

Sustainability Practices and Firm Value: Evidence from a European Industrial Panel

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Framing of the research. *Over the last decade, sustainable development, defined as development that allows the satisfaction of present needs (economical, environmental, and social) without compromising that of future generations (Brundtland Commission, 1987), has attracted growing interest from regulators, firms, investors, customers, and academics.*

Sustainability has influenced the consolidated relationships between economics and finance with increasing pervasiveness, acquiring greater relevance in terms of breadth and materiality. Breadth, as it goes beyond firms' internal environment, affecting the relationship between regulatory, industrial, and financial systems. Materiality, as academics and operators believe that the triadic relationship between economy, finance, and sustainability is crucial for achieving efficient organizational forms of production.

Given the role of driving force for change that firms play in economic and social development (Wade-Benzoni, 2002), they have been placed in front of new challenges and opportunities in terms of risk-return relationship with shareholders and, more generally, with stakeholders, in order to pursue, within their strategic declination, consistency between economical and financial performance and social issues (Porter and Kramer, 2006; Ng and Zabihollah, 2015; Crespi and Magliavacca, 2020).

To respond to these challenges, firms have declined strategic and operational responses with the aim of proactive adaptation and seize the emerging opportunities, also recalling the need to build and maintain consensus around their initiatives (Golinelli, 2017).

In order to strengthen credibility, reputation, and legitimacy among stakeholders, firms have been pursuing a medium-long term value creation declining their strategies in a triadic vision of risk, return, and social impact (Freeman, 1984; Coulson, 2009; Amini and Bienstock, 2014; Ng and Zabihollah, 2015; Ziolo et al., 2019). Further, Porter and Kramer (2011), theorizing the concept of shared value - i.e., firms' policies and practices that go beyond corporate social responsibility and contribute to competitive advantage while strengthening the communities in which firms operate - suggest a radical change in management thinking and reset the boundaries of capitalism.

Therefore sustainability has been grafted onto firms' governance processes (e.g., risk management, internal control systems, and management compensation) (Callan and Thomas, 2011; Comitato per la Corporate Governance, 2020; Boccuzzi, 2021), decision-making processes and strategies (Davis and Lescott, 2019), i.e. formulation phase (process of synthesis of the values and expectations of the stakeholders, of the values and culture of the enterprise and the repercussions on its evolutionary dynamics) and implementation phase (convergence between any cultural and structural discrepancies, through, where appropriate, organizational and decision-making changes) (Mintzberg, 1994; Ferrara, 1995).

In this context, a multiple objective function emerges, which requires the mediation and conjugation of a plurality of economic (i.e., profitability, productivity, and competitiveness) and sustainability (i.e., social, environmental, and general well-being) objectives, with potential tensions between (i) strategic goals, (ii) product features and (iii) organizational values (D'Amico, 1997; Ferrando, 2010; Turco, 2013; Hengst et al., 2020).

Sustainability issues have become an integral and essential part of the firm's strategic orientation (Sapelli, 1995), which requires extensive changes in corporate culture in order to embrace a medium-long term vision within the definition of strategies and action plans (Boccuzzi, 2021).

However, there is a high risk that sustainability can remain decoupled from or peripheral to organization activities if the main aim is simply to garner external legitimacy (Hengst et al., 2020).

In a nutshell, current extensive and in-depth challenges have determined the emergence of a new management "philosophy", where sustainability falls into essential principles and methodological foundations on which the corporate governance must base its actions (Golinelli and Volpe, 2012).

Moreover, the growing interest in sustainability issues has been further stimulated by a considerable legislative and social impulse, through legislative and regulatory provisions, as well as standards and best practices at the international (e.g., GRI Standards, SASB Standards, TCFD, ISSB, IIRC)(GSSB, 2016; TCFD, 2017; WEF, 2020; IFRS

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Foundation, 2021; GSSB, 2021; IIRC, 2021) and European level (European Taxonomy, Non-Financial Reporting Directive, Corporate Sustainability Reporting Standards)(European Commission, 2021).

Standards, guidelines, principles, and recommendations for non-financial disclosure are increasingly being adopted and implemented by firms to enhance business transparency on sustainability issues (Brogi and Lagasio, 2019). In this regard, non-financial information has been considered to have an impact on a firm's risk profile, value drivers, and valuation (CONSOB, 2017; Bizoumi et al., 2019).

Perhaps, the most pressing challenge that remains to be addressed is the lack of general standards for measuring and reporting sustainability information, which has resulted in turn in inconsistent methodologies, lacks of standardization, scarcity of comparable data (Chatterji et al., 2016; Davis and Lescott, 2019; Gibson et al., 2019; Billio et al., 2020; Cornell and Damodaran, 2020; European Commission, 2020; Berg et al., 2021; CONSOB, 2021; ESMA, 2021).

In summary, stakeholders' compliance constraints have directed firm's actions in terms of social responsibility in order to build and preserve consensus around its initiatives, and, ensure its survival in a highly competitive environment (Chih et al., 2010; Barile et al., 2013; Oliveira et al., 2019).

In this context, sustainability issues have become a new theme for academics in the field of management, and several contributions covering different aspects have been published.

Two main strands of literature can be distinguished in this regard.

On the one hand, the value-enhancing theory holds that the implementation of ESG issues in the corporate strategies generates competitive advantage (Porter and Van Der Linde, 1995; Porter and Kramer, 2011) that promotes the creation of long-term shareholder value (Miralles-Quiròs et al., 2018).

In this regard, a growing body of academic studies have highlighted that good ESG performance (and transparency) leads to better access to capital (Cheng et al., 2014), lower cost of capital (El Ghouli, 2011; Goss and Roberts, 2011; Dhaliwal et al., 2012; Witold and McGlinch, 2019), attract and retain higher-quality resources (Turban and Greening, 1997; Greening and Turban, 2000), increase demand for products and services and/or reduce consumer price sensitivity (Dorfman and Steiner, 1954; Milgrom and Roberts, 1986; Gangi et al., 2019), enhance competitive advantage (Porter and Van Der Linde, 1995; Galbreath, 2013; Wu and Shen, 2013; Bocken et al., 2014; Boccuzzi, 2021) and financial performance (Orlitzky et al., 2003; Cornett et al., 2016; Brogi and Lagasio, 2019).

Furthermore, sustainability strategies can generate efficiencies processes regarding mainstream strategy, controlling the use, and hence cost of resources (Hengst et al., 2020).

Scholars have highlighted the increasing consideration by investors of ESG information, data, and ratings as important aspects that offer insights into a firms' future performance, risk profile, and long-term sustainability policies, leading the accuracy in assessing corporates' material issues and investments (Davis and Lescott, 2019).

Investors consider also corporate culture, reputation, and sustainability to assess the company's ability to create and sustain enterprise value (Marsat and Williams, 2014; Davis and Lescott, 2019).

In addition, a growing body of research confirms that there is a link between ESG and asset performance, where firms with a strong performance on material ESG issues perform better in terms of stock returns, future profitability, higher earnings multiples and lower credit spreads (Goss and Roberts, 2011; Attig et al., 2013; Friedman and Heinle, 2016; Khan et al., 2016; Davis and Lescott, 2019). Thus, sustainability aspects and related reputation effects are intangible aspects valued by the market (Marsat and Williams, 2014).

On the other hand, the shareholder expense theory holds that investing in ESG issues increases costs and puts companies at an economic disadvantage, resulting in lower market values (Miralles-Quiròs et al., 2018).

In this regard, sustainability expenditures may create potential conflicts between affiliated (i.e., investors whose reputation is related to the firm) and non-affiliated (i.e., investors who hold shares in the firm as a part of a diversified portfolio) shareholders, if the marginal effect of sustainability investments decrease firm value (Barnea and Rubin, 2006).

Cornett and Damodaran (2020), distinguishing good and bad companies from an ESG perspective, outline that the claims of ESG payoff are often based on ambiguous and inconclusive research, where the evidence that socially responsible firms have lower discount rates and investors have lower expected returns is stronger than the evidence that good companies deliver higher profits and growth. In addition, there is weak (i) evidence that markets incorporate social responsibility into pricing, (ii) link between ESG and operating performance, and (iii) evidence that investors can generate an excess return with ESG-focused investing.

Moreover, the inclusiveness is primarily due to a lack of key fundamental concepts and theoretical and empirical limitations (e.g., ratings provided by different agencies do not always converge, ESG materiality issues) that makes it difficult to predict the effects of sustainability strategies on economic and financial performance (Wood and Jones, 1995; Chatterji et al., 2016).

This study examines the relationship between ESG performance and firms' value, investigating the effects of the implementation of sustainability conducts on firms' value in a sample of 189 industrial firms listed on the Stoxx Europe 600 over the period 2012-2020.

Our research aims to enrich the existing literature on this topic, investigating the influence of ESG performance on firm value.

Purpose of the paper. *Hypothesis development.* As mentioned above, in recent years sustainability has attracted increasing attention from stakeholders, pushing firms to increase their focus on socially responsible aspects to reinforce their credibility and reputation (Coulson, 2009).

Prior research (Coulson, 2009; Birindelli et al., 2015) reveals that the adoption of corporate social actions and disclosure are positively valued by shareholders.

Moreover, while there is not a unanimous consensus on the effects of each ESG pillar score (i.e. environmental, social, and governance) on shareholder value creation, the adoption of principles that guarantee a deep disclosure on accountability, compliance, transparency and corporate governance practices, with a reduction of agency costs with firms' stakeholders, is undoubtedly reflected positively in shareholders' expectations (Miralles-Quiròs et al., 2018; Crespi & Magliavacca, 2020) and in investors' evaluation process.

In addition, referring to reputation, sustainability can be seen as an intangible resource able to enhance the value of a firm's expected cash flows and/or reduce their variability (Robinson et al., 2011).

However, the enhancement of socially responsible practices and related organizational structures has not yet been accompanied by a disclosure equally reinforced (Birindelli et al., 2015) (also due to the uncertainty and the heterogeneity of the different ESG data used and varying methodologies applied), where the aim is to make a qualitative leap, contextualizing and connecting the various data and placing them both in the strategic orientation and in the economic context in which the company operates. In other words, allowing stakeholders and investors to transform information into knowledge (Rutigliano, 2016).

Carnevale and Mazzuca (2014), testing the direct and indirect effect of the sustainability report on stock prices, highlight that investors appreciate the additional and complementary disclosure provided with a positive effect on stock prices. This conclusion is also supported by Miralles-Quiròs et al. (2018), which observe that ESG performance have a significant impact on stock prices and that investors value the three ESG pillars in a different manner.

In this context, it is possible that market prices have been adjusting to a new equilibrium that reflects sustainability considerations, where highly rated ESG stocks register greater values (Cornett and Damodaran, 2020).

In the light of the above, we develop the following hypothesis to test:

H1: ESG performance is positively associated with firm value.

Methodology. To test our hypothesis, we used multiple regression analysis with panel data, run on 1.371 observations. In this context, we applied a modified version of the model proposed by Ohlson (1995), widely used in valuation research, and Miralles-Quiròs et al. (2018).

$$Price_{it} = \alpha + \beta_1 EPS_{it} + \beta_2 BVPS_{it} + \beta_3 ESG\ score_{it} + \epsilon_{it}$$

In the company valuation model proposed by Ohlson (1995) the market value of equity is a function of firms' financial and non-financial information.

In this regard, considering the findings of previous studies, independent variables are (i) earnings per share (EPS), (ii) book value per share (BVPS), and (iii) ESG score.

In the table above (Table 1), we assign names based on the characteristics of the indicators that are related to the factors.

Tab. 1: Measurement of variables

Variable	Definition
<i>Dependent variable</i>	
Price	The latest available closing price at end of the year
<i>Independent variables</i>	
EPS	Normalized net income divided by the number of basic weighted average shares
BVPS	Shareholders equity divided by total common shares outstanding
ESG score	Overall company score based on the self-reported information in the E, S, and G pillars

Our sample consists of 189 industrial firms (belonging to n. 48 industries) listed on the Stoxx Europe 600 (i.e., index with a fixed number of 600 components representing large, mid, and small-capitalization firms among 17 European countries) over the period 2012-2020, in order to gain a heterogeneous panel data that allows us to look for robust results.

Refinitiv Eikon has been used as a database, i.e. a database widely adopted internationally in management studies. This database proved to be among the most complete in terms of data collection (i.e., financial and social performance indicators) and provides a large combination of variables, useful to perform our analysis. Data analysis has been performed using STATA 17 software package.

The ESG score has been taken from Refinitiv Eikon for each company, as the weighted average of the scores achieved in different key sustainability performance indicators, and specifically applying the 14,4% of the weight to environmental score (E), the 49,6% of the weight to social score (S) and 36,0% of the weight to governmental score (G). The ESG performance may assume a score in a range between 0 (weak) and 100 (strong).

The tables below (Table 2, Table 3) illustrate the composition of our panel by country and industry.

Tab. 2: ESG score by country

Country	Firms	ESG Score		Environmental Score		Social Score		Governance Score	
		2012	2020	2012	2020	2012	2020	2012	2020
Germany	47	65	72	66	68	67	78	61	69
Italy	20	76	68	82	65	76	73	66	61
Netherlands	18	61	72	59	68	68	79	51	66
Belgium	10	46	62	50	66	41	62	50	59
France	56	58	74	68	79	59	81	48	59
Spain	18	73	77	75	78	82	87	59	58
Austria	4	55	75	62	79	55	74	44	71
Luxembourg	5	55	59	64	45	66	64	28	64
Ireland	8	45	63	40	55	40	64	60	69
Portugal	3	67	76	75	80	71	89	50	53
Mean		60	70	64	68	62	75	52	63
Median		59	72	65	68	66	76	51	63
Min		45	59	40	45	40	62	28	53
Max		76	77	82	80	82	89	66	71
SD		10	6	12	11	14	10	11	6

Tab. 3: ESG score by industry

	2012	2020		2012	2020		2012	2020		2012	2020
Chemicals	58	75	Health Care	60	69	Auto comp.	64	79	Household prod.	80	73
Multi-Utilities	71	80	Electric Utilities	70	77	Construction mat.	67	79	Distributors	33	n.a.
Machinery	43	64	Semicond.	63	67	REITs	81	73	Specialty retail	85	85
Beverages	53	61	Real Estate	n.a.	65	Food prod.	33	75	Building prod.	65	83
Hotels, Restaurants	60	59	Pharma	60	80	Software	73	63	Electrical Eq.	56	79
Constr. & Eng.	59	68	Personal prod.	71	71	Industrial Cong.	62	68	Airlines	51	55
Food	61	69	Multiline R.	n.a.	41	Air Freight & Log.	82	84	Metals & Mining	44	n.a.
Transportation Infr.	66	76	Automobiles	68	84	Renewable Electric	70	67	Media	72	82
Textiles & Apparel	62	74	Trading C.	26	56	Gas Utilities	72	75	Househ. Durables	n.a.	81
Health Care Sup.	69	71	Entertainment	21	43	Oil & Gas	77	78	Packaging	n.a.	83
Aerospace & Def.	50	64	Prof. serv.	47	71	Life sciences serv.	49	68	Energy Equip.	55	n.a.
IT Services	64	66	Telco	58	70	Biotechnology	38	74	Internet Mark. Ret.	n.a.	81

Table 2 provides a summary of mean, median, minimum, maximum, and standard deviation values of the overall ESG scores and its three components over the sample period 2012-2020.

Overall, the average values of each pillar are higher in 2020 than in 2012, with the environmental and social scores that register the highest value. Considering that these scores range on a scale from 0 to 100, the corporate social performance is not particularly high. This increase is also justified by the growing attention of policymakers and stakeholders on corporate social responsibility and ESG practices.

Table 3 provides a summary of mean values of the overall ESG scores by industry over the period 2012-2020, with Specialty Retail that registers the highest value.

Results. Table 4 illustrates the descriptive statistics for both dependent and independent variables. The descriptive statistics table includes statistics, such as minimum, maximum, mean, standard deviation, and correlation.

The statistics show that on average the firms have a score of 66 points out of 100, with a standard deviation of 17, which indicates that firms have good social responsibility practices and disclosure, but not excellent. As reported in Table 2, in 2020 the average highest score is registered in Spain, while the lowest is in Luxemburg.

Tab. 4: Descriptive analysis

Variables	Mean	SD	Min	Max	Price	ESG Score	EPS	BVPS
Price	59,63	73,89	0,38	879,6	- / -			
ESG Score	65,93	17,33	7,49	94,52	0,01	- / -		
EPS	3,88	5,28	0,003	62,05	0,62	0,09	- / -	
BVPS	24,42	27,7	0,45	217,67	0,50	0,18	0,76	- / -

To test our hypothesis, we used multiple regression analysis with panel data, that considers both time series and cross-sectional data, allowing the identification of certain parameters without making any restrictive assumptions (Verbeek, 2008; Cucari et al., 2018).

Based on Hausman specification test (Hausman, 1978), we apply a fixed effect regression model to test our hypothesis.

We present below the results of the estimations described previously.

Tab. 5: Panel regression analysis

	(1)	(2)
EPS	4,26***	4,04***
BVPS	1,28***	1,03***
ESG Score	-	0,7***
Intercept	12,13***	-27,7***
R-squared	0,17	0,19
p-value	0,000	0,000
Groups	189	189
Observations	1.371	1.371

Note: *** $p \leq 0,001$; ** $p \leq 0,01$; * $p \leq 0,05$.

As shown in Table 5, there is a positive and significant relationship between firm value (price) and EPS and BVPS, thereby confirming the results of previous academic studies (Carnevale and Mazzuca 2014; Miralles-Quiròs et al., 2018).

Moreover, in model 2 there is a positive and significant relationship between ESG score and price (firm value), hence confirming our hypothesis.

In a nutshell, it seems that investors appreciate (i) sustainability aspects and related reputation effects and (ii) the additional and complementary disclosure provided.

Moreover, referring to the dichotomous vision between neoclassical and institutional theory, in the long run, there is a convergence between shareholders' and stakeholders' interests, given the fact that the value of a business (stocks) is equal to the current value of the future cash flows that the company is able to generate (discounted at a risk-adjusted discount rate), which, in the end, depends on the satisfaction of the stakeholders.

On this point, as stated by the theory of creation-diffusion of value, the economic value maximization has to be seen not as an exclusive prerogative for shareholders, but as a rational and measurable objective of the firm for all the stakeholders (Guatri, 1991; Sciarrelli, 1997).

Notwithstanding the results of our analysis, it is necessary to conclude that, due to different accounting methodologies across rating agencies and data providers, it is difficult to draw a robust conclusion on the topic and that the relationship between firm value and ESG performance is complex and needs more research.

Research limitations. From a methodological point of view, more variables may be further included in the econometric model, considering, for example, each pillar of the ESG score individually and differences among industries and legal systems.

From a theoretical perspective, the lack of comparability of ESG data (and ratings), as a consequence of different methodologies applied (frameworks, measures, key indicators, metrics, data, qualitative judgment, and weighting) by different providers, could influence the reliability of the results and lead to materially different conclusions.

Future research directions should then address further improvements of the identified framework by extending the observed period and including other variables, as well as performing the analysis with different data from a different provider.

Managerial implications. Results have important practical implications for managers, policymakers, and stakeholders, contributing to enriching the literature on the influence of ESG variables on firm strategies, highlighting the dynamical aspects of this issue in the present and the near future. Future research could strive to overcome or lower those limitations.

Originality of the paper. Our paper provides several contributions to the ESG field. In particular, from a theoretical point of view, we contribute to the literature seeking to understand the relationship between ESG performance and firm value. The evidence suggests that existing studies on ESG issues are limited but greater transparency and performance about sustainability practices is expected and positively valued by shareholders.

Keywords: ESG; Company valuation; Sustainability; Firm value.

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