

## Article

# The ESG Reporting of EU Public Companies—Does the Company's Capitalisation Matter?

Małgorzata Janicka \* and Artur Sajnog 

Department of International Finance and Investment, Faculty of Economics and Sociology, University of Lodz, Rewolucji 1905 Street 41, 90–255 Lodz, Poland; artur.sajnog@uni.lodz.pl

\* Correspondence: malgorzata.janicka@uni.lodz.pl; Tel.: +48-42-635-52-09

**Abstract:** Large companies in the European Union are required to publish information related to environmental, social and governance (ESG) matters. The aim of our study is to determine the quality of ESG reporting in EU public companies (measured by the ESG-index) and its effect on their market capitalisation. Therefore, the results of our research will be both scientific and applicative, and they will be useful for investors when making investment decisions on the stock exchange. The research includes over 15,000 companies listed on 27 stock exchanges (in the “old” and “new” member states, EU-14 and EU-13, respectively), covering the period 2002 to 2019. The data were obtained from the Refinitiv database. We drew three conclusions after the research. Firstly, only 50% of the companies listed on the stock exchanges in the old EU member states and merely 5% of the companies from the new EU member states had reported ESG-indexes in any year of the research period. Secondly, we found a positive relationship between a company's market capitalisation and the quality of its ESG reports. Thirdly, the market values of companies are positively but not strongly affected by the ESG-indexes.

**Keywords:** sustainable finance; ESG; ESG reporting; market capitalisation; EU public companies



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## 1. Introduction

“Sustainability is the theme of our time—and the financial system has a key role to play in delivering that set of ambitions” [1].

In 1972, the 1st United Nations Conference on Environment and Development (the “Stockholm Conference”) was held in Stockholm, during which the term “sustainable development” was used for the first time. In 1987, the World Commission on Environment and Development (the Brundtland Commission) published the report “Our Common Future”, which defined the concept of sustainable development as “a development that enables the current needs of societies to be met without limiting this possibility for future generations” [2]. Originally, this concept was mainly related to environmental issues; however, it has evolved and been extended to include social and managerial aspects. In September 2015, the United Nations submitted to the international community the document “Transforming our world: the 2030 Agenda for Sustainable Development”, in which 17 Sustainable Development Goals (SDGs) were defined [3]. In December 2015, during the climate conference in Paris, the Paris Agreement was signed. It was the first legally binding global climate change agreement (therefore, directly related to environmental issues), and it refers to the need to limit global warming. It entered into force in November 2016. The role and importance of the financial system as one of the key elements of sustainable economic reconstruction were not highlighted in the documents; they were considered a complement to the reconstruction process, not an immanent part. This approach underestimated the role of sustainable finance in sustainable development.

In accordance with the proposals formulated in the 2030 Agenda, entities that operate in the economy must monitor the impact of their activities on internal and external stakeholders in three areas that together create ESG factors: Environmental (E), Social (S) and

Governance (G). The first research on corporate social responsibility appeared in the 1970s and was not in the mainstream of the research at that time.

A significant change in this area occurred only at the turn of the 20th and 21st centuries [4]. Originally, the concepts of corporate social responsibility (CSR) and socially responsible investing (SRI) were used, although they have been replaced by ESG factors. The relationships between CSR/SRI and ESG are understood and defined differently, although some researchers equate these concepts [5–7]. As pointed out by Gillan et al. [8], “ESG refers to how corporations and investors integrate environmental, social and governance concerns into their business models. CSR traditionally has referred to corporations’ activities with regard to being more socially responsible, to being a better corporate citizen”.

Without going into the essence of the differences between them, it is crucial that economic entities have been obliged either by legal regulations or by pressure exerted by the external environment to provide information in the field of sustainability. In December 2019, the European Union presented the European Green Deal [9], i.e., an action strategy to make Europe a climate-neutral continent by 2050. Due to the need to raise significant sums for economic reconstruction, the financial system has proved to be key in this strategy as an intermediary in the transmission of long-term funds for sustainable investments.

In 2014, the European Union adopted the directive on non-financial reporting, according to which large public companies (employing over 500 people) were obliged to publicly disclose information on their functioning regarding sustainable development issues [10]. Such information is necessary for, inter alia, investors who want to make informed investment choices, guided not only by the financial aspects of how enterprises function but also by their impact on the internal and external environment. From the point of view of investment decisions, however, it is difficult to consider financial issues as secondary. So, in our study, we want to verify whether there is a relationship between the company size (measured by capitalisation) and the quality of its non-financial reporting (measured by the ESG-index). The results of our research will, therefore, be both scientific (expanding the scope of knowledge about sustainable development and sustainable finance) and applicative (useful when making investment decisions on the stock exchange).

The study examines ESG disclosures by public companies domiciled in EU member states. We want to ascertain whether the ESG reporting by public companies that incorporate sustainability objectives into their operations is related to their market capitalisation. The research includes over 15,000 companies listed on 27 stock exchanges (the old EU member states, EU-14, and the new member states, EU-13), covering the period 2002 to 2019. The data were obtained from the Refinitiv database.

The two groups of member states are important because they differ in terms of how long their stock exchanges have operated and their role in the economy. On the one hand, accounting principles, reporting regulations, financial disclosure and reporting frequency are strongly harmonised in the EU [11]. In particular, the requirement of non-financial reporting within the EU was specified in the Non-Financial Reporting Directive [10]. Additionally, the corporate governance rules of companies connected with financial and non-financial reporting are probably related to the Continental European accounting model. This setting allows for a comparative study across the EU-14 and EU-13 member states, principally on whether public companies publish non-financial information related to environmental, social and governance matters (ESG).

On the other one, from a historical point of view, the economic-based environmental reporting model can transpose across different institutional, legal and economic settings [12]. The EU countries may use national reporting regulations and non-financial reporting regimes. The pressure on firms to publish ESG reports might stem from the local regulatory authorities, and it usually concerns large public companies listed on the main markets. The information costs and also media, to some extent, can influence firms’ corporate environmental reporting strategies.

The results of our research show that although the companies were characterised by a diversified approach to the disclosure of ESG information in comparison to the

financial reports, generally there was a positive character of dependence between the market capitalisation and the ESG-index—despite the fairly low strength, it was statistically significant. We also found that a company's ESG performance positively affects its market capitalisation. Therefore, it can be assumed that in the European Union, ESG reporting by public companies is of significant importance for investors and the actions currently taken by the EU regarding, among others, the CSRD, are expected by the market.

## 2. Sustainable Finance and ESG Reporting in the European Union—The Theoretical Frameworks

### 2.1. Sustainable Finance—Concept and Definition

Combining the idea of sustainable development and the activities of the financial sector has resulted in the concept of “sustainable finance”, which is mainly related to the transmission of funds to low-carbon projects. This interpretation significantly narrows its meaning and shifts the centre of gravity towards green finance, defined by the G20 Green Finance Study Group as financing investments that provide environmental benefits in the context of environmentally sustainable development [13]. Green finances are perceived through the prism of financial instruments and activities that cause a positive change for the environment and society. The basic criterion of a “green” company/project is its contribution to reducing greenhouse gas emissions [14]. Therefore, green finance is part of sustainable finance, but the concepts are not synonymous. There are many definitions of sustainable finance in the literature, defining this concept in both broad and narrow terms.

The G20 Sustainable Finance Study Group definition fits into the broad perspective. Sustainable finance is defined as financing and institutional and market relationships that contribute to the achievement of sustainable growth by supporting the sustainable development goals [15]. Sustainable finance, in broad terms, is also defined as finance that not only includes capital flows, risk management activities and financial processes that assimilate socio-environmental factors but also promotes long-term stability of the financial system [16]. Experts of the High-Level Expert Group on Sustainable Finance (HLEG UE) see sustainable finance through the prism of two elements [1]: (1) increasing the share of finance in inclusive, sustainable growth and climate change mitigation; (2) strengthening financial stability by taking into account environmental, social and managerial factors when making investment decisions. According to Migliorelli [17], sustainable finances should nowadays be referred to as “finance for sustainable development” and perceived as an independent factor in the process of building a sustainable society, in particular, in relation to the SDGs and the Paris Agreement. Therefore, they are finances that support activities that contribute to achieving/improving at least one of the specific aspects of sustainable development. Narrower definitions link sustainable finance with the functioning of enterprises and investment activities, such as the definition by, e.g., the World Bank, where sustainable finance is understood as the obligation of entrepreneurs to make the issue of sustainable development a basic element of their business strategy and to depart from actions that are not consistent with it [18]. Boffo and Patalano [19] define it as the inclusion of environmental, social and management issues when making investment decisions and the resulting increase in the value of long-term investments.

Summing up, sustainable finance refers primarily to strengthening financial stability in the economy by considering environmental, social and managerial factors in the decision-making process on financial markets. In the narrow sense, it refers to the conditions in which enterprises operate, including the reallocation of funds for low-carbon investments. In our article, we adopted a broad dimension of sustainable finance that combines the activities of enterprises in the ESG area with their valuation on the financial market.

### 2.2. Non-Financial Reporting in the European Union—Regulations

The EU is actively striving for sustainable economic reconstruction, including reforming the financial system in line with the principles of sustainable development. In 2015, the plan to build the Capital Market Union (CMU) [20] was announced, which also included

the goals of sustainable development. As Lanoo and Thomadakis [21] pointed out, “it is an important building block of the revamped Capital Markets Union (CMU 2.0) project that aims to unlock public and private investment to support the transition to a low-carbon and resource-efficient circular economy”. As mobilising funds for sustainable investments proved to be a much wider issue than originally thought, a special commission, the High-Level Expert Group on Sustainable Finance (HLEG), was established, whose task was to develop EU solutions specifically related to sustainable finance. Based on the conclusions of the Interim Report [22] and the Final Report [1] prepared by the HLEG, in 2018, the Action Plan: Financing Sustainable Growth [23] was published. It shifts the focus towards accelerating growth in the volume of financed low-carbon and environmental projects.

The plan sets out three main objectives: (1) to redirect capital flows towards sustainable investment in order to achieve sustainable and inclusive growth; (2) to manage financial risks from climate change, resource depletion, environmental degradation and social issues; (3) to promote transparency and long-term sustainability in financial and economic activities. Although long-term investments are seen as necessary in sustainable reconstruction [1], today, the short-term approach dominates due to the pressure of financial results [24–28]. However, research does not clearly confirm a relationship between the long-term nature of investments and the development of ESG measures in an enterprise [29,30].

If capital is to flow to enterprises that take environmental, social and managerial factors into account, investors must have access to this information. ESG reporting, otherwise known as non-financial reporting, can therefore be considered a *sine qua non* condition not only for an increase in the volume of investment funds flowing to enterprises that operate sustainably but also for sustainable economic reconstruction. The requirement of non-financial reporting within the EU was specified in Directive 2014/95/EU (also called the Non-Financial Reporting Directive—NFRD) [10], which amended the previously applicable Accounting Directive 2013/34/EU (in which issues related to sustainable development were limited to compliance by enterprises with the principles of corporate governance) and defined the rules for the disclosure of non-financial information by selected companies. The current EU regulations regarding non-financial reporting apply only to large companies, with more than 500 employees, that are deemed in the public interest and those which are qualified as large undertakings that meet at least two out of the following three criteria: assets above EUR 20 million, turnover above EUR 40 million and more than 250 employees.

As explicitly stated in the Directive, “the disclosure requirements for non-financial information apply to certain large enterprises with more than 500 employees, as the costs of obliging small and medium-sized enterprises to apply them could outweigh their benefits” [10]. This group includes public companies, banks, insurance companies and other companies designated by national authorities as public interest entities. In accordance with this directive, since 2018, large companies have been obliged to publish information on environmental issues, social issues, the treatment of employees, respect for human rights, anti-corruption measures and diversity on company boards (including age, gender and education). The directive requires companies to provide information from two perspectives (referred to as “double materiality”): (1) how sustainability issues affect their performance, situation and development (an “outside-in” perspective) and (2) how businesses affect people and the environment (an “inside-out” perspective) [31]. If the company does not publish the required information, it must provide a clear and reasoned explanation for not doing so [32].

Due to the general level of the regulations contained in 2014/95/EU, in 2017, the European Commission published a communication containing guidelines on reporting non-financial information (non-financial reporting methodology) [33]. The guidelines were non-binding, so they did not create norms and standards for non-financial reporting and did not have to be applied by companies. In June 2019, a supplement on reporting climate-related information [34] was attached to them, which was a direct consequence of the EU ratifying the Paris Agreement and creating the Action Plan on Financing Sustainable Development.

Departing from the current practice regarding legal regulations regarding sustainable development in the form of directives, in December 2019, the EU published a regulation on the disclosure of information related to sustainable development in the financial services sector [35]. Financial market participants and financial advisers are now required to disclose certain information on the risks that their activities generate for sustainable development [36]. To avoid the greenwashing of financial products, standards for the qualification of activities in the financial area as environmentally sustainable were set [37].

Work is currently underway on the Corporate Sustainability Reporting Directive (CSRD), which complements the financial services regulation. The current Directive 2014/95/EU does not correspond to the contemporary challenges of sustainable development—it applies to a relatively small group of enterprises (approx. 11,700), and it does not sufficiently specify the information obligations, as evidenced by the European Commission issuing further guidelines on this matter. Moreover, the current regulations do not ensure the required quality of information on sustainable development. Some provide it freely, some enterprises do not provide it at all and often the information provided is not sufficiently reliable or comparable between enterprises [31].

The new directive will cover companies listed on regulated markets, but different requirements will be addressed to large companies and those from the SME sector. This results not only from the costs of obtaining information but also from their adequacy in terms of the size of the enterprise. If work on the directive is completed in a timely manner, then the first reports compliant with its requirements should be published in 2024. While work on the new solutions is ongoing, enterprises—primarily public companies that meet the employment criterion (over 500 people)—are required to report in non-financial terms in accordance with the 2014 directive.

Although over the last decade the EU has significantly accelerated the creation of the legal framework concerning the issues of sustainable finance, including non-financial reporting of enterprises [38], it is still difficult to consider the provision of information in this area satisfactory (see Section 2). As is clear from the Study on the Non-Financial Reporting Directive, the value of reporting non-financial matters is clear to some companies but less so to others. The NFRD has increased awareness about sustainability matters, but for those companies that have not changed anything in their activities yet, the legislation is seen mostly as a source of administrative burden [39].

### 3. ESG and Corporate Finance—Background and Hypotheses Development

Research on the relationship between CSR/ESG and corporate finance began in the early 1970s [40,41]. Interest in the use of CSR (now ESG) by the financial markets' entities increased only in the mid-2000s, when the Principles for Responsible Investment (PRI) were established by the United Nations. Since then, researchers have increasingly investigated the relationship between meeting CSR/ESG criteria and various aspects of corporate financial performance (CFP). A short review of the research in this area indicates that various aspects of corporate finance have been examined and the results are varied. El Ghouli et al. [42] and Goss et al. [43] showed that firms with better CSR scores exhibit cheaper equity financing and actually pay less than firms that are less responsible. Cheng et al. [44] found that firms with better CSR performance face significantly lower capital constraints. Gjergji et al. [45] came to the opposite conclusion in the case of SMEs, where the disclosure of environmental information increases the cost of capital. It can therefore be assumed that the cost of capital may be influenced by the size of the company. However, the question of the cost of debt for companies publishing non-financial reports is relatively rarely examined. Interesting research in this area was carried out by Raimo et al. [46], who confirmed that companies disclosing non-financial information receive better terms when incurring debt obligations.

In terms of the relationship between the evolution of the ESG measure and public companies' abnormal returns, the research results are inconclusive. While Halbritter and Dorfleitner [47], Landi and Sciarelli [48], Bannier et al. [5] and Dorfleitner et al. [49] did not

confirm such a relationship, Albitar et al. [50] found a positive and significant relationship between ESG score and financial performance. Zhou and Zhou [51] demonstrated that the stock price volatility of companies with good ESG performance is lower than that of companies with poor performance. An unusual study was carried out by Manchiraju and Rajgopal [52], who examined Indian firms that have been obliged by legal regulations to spend at least 2% of their net income on CSR. They found that the law caused an average 4.1% drop in the stock price of firms forced to spend money on CSR, so forcing a firm to spend on CSR is likely to have a negative impact on shareholder value.

The results of research conducted on an international scale demonstrate that the corporate financial performance of ESG reporting companies is better than that of others [50,53–56]. Previous results showed that the three different components of ESG have an ambiguous impact on a company's profitability and its market value (measured by Tobin's Q). For example, the environmental and social factors are negatively associated with ROA and ROE but are positively related to Tobin's Q. Further, G-index disclosure is positively related to ROA and Tobin's Q [53]. Velte [57] evidenced that governance performance has the strongest impact on accounting and market-based measures compared to environmental and social scores. Similarly, other researchers have documented that the E and S indicators have an indirect or inverse influence over market value, given by the negative sign of their coefficient, and management factors have a positive effect [58].

To sum up, the results of research on the development of the relationship between ESG and corporate financial performance are varied, although generally, the effect of ESG on CFP is positive. Friede et al. [40] examined ca. 2200 individual studies searching for a relationship between ESG criteria and CFP—about 90% of the studies found a non-negative ESG–CFP relationship, but more importantly, the large majority of studies reported positive findings. According to Brooks and Oikonomou [59], although there is a positive and statistically significant but economically modest link between corporate social performance (CSP) and financial performance at the firm level, the shape of the relationship between CSP and financial performance is not clear. Whelan et al. [56] examined the relationship between ESG and financial performance in more than 1000 research papers from 2015 to 2020. They divided the articles into those focused on corporate financial performance (e.g., operating metrics such as the return on equity (ROE), the return on assets (ROA) or stock performance) and those focused on investment performance (from an investor's perspective). They found a positive relationship between ESG and corporate financial performance for 58% of the studies that focused on operational metrics; 13% showed a neutral impact, 21% showed mixed results and only 8% showed a negative relationship.

Therefore, if we assume that there is a positive relationship between a company's ESG measure and its CFP, it should convince companies to use non-financial reporting not just because it will soon be mandatory in the EU.

The vast majority of research on the effects of ESG implementation in enterprises focuses on microeconomic issues related to corporate financial performance (e.g., ROA, ROE, cost of capital and cost of debt). In view of the above, we have identified a research gap regarding the relationship between non-financial reporting of enterprises, which includes declarations of compliance with ESG criteria, and the perception of this fact by the capital market (macroeconomic dimension). From the investors' point of view, the financial indicators of enterprises have always been considered the key ones. Therefore, it has become justified and desirable to conduct a study whether investors consider non-financial reports of enterprises in their investment decisions. As non-financial reporting is currently not common among businesses, we have adopted hypothesis 1:

**Hypothesis 1 (H1):** The quality of ESG reports depends on the company's market capitalisation.

We assumed that larger enterprises report better in the ESG area. Large public companies attach great importance to reputation and build a positive image for stakeholders. They also bear relatively lower costs related to non-financial reporting (the costs of preparing non-

financial reports, due to the extensive organisational structure, human resources and revenues, are disproportionately lower for them than for small and medium-sized enterprises).

Enterprises reporting ESG will be better perceived by the external environment, including investors. Currently, environmental, social and management issues are an important part of the strategy pursued by companies, so we assumed that public companies that present non-financial reports are better perceived by investors, which translates directly into their market valuation. As a result of this assumption, hypothesis 2 was formulated and took the following form:

**Hypothesis 2 (H2):** The ESG-indexes have a positive and strong effect on the market value of companies measured by their capitalisation.

The theoretical foundations of the hypotheses result directly from the theory of corporate finance and financial reporting of enterprises—a higher value of financial indicators means a better perception of an enterprise among investors and, as a result, a higher valuation. If we assume that for investors non-financial reports are similarly important as financial reports, the company's valuation should be higher by analogy.

Therefore, first of all, we want to check whether the quality of non-financial reporting (ESG) depends on the company's size measured by market capitalisation and secondly, we want to see whether non-financial reporting is really so important for investors on the stock markets that this is reflected in the valuation of listed companies. To the best of our knowledge, such research has not been conducted so far and our study fills the existing research gap in this area. The results of our research may also be useful for economic practitioners, especially for those related to the capital market, e.g., investors and analysts. If companies presenting non-financial reports are valued higher by the market, then non-financial reporting should be included as one of the important valuation criteria, in addition to financial reporting, for listed companies. From a market perspective, it is desirable for companies to present integrated reports that include both financial and non-financial information. The adoption of the CSRD should not only strengthen and expand the requirement to present ESG reports among capital market entities but also lead to standardisation of the presented information, owing to which it will become comparable. Our conclusions are important not only for mature financial markets but also for developing ones, where non-financial reporting is under development. Companies on these markets presenting non-financial reports should gain a natural advantage over companies that do not do so in competing for investment capital, especially with regard to foreign investors from mature markets. As a consequence, the advancement of non-financial reporting may become one of the important determinants of the degree of development of the financial market.

#### 4. Methodology

To study the quality of ESG reporting, a sample of over 15,000 public companies traded on the exchanges located in the European Union was assembled. We analysed in detail the 27 markets, i.e., EU-14 member states (old markets) and EU-13 member states (new ones), which joined the EU in 2004 and later. This approach does not differ much from the divisions of the EU member states into Western Europe and Central and Eastern Europe, or developed nations and emerging markets, presented in previous studies [55].

These two groups of companies were used for three reasons. Firstly, because the significant lack of homogeneity of old and new member states and their financial markets, the analysis of ESG reporting only by public companies was conducted. Secondly, the EU requires currently only large companies to disclose information related to ESG matters. Thirdly, all companies whose securities trade on a public market in the EU are required to use the uniform IFRS as adopted by the EU in their consolidated financial statements.

The source of data was the Refinitiv Eikon database. The period of analysis spanned 18 years, from 2002 to 2019. This specific period was selected for two reasons. First of all,

18 years is long enough to be able to capture the long-term relationships between ESG disclosure and companies' financial results. Additionally, the time-series data presented by Refinitiv go back to 2002 [60], so this decision resulted from the availability of ESG data. Initially, the period of analysis spanned 20 years (from 2000 to 2019), but we were not able to gather enough ESG data for the 2000–2001 period (in this interval, only 56 companies presented the ESG scores).

Our empirical research considered three areas. First, we examined the scale of non-financial reporting in relation to the financial reporting of the analysed companies (the share of companies that showed ESG reports in the total number of companies for which financial statements were available), comparing those belonging to the EU-14 and the EU-13. Second, we examined the completeness of their ESG-indexes. We evaluated the number of annual research periods for which ESG data were available, broken down by reported ESG-indexes both in any given year and respectively for at least 3, 5 or 10 years. Then, we focused only on companies for which the ESG data for at least 5 subsequent years were available. Finally, we analysed (i) whether the regular ESG disclosure is connected with the market penetration of the ESG scores by companies measured by their share in total market capitalisation and (ii) the character and strength of the relationship between the ESG-indexes presented by public companies and their market values measured by market capitalisation. It should be emphasised that market capitalisation is essentially a synonym for the market value of equity.

The impact of the ESG-index on market capitalisation was estimated using the Ohlson [61] model, which is a theoretical framework for evaluating the market value of equity based on a company's financial performance (especially book value of equity and profits) and other types of non-financial information that may be relevant in assessing the company value. This model has a strong ability to predict the future stock price for different time horizons [62]. However, Ohlson did not specify which non-financial factors could be used. Thus, our model is based on the hypothesis that market capitalisation is reflected in accounting measures and other relevant information is reflected in ESG factors. This approach is consistent with previous studies [58,63–65]. We estimated the following regression model:

$$MC_t = \beta_0 + \beta_1 ESG_{i,t} + \beta_2 BV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 LEV_{i,t} + \beta_5 COUNTRY_{i,t} + \varepsilon_{i,t}$$

where MC is the market capitalisation (the natural logarithm); ESG, the ESG-index; BV, the book value of equity (the natural logarithm); ROA, the return on assets, calculated as a ratio of earnings before interest and taxes to average assets; LEV, the ratio showing the relationship between the book value of total debt and the book value of equity (the financial leverage); and COUNTRY, a binary variable indicating a specific country and taking a value of 1 for Germany and 0 for other countries.

After a careful review of other studies [53–55,58,64,66], the book value of equity (BV), the return on assets (ROA) and LEV (the leverage effect) were selected as the accounting measures of companies' performance. Initially, we also used the SIZE (natural logarithm of total assets), but this variable was highly correlated with the MC and was excluded from the calculation of the regression coefficients. Two other measures considered were also initially estimated but were rejected as statistically non-significant: (i) DR—the debt ratio, measured as total liabilities in relation to total assets and (ii) DIV—the dividend rate, measured as annual dividends per share in relation to earnings per share).

Considering that the market size might determine both the quality of ESG reporting and the market capitalisation, one binary variable (COUNTRY) was used in the econometric model. It indicates the uniqueness of the Frankfurt Stock Exchange, which is the largest market in respect of the number of listed enterprises (see Table 1). In studies that investigate the effect of ESG activities and their disclosure on firm value, similar approaches with dummy variables to show market diversity are also used [55].

**Table 1.** The scale of non-financial reporting (ESG) in relation to the financial reporting on the EU markets.

EU Markets	Financial Statements	ESG-Indexes (in Any Year)	At Least 3 Years of ESG-Indexes		At Least 5 Years of ESG-Indexes		At Least 10 Years of ESG-Indexes		
	Number of Companies	Share (%)	Number of Companies	Share (%)	Number of Companies	Share (%)	Number of Companies	Share (%)	
“Old” EU member states (EU-14)									
Austria	742	677	91.2	589	79.4	539	72.6	468	63.1
Belgium	160	75	46.9	55	34.4	51	31.9	47	29.4
Denmark	156	51	32.7	34	21.8	30	19.2	28	17.9
Finland	160	42	26.3	30	18.8	28	17.5	27	16.9
France	658	170	25.8	119	18.1	102	15.5	94	14.3
Germany	10,384	5468	52.7	4447	42.8	3396	32.7	2368	22.8
Greece	175	28	16.0	19	10.9	18	10.3	16	9.1
Ireland	46	22	47.8	15	32.6	15	32.6	13	28.3
Italy	456	194	42.5	146	32.0	133	29.2	123	27.0
Luxembourg	42	11	26.2	11	26.2	9	21.4	4	9.5
Netherlands	119	62	52.1	44	37.0	36	30.3	28	23.5
Portugal	44	18	40.9	13	29.5	11	25.0	9	20.5
Spain	233	80	34.3	55	23.6	50	21.5	41	17.6
Sweden	839	237	28.2	110	13.1	93	11.1	73	8.7
Total (EU-14)	14,214	7135	50.2	5687	40.0	4511	31.7	3339	23.5
“New” EU member states (EU-13)									
Bulgaria	222	0	0.0	0	0.0	0	0.0	0	0.0
Croatia	76	0	0.0	0	0.0	0	0.0	0	0.0
Czech Republic	14	4	28.6	4	28.6	3	21.4	3	21.4
Estonia	22	0	0.0	0	0.0	0	0.0	0	0.0
Hungary	33	5	15.2	4	12.1	4	12.1	4	12.1
Latvia	21	0	0.0	0	0.0	0	0.0	0	0.0
Lithuania	30	0	0.0	0	0.0	0	0.0	0	0.0
Malta	38	4	10.5	2	5.3	2	5.3	0	0.0
Poland	545	42	7.7	32	5.9	30	5.5	19	3.5
Cyprus	117	8	6.8	2	1.7	2	1.7	1	0.9
Romania	143	2	1.4	2	1.4	0	0.0	0	0.0
Slovakia	17	0	0.0	0	0.0	0	0.0	0	0.0
Slovenia	34	1	2.9	1	2.9	0	0.0	0	0.0
Total (EU-13)	1312	66	5.0	47	3.6	41	3.1	27	2.1

Source: Calculated by the authors.

The values of all variables, including the ESG scores, are stated as at the end of the accounting year. Financial data included in the analysis were consolidated. To minimise the influence of outliers, we decided to winsorise our data and set extreme outliers equal to the 1st and 99th percentile. Keeping with the approach of Mclean et al. [67], the firm-year observations with negative book values of equity were excluded. As a result, 50,173 firm-year observations were identified, which represent 4521 companies traded on 13 of the 27 EU markets. We used a panel least squares (unbalanced) model and assumed the random effects. The decision resulted from the three tests conducted, i.e., the Hausman test, the Breusch–Pagan test and the F test [68,69]. Based on the calculated statistics (the  $p$ -values of the Hausman test were higher than 0.05 and those of the Breusch–Pagan test and the F test were below 0.05), it turned out that the assuming of random effects was the most appropriate.

## 5. Results

### 5.1. The Quality of ESG Reporting in European Public Companies

A thorough analysis of the ESG disclosures indicates that on the European markets, one cannot yet see a proper practice in this area. Among the analysed public companies, financial reporting did not go hand in hand with reporting on the ESG-index. However, there is a diverse approach to the disclosure of ESG information in comparison to the financial reports. Generally, only 46.4% of all 15,526 companies had reported ESG-indexes in any of the 18 analysed years (see Table 1).

A more restrictive ESG reporting policy is recorded on the EU-14 markets (for 50.2% of the research sample). On the EU-13 markets, only 5% of all companies presented ESG-indexes in any year. Based on the research results, it can also be stated that only in the case of three markets, i.e., the stock exchanges located in Austria, Germany and the Netherlands, do companies that publish ESG-indexes in any years containing relevant non-financial information prevail. The most restrictive ESG reporting policy is observed in the Vienna Stock Exchange.

A similar tendency can also be noted for the ESG disclosure on EU markets over at least 3, 5 and 10 years. An overview of the empirical results showed that only ca. 37%, 29% and 22% of all companies had reported ESG data, respectively. The largest number of companies that reliably approached ESG reporting for at least 3, 5 and 10 years was recorded on the following markets:

- In the category of “at least three years of ESG-indexes”: Austria, Germany, the Netherlands, Belgium, Ireland and Italy (over 30%);
- In the category of “at least five years of ESG-indexes”: Austria, Germany, Ireland, Belgium, the Netherlands and Italy (over 25%);
- In the category of “at least ten years of ESG-indexes”: Austria, Belgium, Ireland, Italy, the Netherlands, Germany and Portugal (over 20%).

The companies from the EU-13 markets reported much worse ESG data. The vast majority of public companies (except those listed on the Budapest Stock Exchange, the Prague Stock Exchange PSE and the Warsaw Stock Exchange) did not disclose ESG-indexes throughout the whole period under investigation in this study. However, to rule out the diversity or randomness of the ESG, we additionally verified the share of the market capitalisation of the analysed companies in the total market capitalisation for the given EU-14 and EU-13 markets.

### 5.2. Market Penetration of the ESG-Index

To assess the quality of ESG reporting in EU public companies, we focused only on 4552 companies for which ESG data for at least 5 subsequent years were available. However, in order to rule out the diversity or infrequency of the ESG-indexes reported by the analysed companies, we verified the market penetration of the ESG-index. The market penetration of the ESG scores by companies traded on the 27 EU markets was measured by the share of the market value of companies in total market capitalisation in the analysed market in the example of the last given year (2019). A similar approach was demonstrated by previous research, suggesting that the market penetration of ESG scoring is still low based on number of companies but is much higher when measuring it by market capitalisation, which better reflects the investment environment [19]. Moreover, large-cap companies present higher ESG-indexes than mid-cap companies [70].

As predicted, based on the research results, firms with much higher market capitalisation more often presented ESG for at least 5 subsequent years than those with low market capitalisation. The market penetration of ESG scoring in all companies listed on the EU-14 markets was at 81% and on most markets at 90% and more (see Table 2).

**Table 2.** ESG-index reporting versus market capitalisation on the EU markets.

EU Markets	At Least 5 Years of ESG-Indexes		
	Number of Companies	Share (%)	Share in Total Market Capitalisation (%)
“Old” EU member states (EU-14)			
Austria	539	72.6	91.8
Belgium	51	31.9	91.0
Denmark	30	19.2	88.0
Finland	28	17.5	94.6
France	102	15.5	91.0
Germany	3396	32.7	90.6
Greece	18	10.3	68.0
Ireland	15	32.6	93.8
Italy	133	29.2	98.5
Luxembourg	9	21.4	82.5
Netherlands	36	30.3	79.8
Portugal	11	25.0	84.8
Spain	50	21.5	92.5
Sweden	93	11.1	70.5
Total (EU-14)	4511	31.7	87.0
“New” EU member states (EU-13)			
Bulgaria	0	0.0	-
Croatia	0	0.0	-
Czech Republic	3	21.4	47.9
Estonia	0	0.0	-
Hungary	4	12.1	1.7
Latvia	0	0.0	-
Lithuania	0	0.0	-
Malta	2	5.3	0.7
Poland	30	5.5	8.0
Cyprus	2	1.7	3.6
Romania	0	0.0	-
Slovakia	0	0.0	-
Slovenia	0	0.0	-
Total (EU-13)	41	3.1	12.4

Source: Calculated by the authors.

In the case of the stock exchanges located in the new member states (EU-13), the share of the market capitalisation of companies in the total market capitalisation amounted to 12.4%. Quite high market penetration of the ESG-index was noted only on the Prague Stock Exchange (PSE), of ca. 48%. Comparing the two groups of markets, there are clear differences in the quality of ESG reports as well as in terms of the number of companies and their market capitalisation. A thorough analysis indicates that in the old EU member states (EU-14), the quality of ESG reports depends on the market penetration, which cannot be concluded for the new members. It means that only the results for the EU-14 markets confirmed our research hypothesis H1, which states that the quality of ESG reports depends on the company’s market capitalisation. This finding is consistent with previous studies [19,70].

### 5.3. The Relationship between the ESG-Index and a Company’s Market Capitalisation

To assess the relationship between the ESG-index and a company’s market capitalisation, we also concentrated on the companies that had published ESG-indexes for at least 5 years. Considering the two results evidenced in the previous point, i.e., a small number of companies presented ESG data and low market penetration of the ESG-index (especially on the EU-13 markets), we decided to limit our analysis only to the EU-14

member states. In the stock exchanges located in Luxembourg and Lisbon, we observed only 9–11 companies that had reported ESG-indexes for at least 5 years. Thus, we decided to exclude these markets from our analysis. By contrast, on the Polish capital market, there were 30 companies that had reported ESG-indexes for the same period, so they were taken for our sample. Finally, we analysed the public companies listed on 13 exchanges, i.e., in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Spain, Sweden, the Netherlands and Poland. As mentioned in point 3, to minimise the influence of outliers, we winsorised the data (equal to the 1st and 99th percentile) and excluded the firm-year observations with negative book values of equity. Finally, 50,173 firm-year observations were identified, which represent 4521 companies.

The results show that the companies were characterised by diversified dependencies between the market capitalisation and the ESG-index (see Table 3). Nevertheless, the Pearson correlation coefficient confirms a positive character of dependence. Despite the fairly low strength, it was statistically significant. Additionally, positive and significant but weak correlations are also reported between the MC and ROA or LEV. One variable deserves special attention—BV, in which the correlation coefficient amounted to 0.8 and was also statistically significant.

**Table 3.** Pearson correlation coefficients between the variables.

Variable	MC	ESG	BV	ROA	LEV
MC	1.000				
ESG	0.272 ***	1.000			
BV	0.816 ***	0.259 ***	1.000		
ROA	0.139 ***	0.001	−0.043 ***	1.000	
LEV	0.018 ***	0.081 ***	−0.010	−0.196 ***	1.000

\*\*\* Denotes significance at 1%. Source: Calculated by the authors.

To confirm our hypothesis, we carried out a regression analysis, the results of which are shown in Table 4. The model fit reports an adjusted R-squared of 0.7754, and the F-statistic is statistically significant. The results from the panel least squares regression indicate that the level of the ESG-index positively affects the market capitalisation of companies. The coefficient on ESG is only 0.003, but it is statistically significant at the 1% level. Thus, the hypothesis we posit in this paper is supported. This finding is consistent with previous studies, that ESG disclosure positively affects a company's performance measures [53,55,66]. ESG strengths increase firm value, while weaknesses decrease it [54].

**Table 4.** The impact of the ESG-index on market capitalisation (MC).

Unbalanced Panel/(OLS)		
Specification	Coefficient	p-Value
ESG	0.003	0.000
BV	0.778	0.000
ROA	0.058	0.000
LEV	0.001	0.000
COUNTRY	−0.014	0.045
Intercept	2.931	0.000
F test	543.081	0.000
Breusch–Pagan	286.457	0.000
Hausman	4.783	0.310
Adj-R <sup>2</sup>	0.776	
N	50,173	

Source: Calculated by the authors.

Our analysis shows that the corporate disclosure of non-financial information (ESG) has a positive impact on a company's market value while controlling for other financial determinants of market capitalisation. With respect to the control variables in our model,

except for COUNTRY, all coefficients are positive and statistically significant, and they are generally consistent with our expectations. The increase in book value and profitability is positively associated with the market value, which is in line with the findings of previous research [54,55,58,66]. Similarly, using the positive effect of financial leverage, which increases the return on equity, contributes to the higher market capitalisation. In previous studies, the impact of this variable has been ambiguous, i.e., in some, it was positive [53,55], and in others, negative [54,66].

#### 5.4. Supplementary and Sensitivity Analyses

Firstly, because of a limited group of 4251 companies listed on selected 13 exchanges, i.e., in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Spain, Sweden, the Netherlands and Poland, we also estimated our model using all companies that had published ESG-indexes for at least 5 years. As a result, we added two old and three new EU member states, i.e., Portugal, Luxembourg, Czech Republic, Malta and Cyprus. Finally, after winsorising the data equal to the 1st and 99th percentile and excluding the observations with the negative book values of equity, 50,706 firm-year observations were identified. This sensitivity analysis with these additional markets, especially located in Portugal, Luxembourg and the Czech Republic (due to the largest number of companies), could reveal different results. It is also interesting to justify the inclusion and exclusion of markets, which are related to our hypotheses. As expected, our model with the random effects produced qualitatively similar results (see Version 1 in Table 5). The results indicate that the level of the ESG-index also positively affects the market capitalisation of companies. The statistically significant coefficient on ESG is also 0.003. In comparison to the previous analysis, all coefficients of the control variables in our model, including COUNTRY, are positive and statistically significant. However, these results are similar to those reported in our previous analysis and show that the ESG discourse in these additional markets does not play a significant role in comparison to other EU markets.

**Table 5.** Additional regression results for the impact of the ESG-index on MC.

Specification	Unbalanced Panel/(OLS)					
	Version 1		Version 2		Version 3	
	Coefficient	<i>p</i> -Value	Coefficient	<i>p</i> -Value	Coefficient	<i>p</i> -Value
ESG	0.003	0.000	0.004	0.000	0.004	0.000
BV	0.896	0.000	0.931	0.000	0.893	0.000
ROA	0.057	0.000	0.041	0.000	0.049	0.000
LEV	0.001	0.000	0.000	0.000	0.001	0.000
COUNTRY	0.028	0.000	0.126	0.000	0.044	0.000
Intercept	2.407	0.000	0.159	0.000	2.442	0.000
F test	447.038	0.000	230.851	0.000	360.992	0.000
Breusch–Pagan	353.069	0.000	185.767	0.000	198.682	0.000
Hausman	9.120	0.068	3.848	0.587	2.732	0.741
Adj-R <sup>2</sup>	0.776		0.745		0.758	
N	50,706		21,037		29,669	

Source: Calculated by the authors.

Secondly, our analysis, which covered companies listed on the EU exchanges between 2002 and 2019, demonstrated long-term relationships between ESG disclosure and companies' market capitalisation. Perhaps, our results would be different if we divided our analysis into sub-periods. It seems justified to characterise this diversity because we noted a decreasing tendency for ESG disclosure on the EU markets over at least 3, 5 and 10 years. To check it out, we decomposed the whole data set embracing 18 years into two groups: the first 10 years (2002–2011) and the other 8 years (2012–2019). As a result, after removing outliers, two groups of firm-year observations were identified—21,037 and 29,669, respectively. In both versions, the results indicate that the level of the ESG-index positively affects

the market capitalisation of companies (see Versions 2 and 3 in Table 5). The coefficient of ESG is 0.004 and statistically significant. Control variables positively affect the company's market capitalisation. Moreover, the binary variable COUNTRY, which indicates a specific country, is positively associated with market capitalisation. The coefficient of MC is statistically significant at the 1% level.

To sum up, then, after re-testing our model by including all companies that had published ESG-indexes for at least 5 years and dividing the whole data into two groups, the results remain consistent.

## 6. Conclusions and Recommendations

Nowadays, sustainable approach of companies in doing business is becoming more and more common and expected by the stakeholders. We found that a company's ESG performance positively affects its market capitalisation. Therefore, it can be assumed that in the European Union, ESG reporting by public companies is of significant importance for investors and the actions currently taken by the EU regarding, among others, the CSRD, are expected by the market. The results of research conducted on an international scale demonstrate that corporate financial performance of ESG reporting companies is better than of others. Our research supports this conclusion—the results allow us to assume that investors expect companies to present ESG reports, and ESG reporting companies tend to be valued higher by the market.

There are some limitations that may have influenced the results of our research, which we are aware of. First of all, ESG reporting by public companies has a relatively short history. In consequence, after conducting the preliminary analysis, we had to limit the research period to 2002–2019. Examining the share of capitalisation of companies that prepare ESG reports in the total capitalisation of the EU exchanges, we found a significant dominance of large companies. It confirms the hypothesis that ESG reports are prepared mainly by large entities [29]. This may be changed with the adoption of the CSRD, however. Our research may be a starting point for further studies in the coming years, as the number of companies that report ESG is constantly growing.

For future research on the European enterprises that fulfil the criteria related to ESG disclosure, it will be interesting to include in the analysis various aspects of its measurement, i.e., the E-, S- and G-indexes. As we have indicated in the article, results of some previous research have shown that the three different components of ESG have an ambiguous impact on a company's profitability and its market value (measured by Tobin's Q).

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