Uncovering the Relationship between ESG Practices and Firm Value: The Role of Reputation and Industry Sensitivity☆

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Abstract

Considering the rising interest in environmental, social, and governance (ESG) globally, various studies have shown that ESG practice increases firm value; however, there is still much debate. This study focuses on the relationship between ESG practice and firm value. Further, we identify the mechanisms constituting this relationship to address relevant research gaps. Specifically, this study examines the connection between ESG practice and corporate valuation, emphasizing the mediating role of a company's reputation. Using panel analysis of data from 145 Korean firms (2014-2021), the study reveals that ESG practices notably enhance firm value, signaling their significance to stakeholders. Corporate reputation acts as a bridge between ESG efforts and value, with corporate reputation's influence varying across industries. This research presents broad implications for both academic and industrial fields, highlighting the strategic importance of ESG in enhancing firm value.

Keywords: Environmental, social, and governance practices, Firm value, Firm reputation, Industry sensitivity, Panel analysis, Sustainable business

1. Introduction

During COVID-19, the world experienced severe economic and psychological damage, as well as significant lifestyle changes. Numerous studies suggest that ecosystem disturbances caused by climate change have increased the emergence of viruses, which could contribute to the spread of COVID-19 (Marazziti et al. 2021). According to projections, the global gross domestic product (GDP) could potentially decline by up to 18% by 2050 if there is continued escalation of global temperatures (Dellink, Lanzi, and Chateau 2019). Climate fluctuations resulting from environmental pollution have led to unpredictable disasters in various regions, making climate change a global problem. This has prompted companies worldwide to advocate for environmental protection and sustainable management practices (Khojastehpour and Johns 2014; Kolk 2016; Lee, Raschke, and Krishen 2022). Strengthening global responses to climate change requires coordinated social action and stakeholder collaboration. The United Nations (UN) has urged all stakeholders, encompassing the corporate sector, to address environmental, social, and governance (ESG) challenges, including environmental shifts and economic disparities, via sustainable objectives. Blackrock, the leading global investment entity, is transitioning its approach to exclusively support enterprises that report ESG ratings, emphasizing ecological progression and recognizing the dangers associated with funding businesses detrimental to the climate (Busco et al. 2020).

In recent years, companies have dedicated significant capital to sustainable management because of growing consumer concerns about governance issues, social risks, and environmental problems

☆ This work was partly supported by Institute of Information & communications Technology Planning & Evaluation (IITP) grant funded by the Korea government (MSIT) (No. 2020-0-01373, Artificial Intelligence Graduate School Program (Hanyang University)) and the research fund of Hanyang University (HY-2023).

Received 6 September 2023; accepted 24 November 2023.
Available online 15 January 2024

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https://doi.org/10.53728/2765-6500.1620
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(Zhang, Qin, and Liu 2020). Even with the availability of voluntary and regulated ESG reporting, there is an ongoing demand from investors and financial analysts for additional information to effectively evaluate a company's ESG performance (Halbritter and Dorfleitner 2015). ESG scores serve as an index for evaluating a company's sustainability for consumers who appreciate responsible management activities and use this information for investment purposes.

Consumers' recognition and acknowledgment of a company's ESG initiatives play a vital role in enhancing the firm's image. This is especially true when they perceive potential risks and observe the company's efforts to address them. Such recognition has been demonstrated to increase its corporate value (Aouadi and Marsat 2018; Seok, Lee, and Kim 2020). Several investigations have explored the impact of ESG initiatives on a company's worth, producing diverse conclusions and viewpoints.

Studies have identified a correlation between ESG activities and firm value, particularly within the financial and service sectors (Arvidsson and Dumay 2022; Brooks and Oikonomou 2018). Such research demonstrates that disclosing ESG scores can positively affect firm value (Fatemi, Glaum, and Kaiser 2018; Wong et al. 2021). Additionally, the impact of ESG on firm value can differ depending on factors such as company size, age (Abdi, Li, and Càmara-Turull 2022), and CEO power (Li et al. 2018). These findings suggest that the relationship between ESG and company valuation is multifaceted, encompassing variations in ESG features as well as organizational configurations. Conversely, some studies have adopted an alternative viewpoint, arguing that investments in ESG practices may be perceived as unnecessary and could negatively impact return on investment (Barnea and Rubin 2010; Dorfleitner, Halbritter, and Nguyen 2015; Dorfleitner, Kreuzer, and Sparrer 2020). Additionally, other studies posit that firm valuations can vary depending on the level of awareness and disclosure of ESG assessments (McWilliams and Siegel 2000; Mervelskemper and Streit 2017; Pedersen, Fitzgibbons, and Pomorski 2021).

While ESG factors have emerged as crucial determinants of firm value, their relationship with firm value remains unclear. This underscores the necessity for deeper investigation to grasp the intricate interplay between ESG elements and corporate valuation. Hence, this study addresses the subsequent inquiry topics.

RQ1: Does a company's engagement in ESG activities enhance its firm value in the contemporary environmentally conscious context?

RQ2: Does consumer perception of a firm's reputation mediate the relationship between its ESG initiatives and firm value?

RQ3: Does the environmental focus of a firm's sector affect the intermediary role of reputation in determining corporate value?

The subsequent parts of this paper are organized as follows: Section 2 delves into the pertinent literature, covering each research variable, their interrelations, the theoretical research structure, and the formulation of hypotheses. Section 3 details the data collection and analytical methods adopted in this research. Section 4 showcases the outcomes of the analysis. In Section 5, the underlying theories and their significance are discussed. Conclusively, Section 6 recognizes the study's constraints and suggests avenues for upcoming research.

2. Theoretical background

2.1. The value-relevance of firm engagement in ESG practices

Following the release of the UN Principles for Responsible Investment, several organizations have started to standardize ESG assessments, resulting in comparable information across companies. Therefore, a company's ESG activities are increasingly recognized as crucial elements in evaluating its non-financial performance (Fatemi, Glaum, and Kaiser 2018).

The Korea Institute of Firm Governance and Sustainability has been annually publishing firm ESG evaluation indicators since 2011, with the aim of assisting investors in making informed decisions. Given this context, companies have the opportunity to enhance their economic performance and increase their firm value by transparently disclosing their ESG performance (Rezaee 2016). Previous studies have revealed the influence of ESG. Bhattacharya, Korschun, and Sen (2009) argued that companies' positive ESG practices significantly affect their capabilities by motivating employees to work and increasing their sense of belonging. Ramlugun and Raboute (2015) suggested that a firm's efforts in philanthropy, economics, and ethics, centered around contributing to the community, are crucial determinants of customer contentment and allegiance. These efforts are seen as significant factors that can positively impact the level of satisfaction and loyalty among customers. They further suggested that companies can attain a competitive advantage by leveraging these efforts. Despite being relatively latecomers compared to other non-financial factors, ESG practices have

gained increasing attention in research. A comprehensive meta-analysis by Huang (2021) established a predominantly positive association between ESG activities, financial outcomes, and company worth, suggesting that the adoption of ESG activities commonly yields beneficial effects on a firm's financial health and its comprehensive value. Additionally, Aouadi and Marsat (2018) conveyed that implementing ESG activities bolsters a firm's prominence among investors, subsequently casting a favorable light on the company's market value. Mervelskemper and Streit (2017) analyzed 852 multinational companies from 2010 to 2014 and found that integrated disclosure on a global basis, rather than simply disclosing ESG activities, had a more positive effect on the ESG assessment of firm value. El Ghoul et al. (2018) also advocate for the idea that there is a beneficial effect of ESG practices on a company's worth. Their analysis, which delves into the link between ESG efficacy and firm value in emerging economies, further bolsters this viewpoint. In addition, numerous research efforts have corroborated a marked positive link between ESG assessments and the valuation of a firm. Such research consistently underscores the pivotal role of ESG initiatives in augmenting a firm's comprehensive worth (Bajic and Yurtoglu 2018; Eccles, Ioannou, and Serafeim 2014; Qu 2009; Qureshi et al. 2020).

Moreover, numerous investigations have delved into the repercussions of ESG endeavors on firms' financial risks and associated expenditures. Dhaliwal et al. (2011) undertook an analysis focusing on how the voluntary dissemination of non-financial metrics impacted a firm's financial vulnerabilities and capital costs. Their observations indicated that firms encountering elevated capital expenses in a specific year managed to curtail these in the following year by making their ESG endeavors public. This insinuates that the unveiling of ESG initiatives can beneficially modulate a firm's capital costs. In a parallel vein, Eccles, Ioannou, and Serafeim (2014) deduced akin findings when they assessed North American businesses from 2002 through 2010. Their analysis underscored that businesses producing integrated summaries, merging fiscal and sustainability insights, magnetized stakeholders with a predilection for long-haul commitments. The risk coefficients, deduced via the Capital Asset Pricing Model method, exhibited an inverse relationship with ESG parameters. This connotes that transparency regarding ESG ratings can dampen risks, leading subsequently to diminished capital expenses (Cheng, Ioannou, and Serafeim 2014). Yet, there are also divergent observations in the field. Richardson and Welker (2001) deduced that no evident linkage exists between the disclosure of social endeavors and the capital costs for firms that boast superior returns on capital. Consequently, the nexus among ESG, risk, and a corporation's fiscal outcomes remains nebulous.

Historical studies predominantly centered on the repercussions of ESG components on corporations' fiscal outcomes. Orlitzky and Benjamin (2001) posited that the corporate echelon and fiscal analysts persistently harbor the sentiment that heightened social performance amplifies a corporation's vulnerabilities, likening it to a "financial misdemeanor." This standpoint mirrors the neoclassical theory, which perceives ESG initiatives as probable inefficiency conduits that might diminish shareholder yields. Counter to this stance, findings by Bassen et al. (2006) coupled with those by Cheng, Ioannou, and Serafeim (2014), unearthed steady correlations between exemplary ESG initiatives and a corporation's risk dynamics. Although systemic threats remain inescapable, their magnitude can be maneuvered, curtailed, or diminished. Anchored in prior investigations signifying the advantageous repercussions of ESG endeavors on business valuation, the preliminary hypothesis is articulated as follows:

H1. *The higher a firm's ESG practices, the greater the increase in firm value.*

2.2. The mediating role of firm reputation

Reputation is linked to how an external party evaluates the quality of a company, which is derived from its image and past performance. A strong reputation is cultivated over time through consistent demonstration of attributes inherent to a company (Gotsi and Wilson 2001). Studies delving into firm reputation from diverse perspectives indicate that it spans a range of facets, such as public perception, corporate identity, leadership quality, brand equity, offerings and solutions, fiscal outcomes, ethical stewardship, executive direction, organizational ethos, and core principles. These factors collectively contribute to shaping a company's reputation. A company's reputation depends on its overall reflection (Dowling 2004). A favorable reputation allows a firm to raise prices to consumers (Koubaa 2008), provide an opportunity to recover from a crisis, and can directly or indirectly affect the firm's profitability (Black, Carnes, and Richardson 2000; Wei, Ouyang, and Chen 2017). While many research efforts have highlighted a favorable link between a firm's reputation and its operational outcomes, some results indicate that the company's standing might not have a direct tie to its profitability metrics (Carmeli and Tishler 2005; Roberts and Dowling 2002). Thus, various factors can influence a firm's reputation on its value.

ESG activities, stemming from corporate social responsibility (CSR) initiatives, are based on the fundamental values that companies aim to demonstrate, ultimately influencing their reputation. In a survey conducted among Korean consumers, Hur, Kim, and Woo (2014) found that CSR initiatives directly influence a company's image, with trust in the firm serving as an intermediary in this connection. Furthermore, Lin et al. (2016) showed that companies with esteemed reputations tend to share environmental data, suggesting that a robust brand image can bolster a firm's ability to amplify its eco-friendly brand value. Hsu (2012) focused on Taiwanese companies in the life insurance industry and argued that customers' awareness of a company's social contribution activities positively influences its reputation, brand equity, and customer satisfaction. Moreover, Sen and Bhattacharya (2001) argued that activities related to CSR enhance the public's perception of businesses. Turban and Greening (1997) employed scores from Kinder, Lydenberg, Domini, and Co. as an indicator of CSR endeavors and used Fortune America's Most Admired Corporation scores to gauge corporate image. Their findings affirmed a marked influence of CSR undertakings on a company's brand esteem.

Additionally, one study has shown that consumers do not negatively perceive a company's image, even if they are exposed to negative events or information about companies that have continuously performed CSR activities (Vanhamme and Grobben 2009). Gangi, Daniele, and Varrone (2020) carried out an analysis to assess the impact of corporate environmental strategies on their brand esteem and the ensuing effects on potential profit risks. Their results underscore that intangible assets, such as ESG initiatives, play a pivotal role in shaping a firm's reputation. The study further emphasizes that environmental irresponsibility can have negative consequences on a firm's reputation, highlighting the importance of environmental stewardship for maintaining a positive reputation. While the link between firm value and ESG activity has garnered increasing interest among marketing researchers, there remains a scarcity of research that delves into the role of firm reputation, which can be a significant factor in this relationship. Based on the preceding discussion, the second hypothesis can be formulated as follows:

H2. *A company's reputation serves as a mediator in the association between its ESG initiatives and firm value.*

2.3. The moderating role of industry sensitivity

The perceived importance of ESG practices by stakeholders varies significantly across countries, regions, and industries (McWilliams, Siegel, and Wright 2006). Many studies have highlighted the need to consider the relevant industries when examining the effects of firms' environmental responsibilities. Empirical evidence suggests that manufacturing companies, which are often regarded as sensitive industries, tend to demonstrate a negative association with the environment. However, it is noteworthy that these companies also tend to disclose a higher volume of sustainability data in comparison to firms operating in other industries (Brammer and Pavelin 2008; Cordeiro and Tewari 2015). Companies do not voluntarily provide information in environmental reports unless they are in an industry under stakeholder pressure. Pollution levels resulting from industrial activity, the primary use or extraction of natural resources, waste generation, or production of environmentally sensitive products are important determinants of an industry as a sensitive or non-sensitive industry (Li, Richardson, and Thornton 1997). Sectors prone to significant environmental consequences frequently encounter negative press attention and heightened attention from environmental advocates (Aerts and Cormier 2009). Moreover, industry sensitivity is a potential determinant of firms' social disclosure practices. Established companies are more inclined to report CSR disclosures compared to lesser-known companies, as they are more sensitive to potential social and environmental issues. Therefore, high-profile companies will come under more pressure from stakeholders to implement social disclosure well (Oh et al. 2016; Özturan and Grinstein 2022).

In many scholarly works, the industry is frequently utilized as a control factor, but its potential as a moderating variable should not be overlooked. Matakanye, van der Poll, and Muchara (2021) identified varying industry responses to ESG-related pressures, notably highlighting the pronounced ESG reporting in sectors like "Basic Materials" and "Industrial Operations." Such observations indicate that different industries can either weaken or strengthen the impact of ESG achievements on fiscal outcomes. Specifically, industries more sensitive to environmental and social issues might accentuate the effects of ESG efforts on financial metrics. A myriad of research has delved into the repercussions of ESG endeavors on the financial metrics of distinct industry verticals (Garcia, Mendes-Da-Silva, and Orsato 2017; Sassen, Hinze, and Hardeck 2016; Sun and Price 2016). These studies underscore the idea that the relevance of ESG undertakings is industry-specific and can shape the performance of ESG initiatives. Adding to this, multiple researchers have probed the dynamics of industry-based nuances on the interplay between ESG achievements and fiscal success. A

study by Garcia, Mendes-Da-Silva, and Orsato (2017) zoomed in on environmentally and socially sensitive sectors, concluding that the ramifications of ESG initiatives are more pronounced in these domains. Some ESG issues that can put a company's reputation at risk include the use of toxic chemicals in products, child labor, boycotts, employee strikes, and reputations against natural resources. Mainstream investors have had time to pay more attention to adverse ESG-related events in companies and their reactions to such environmental risk events have increased (Lee, Raschke, and Krishen 2022). Moore (2001) identified notable variances across industries concerning their involvement in ESG activities and related matters. The nature of a company's products and services and how they operate can determine the public visibility they receive and the degree of activism their actions will engender from stakeholders. For example, the oil industry faces more external pressure and is more likely to meet government regulations than the fashion or technology industries. Nonetheless, comprehensive studies delving into the effects of ESG performance on the reputation and financial outcomes of businesses in high-risk industries remain limited. Given this context, the subsequent hypothesis is posited:

H3. *Industry sensitivity plays a nuanced role in the connection between ESG initiatives and firm value. Particularly, when the risk associated with a firm's industry lessens, the positive impact of reputation on firm value becomes less pronounced.*

3. Data and methods

3.1. Sample and measurement

The selection of firms for this research adhered to three guiding principles. First, the companies were handpicked from the Korea's Most Admired Companies (KMAC) roster, a publication curated by the Korea Management Association Consulting. The KMAC assessment encompasses the insights of around 7,000 professionals, such as financial analysts and top-level executives, and it ranks companies on criteria like innovation capability, value to shareholders, value to employees, customer-centric value, societal contribution, and brand perception. Only those companies that featured on this list were considered for the research. Second, the chosen sample was confined to firms that have a listing on the stock exchange, as the study necessitated financial data for its evaluation. Data on all companies listed on the Korean stock market and the KOSDAQ were collected, except for the financial industry, to maintain consistency in the industry classification (Seok, Lee, and Kim 2020). Third, the study excluded companies with capital impairment during the analysis period and those with a debt-capital ratio of one or more. Additionally, only companies listed at least one year before the fiscal year and with complete stock price and financial information for all years of the analysis period were included. Moreover, the study utilized the ESG evaluation list announced by the Korea Institute of Firm Governance and Sustainability to select companies for analysis. Furthermore, industries with high environmental sensitivity, such as oil, mining, construction, and manufacturing, were identified as sensitive industries. A dummy variable was used to indicate sensitivity, with a value of 1 for sensitive industries and 0 for others (Qureshi et al. 2020). The data used in the study were obtained from various archival sources and resulted in an unbalanced panel dataset comprising 634 firm-year observations from 145 firms over an eight-year period. Although the number of observations varied slightly for each company, most of the data consisted of unbalanced panels.

The dependent variable, firm value, was measured using Tobin's q, which calculates the market value of a company divided by its alternative value (Chung and Pruitt 1994; O'Sullivan and McCallig 2012; Wong et al. 2021). In this study, the book value was used as a substitute for the replacement value of assets owing to the difficulty in collecting the necessary data for domestic companies. Several control variables, including sales growth, company size, R&D expenditures, advertising expenses, and the debt ratio, were considered as factors that could affect corporate value. Furthermore, year-specific dummy variables were incorporated to capture the unique attributes of each year, and the yearly economic growth rate (actual GDP growth rate) as released by the Statistics Korea was integrated to adjust for overarching macroeconomic influences. An in-depth breakdown of the measurement variables is presented in Table 1.

3.2. Model

To evaluate the three propositions, three distinct frameworks were devised, denoted as Equations (1), (2) and (3). In the first framework, Tobin's q (TQ) functioned as the outcome variable, with the ESG rating (TESG) acting as the predictor variable. The model also included several control variables: firm reputation (REP), industry sensitivity (SENIND), advertising-to-sales ratio (ADV), company size based on total assets (SIZE), R&D intensity (RND), leverage (LEV), return on assets (ROA), and year dummies

Table 1. Definition of variables.

Conceptual variable	Operationalization	Data source
TQ	*Firm value* (Market value of equity + book value of debt)/book value of asset	Korea Listed Companies Association
TESG	*ESG practice* Calculate a comprehensive score of 1 to 6 points based on each evaluation item for the company's environmental, social, and governance practices. A+ : 6, A : 5, B+ : 4, B : 3, C : 2, D : 1	Korea Institute of Corporate Governance and Sustainability
REP	*Reputation* The score is calculated by comprehensively evaluating customer, social, and image values.	Korea Management Association Consulting
SENIND	*Dummy variables for sensitive industry* (oil, mining, construction, and manufacturing)	Korea Listed Companies Association
ADV	*Advertising-to-sales ratio* (advertising expenditure/sales)	
SIZE	*Company size* (Natural logarithm of the total assets)	
RND	*R&D Intensity* (R&D expenditures divided by total assets)	
LEV	*Leverage* (Ratio of total financial debt to total assets)	
ROA	*Return on Asset* (Net Income/Total Asset Book Value)	
GDP	*GDP growth rate* ((Current GDP – Previous Year GDP)/Previous Year GDP)	Statistics Korea

(YD). This model aimed to examine the impact of ESG on firm value.

$$TQ_{it} = \beta_0 + \beta_1 TESG_{it} + \beta_2 ADV_{it} + \beta_3 SIZE_{it} + \beta_4 RND_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \beta_7 GDP_{it} + \sum_{p=1}^{8} \gamma_p YD_p + \varepsilon_{it},\ i = 1, \cdots, 145,\ t = 1 \cdots 8 \tag{1}$$

Model 2 was formulated to test Hypothesis 2, which explores the relationship between ESG evaluation and firm value, considering the mediating role of company reputation. In this model, both ESG evaluation factors and company reputation evaluation scores were included as independent variables.

$$TQ_{it} = \beta_0 + \beta_1 TESG + \beta_2 REP_{it} + \beta_3 ADV_{it} + \beta_4 SIZE_{it} + \beta_5 RND_{it} + \beta_6 LEV_{it} + \beta_7 ROA_{it} + \beta_8 GDP_{it} + \sum_{p=1}^{8} \gamma_p YD_p + \varepsilon_{it},\ i = 1, \cdots, 145,\ t = 1 \cdots 8 \tag{2}$$

Model 3 aimed to examine the moderated mediating effect of industry sensitivity. It included industry sensitivity (SENIND) as well as an interaction term between company reputation (REP) and industry sensitivity (REP × SENIND) as independent variables. This model allowed for the exploration of how industry sensitivity influences the relationship between company reputation and firm value.

$$TQ_{it} = \beta_0 + \beta_1 TESG_{it} + \beta_2 REP_{it} + \beta_3 SENIND_{it} + \beta_4 (REP \times SENIND)_{it} + \beta_5 ADV_{it} + \beta_6 SIZE_{it} + \beta_7 RND_{it} + \beta_8 LEV_{it} + \beta_9 ROA_{it} + \beta_{10} GDP_{it} + \sum_{p=1}^{8} \gamma_p YD_p + \varepsilon_{it},\ i = 1, \cdots, 145,\ t = 1 \cdots 8 \tag{3}$$

This research utilized longitudinal data covering the period from 2014 to 2021 to delve into the link between an organization's ESG activities and its value. Longitudinal data integrates both cross-sectional and temporal aspects, facilitating a deeper examination through consistent tracking of the same set or cohort of entities across multiple time points. However, longitudinal data can introduce challenges such as heteroscedasticity and autocorrelation in the error term, which may lead to biases and inefficiencies when using ordinary least squares (OLS) analysis. To address these issues, this study utilized the generalized least squares (GLS) model, which can account for covariance violations, autocorrelation, and simultaneous correlations between panel subjects in the data. The GLS model employed in this study considered heteroscedasticity, contemporaneous correlation, and first-order serial correlation within the panel to

Table 2. Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
TQ	1.201	.796	.365	8.228
TESG	3.838	.949	1	6
REP	6.617	.732	4	8.190
ADV	.019	.033	0	.289
SIZE	21.998	1.651	18.542	26.779
SG	.001	.423	−5.965	.944
RND	.014	.034	0	.440
LEV	.503	.182	.072	1.050
ROA	.022	.062	−.384	.489
GDP	.038	.021	.001	.067
SENIND	Non-Sensitivity: 45.53%, Sensitivity: 56.47%			
	Observation: 634			

enhance the accuracy of the analysis (Seok, Lee, and Kim 2020).

4. Results

4.1. Descriptive statistics

Table 2 presents an overview of the summary statistics for every variable considered in this research. The mean Tobin's q, employed as a proxy for organizational value, stands at 1.21. This suggests that the market valuation of the companies in the sample aligns closely with their recorded book values. This aligns with Tobin's q theory, suggesting that undervalued companies attract more investments, leading to convergence to a q value of 1 in the long run. The average ESG evaluation score is 3.838, indicating a moderate level of ESG practices among the companies. The average firm reputation, measured by the KMAC index, is 6.617. The SIZE variable, representing company size using the natural logarithm of assets, has an average of 21.998. R&D expenditure, reflecting a company's future development potential, averages at 1.4% of total sales. The average annual economic growth rate in Korea during the observation period is 3%. In terms of industry sensitivity, 56.47% of the sample companies belong to sensitive manufacturing sectors.

Table 3 presents the results of the correlation analysis. The variables SIZE and TESG exhibit a strong correlation with a coefficient of $\rho = .591$. Additionally, the correlation between REP and SIZE is relatively high ($\rho = .432$) compared to other variable pairs, although it does not exceed the threshold of .5. To assess the potential issue of multicollinearity resulting from high correlations, the study calculated the variation inflation factor (VIF) for each variable after estimating the model using pooled OLS. The average VIF value for the included variables is 1.44, with the highest value observed for SIZE at 1.84. Based on these VIF values, it can be concluded that multicollinearity concerns between the variables are not significant.

4.2. Hypotheses testing

Table 4 showcases the outcomes from the regression analysis that was carried out to evaluate the hypotheses, using data from 145 firms, totaling 634 observations. In Model (1), focusing on the association between ESG activities and company value, the results affirm Hypothesis 1. The findings denote a notable positive influence ($\beta = .074$; $p < .05$) of ESG endeavors on the value of a company. This implies that engagements in environmental and societal initiatives can bolster a company's worth. Model (2) delves into the intermediary role that reputation plays between ESG actions and company value. The significance of both ESG initiatives ($\beta = .063$; $p < .01$) and company reputation ($\beta = .149$; $p < .01$) is evident, suggesting that the company's reputation acts as a bridge connecting ESG initiatives to firm value. This corroborates Hypothesis 2. Model (3) looks at how industry sensitivity might variably affect the relationship among ESG actions, company reputation, and its value. Positive correlations with firm value are found for both ESG actions ($\beta = .063$; $p < .01$) and corporate reputation ($\beta = .178$; $p < .01$). Yet, the interaction factor of corporate

Table 3. Correlation matrix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) TQ	1									
(2) TESG	.033	1								
(3) REP	.223*	.396*	1							
(4) ADV	.311*	.024	.045	1						
(5) SIZE	−.116*	.591*	.432*	−.109*	1					
(6) SG	.010	−.060	.017	.001	−.051	1				
(7) RND	.335*	−.021	.195*	.085*	.011	.022	1			
(8) LEV	−.175*	.057	−.150*	−.315*	.148*	−.022	−.171*	1		
(9) ROA	.277*	.215*	.320*	.142*	.172*	−.046	.110*	−.422*	1	
(10) GDP	.041	−.038*	−.016*	.024	−.028	−.018	−.077*	−.006	.071	1

*p < .05.

Table 4. Estimation results.

Variables	(1) Reputation	(2) TQ	(3) TQ	(4) TQ
TESG	.230***	.074***	.063***	.063***
	(.015)	(.009)	(.011)	(.011)
REP			.149***	.178***
			(.017)	(.023)
SENIND				.363**
				(.173)
REP*SENIND				−.048*
				(.026)
ADV		6.466***	4.889***	4.883***
		(.427)	(.527)	(.552)
SIZE		−.084***	−.109***	−.107***
		(.006)	(.007)	(.007)
SG		.023*	.015	.009
		(.013)	(.012)	(.010)
RND		6.424***	6.406***	6.067***
		(.522)	(.542)	(.560)
LEV		.265***	.443***	.448***
		(.053)	(.064)	(.063)
ROA		1.961***	1.956***	2.000***
		(.252)	(.241)	(.236)
GDP		.309	−.388	−.534
		(.456)	(.456)	(.484)
CONSTANT	5.446***	2.268***	1.889***	1.660***
	(.080)	(.131)	(.150)	(.176)
Observations	634	634	634	634
Number of firms	145	145	145	145

***p < .01, **p < .05, *p < .1.

reputation and industry sensitivity ($\beta = -.048$; $p < .01$) is notably negative. This indicates that in sectors with heightened sensitivity, the interlinking role of reputation in associating ESG actions with firm value becomes diminished, thus validating Hypothesis 3.

Additionally, the analysis underscores that larger firms tend to have a diminished value across all models, resonating with earlier findings. This is possibly owing to Tobin's q computation, which employs the book value of assets as its denominator (Aouadi and Marsat 2018; Drempetic, Klein, and Zwergel 2020). Other metrics, such as the advertising ratio, pace of sales growth, R&D, leverage, and return on assets, all possess notable positive correlations with firm value, showcasing their significance for investors. Intriguingly, the rate of economic growth does not seem to significantly sway the company's value.

5. Discussion and conclusion

One of the most important topics in modern society is sustainable management, in which companies pursue long-term growth by enhancing their integrity through transparent governance and positively affecting the environment and society. In a highly competitive business environment, companies can achieve a competitive advantage by adhering to responsible management principles and standards and actively promoting them. Furthermore, if a company can effectively communicate its ESG practices to consumers, those practices will be viewed as advantageous when evaluating the company's value. This is because the company's ESG practices ultimately influence its reputation, as acknowledged by its stakeholders. Modern consumers, increasingly concerned about environmental protection, place greater importance on industries that have a significant environmental impact. These consumer interests have shaped the significance of firm ESG activities. This research delves into the relationship by emphasizing the intermediary function of company reputation and the influencing role of industries with heightened environmental sensitivity. The investigation uses cross-sectional data derived from 145 enterprises, culminating in a dataset of 634 observations. The value of a firm is gauged using Tobin's q, and ESG practices, constituting the primary independent variable, are assessed based on the yearly scores related to ESG dimensions sourced from the Korea Institute of Corporate Governance and Sustainability. Firm reputation is measured using the firm reputation score announced yearly by the KMAC, aligning with previous studies in the field (Seok, Lee, and Kim 2020). Moderating variables include oil, mining, construction, and manufacturing industries, known for their significant environmental impact based on previous studies (Qureshi et al. 2020). The model also considers variables such as sales growth rate, company size, LEV, ROA, R&D, and ADV to minimize omitted variable bias and their anticipated impact on firm value.

The analytical exploration in this research produced multiple outcomes concerning the nexus between ESG initiatives and corporate value. First, there is a marked positive correlation between ESG initiatives and company value. This observation underscores that businesses that proactively partake in ESG endeavors tend to have an augmented firm valuation. It aligns with previous research, highlighting the positive influence of ESG practices on firm value. As global attention toward environmental protection increases, companies' efforts to uphold social values and protect the environment generate positive externalities that benefit society in the long run.

Second, the standing of a company serves as an intermediary link between ESG endeavors and its valuation. ESG actions favorably impact a company's repute, and subsequently, this enhanced reputation plays a pivotal role in elevating its value. This suggests that ESG practices not only directly enhance firm value but also indirectly increase it through the enhancement of reputation. A strong reputation is an

asset for companies, influencing stakeholders' perceptions, attracting customers, and building trust.

Lastly, the interplay between a company's reputation and its valuation is influenced by the environmental sensitivity of its industry. In sectors with pronounced environmental implications, the impact of a firm's reputation on the correlation between ESG initiatives and its value is diminished. This means that in industries where environmental issues are highly relevant, even minor negative incidents or reputational setbacks related to ESG practices can have a significant impact on firm value. Consumers in these industries may be more critical and discerning when evaluating a company's reputation, placing greater emphasis on its environmental impact. Consequently, companies with a negative environmental footprint may experience lower firm value due to the adverse effect on their reputation.

These findings shed light on the notable correlation between ESG initiatives and company valuation, the intermediary role played by reputation, and the influence of industry environmental sensitivity. They underscore the imperative of adopting solid ESG strategies to bolster both economic results and standing, particularly in sectors with heightened environmental concerns.

From a theoretical and applied perspective, this research offers several contributions. The academic relevance of this investigation is manifold. Primarily, it delves deeper into how a firm's ESG endeavors influence its valuation. By tracking financial fluctuations over an extended duration and leveraging the GLS approach, which accounts for variances, concurrent and lagged autocorrelations, this research furnishes a more encompassing grasp of the nexus between ESG initiatives and firm valuation. This enriches the current academic discourse by furnishing a nuanced understanding of the fiscal ramifications of ESG endeavors. Additionally, it identifies the mediating role of a firm's reputation in the relationship between ESG practices and firm value. While previous studies have explored the link between ESG practices and firm value in different contexts, few have examined the mediating effect of firm reputation (McWilliams and Siegel 2000; Mervelskemper and Streit 2017; Pedersen, Fitzgibbons, and Pomorski 2021). This study confirms that a firm's reputation plays a crucial role in mediating the relationship between ESG practices and firm value, highlighting the importance of effective marketing efforts in shaping this relationship.

Lastly, it demonstrates the moderating effect of industry sensitivity on the relationship between ESG practices, reputation, and firm value. By examining how consumers' awareness of negative environmental issues is influenced by the sensitivity of the industry, this study expands our understanding of the complex interplay between ESG practices, industry dynamics, and firm value (Miralles-Quirós, Miralles-Quirós, and Valente Gonçalves 2018; Qureshi et al. 2020). It underscores the significance of considering industry context when evaluating the impact of ESG practices on firm value.

The applied takeaways from this research are multifaceted. To start, businesses ought to emphasize formulating tactics that augment their ESG management prowess to solidify intangible assets. The data suggests that ESG initiatives have a profound and positive bearing on a company's worth, resonating with key stakeholders like investors, consumers, and vendors. By channeling efforts into superior ESG management, firms can bolster their long-term sustainability and elevate their intrinsic value.

Moreover, marketing professionals can harness the interconnectedness of ESG initiatives, organizational reputation, and company valuation. Given that ESG endeavors bolster company value via the intermediary role of organizational reputation, it is pivotal for marketing strategists to craft plans that sustain and amplify an enterprise's standing (Simeth and Cincera 2016). Efforts should be made to minimize negative impacts on firm reputation arising from environmental issues and maximize reputation based on robust ESG practices.

Additionally, sectors with a pronounced environmental footprint should intensify initiatives to heighten consumer awareness regarding the advantages of ESG measures and counteract potential harm to the company's public image. Given the negative influence of environmental sensitivity on the mediating effect of firm reputation, companies operating in such industries should go beyond mere announcements of advanced ESG practices. They should engage in activities that effectively communicate how these practices contribute to firm performance and educate consumers about their positive impact. By doing so, these companies can enhance their value and mitigate potential reputational risks associated with environmental issues.

In essence, this research underscores the profound link between ESG initiatives and a company's worth, with the company's public image playing a pivotal role. Additionally, the significance of industry responsiveness to environmental concerns in gauging the influence of ESG initiatives on a firm's worth is accentuated. These findings offer actionable guidance for businesses aiming to bolster their economic outcomes, elevate their public standing, and tackle industry-tailored hurdles associated with ESG endeavors.

6. Limitations and future research

While this study has made valuable contributions to academia and practice, it is important to note three key limitations. First, the analysis focused solely on Korean companies, which introduces the possibility that the observed relationship between ESG practices and firm value could be influenced by Korea's distinct national characteristics. To obtain a more comprehensive understanding, future studies could explore cross-country comparative research to investigate the influence of ESG capacity in various cultural contexts.

The second limitation pertains to public confidence in the ESG evaluation scores utilized in this study, which were sourced from the Korea Institute of Firm Governance and Sustainability. While the institute has been conducting ESG evaluations for a significant number of companies over a substantial period, ensuring evaluative sophistication through ongoing model revisions, the accuracy of their assessments in capturing the ESG practices of the sample companies cannot be guaranteed. Comparing the evaluation scores from different institutions, such as the Sustainable Power Plant, Daishin Economic Research Institute, and Economic Justice Institute, with the findings of this study provide new perspectives on the formulation of evaluation indicators and the effects of ESG practices.

Last potential limitation of this study is the use of a binary variable to measure industrial sensitivity. This approach was chosen owing to the limitations of empirical measurement methods compared to surveys. The decision to adopt this approach was based on criteria established by previous studies, but it is important to acknowledge that this method may have its own limitations in capturing the full range of industrial sensitivity (Joshi and Hanssens 2010; Luo and de Jong 2012). To address this limitation, future research could focus on developing more effective methods for measuring industrial sensitivity and incorporate them into the study.

This approach would yield a deeper insight into how industry responsiveness affects the connection between ESG initiatives and a company's worth. Furthermore, carrying out studies across different cultural settings, comparing assessment scores from diverse institutions, would offer a more expansive view of how ESG initiatives correlate with a firm's value in varied cultural backdrops. By enhancing the gauge of industry sensitivity and factoring in these methodological advancements, a more profound comprehension of the intricate link between ESG initiatives and company valuation can be realized.

Conflict of interest

There is no conflict of interest.

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