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THE IMPACT OF ESG PERFORMANCE ON FIRM VALUE: A COMPARATIVE STUDY OF EU MARKETS FROM A COUNTRY AND SECTOR PERSPECTIVE

WPŁYW WYNIKÓW ESG NA WARTOŚĆ PRZEDSIĘBIORSTWA – ANALIZA PORÓWNAWCZA RYNKÓW UE Z PERSPEKTYWY KRAJU I SEKTORA

The study aims to assess the impact of the ESG (Environmental, Social, and Governance) score of the company on its market value. The research focuses on stock companies of financial markets of European Union (EU) Member States for the years 2011–2021. The ESG discourse on the EU regulated markets was examined across nine economic sectors, in line with LSEG terminology. To test the relationship between ESG performance and firm value, the modified Ohlson Valuation Model (OVM) was utilized. Tobin's Q was considered as the proxy of firm value, RoA as the proxy of the company's financial performance, and ESG scoring as the proxy of ESG information that is relevant in assessing the market value. Seven control variables for firm characteristics were also included. To account for potential institutional bias, grounded in legitimacy and institutional theories, we employed two dummy variables – COUNTRY and SECTOR. The findings confirmed our research hypothesis that there is a statistically significant relationship between ESG score and firm value. In line with stakeholder theory, the results support the notion that companies with high ESG scores achieve higher firm value than those with low ESG scores, thus shedding more light on the growing importance of ESG factors for the performance of European companies. The study offers new insights into relationship between ESG performance and firm market value, examined from both from country and sectoral perspectives.

Keywords: ESG performance; firm value; sector perspective; stock companies; European Union
JEL: G15, G32, M21, M41

Artykuł ma na celu ocenę wpływu wyników ESG (Environmental, Social, and Governance) przedsiębiorstw na ich wartość rynkową. Badania koncentrują się na spółkach akcyjnych rynków giełdowych państw członkowskich Unii Europejskiej (UE) w latach 2011–2021. Dyskurs ESG na regulowanych rynkach UE został zbadany w podziale na dziewięć sektorów zgodnie z terminologią LSEG. Aby przetestować związek między wynikami ESG a wartością rynkową spółek, wykorzy-

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stano zmodyfikowany Model Wyceny Ohlsona (OVM). Wskaźnik Q Tobina uznano za miernik wartości rynkowej przedsiębiorstwa, RoA za wskaźnik jego wyników finansowych, a scoring ESG za wskaźnik informacji ESG, które są istotne przy ocenie wartości rynkowej. Uwzględniono również siedem zmiennych kontrolnych charakteryzujących spółki oraz aby nie pominąć aspektu uwarunkowań instytucjonalnych, wynikających z teorii legitymizacji oraz teorii instytucjonalnej, zastosowano dwie zmienne zerojedynkowe – odpowiednio COUNTRY i SECTOR. Wyniki potwierdziły naszą hipotezę badawczą, że istnieje statystycznie istotny związek między wynikami ESG spółek a ich wartością rynkową. W zgodzie z teorią interesariuszy, otrzymane wyniki badań wspierają pogląd, że spółki z wysokimi wynikami ESG osiągają wyższą wartość na rynku niż te z niskimi wynikami ESG. Podkreśla to rosnącą rolę czynników ESG w kształtowaniu wyników rynkowych europejskich spółek. Przeprowadzone badanie wniosło także nowe spostrzeżenia do debaty na temat związku między wynikami ESG a wartością rynkową przedsiębiorstw z perspektywy kraju oraz sektora spółki.

Słowa kluczowe: wyniki ESG; wartość przedsiębiorstwa; perspektywa sektorowa; spółki akcyjne; Unia Europejska
JEL: G15, G32, M21, M41

I. INTRODUCTION

In mainstream finance theory, one of the leading goals of a firm is to maximize shareholders' wealth (Jensen, 2001). In this view, the purpose of a firm is not to act with regard to the needs of the environment but to generate profit. However, the worsening effects of climate change, growing social disparities, and instances of unethical corporate behaviour highlight the need to shift the paradigm in how the business operates: towards maximizing long-term value for stakeholders rather than shareholders' wealth (Schoenmaker & Schramade, 2019). To do so, it is necessary to monitor companies' activities to ensure its operations are not harmful to other stakeholders. Therefore, ESG (Environmental, Social, and Governance) information – that is, information on sustainable development, how a company affects its surroundings, and how it addresses environmental, social, and governance issues[1] – is becoming increasingly important (Skvarciany et al., 2021). Even though ESG information lacks standardization, scholars argue that it allows a company to adapt to environmental changes, adopt competitive strategies, and improve company reputation (Derevianko, 2019). Furthermore, researchers report that in recent decades, the relevance of ESG information has increased significantly due to its documented effects on firms' financial and market performance (Śliwiński & Łoboza, 2017; Yu et al., 2018). Nonetheless, given companies' operations in ESG areas, the integration of ESG into company financial analysis and market valuation remains challenging, as it requires the inclusion of qualitative data in quantitative research (Van Duuren et al., 2016). In this regard, the

[1] Directive EU 2022/2464/EU amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting (CSRD), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464&from=EN

ESG ratings are helpful as synthetic measures of company performance in environmental, social and governance areas. It is worth emphasizing that the popularity of ESG is growing alongside the development of financial markets globally. Some authors also predict that in the future a company's ESG rating will be reflected in its market value to the same extent as its financial results (Giese et al., 2021), although previous findings on this issue are not unified (Cunha et al., 2021).

The objective of our study is to assess the impact of the relationship between ESG performance and the market value of listed companies on the financial markets of EU Member States during the years 2011–2021. To test the relationship between ESG performance and firm value, we utilized the modified Ohlson Valuation Model ([OVM]; Ohlson, 1995). We used Tobin's Q as the proxy of firm value, ESG scoring as the proxy of the ESG performance of the company, and included controls for firm characteristics. Given that recent studies have identified external determinants of company operations as potential factors differentiating the relationship between ESG performance and firm value (Wong et al., 2021), we included country and sector dummies to verify this supposition.

The paper is structured as follows. The next section provides a literature overview of non-financial information in the European Union (EU), together with the recent studies on the relationship between ESG and firm performance and the stated research hypothesis. Section III describes the research sample and methods. The following section presents the results and discussion, and section V presents conclusions, limitations and recommendations for future research.

II. LITERATURE REVIEW

In recent years, the EU moved from having no policy for non-financial information reporting to adopting a set of regulations regarded as the most comprehensive globally (Andrijauskiene et al., 2021). While most of the literature tends to take regulation for granted as an independent variable, some scholars emphasize the need to pay greater attention to the company and the active role of other stakeholders in shaping the relationship between finance and ESG (Ahlström & Monciardini, 2021). The main regulation introduced by the European Commission (EC) in the year 2014 and implemented two years after was the Non-Financial Reporting Directive (NFRD). The NFRD obliged large public companies to disclose the impact of their operations on environmental, social, and governance matters by providing information on[2]:

– a description of the business model;

– risks related to company operations in ESG areas;

[2] Directive EU 2014/95/EU amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups (NFRD), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0095&from=PL

– ESG-related policies pursued by the company;
– non-financial key performance indicators relevant to the company; and
– the outcomes of pursued policies.

In 2024, the NFRD was replaced by the Corporate Sustainability Reporting Directive (CSRD). The main difference between the two lies in the reporting obligations imposed on companies, especially with respect to[3]:

– scope (while the main focus is on large, listed companies, phased implementation depending on company size is foreseen from the 2026 reporting year onward);

– depth (a mandatory double materiality approach – assessment of both the company's impact on ESG areas and the impact of ESG-related risk on company – is now required);

– standardization (whereas NRFD reporting content was mainly general and principles-based, CSRD requires detailed, standardized reporting based on the European Sustainability Reporting Standards).

EU regulation seeks to overcome the dominant financial logic of profit-maximization and to prevent companies from harming the environment and the economy as a whole. Although this effort by the EU should be seen as largely successful, given the increasing number of companies disclosing ESG information each year (Gawęda, 2021), the regulation still requires improvement. One of the main deficiencies of the CSRD is its complexity and the significant implementation burden it places on companies, particularly smaller firms and those new to sustainability reporting. The directive requires detailed and technically demanding disclosures under the European Sustainability Reporting Standards (ESRS), the application of the double materiality principle, integration with business strategy, and digital tagging in machine-readable formats. These obligations demand substantial resources, new data collection systems, and specialized expertise, which many companies (especially SMEs) may lack. The short timelines, high compliance costs, and evolving guidance further exacerbate the challenge, creating uncertainty and operational strain. This complexity risks undermining the effectiveness of the regulation by making compliance overly burdensome, especially for companies without mature ESG reporting infrastructures.

Despite the abovementioned issues, researchers conclude that ESG ratings are still of key importance from a financial and investment perspective, as they make it possible to recognize the potential opportunities and risks associated with firm activities. Furthermore, the question of how ESG factors affect a firm financial performance and, ultimately, its value has been the subject of contentious debate since the beginning of the 1970s (Friede et al., 2015). Prior research has shown that the market responds to ESG in four different ways:

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[3] Directive EU 2022/2464/EU amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting (CSRD), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464&from=EN

– The market does not value ESG. Since ESG disclosure provides information on the impact of a firm's operations on the environment, society, employees, and other stakeholders – and given the uncertainty of market reaction – ESG should be associated with higher risk exposure.

– The market does not value ESG efficiently. As potential costs and benefits are not easy to predict, investors find it complicated to incorporate ESG into their assessments.

– The market values ESG. Unlike the first scenario, the market perceives ESG disclosure as a positive event and rewards the firm for its fairness and willingness to act ethically and in accordance with non-financial information demands of stakeholders.

– The market does not consider ESG at all. The absence of ESG inclusion in market valuation results from stakeholders' lack of knowledge about how to interpret ESG information, which therefore tends to be disregarded.

Although previous findings have supported all four scenarios, empirical evidence on the value relevance of ESG performance is not fully conclusive (Khan, 2022). Rooted in neoclassical theory, early research assumed that the relationship between ESG and financial performance was uniformly negative. Friedman best summarized this view by arguing that the only social responsibility of a firm is to maximize the profits of its owners, which is in line with shareholder theory (Friedman, 1970). The underlying assumption is that the payoffs of ESG activities do not exceed their costs. Numerous authors (Lyon et al., 2013; Matuszewska-Pierzynka, 2021) have found that firms disclosing ESG information experience negative abnormal returns and lower firm value. Additional evidence is provided by Gawęda (2025), who reported that the effect of each corporate environmental, social, and governance performance (ESGP) measure on firm value is negative. Moreover, Duque-Grisales and Aguilera-Caracuel (2021) interpret this adverse relationship through the lens of agency theory, suggesting that ESG initiatives may not align with the primary interests of shareholders. Similarly, Yu and Xiao (2022) contend that ESG can intensify agency conflicts between managers and shareholders, as such initiatives often involve expenditures that are perceived as inefficient, leading to resource misallocation, cash outflows, diminished profitability, and ultimately, a decline in firm value. This dynamic signals to prospective investors the importance of adopting a comprehensive view of the alignment between managerial intentions and shareholder expectations when evaluating firms engaged in ESG. Improperly managed ESG efforts risk generating financial underperformance. Furthermore, without adequate regulatory safeguards to protect broader societal interests, a persistently negative association between ESG and firm value may produce undesirable outcomes, including negative externalities arising from shareholder-driven pressure on firms to maximize value at any cost.

The literature also finds evidence of a positive effect of ESG on the financial performance and market value of a firm (e.g. Filimonova et al., 2020). Some studies show that companies achieve higher financial results overall both when the level of ESG performance is unusually high or unusually low.

These findings are supported by research, which, in addition, reports that in the long term the relationship between ESG and financial performance is stronger (Dorfleitner et al., 2018). Other researchers document that ESG contributes to higher profitability (Chairani & Siregar, 2021), reduced cost of capital (Limkriangkrai et al., 2017), and higher stock prices and market value (Buallay, 2019). Furthermore, researchers point out that the key to financial and market performance improvement is ESG disclosure rather than ESG performance in and of itself (Plumlee et al., 2015). A positive relationship between ESG and firm value results from emerging global issues. Companies disclosing ESG are perceived as stable and trustworthy entities with a strong position on the market, which are more likely to survive through times of recession. This phenomenon is explained by Fatemi et al. (2018), who draw on stakeholder theory and argue that companies hold responsibilities toward a wide array of stakeholders (e.g. employees, management, business partners, and society at large) whose support is essential for the company's long-term survival and value creation beyond the interests of shareholders alone (Narula et al., 2023). Within this framework, firms are seen as embedded in and dependent upon their operating environments, from which they extract resources and derive economic benefits, while also being influenced by these environments. Consequently, actions aligned with stakeholder theory, such as those encompassed by ESG, are deemed rational and strategically sound. From this perspective, rational ESG-aligned behaviour is positively perceived by investors and subsequently rewarded through enhanced firm valuation.

Even though the abovementioned studies present either the positive or negative effect of ESG firm performance, some studies find mixed results (Orlitzky et al., 2003) or document no relationship at all (Humphrey et al., 2012a). Xie et al. (2019) found mixed results between ESG activities and market value, however, they concluded that the positive relationship between ESG activities and company results is in doubt. On the one hand, Han et al. (2016) used individual E, S, and G scores and reported a negative relationship between the environmental score and financial performance, with no correlation for the social score and a positive relationship for governance. On the other hand, Humphrey et al. (2012b) demonstrated the independent effect of each individual E, S and G score on firm value, as they did not find significant costs or benefits when investing in ESG.

The lack of consensus in the literature regarding the relationship between ESG and firm value can be attributed to the varying research methodologies used by authors. Some scholars have assessed ESG by equating performance with the mere presence or absence of ESG disclosure (Yu et al., 2018) while others use ESG scores or ESG ratings from different rating agencies, which apply different approaches to calculate these indices. Moreover, authors use different measures to proxy for firm value (see Table 1).

Methodological inconsistencies often lead to inconclusive or conflicting findings, partly due to the neglect of institutional bias. Studies that limit their scope to firms within a single industry or national context (e.g. Yang &

Baasandorj, 2017) frequently overlook critical internal and external factors that influence the ESG–firm value nexus. Such determinants as organizational characteristics and broader institutional environments are essential for a comprehensive understanding of this relationship (Cho et al., 2023; Kong et al., 2023).

Table 1

A review of selected authors' studies on the impact of ESG on a firm's value

ESG impact on firm value	Firm value proxy	Authors (year)
Positive	Tobin's Q	Naffa & Fain (2022)
		Wong et al. (2021)
	Simplified Tobin's Q	Giannopoulos et al. (2021)
	Share Price	Khan (2019)
	Market-to-Book Value	Buallay (2019)
Negative	Tobin's Q	Gawęda (2025)
		Nollet et al. (2016)
	Share Price	Limkriangkrai et al. (2017)
	Buy-and-Hold Abnormal Return	Fisher-Vanden & Thorburn (2011)
	Discounted Cash Flow	Garcia & Orsato (2020)
Mixed	Tobin's Q	Yoo & Managi (2022)
	Buy-and-Hold Abnormal Return	Shanaev & Ghimire (2022)
	Market-to-Book Value	Han et al. (2016)
Neutral	Tobin's Q	Velte (2017)
	Market-to-Book Value	Humphrey et al. (2012b)

Source: the authors' study.

Due to the lack of any conclusion on the nature of the ESG effect on firm value, our hypothesis is presented without a specified direction for the relationship. Therefore, it states that there is a statistically significant relationship between the ESG score and the market value of listed companies on the financial markets of European Union Member States. A similar approach was employed by Giannopoulos et al. (2022), who assessed the relationship between ESG disclosure and the market value of Norwegian listed companies. The authors reported mixed results in terms of the direction of the relationship but confirmed the statistical significance of the ESG factor for firm value.

III. RESEARCH METHODS

To identify the impact of ESG factors on firm market value, we used the institutional setting of the EU and its ESG reporting regulations, since financial disclosure is strongly harmonized in the EU (Janicka et al., 2020). Our research sample was composed of companies listed on 28 European regulated markets. We included the London Stock Exchange, given that the UK left the EU only in 2020 and still has numerous similarities in terms of stock exchange regulations, as well as financial and non-financial reporting standards, including in the field of ESG.

Following other authors, the source of both financial and ESG data of the companies was the LSEG database[4] (Mervelskemper & Streit, 2017; Wong et al., 2021). The period of analysis spanned 11 years, from 2011 to 2021. We used this span for two reasons. Firstly, we observed the increase in the number of companies reporting ESG data in the years studied. We initially assumed a twenty-year research period (2002–2021), but in the 2002–2010 period, only 78 of the more than 7,300 companies reported ESG scores. Secondly, the limitation of the research period to 2021 was due to the availability of ESG data in the LSEG database.

For the proper methodological approach and appropriate selection of variables, we examined the ESG discourse on EU regulated markets, broken down into thirteen economic sectors according to the terminology of LSEG, namely Academic and Educational Services, Basic Materials, Consumer Cyclicals, Consumer Non-Cyclicals, Energy, Financials, Government Activity, Healthcare, Industrials, Institutions and Associations and Organizations, Real Estate, Technology, and Utilities (LSEG, 2024). However, the Academic and Educational Services, Government Activity, and Institutions and Associations and Organizations sectors did not include stock companies during the research period, while Financials contained firms of significantly different specifications than most of the sample; therefore, these sectors were excluded from the research. Finally, nine economic sectors were identified, whose detailed characteristics, in line with the LSEG methodology, are presented in Table 2.

Our evaluation relates to the number of years in which the companies presented ESG reports in relation to their financial performance. We focused on checking how many companies disclose ESG data in any given year, and for at least three, five, or seven years.

[4] Previously Refinitiv. On 1 December 2023, Refinitiv's name was changed to LSEG (a name associated with the London Stock Exchange Group).

Table 2

Sector classification by LSEG

Economic sector	Business sector	Industry
Basic Materials	Chemicals	Chemicals
	Mineral Resources	Metals & Mining
		Construction Materials
	Applied Resources	Paper & Forest Products
		Containers & Packaging
Consumer Cyclicals	Automobiles & Auto Parts	Automobiles & Auto Parts
	Cyclical Consumer Products	Textiles & Apparel
		Homebuilding & Construction Supplies
		Household Goods
		Leisure Products
	Cyclical Consumer Services	Hotels & Entertainment Services
		Media & Publishing
	Retailers	Diversified Retail
		Other Specialty Retailers
Consumer Non-Cyclicals	Food & Beverages	Beverages
		Food & Tobacco
	Personal & Household Products & Services	Personal & Household Products & Services
	Food & Drug Retailing	Food & Drug Retailing
Energy	Energy – Fossil Fuels	Coal
		Oil & Gas
		Oil & Gas Related Equipment and Services
	Renewable Energy	Renewable Energy
	Uranium	Uranium
Healthcare	Healthcare Services	Healthcare Equipment & Supplies
		Healthcare Providers & Services
	Pharmaceuticals & Medical Research	Pharmaceuticals
		Biotechnology & Medical Research
Industrials	Industrial Goods	Aerospace & Defense
		Machinery, Equipment & Components
	Industrial & Commercial Services	Construction & Engineering
		Diversified Trading & Distributing
		Professional & Commercial Services
	Industrial Conglomerates	Industrial Conglomerates
	Transportation	Freight & Logistics Services
		Passenger Transportation Services
		Transport Infrastructure

Table 2 (*continued*)

Economic sector	Business sector	Industry
Real Estate	Real Estate	Real Estate Operations
		Residential & Commercial REIT
Technology	Technology Equipment	Semiconductors & Semiconductor Equipment
		Communications & Networking
		Office Equipment
		Electronic Equipment & Parts
		Computers, Phones & Household Electronics
	Software & IT Services	Software & IT Services
Utilities	Utilities	Electrical Utilities & IPPs
		Natural Gas Utilities
		Water Utilities
		Multiline Utilities

Source: the authors' study based on data from LSEG.

A thorough analysis of the ESG disclosures indicates that on the European markets, one cannot yet see a proper practice in this area. The largest number of companies that disclosed ESG data was recorded in the Industrials and Consumer Cyclicals sectors (see Table 3).

Based on the research results, to correctly reflect the relationships between ESG score and firm market value, our study includes companies that reported ESG data for at least three years within the 2011–2021 period (942 companies).

The impact of the ESG score on firm market value was estimated using the OVM (Ohlson, 1995), which serves a starting point for accounting-based theoretical modelling of the firm value. This framework is based on a company's financial performance and other types of non-financial information that are relevant in assessing the market value, for example ESG factors (Torre et al., 2020). The original OVM was tested using market capitalisation. Alternatively, following Choi & Wang (2009), we used simplified Tobin's Q ratio (TQ). Our approach is consistent with others, who argue that TQ is a more suitable metric for assessing a firm's market value (Yoo & Managi, 2022).

However, Ohlson did not specify which non-financial factors could be used. Thus, using TQ, our model is based on the hypothesis that firm market value is reflected in the book value of total assets[5] (precisely RoA) and ESG information. Since firm market value is influenced by a lot of factors – such as firm size (SIZE), firm profitability (RoE), financial leverage (GDR), financial liquidity (CR), assets growth (AG), assets tangibility (AT), and dividend policy (DIV; Yu et al., 2018) – we controlled for these variables.

[5] Because the TQ ratio is defined as the market value of assets divided by their book value, we could not use the book value of equity, which was presented in preliminarily Ohlson's model.

Table 3

Financial reporting and ESG disclosure by the companies on the EU markets: a sectoral approach

Sector name	Financial reports	ESG data in at least						ESG data in every year	
		3 years		5 years		7 years			
	Number of companies		Share [%]	No. of comp.	Share [%]	No. of comp.	Share [%]	No. of comp.	Share [%]
Basic Materials	354	104	29.4	81	22.9	76	21.5	24	6.8
Consumer Cyclicals	710	178	25.1	126	17.7	121	17.0	31	4.4
Consumer Non-Cyclicals	300	79	26.3	56	18.7	54	18.0	24	8.0
Energy	176	54	30.7	48	27.3	46	26.1	7	4.0
Healthcare	280	87	31.1	49	17.5	44	15.7	15	5.4
Industrials	744	222	29.8	154	20.7	143	19.2	49	6.6
Real Estate	307	63	20.5	41	13.4	36	11.7	9	2.9
Technology	541	109	20.1	71	13.1	67	12.4	21	3.9
Utilities	96	46	47.9	34	35.4	34	35.4	9	9.4
Total	3,508	942	26.9	660	18.8	621	17.7	189	5.4

Source: the authors' study based on data from LSEG.

Our analysis of public companies from different sectors also requires a variable to eliminate the problem of inter-sectoral transparency and distortions in the comparability of ESG scores. Previous studies also included a variable related to the sector or industry (Garcia & Orsato, 2020; Limkriangkrai et al., 2017; Naimy et al., 2021; Xie et al., 2019). Following some authors (Gawęda, 2022; Khan, 2022), we additionally employed the dummy variable SECTOR, which indicates a company's specific sector and takes a value of 1 for Industrials and Consumer Cyclicals and a value of 0 for other sectors. This approach is consistent with our previous empirical findings (see Table 3). In these two sectors, we observed the largest number of companies that reported ESG data in any given year, and for at least three, five or seven years.

We base our reasoning on institutional theory (DiMaggio & Powell, 1983), which analyses company forms and explains the reasons behind the homogeneous performance of firms operating within the same environment (Khan, 2019). Therefore, we assume that the relationships between ESG scores and the market value of listed companies differ between these two sectors and the others. The sustainability level may be the result of specific sustainable finance policies provided by public companies in specific sectors of the economy. If the concept of sustainable finance is a core element of

their business strategy, then incorporating sustainability strategies within a given sector into the resource allocation process – to support the creation of new sustainable business lines, support the development of existing ones, and move away from unsustainable activities – should affect the market value of companies.

We initially analysed companies from 28 different European countries, but finally we focused on countries where any listed companies disclosed ESG data for at least three years. Therefore, our study covered 924 companies representing 21 countries (see Table 4).

Table 4

ESG disclosure in the countries analysed in 2011–2021 and their ranking by real GDP EUROPE in 2020

Country	ESG disclosure by the companies for at least three years of the 2011–2021 period	Real GDP EUROPE in 2020
	Number of companies	Position in the ranking
Austria	27	13
Belgium	37	11
Cyprus	2	34
Czech Republic	2	15
Denmark	29	18
Finland	30	21
France	114	3
Germany	124	1
Greece	17	20
Hungary	4	19
Ireland	32	12
Italy	51	4
Luxembourg	10	29
Malta	2	37
Netherlands	41	6
Poland	26	8
Portugal	12	17
Slovenia	1	28
Spain	44	5
Sweden	84	9
United Kingdom	253	2
Total	942	–

Source: the authors' study based on data from LSEG.

To minimize distortion, we used the binary variable – COUNTRY, which takes a value of 1 for the largest economies in the EU by real gross domestic product (Germany, the United Kingdom, and France) and a value of 0 for other countries (see Table 5). Interestingly, in these three countries, we also noted the largest number of companies reported ESG data for at least three years. The results are consistent with previous studies on the number of companies that disclosed ESG scores in the most developed EU countries (Janicka & Sajnóg, 2022, 2023). According to the legitimacy approach (Dowling & Pfeffer, 1975), the legitimization may therefore vary, and companies may change their responsible behaviour when in an environment that monitors their behaviour and, when necessary, mobilizes them to change it (Campbell, 2007). In this scenario, the above-average approach to reporting ESG data indicates how public companies in these three largest countries prioritize their sustainability issues, unlike other countries (Xiao et al., 2018). Since implementing ESG principles is an organizational and financial burden for companies, the changes they introduce are usually a consequence of institutional solutions adopted at the national level (Van Hoang et al., 2023). ESG policy conducted at the national level should therefore be associated with corporate ESG scores, which justifies the use of the COUNTRY variable. Table 5 defines all the variables we used in this paper.

It is worth adding that, in our analysis (not reported), a strong correlation between RoA and RoE was determined. The correlation coefficient was 0.852. It is important to note that it was statistically significant at the 1% level of significance. As a result, we decided to remove RoE from our model, and its final version had the following specification:

$$\begin{aligned} TQ_{i,t} = {} & \beta_0 + \beta_1 ESG_{i,t} + \beta_2 RoA_{i,t} \\ & + \beta_3 SIZE_{i,t} + \beta_4 GDR_{i,t} + \beta_5 CR_{i,t} \\ & + \beta_6 AT_{i,t} + \beta_7 AG_{i,t} + \beta_8 DIV_{i,t} + \beta_9 SECTOR_{i,t} + \beta_{10} COUNTRY_{i,t} + \varepsilon_{i,t} \end{aligned}$$

Table 5

Description of variables considered in the study

Variables	Description
TQ	Tobin's Q, computed as the market value of assets/book value of assets
ESG	ESG score, measured by LSEG
RoA	Return on Assets, calculated as net income/average value of total assets
SIZE	Natural logarithm of total assets
RoE	Return on Equity, calculated as net income/average value of equity
GDR	General Debt Ratio, computed as the book value of total debt/book value of total assets
CR	Current Ratio, calculated by dividing current assets by short-time liabilities
AT	Assets Tangibility, computed as the book value of fixed assets/book value of total assets

Table 6 (*continued*)

Variables	Description
AG	Assets Growth – a percentage change in assets over a given period
DIV	Dividend yield, calculated by dividing the annual dividend per share by the current market share price
SECTOR	Dummy, 1 if companies belong to the Industrials and Consumer Cyclicals sectors
COUNTRY	Dummy, 1 if companies are listed on stock exchanges located in the Germany, United Kingdom, and France

Source: the authors' study.

All ratios of companies were measured at the end of the fiscal year. Financial data included in the analysis were consolidated. To mitigate the potential effects of outliers, we winsorized the data at the 5th and 95th percentile levels. Our final sample consisted of 5,828 firm-year observations.

The effect of the ESG scores on firm market value was estimated using an unbalanced panel. In our panel data, we assumed random effects. The decision was made based on the *F* test statistics, the Breusch-Pagan test and the Hausman test (see Hsiao, 2003, p. 174) results. As shown in Table 7, the *p*-values of the *F* test and the Breusch-Pagan test were below 0.05, while the *p*-values of the Hausman test were higher than 0.05. The findings indicate a preference for random effects specification instead of the fixed effects model.

IV. RESULTS AND DISCUSSION

Table 6 provides the descriptive statistics of Tobin's Q ratio, ESG scores, and control variables used in the analysis. Although the TQ, on average, amounts to only 1.135, it does not mean that the analysed companies are relatively stable in market valuation. The level of this variable differs widely, ranging from 0.174 to 4.006, with a standard deviation of 0.965. The average of ESG scores is approximately 59 (on a scale from 0 to 100). Based on the letter grade presented by LSEG, it is a 'B' rating (on a scale from 'D–' to 'A+') that indicates good relative ESG performance and an above-average degree of transparency in reporting material ESG data publicly (LSEG, 2024).

The profitability ratio RoA, on average, is 0.054, with a maximum value of 0.172 and a minimum value of −0,069. Regarding control variables, the average firm size is about EUR10.7 billion, and it varies from EUR166.6 million to nearly EUR49 billion. Referring to the leverage effect and financial liquidity, the analysed companies use similar policies in these areas. Undoubtedly, all companies use debt for financing their assets, as the debt ratio (GDR) ranges from 0.252 to 0.896 with a median of 0.589. The average current ratio is 1.464, while the median is at a slightly lower level, which is 1.303. These results suggest financial well-being for the companies, even though the lowest CR (0.495)

may indicate a problem with liquidity, and the highest (3.713) may suggest that the company may not be using its current assets or its short-term financing facilities efficiently. The range of AT and AG values is much narrower (from 0.233 to 0.936 and from 0.858 to 1.439; the standard deviation of 0.190 and 0.128, respectively, but what may differentiate TQ most is the dividend yields of companies, whose values ranged from 0.672 to 7.725 (standard deviation of 1.896).

Table 6

Selected statistics of variables

Variables	Mean	Median	Minimum	Maximum	Std. Dev.
TQ	1.135	0.803	0.174	4.006	0.965
ESG	57.489	58.848	21.777	84.943	17.917
RoA	0.054	0.048	−0.069	0.172	0.052
SIZE*	10,738.360	4,197.700	166.603	48,850.000	14,335.940
GDR	0.586	0.589	0.252	0.896	0.164
CR	1.464	1.303	0.495	3.713	0.744
AT	0.627	0.641	0.233	0.936	0.190
AG	1.063	1.043	0.858	1.439	0.128
DIV	3.195	2.751	0.672	7.725	1.896

Note: * There is given in nominal units, that is, value of assets in million EUR (not as a logarithm).

Source: the authors' study.

To confirm our hypothesis, a regression analysis was carried out, and the results are shown in Table 7. The model fit reports an adjusted *R*-squared of 0.571.

The results from the Panel Least Squares regression indicate that there is a positive relationship between firm market value and ESG performance, which is in line with our predictions. This finding is consistent with previous studies that have documented the positive effect of ESG performance on the value of the firm (Naffa & Fain, 2022; Shanaev & Ghimire, 2022). The coefficient on ESG is statistically significant at the 1% level, and therefore the research results do not falsify the adopted research hypothesis. The results can be further understood through the lens of stakeholder theory, which posits that firms are embedded in a network of relationships with various stakeholders, including investors, customers, employees, regulators, and the broader community. ESG-related activities encompassing environmental responsibility, social initiatives, and governance practices contribute to building trust among these stakeholders, thereby enhancing the firm's social legitimacy. By demonstrating a commitment to sustainable and ethical practices, firms send a credible signal to the market regarding their long-

term orientation and risk management capabilities. Furthermore, such signalling reduces information asymmetry and can mitigate agency conflicts, as stakeholders may perceive ESG engagement as indicative of managerial accountability and strategic foresight. Finally, firms that actively consider ESG are more likely to attract long-term investors, improve employee morale and retention, and foster customer loyalty, all of which can translate into sustained financial performance and, consequently, higher market valuation. Thus, the positive association between ESG and firm value observed in our analysis reflects broader reputational and relational benefits that they help generate – the market rewards companies for good ESG performance.

Table 7

The impact of the ESG scores on firm market value (TQ)

Unbalanced Panel (random effects)		
Specification	Coefficient	*p*-value
ESG	0.007	0.000
RoA	10.659	0.000
SIZE	−0.178	0.000
GDR	−0.234	0.000
CR	0.022	0.134
AT	−0.270	0.000
AG	−0.395	0.000
DIV	−0.114	0.000
SECTOR	−0.085	0.000
COUNTRY	0.035	0.039
Intercept	5.219	0.000
F test	777.933	0.000
Breusch-Pagan	1,423.777	0.000
Hausman	3.182	0.534
Adj-R^2	0.571	
N	5,828	

Source: the authors' study.

The increase of RoA is positively associated with firm market value. The results are similar to those of other researchers (Fatemi et al., 2018; Wong et al., 2021), who reported the positive impact of RoA on TQ. These findings are in line with the notion present in the literature that profitability is associated with higher market valuation. Companies offering higher returns are perceived by the market as stable and flourishing and, thus, are rewarded with a higher valuation.

With respect to control variables, except for CR, all coefficients are statistically significant and generally consistent with our expectations. The effect of financial liquidity on Tobin's Q is positive, while the use of debt is negatively associated with the market value of companies. Our findings are partially consistent with previous studies. One author found that the coefficient on GDR was consistently negative in Tobin's Q equations (Velte, 2017). Nonetheless, others documented higher leverage should be associated with the higher value of the firm (Arora et al., 2021). Perhaps this is connected with the different perceptions of investors regarding the profit/risk profile. On the one hand, companies with higher leverage manage their capital in an efficient way and offer greater possibilities of growth, while on the other hand, these bear a higher risk of default.

Firm size has a significant negative coefficient in our model, suggesting that larger firms have lower market valuations. This is consistent with studies which use firm size as a control variable in Tobin's Q equations (e.g. Giannopoulos et al., 2022); however, it contradicts other findings where the size of the firm was proxied using total assets (Atan et al., 2018) or the book value of equity (Tomczak, 2017). A potential explanation for this is that even though large companies offer relative stability, small and medium-sized companies offer the potential for a higher rate of returns for investors in the future.

Asset tangibility (AT) and asset growth (AG) are both connected with lower market valuations. These findings contradict the conclusions from analyses of Wong et al. (2021) conducted for the Malaysian market. Firms which report higher dividend yields have lower Tobin's Q ratios. These findings concur with previous studies (Benito & Young, 2003). Firms paying dividends are less likely to be capital constrained, which results in lower TQ.

The negative impact of the SECTOR variable on market valuation is not consistent with the results reported by previous empirical studies (Fatemi et al., 2018). Therefore, it may be assumed that in the Industrials and Consumer Cyclicals sectors, the relationship between firm market value and non-financial performance is usually weaker than in other sectors. From the perspective of institutional theory, sectoral variation in ESG impact stems from differing regulatory and normative pressures across sectors. In sectors like Industrials and Consumer Cyclicals, ESG expectations are often weaker than in others, reducing the incentive to invest in sustainability initiatives. As a result, ESG efforts may be perceived as less material or authentic by investors, diminishing their impact on market valuation. The consequence of these dynamics is twofold. First, the market may discount ESG signals in these sectors due to perceptions of limited ESG materiality or implementation authenticity. Second, firms in these sectors may not fully capture the reputational, relational, and operational benefits associated with ESG engagement. This implies that sector-specific context shapes the relevance of ESG and should be accounted for when interpreting ESG and firm value linkages. Regarding the COUNTRY variable, its effect on firm value is positive and in line with capital-market development as well as its effectiveness regarding differences in the level of development of a given country. From the perspective of legitimacy theory, firms

operating in more developed countries (such as Germany, the United Kingdom, and France) are subject to stronger societal expectations, more rigorous regulatory environments, and greater stakeholder scrutiny. In these contexts, ESG becomes an essential mechanism for firms to maintain social legitimacy. As a result, they are more likely to adopt ESG practices not only to comply with formal requirements but also to meet informal expectations of legitimacy in the eyes of investors, regulators, and the public. This heightened legitimacy, in turn, enhances their reputation and reduces perceived non-financial risks, positively influencing their market valuation. The potential consequence is that companies in less developed EU countries may struggle to attract the same level of investor confidence due to weaker institutional frameworks and lower ESG engagement, thereby facing a valuation discount. Moreover, this disparity can reinforce existing divides within the EU capital market, creating structural advantages for firms in more institutionally mature countries and incentivizing others to strengthen their ESG practices to remain competitive.

V. CONCLUSIONS

The results confirmed our research hypothesis that there is a statistically significant relationship between ESG score and firm value, thus shedding more light on the increasing role of ESG factors in European companies' performance. The undertaken study added new insights to the debate on the relationship between ESG performance and the market value of the firm, as we employed country and sector variables. Our results also support the notion that companies that do not follow good practices in ESG-related areas and do not make additional efforts to improve their impact on the environment tend to be penalized by the market through lower valuations. Moreover, the relationship between ESG and the market performance of the firm is influenced by the level of country development and sector affiliation. Given the above, our findings support the presumption of previous authors (Wong et al., 2021) that the relationship between ESG and firm value is dependent on external determinants of company operations.

The findings carry several implications. Firstly, in line with stakeholder theory, ESG represents not only an ethical imperative but also a strategic tool that ultimately enhances firm value, as it sends positive signals to investors regarding a company's perspective on long-term value creation and engagement. Secondly, consistent with institutional theory, the sectoral context plays a significant role in shaping ESG relevance, as industries differ in normative pressures and the structural capacity to integrate ESG into core strategy. Firms in less ESG-salient sectors, may face valuation disadvantages due to limited stakeholder expectations or the perceived authenticity of ESG efforts. Thirdly, from the perspective of legitimacy theory, firms in more developed countries may benefit from stronger ESG ecosystems that amplify the ESG effect on market valuation. These insights underscore the strate-

gic importance of tailoring ESG initiatives to specific institutional contexts. Companies operating in less developed countries or ESG-ambiguous sectors may need to invest more in signalling credibility and aligning with stakeholders' expectations regarding ESG to close the valuation gap. For investors and regulators, this suggests that standardized ESG assessments may overlook key contextual differences, and that more unified frameworks than the ones in place until now could play vital role in enhancing ESG importance in the economy.

The main limitation of the study is that the research sample size was constrained by data availability for both ESG and financial variables. Although our research included 942 companies, these represent only 26.9% of all firms that reported continuously on financial information in the 2011–2021 period. There are two possible explanations for this. First, there were no additional companies in the relevant period that met the adopted research criteria, making it impossible to expand the study. The second potential reason is more plausible. All data were sourced from the LSEG database, which is updated daily but only for the past six years; therefore, it is possible that not all companies which reported on ESG for the years 2011–2016 were assigned ESG ratings. Another limitation of our study, also noted by other authors (e.g. Dalal & Thaker, 2019), concerns omitted variables. Our study could suffer from omitted-variable bias, as there may exist other relevant variables that influence the dependent variable or correlate with those already included in the model.

As an area for future research, we highlight the need to assess the impact of both ESG disclosure and ESG scores – at both the combined and individual levels – on firm financial performance and firm value, especially in less developed European countries, where the literature identifies a research gap. We also suggest extending the ESG score to the ESGC score,[6] which takes into account information on recent controversies (C) in which a specific company was involved. In addition, we propose examining the effect of a country's ESG performance on the relationship between ESG and the financial and market performance of companies, as stronger effects are expected for firms located in countries with high ESG scores. Finally, we recommend comparing ESG results across different rating agencies and data providers to verify potential sources of the inconclusive results on the relationship between ESG and company performance.

Author contributions / Indywidualny wkład autora (CRediT): **Artur Sajnóg** – 50% (Conceptualization / Konceptualizacja; Data curation / Zarządzanie danymi: Investigation / Przeprowadzenie badań; Methodology / Metodologia; Resources / Zasoby; Software / Oprogramowanie; Supervision / Nadzór; Writing – original draft / Pisanie – pierwszy szkic; Writing – review & editing / Pisanie – recenzja i edycja). **Adrian Gawęda** – 50% (Conceptualization / Konceptualizacja; Formal analysis / Formalna analiza; Validation / Walidacja; Writing – original draft / Pisanie – pierwszy szkic; Writing – review & editing / Pisanie – recenzja i edycja).

[6] ESGC score – overlays the ESG score with ESG controversies to provide a comprehensive evaluation of the company's sustainability impact and conduct over time (LSEG, 2024).

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