R-squared:		F(6, 6037)	352.02			
Within = 0.2592		Prob > F	0.0000			
Between = 0.7578						
Overall = 0.2769						
ESGDSC	Coefficient	Std. err	t	P> t	[95% conf. interval]	
1.TREAT	2.126944	0.939657	2.26	0.024	0.284881	3.969008
1.POST	-9.418309	1.335211	-7.05	0.000	-12.0358	-6.800819
TREAT#POST	9.273222	1.497823	6.19	0.000	6.336955	12.20949
BODSIZE	1.822105	0.0531081	34.31	0.000	1.717994	1.926216
BODIND	17.02977	0.6415609	26.54	0.000	15.77208	18.28746
COUNTRY	0.0283031	0.0261942	1.08	0.280	-0.0230469	0.0796531
_CONS	10.46073	1.000652	10.45	0.000	8.499097	12.42237
F test that all u _i =0: F(9, 6037) = 21.51			Prob > F	=	0.0000	

The coefficient for the “1.TREAT” variable (2.126944) indicates that the treatment group had a statistically significant increase in ESG disclosure scores compared to the control group. This coefficient is statistically significant at the 5% level, as indicated by the p-value of 0.024.

The coefficient for the “1.POST” variable (-9.418309) indicates that there was a statistically significant decrease in ESG disclosure scores for both the treatment and control groups in the post-adoption period compared to the pre-adoption period. This coefficient is statistically significant at the 1% level, indicating a significant change in ESG disclosure score after the implementation of the Directive.

The treatment variable is captured by the interaction term “TREAT#POST” which compares the changes in ESG disclosure scores for the treatment group before and after the

treatment period relative to the control group. In other words, it represents the differential treatment effect for the treatment group compared to the control group before and after the policy change. Results indicate that, on average, treated firms experienced an increase of 9.273222 units in their ESG disclosure score compared to non-treated firms during the post-adoption period. This difference is statistically significant at the 1% level.

The model has a R-squared value of 0.2592, suggesting that the variables included in the model explain quite a relevant proportion of the variation in the dependent variable. The F-test indicates that the fixed-effects regression model is statistically significant as a whole and that it is a good fit for the data employed.

The key result that is necessary to bear in mind at this point is that treated firms post-adoption display higher levels of ESG disclosure relative to non-treated firms.

5.4. Test of the second hypothesis

In this section, we present the regression results that examine the relationship between ESG disclosure and earnings management.

Table 9: Regression model Equation (8) (Stata)

Fixed-effects (within) regression				Number of obs	5,527	
Group variable: Industry				Number of groups	10	
R-squared:						
	Within	= 0.0297		F(6, 5511)	28.14	
	Between	= 0.0229		Prob > F	0.0000	
	Overall	= 0.0209				
DA	Coefficient	Std. err	t	P> t	[95% conf. interval]	
ESGDSC	-0.0000211	0.00000428	-4.92	0.000	-0.0000294	-0.0000127
BODSIZE	-0.0001262	0.0000196	-6.45	0.000	-0.0001645	-0.0000878
BODIND	-0.000493	0.0002256	-2.19	0.029	-0.0009352	-0.0000507
ROA	0.0051995	0.0008219	6.33	0.000	0.0035884	0.0068107
LVRG	0.0021593	0.0003547	6.09	0.000	0.0014639	0.0028547
COUNTRY	0.0000135	0.00000874	1.55	0.121	-0.0000036	0.0000307
_CONS	0.0030477	0.0003054	9.98	0.000	0.002449	0.0036464
F test that all u _i =0: F(9, 5511) = 45.03				Prob > F	=	0.0000

These results reveal several important findings.

Firstly, there is a negative and significant correlation between ESG disclosure and earnings management. Specifically, for each unit increase in ESG disclosure score, there is a decrease in discretionary accruals of approximately -0.0000211 units (p-value < 0.001). This suggests that firms with higher ESG disclosure levels tend to engage to a lower extent in earnings management practices.

Secondly, board size has a negative and significant effect on earnings management. For each unit increase in board size, there is a decrease in discretionary accruals of -0.0001262 units (p-value < 0.001). This implies that larger boards are associated with lower levels of earnings management.

Thirdly, board independence has also a negative and significant impact on earnings management. For each unit increase in board independence, there is a decrease in discretionary accruals amounting to -0.000493 units (p-value < 0.005). This indicates that firms with more independent boards tend to engage in less earnings management practices.

Additionally, return on assets (ROA) and leverage have positive and significant effects on earnings management. Higher ROA is associated with an increase in discretionary accruals of 0.0051995 units (p-value < 0.001), while higher leverage is associated with an increase in discretionary accruals of 0.0021593 units (p-value < 0.001).

However, country-specific factors do not reveal a statistically significant correlation with earnings management (p-value = 0.121).

Overall, the regression model demonstrates that ESG disclosure is an important determinant of earnings management in the sample.

In order to gain further insights into this relationship, follow the regression results that examine the impact of environmental, social, and disclosure scores on discretionary accruals.

Table 10: Regression model Equation (9) (Stata)

Fixed-effects (within) regression				Number of obs	5,023	
Group variable: Industry				Number of groups	10	
R-squared:				F(6, 5007)	18.34	
	Within	= 0.0215		Prob > F	0.0000	
	Between	= 0.0063				
	Overall	= 0.0157				
DA	Coefficient	Std. err	t	P> t	[95% conf. interval]	
EDSC	-0.0000166	0.00000363	-4.57	0.000	-0.0000237	-0.0000094
BODSIZE	-0.0000899	0.0000188	-4.78	0.000	-0.0001267	-0.000053
BODIND	-0.0003922	0.0002153	-1.82	0.069	-0.0008142	0.0000299
ROA	0.0049943	0.00088	5.68	0.000	0.0032692	0.0067194
LVRG	0.0017524	0.000361	4.85	0.000	0.0010447	0.0024601
COUNTRY	0.0000155	0.00000839	1.85	0.064	-0.0000009	0.000032
_CONS	0.0023769	0.0003101	7.66	0.000	0.0017689	0.0029849
F test that all u _i =0: F(9, 5007) = 41.56				Prob > F	=	0.0000

Table 11: Regression model Equation (10) (Stata)

Fixed-effects (within) regression				Number of obs	5,502	
Group variable: Industry				Number of groups	10	
R-squared:						
	Within	= 0.0275		F(6, 5486)	25.86	
	Between	= 0.0195		Prob > F	0.0000	
	Overall	= 0.0194				
DA	Coefficient	Std. err	t	P> t	[95% conf. interval]	
SDSC	-0.0000204	0.00000525	-3.88	0.000	-0.0000307	-0.0000101
BODSIZE	-0.0001397	0.0000191	-7.33	0.000	-0.000177	-0.0001023
BODIND	-0.0006867	0.0002184	-3.14	0.002	-0.0011149	-0.0002586
ROA	0.0049452	0.000828	5.97	0.000	0.003322	0.0065684
LVRG	0.0020629	0.0003566	5.79	0.000	0.0013639	0.0027619
COUNTRY	0.0000132	0.00000875	1.51	0.132	-0.0000039	0.0000303
_CONS	0.0030272	0.0003065	9.88	0.000	0.0024264	0.003628
F test that all u _i =0: F(9, 5486) = 45.08				Prob > F	=	0.0000

Table 12: Regression model Equation (11) (Stata)

Fixed-effects (within) regression				Number of obs	5,527	
Group variable: Industry				Number of groups	10	
R-squared:						
	Within	= 0.0273		F(6, 5511)	25.75	
	Between	= 0.0894		Prob > F	0.0000	
	Overall	= 0.0190				
DA	Coefficient	Std. err	t	P> t	[95% conf. interval]	
GDSC	-0.0000084	0.00000265	-3.20	0.001	-0.0000137	-0.0000032
BODSIZE	-0.0001461	0.0000189	-7.73	0.000	-0.0001831	-0.000109
BODIND	-0.0005924	0.0002288	-2.59	0.010	-0.001041	-0.0001439
ROA	0.0049571	0.0008208	6.04	0.000	0.003348	0.0065662
LVRG	0.0020422	0.0003541	5.77	0.000	0.001348	0.0027364
COUNTRY	0.0000103	0.00000880	1.17	0.241	-0.0000069	0.0000276
_CONS	0.00314	0.0003135	10.02	0.000	0.0025254	0.0037546
F test that all u _i =0: F(9, 5511) = 44.56				Prob > F	=	0.0000

Firstly, there is a significant negative relationship between environmental disclosure (EDSC) and discretionary accruals. For each unit increase in the environmental disclosure score, there is a decrease in discretionary accruals of -0.0000166 units (p-value < 0.001).

Secondly, there is a significant negative relationship between social disclosure (SDSC) and discretionary accruals. For each unit increase in the social disclosure score, there is a decrease in discretionary accruals of -0.0000204 units (p-value < 0.001).

Thirdly, there is a significant negative relationship between governance disclosure (GDSC) and discretionary accruals. For each unit increase in the governance disclosure score, there is a decrease in discretionary accruals of -0.0000084 units (p-value = 0.001).

In conclusion, these results confirm that higher ESG disclosure is associated with lower levels of discretionary accruals, indicating a potential link between ESG disclosure and earnings quality.

5.4.1. Multicollinearity

A number of issues might arise when a strong correlation exists among variables, and this is often referred to as multicollinearity. Multicollinearity represents one of the main problems in multiple linear regression and the term refers to a situation in which two or more predictor variables in a statistical model are highly correlated with each other, making it difficult to identify the individual effects of each variable on the response variable. The correlation amongst predictor variables increases the variance of the estimated regression coefficients (Sheather, 2009).

Multicollinearity can be detected using statistical tests or by examining the correlation matrix between predictor variables. It is often necessary to address multicollinearity in order to obtain reliable and accurate results in a statistical analysis. For the purpose of this thesis, this is done via the Variance Inflation Factor (VIF). In line with the studies of Sheather (2009), it is assumed that any value above 5 indicates the presence of multicollinearity.

Specifically, the VIF measures the extent to which the variance of the estimated regression coefficient for a predictor variable is increased due to multicollinearity with the other predictor variables in the model.

The VIF statistic is calculated as the ratio of the variance of the estimated regression coefficient for a predictor variable in a model with all predictor variables, to the variance of the estimated regression coefficient for the same variable in a model with only that variable. A VIF of 1 indicates that the variance of the estimated regression coefficient is the same in both models, while a VIF greater than 1 indicates that the variance of the estimated regression coefficient is higher in the model with all predictor variables, suggesting the presence of multicollinearity. A VIF value greater than 5 or 10 is considered high and can indicate a serious problem with multicollinearity in the regression model.

All variables investigated for the purpose of this thesis show no significant multicollinearity among the predictors (Table 13), therefore there is no need to remove any variable from the regression model.

Table 13: VIF statistic (Stata)
Regression model Equation (8)

Variable	VIF
ESGDSC	1.44
BODSIZE	1.37
BODIND	1.14
ROA	1.13
LVRG	1.23
COUNTRY	1.03

5.4.2. Expected and obtained results comparison

Table 14 represents the expected and actual results of this study, with reference to the testing of the second hypothesis.

Table 14: Expected and obtained results comparison (Author's)

Variable	Description	Expected relationship	Hypothesis 2 results
ESGDSC	ESG disclosure score	-	-
EDSC	Environmental disclosure score	-	-
SDSC	Social disclosure score	-	-
GDSC	Governance disclosure score	-	-
BODSIZE	Board size	-	-
BODIND	Board independence	-	-
ROA	Firm profitability	-	+
LEVR	Firm leverage	+	+
COUNTRY	Country		+

After running the regression model examining the relationship between earnings management and ESG disclosure scores, here a summary of the findings:

- **ESG disclosure and earnings management:** The results indicate a significant negative correlation between ESG disclosure scores and earnings management, meaning that as the level of non-financial reporting increases, the tendency to engage in earnings management practices decreases. This finding supports the hypothesis that greater transparency and accountability through ESG disclosure can act as a deterrent to unethical behaviours. This relationship will be further deepened when addressing hypothesis 3 and 4.
- **Board size and earnings management:** The findings indicate a significant negative correlation between board size and earnings management, meaning that firms with a higher number of board members have less incentive to engage in these practices. This supports the argument that larger boards can enhance corporate governance by reducing the power of the top management.
- **Board independence and earnings management:** The results suggest a significant negative correlation between board independence and earnings management. This means that the less independent the board is, the more the management will be tempted

to manipulate earnings. This highlights the importance of having independent directors who are able to provide an objective view of the company's operations and can act as a check on management's decisions.

- Firm profitability and earnings management: The findings suggest a significant positive correlation between ROA and earnings management, indicating that firms with higher profitability are more likely to engage in earnings management, eventually to maintain certain performance standards.
- Firm leverage and earnings management: The results indicate a significant positive correlation between firm leverage and earnings management, meaning that firms with higher levels of leverage are more likely to engage in earnings management. This may be explained by the need to maintain debt covenants and avoid default.
- Country and earnings management: The results indicate a non-significant positive correlation between the two variables.

5.5. Test of the third hypothesis

In this section, we present the regression results that examine the impact of the Non-financial Reporting Directive 2014/95/EU on firms' business culture and incentives to manipulate earnings.

Table 15: Regression model Equation (12)

DA	Coefficient	Std. err	t	P> t 	[95% conf. interval]	
ESGDSC	-0.0001654	0.0000381	-4.34	0.000	-0.0002401	-0.0000906
DIRECTIVE	-0.0038261	0.0007849	-4.87	0.000	-0.005365	-0.0022873
INTERACTION	0.0001451	0.0000381	3.81	0.000	0.0000704	0.0002198
BODSIZE	-0.000128	0.0000227	-5.64	0.000	-0.0001725	-0.0000835
BODIND	-0.0003244	0.0002541	-1.28	0.202	-0.0008226	0.0001738
ROA	0.0059097	0.0009461	6.25	0.000	0.0040549	0.0077646
LVRG	0.0023707	0.0004072	5.82	0.000	0.0015724	0.003169
COUNTRY	0.00000757	0.00000989	0.77	0.444	-0.0000118	0.000027
_CONS	0.0067588	0.0008017	8.43	0.000	0.0051871	0.0083304
F test that all u_i=0: F(9, 4417) = 36.94			Prob > F		=	0.0000

The F statistic (21.37) indicates that at least one between the independent and control variables has a significant relationship with the dependent variable. The p-value associated with the F statistic (0.0000) shows a highly significant relationship. The R-squared, with a value of 0.0373, suggests that only 3.73% of the variation in the dependent variable can be explained by the other variables in the model.

The interaction variable allows us to examine whether the relationship between ESG disclosure and discretionary accruals differs depending on whether firms are subject to the Non-financial Reporting Directive or not. Its coefficient amounts to 0.0001451, and it is statistically significant at the 1% level. The positive coefficient indicates that one-unit increase in ESG disclosure score is associated with an increase of 0.0001451 units in DA for treated firms. These findings reveal that:

- First, there is a stronger association between ESG disclosure and earnings management for treated firms compared to non-treated firms; and

- Second, the implementation of the NFRD may have negatively shifted the business culture of treated firms, resulting in higher incentives for them to engage in opportunistic practices compared to non-treated firms.

Before the implementation of the Directive 2014/95/EU, there was a negative relationship between ESG disclosure and earnings management. This means that companies with higher levels of ESG disclosure tended to manage reported earnings to a lower extent, indicating a potential alignment between environmental, social, and governance practices and financial reporting. However, with the adoption of the Directive, there has been a change in sign: the relationship between ESG disclosure and earnings management has become positive for the treated firms. In other words, for the firms obligated to comply with the Directive, higher levels of ESG disclosure became associated with higher levels of earnings management or potentially opportunistic practices.

As we know that treated firms experienced an increase in ESG reporting as compared to the control group (see results hypothesis 1) in the post-adoption period, we can easily infer that as per effect of this variable, treated firms post-adoption may also have experienced an increase in discretionary accruals. This will further be tested throughout hypothesis number 4.

5.6. Test of the fourth hypothesis

In this section, we present the findings of the final regression model, which investigates the impact of the adoption of the Non-financial Reporting Directive 2014/95/EU on earnings management practices. Specifically, we examine whether treated firms, in comparison to non-treated firms, experienced an increase in earnings management following the implementation of the Directive. This analysis allows us to assess the causal effect of the Directive itself on firms' incentives to manipulate accounting numbers.

Table 16: Regression model Equation (13) (Stata)

Fixed-effects (within) regression		Number of obs	5,599			
Group variable: Industry		Number of groups	10			
R-squared:		F(6, 5583)	17.53			
Within = 0.0185		Prob > F	0.0000			
Between = 0.0081						
Overall = 0.0178						
DA	Coefficient	Std. err	t	P> t	[95% conf. interval]	
1.TREAT	-0.0027163	0.0015754	-1.72	0.085	-0.0058047	0.0003722
1.POST	-0.0013263	0.0015962	-0.83	0.406	-0.0044554	0.0018028
TREAT#POST	0.0020016	0.0016117	1.24	0.214	-0.001158	0.0051613
BODSIZE	-0.0001345	0.0000178	-7.55	0.000	-0.0001694	-0.0000996
BODIND	-0.0007486	0.0002138	-3.50	0.000	-0.0011677	-0.0003295
COUNTRY	0.000159	0.00000875	1.82	0.069	-0.0000012	0.0000331
_CONS	0.0059715	0.0015752	3.79	0.000	0.0028835	0.0090596
F test that all u _i =0: F(9, 5583) = 39.25			Prob > F	=	0.0000	

The coefficient for “1.TREAT” variable (-0.0027163) represents the difference in discretionary accruals between treated firms and non-treated firms before the adoption of the Directive. However, this is not statistically significant at a conventional significance level (p-value = 0.085), suggesting that, before the Directive, there was no significant difference in discretionary accruals between treated and non-treated firms.

The coefficient for “1.POST” (-0.0013263) represents the difference in discretionary accruals for all firms after the adoption of the Directive, regardless of the treatment. It is also not statistically significant (p-value = 0.406), indicating that there was no overall significant change in discretionary accruals for all firms following the adoption of the Directive.

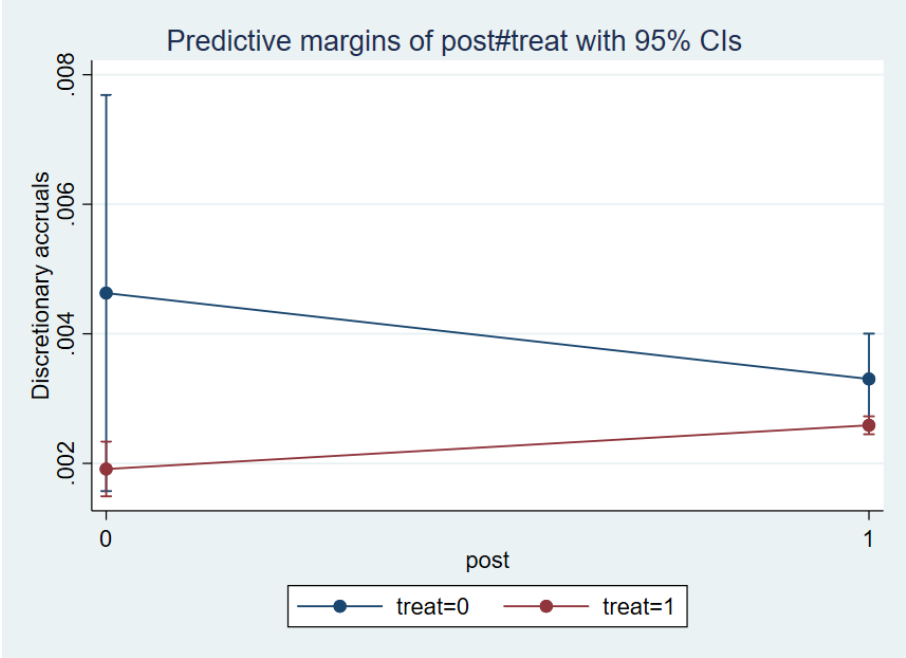
The treatment variable is again captured by the interaction term “TREAT#POST” which compares the changes in accruals for the treatment group before and after the treatment period relative to the control group. Its coefficient is positive and amounts to 0.0020016, however this is also not-statistically significant (p = 0.214), indicating that there is no strong evidence to suggest that the adoption of the Directive had a significant impact on the difference in

discretionary accruals between treated and non-treated firms. Based on this finding, we can conclude that the Directive 2014/95/EU has not influenced the business culture of mandated firms, neither in a positive nor in a negative manner, and that its implementation has not resulted into a noticeable change in the reporting practices or ethical behaviour of treated firms.

Overall, the model has a low R-squared value of 0.0185, suggesting that the variables included in the model explain only a small proportion of the variation in the dependent variable and that others may be required.

While the regression analysis provides us with important statistical information, a graphical representation of the data can also be useful in providing a visual understanding of the trends and patterns, especially in the context of a pre- and post-treatment design. Figure 3 depicts the levels of discretionary accruals for both the control and treatment groups and provides a visual comparison of changes in these levels over the pre- and post-adoption periods.

Figure 3: Visual representation regression model Equation (13) (Stata)



The graphical representation of the DID estimator results reveals a distinct pattern in the pre- and post-adoption levels of discretionary accruals between the treatment and control groups.

Prior to the adoption of the Directive 2014/95/EU, the treatment group exhibited a lower level of discretionary accruals compared to the control group. However, following the adoption, the two groups' levels of discretionary accruals gradually converged, reaching more or less the same level. These findings suggest that smaller firms, defined as those with less than 500 employees, less than 40 million euros in net turnover, and less than 20 million euros in the balance sheet, have a higher propensity to engage in earnings management practices.

We observe a slight increase in the level of discretionary accruals for treated firms by 0.006, while non-treated firms experienced a decrease by 0.0010. However, as such changes are not statistically significant, we cannot conclusively determine whether they are specifically attributable to the adoption of the Directive or not.

Discussion and conclusion

Understanding the impact that environmental, social, and governance factors have on earnings management practices is crucial in an era where accounting practices are moving towards harmonization. The findings of this study provide valuable insights into the relationship between non-financial reporting, regulatory interventions, and financial reporting behaviour.

Support was found for the first hypothesis, suggesting that mandating sustainability disclosure can positively influence the non-financial reporting behaviour of treated firms. The Directive 2014/95/EU has increased transparency in relation to the environmental, social, and governance practices employed by treated firms. The significant increase in ESG disclosure for treated firms relative to non-treated firms, provides evidence of the effectiveness of the Directive in achieving its intended objective of enhancing non-financial reporting.

The previously described results indicate that non-financial reporting could be an explainer of earnings management. Therefore, support was found for the second hypothesis of this study, providing evidence of a negative and significant correlation between the two variables. This is in line with the stream of research advocating that firms voluntarily report this kind of information as ESG concerns are well-integrated into their decision-making processes. Our findings suggest that companies reporting on their sustainable practices, and as such disclosing more non-financial information, are also committed to honest financial reporting. In essence, firms make use of ESG disclosure as a means to demonstrate their adherence to socially acceptable norms and compliance with ethical standards.

However, the adoption of the Directive 2014/95/EU brought about a significant change in this relationship. For treated firms, higher levels of ESG disclosure became associated with increased levels of earnings management. The Non-financial Reporting Directive may have unintentionally incentivized opportunistic practices among treated firms, suggesting that regulatory requirements had unintended consequences in this regard. What is clear is that

mandating non-financial reporting has not effectively promoted a more ethical approach to financial reporting. These results align with the perspective of the *substitution relationship* stream of research, advocating that the dissemination of ESG information may rather serve to dispel any doubts stakeholders may have regarding the possibility of manipulation.

However, support was not fully found for the last hypothesis, revealing an increase in discretionary accruals for treated firms post-adoption, but without statistical significance.

Based on our findings, the Directive 2014/95/EU did not significantly affect the business culture of mandated firms, neither positively nor negatively. In other words, there is no evidence to suggest that the Directive brought about a discernible shift in the way mandated firms operate or conduct their business activities. It cannot be conclusively determined whether the observed changes in discretionary accruals post-adoption are specifically attributed to the Directive. While the results suggest a potential association between the two, further investigation is needed to establish a conclusive link. The lack of statistical significance indicates that other factors may have contributed to the observed changes in discretionary accruals.

The overall findings emphasize the impact of the Directive on enhancing transparency in non-financial reporting and the potential unintended consequences on earnings management. The above stated results could hold particular relevance for various stakeholders. Firstly, accounting professionals and practitioners will find value in understanding the impact of ESG factors on earnings management practices. Secondly, regulators will be more effective in designing policies and interventions aimed at promoting sustainable and transparent business practices. Policymakers can even make use of these insights to refine existing regulations, taking into account potential risks and unintended incentives that may arise from such interventions. Thirdly, investors will be provided with a framework to evaluate the alignment between a company's stated sustainability goals and its financial reporting, aiding them in

making more informed decisions in line with their values and objectives. Lastly, these findings can also guide future research in the field of financial reporting and corporate governance.

The main limitation of this study regards the size of the sample due to the poor availability of data. Moreover, the research focused on a specific regulatory intervention, the Directive 2014/95/EU, which may limit the generalizability of the findings to other contexts or jurisdictions with different regulatory frameworks. Indeed, while the sample consisted of listed firms from all twenty-seven EU Member States, the analysis did not include a cross-country comparison or account for the specificities of each country in relation to the adoption and implementation of the Directive. Considering the diverse regulatory landscapes and cultural contexts across countries, the relationship between ESG disclosure and earnings management may be different from the one found.

There is room for future research adopting more refined statistical tests that can measure the relationship between the variables and taking into account other factors that could have an impact on the level of earnings management. Furthermore, limitations could be overcome by utilizing larger samples and incorporating multiple regulatory contexts. To gain a more comprehensive understanding, scholars could explore cross-country differences in the impact of regulatory interventions on firms' reporting behaviour. Such efforts would contribute to a deeper understanding of the relationship between ESG disclosure and earnings management practices and provide more robust evidence for policymakers and stakeholders.

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