



REVIEW



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The impact of historical corporate irresponsibility on environmental, social and governance compliance in the EU

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This study examines whether historical corporate social irresponsibility is associated with later compliance with environmental, social and governance principles among European business populations. Using data from RepRisk for the period 2015–2020, we analyse environmental, social and governance incidents reported for firms in European Union countries and aggregate the information at the country-year level. We operationalise corporate misconduct with two complementary measures. First, we measure the prevalence of environmental, social and governance incidents, defined as the share of firms with at least one environmental, social and governance incident in a given country and year. Second, we measure the intensity of environmental, social and governance incidents, defined as the average RepRisk, reputational risk indicator, among firms involved in incidents in a given country and year. We test whether past intensity is associated with subsequent prevalence using panel regression models with macroeconomic controls. The results show a statistically significant negative relationship between lagged intensity and current prevalence, suggesting that more severe past shocks are followed by a lower share of incident-involved firms at the country level. Interpreted through institutional theory and path dependency, the findings indicate that scandals may function as institutional signals that contribute to shifts in acceptable business practices beyond the firms directly involved. This study provides implications for policy by emphasising the role of transparent monitoring, consistent reporting standards, and stakeholder oversight in supporting sustainable corporate conduct.

Introduction

In recent years, Europe has faced growing criticism regarding its efforts to regulate the disclosure of nonfinancial information, commonly referred to as environmental, social, and governance (ESG) reporting. Critics argue that the administrative burden imposed throughout the entire supply chain could undermine the competitiveness of European businesses in the global market (BusinessEurope, 2023; Financial Times, 2024; Mantlana et al., 2024). Beyond the question of competitiveness, a deeper concern remains: does the disclosure of ESG-related information meaningfully influence corporate behaviour? While the intent of such

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regulations is to encourage companies to adopt more sustainable practices, scepticism persists about whether public reporting genuinely leads to substantive changes or merely bolsters a company's sustainability image without tangible impacts. Empirical studies on this topic present mixed results, with some suggesting that ESG disclosure enhances accountability and drives improvements (Dorfleitner et al., 2022; Miniaoui et al., 2019), while others highlight potential greenwashing risks and the superficial alignment of corporate strategies with sustainability goals (Eccles et al., 2014; Fatemi et al., 2018).

Institutional theory explains that firms are influenced by pressures from their external environment rather than acting independently. These pressures come from formal institutions, such as laws, regulations, and government authorities, as well as from informal institutions, including social norms and stakeholder expectations (Scott, 1987; Oliver, 1991; North, 1990). Stakeholders such as investors, customers, employees, NGOs, and interest groups transmit these expectations and influence firm behaviour (Drempetic et al., 2020). To remain legitimate and competitive, firms often adjust their practices to meet institutional demands, even when such adjustments do not immediately improve efficiency (DiMaggio and Powell, 1983; Surroca et al., 2013). As a result, institutional pressures play a key role in shaping corporate sustainability behaviour.

Path dependency theory complements institutional theory by emphasising that current corporate behaviour depends on past decisions and experiences (North, 1990; Schienstock, 2011). Firms and industries may follow stable behavioural paths that are reinforced over time and difficult to change (Sydow et al., 2009). In the area of sustainability, this raises an important theoretical question: do path-dependent processes reinforce irresponsible practices, or can they also support a shift towards sustainable behaviour? While previous research shows that unsustainable practices can become institutionalised, especially when they offer short-term benefits (Beckman and Burton, 2008; Pierson, 2000), changes in regulation, public attention, or stakeholder pressure may also redirect these paths towards sustainability.

Despite a growing body of research on ESG and corporate sustainability, it remains unclear whether negative sustainability events affect behaviour beyond the firms directly involved. Existing studies focus mainly on firm-level responses to ESG scandals, while less attention is given to system-level effects across entire business populations. This study addresses this gap by analysing ESG-related misconduct at the country level using two complementary measures. First, we measure the prevalence of ESG incidents, defined as the share of firms involved in at least one ESG-related incident in a given country and year. This measure captures how widespread ESG-related misconduct is within the corporate population and applies a standard normalisation approach used in the social sciences and ESG research, whereby the number of affected entities is scaled by the size of the underlying population. A similar scaling logic is employed by Lin et al. (2025), who normalise ESG incidents by the number of suppliers when analysing misconduct within value chains. Second, we measure the intensity of ESG incidents, which captures the average severity of ESG-related incidents within a country. Severity-based measures derived from reputational or risk scores are typically used in ESG research to reflect the depth of corporate misconduct at the portfolio level (e.g., Harjoto et al., 2021), with our study aggregating such measures at the country level.

By jointly analysing the prevalence and intensity of ESG incidents, this study examines whether past ESG misconduct contributes to changes in corporate behaviour at the country level. From a theoretical perspective, this paper contributes to institutional and path dependency theory by analysing whether negative ESG events influence sustainability trajectories over time. From a

practical perspective, the findings provide insights for policy-makers and regulators by highlighting the role of transparency, monitoring, and institutional pressure in shaping sustainable business behaviour.

The remainder of our paper is structured as follows: In the next section, we review theoretical and empirical studies that focus on the institutional environment, path dependence theory and corporate social irresponsibility. On the basis of this review, we develop our hypothesis. The third section describes the data, methods and descriptive statistics. The empirical study reported in section four uses an econometric approach to determine the extent to which the severity of firms' past ESG scandals affects the subsequent sustainability behaviour of firms in a given country. In this section, we use the data to construct maps illustrating the distribution of irresponsible corporate behaviour across European countries. The paper concludes with a discussion of the main findings and conclusions, specific limitations and avenues for further research.

Theoretical background and hypothesis development

Institutional theory provides a robust framework for analysing how norms, rules, and practices shape the business environment and influence both the composition of business populations and their engagement with sustainability (Brammer et al., 2012). This perspective emphasises the process through which certain behaviours and structures gradually become institutionalised, which supports stability but at the same time limits flexibility in responding to new challenges (Gaganis et al., 2021). Closely related to institutional theory is path dependency theory, which examines how historical events and critical junctures create persistent institutional trajectories that are difficult to change, often reinforcing established practices and generating lock-in effects (Schienstock, 2011). Together, these theories help explain why some business populations place greater emphasis on sustainability, shaped by historical factors such as environmental regulation or cultural pressures, while others remain constrained by deeply rooted paths (North, 1990).

Within firms, specific governance mechanisms are often institutionalised and play a key role in supporting sustainable practices. Internal institutions, such as corporate social responsibility (CSR) committees and internal control systems, directly impact firms' sustainability performance. Boulhaga et al. (2023) examine the role of CSR committees and show that their presence significantly accelerates environmental innovation within firms. This highlights the importance of formal internal structures in promoting sustainable practices. Similarly, weaknesses in internal control systems can negatively affect the relationship between ESG ratings and firm performance measured by economic value added (Chmelíková, 2008), highlighting the importance of strong governance systems in ensuring that sustainability initiatives translate into tangible outcomes (Boulhaga et al., 2023). Beyond these structural mechanisms, recent evidence suggests that the effectiveness of internal governance arrangements also depends on the strategic orientation of firms towards sustainability. Issa and Zaid (2025) report that corporate CSR strategies play a moderating role in the relationship between board gender diversity and carbon performance, indicating that governance attributes are more likely to lead to improved environmental outcomes when embedded within coherent and actively implemented CSR strategies.

Moreover, external institutions, both formal and informal, shape firm behaviour and influence sustainability efforts. Formal external institutions include regulatory authorities, international agreements, and legally binding frameworks that directly enforce sustainability standards (North, 1990). For example, research by

Kolk and Pinkse (2008) shows that the environmental strategies of multinational corporations are strongly influenced by the regulatory environments of the countries in which they operate. These formal institutions create a structured setting in which firms are required to comply with environmental standards, thereby pushing them towards more sustainable practices. In contrast, informal external institutions, such as social norms, public opinion, and industry standards, can also have a substantial effect on corporate sustainability. These informal institutions shape firm behaviour through expectations and cultural pressures. Firms operating in industries with high levels of consumer awareness or strong public advocacy for environmental issues are more likely to adopt sustainable practices even in the absence of formal regulation. In addition, informal networks, including professional associations or sustainability-oriented coalitions, often encourage firms to adopt best practices and share knowledge about sustainability-related challenges and solutions (Porter & Kramer, 2011).

Path dependency theory argues that historical events strongly influence future decisions, leading to entrenched practices and behaviours that are difficult to change (Schienstock, 2011). Path-dependent processes often arise through self-reinforcing mechanisms that lock organisations into specific patterns of behaviour, making transitions to alternative strategies difficult without major disruptive changes (Sydow et al., 2009). This is particularly relevant in the context of corporate behaviour, where organisations that initially adopt unsustainable practices or violate sustainability principles can significantly influence industry norms and encourage other firms to follow similar paths. Empirical evidence supporting this theory shows how path-dependent processes in organisational behaviour can shape norms across entire industries. For example, firms that engage in significant environmental violations or unsustainable practices may initially gain competitive advantages, and over time, these actions can become embedded in organisational culture and accepted industry norms. Once institutionalised, such practices exert pressure on other firms to adopt similar behaviour to remain competitive or comply with emerging standards (Beckman and Burton, 2008; Pierson, 2000).

Koch (2008) demonstrates how organisations in the German newspaper industry followed self-reinforcing business models that, despite changes in market conditions, locked firms into specific operational strategies until external shocks, such as technological disruptions, forced them to reassess these practices. Research on path-dependent processes also highlights the importance of self-reinforcing feedback mechanisms, such as coordination effects and learning effects, which lead organisations to persist in suboptimal strategies (Schreyögg & Kliesch-Eberl, 2007). These mechanisms help explain why firms continue to follow established patterns of behaviour even when they become inefficient until external shocks or competitive pressures trigger strategic change (Arthur, 1994). In the context of corporate sustainability, the persistence of past ESG violations can shape industry norms. A major shock or crisis, such as a large-scale environmental disaster or a shift in public opinion, can transform these norms and force firms to change their behaviour. This dynamic is evident in cases where firms that previously violated sustainability principles were compelled to alter their practices in response to public criticism or regulatory pressure. The impact of such shocks on organisational behaviour is consistent with path dependency theory, which suggests that once a path is established, it becomes increasingly difficult to change unless it is disrupted by significant external events (Pierson, 2000; Djelic and Quack, 2007).

Building on institutional theory and path dependency theory, this study assumes that corporate sustainability behaviour does

not evolve in isolation but is the outcome of long-term institutional processes in which norms and strategies gradually stabilise on the basis of historically shaped sources of competitive advantage. This study aims, on the basis of empirical observations of corporate behaviour in the field of sustainability, to examine the systemic effects of strongly negative ESG-related corporate misconduct on the formation of norms within the business population. We hypothesise that negative examples of irresponsible behaviour lead, through both formal and informal institutions, to a redefinition of acceptable practices and a shift in the behaviour of other firms towards more responsible strategies. This mechanism is interpreted as consistent with path dependency theory, which emphasises that corporate trajectories are shaped by where firms historically identify their sources of competitive advantage (D'Aveni et al., 2010). If unsustainable strategies are gradually perceived by institutions, markets, and social norms as a source of competitive disadvantage, a new path-dependent trajectory may emerge in which responsible behaviour becomes a self-reinforcing and dominant strategy. Resources that previously supported success through irresponsible behaviour may thus turn into institutional liabilities (França et al., 2023), leading to adaptation not only at the firm level but also across the entire business population. The study, therefore, examines whether historically negative sustainability shocks function as critical moments that redirect institutional trajectories towards higher levels of sustainability rather than reproducing irresponsible practices.

On the basis of this discussion, we propose the following hypothesis:

H1: The intensity of past irresponsible corporate behaviour is inversely associated with the current prevalence of sustainability violations within the business population.

Data and Methods

Data. In this study, we utilize a reputational risk indicator from the RepRisk database to operationalize irresponsible corporate behaviour. RepRisk is a data science company that provides transparency regarding the risks associated with ESG issues. It monitors the business practices of both public and private companies globally by analysing information from media and social networks, employing both human curation and artificial intelligence (RepRisk, 2024). The Reputational Risk Indicator (RRI) is provided monthly at the company level, with values ranging from 0 to 100. A value above 0 indicates that a company has been involved in an ESG-related incident. Table 1 presents the RRI values observed during the study period across all 27 EU member states.

Methods

Our objective is to investigate the extent to which the intensity of past violations against sustainability—that is, the severity of scandals—affects the behaviour of firms within a given country in relation to sustainability practices. To test our hypothesis, we adopt an empirical approach based on the estimation of a regression model. The dependent variable in our analysis includes a proxy that captures the prevalence of irresponsible corporate behaviour among firms, while the key independent variable is the lagged intensity of such irresponsibility, measured by the severity of scandals resulting from these behaviours.

The study design is illustrated in Fig. 1. It visually depicts the methodological framework of the study, which is based on institutional theory and path dependency theory.

To describe the average intensity of irresponsible business behaviour within each country, we calculated the mean value of this indicator across all companies in a given country and year.

Table 1 Reputational risk indicator (RRI) by firms in the EU 27 during the period 2015-2020.																								
RRI	2015			2016			2017			2018			2019			2020								
	N	Mean	Max	Min	N	Mean	Max	Min	N	Mean	Max	Min	N	Mean	Max	Min	N	Mean	Max	Min				
Austria	207	11.24	26.17	0.08	221	11.06	28.42	0.08	255	9.34	28.83	0.08	209	10.25	26.50	0.08	178	9.36	26.42	0.08	163	11.54	29.00	0.13
Belgium	159	10.29	29.92	0.08	206	10.78	32.25	0.08	309	12.38	28.75	0.08	308	10.32	28.92	0.08	307	9.85	27.50	0.08	291	11.87	27.25	0.13
Bulgaria	35	10.17	21.50	0.50	51	9.33	25.25	0.08	45	10.10	22.58	0.08	48	9.76	19.00	0.58	1	33.42	33.42	0.08	40	11.51	22.50	0.13
Croatia	13	11.12	26.17	1.50	15	8.89	16.08	1.67	13	8.97	14.67	0.08	14	10.39	19.50	1.00	45	9.96	24.58	0.08	115	10.49	26.38	0.13
Cyprus	93	10.27	23.67	0.08	130	9.57	22.42	0.08	149	10.76	28.08	0.08	154	8.28	23.75	0.08	137	9.69	25.25	0.25	35	11.52	27.63	0.63
Czech Republic	44	9.73	39.33	0.25	51	11.26	30.58	0.67	51	9.53	29.58	0.33	41	8.87	23.17	0.08	37	11.54	25.08	1.33	1136	12.33	29.75	0.13
Denmark	309	12.44	26.75	0.08	372	10.06	32.67	0.08	344	11.28	38.83	0.08	319	9.53	45.00	0.08	1176	9.43	29.08	0.08	6	35.23	44.88	31.00
Estonia	26	13.71	22.67	2.00	43	8.32	22.83	0.08	50	10.25	21.42	0.17	48	9.74	41.42	0.25	4	39.08	62.75	30.50	545	13.68	28.50	0.13
Finland	228	10.55	29.92	0.08	383	8.75	34.92	0.25	471	13.70	34.17	0.08	567	9.57	29.58	0.08	392	10.47	26.08	0.08	48	10.94	28.88	0.13
France	654	13.04	63.25	0.08	801	11.67	54.25	0.08	864	12.65	58.17	0.08	832	11.18	54.33	0.08	49	8.89	21.08	0.08	985	11.72	29.88	0.13
Germany	1019	11.40	60.92	0.08	1173	10.48	71.33	0.08	1304	12.12	64.83	0.08	1315	9.87	60.33	0.08	982	10.24	28.83	0.08	404	12.28	29.63	0.13
Greece	73	9.92	26.92	0.25	129	10.61	22.33	0.08	139	7.15	22.67	0.08	80	9.56	22.92	0.08	2	41.58	49.67	33.50	1	41.50	41.50	41.50
Hungary	32	11.65	23.08	0.08	40	10.03	23.92	0.17	38	12.96	21.25	0.08	36	7.29	22.42	0.08	447	9.16	26.08	0.08	786	13.11	29.13	0.13
Ireland	147	10.88	30.33	0.08	151	11.12	31.67	0.08	174	12.12	30.25	0.08	181	10.69	39.83	0.08	1	35.42	35.42	35.42	16	39.46	56.63	30.13
Italy	794	13.07	61.25	0.08	958	10.45	57.08	0.08	1346	11.92	61.00	0.08	1790	10.85	60.42	0.08	778	10.35	29.00	0.08	26	43.49	58.75	30.50
Latvia	28	11.61	21.08	1.25	40	11.20	21.67	0.42	57	10.22	30.00	0.50	53	12.13	37.75	1.00	19	39.51	54.17	30.75	67	12.93	25.63	0.13
Lithuania	14	12.15	25.92	0.75	21	11.23	20.92	0.50	26	9.58	18.17	1.50	28	7.79	21.00	0.08	25	43.44	62.42	31.00	12	8.28	15.63	0.38
Luxembourg	190	13.87	54.25	0.08	211	8.11	39.67	0.08	149	12.52	54.33	0.25	162	10.57	46.92	0.08	87	9.11	22.92	0.33	21	11.23	23.25	0.38
Malta	33	12.28	22.42	0.42	53	10.50	18.83	0.50	98	9.27	25.17	0.08	83	9.85	34.42	0.67	14	9.95	17.17	1.42	177	11.49	26.13	0.13
Netherlands	357	12.08	59.67	0.08	528	10.74	56.17	0.08	829	12.66	60.08	0.08	1009	11.65	60.75	0.08	24	10.03	23.00	2.08	3	33.83	40.63	30.38
Poland	94	7.87	23.58	0.08	105	10.51	23.33	0.17	117	9.36	24.25	0.25	112	9.07	24.83	0.08	185	11.13	26.75	0.08	2051	11.56	30.00	0.13
Portugal	124	11.31	35.08	0.50	148	10.49	27.83	0.08	142	10.64	34.67	0.08	157	10.19	34.75	0.08	2	41.79	46.58	37.00	11	38.08	55.00	31.13
Romania	96	9.29	27.42	0.25	102	10.82	23.33	0.08	106	8.01	21.33	0.17	67	8.02	21.50	0.25	1922	10.29	29.17	0.08	1	32.25	32.25	32.25
Slovakia	21	7.90	18.25	1.25	16	10.46	17.50	1.17	19	7.11	15.50	0.08	20	7.63	15.17	0.67	8	40.71	54.75	32.67	49	11.77	29.13	0.25
Slovenia	8	10.89	19.67	1.67	8	6.47	16.58	0.08	7	8.79	17.67	3.08	13	10.02	17.58	1.42	1	34.67	34.67	34.67	137	10.52	28.88	0.13
Spain	679	11.82	57.00	0.08	774	11.32	48.50	0.08	1461	12.68	47.08	0.08	1531	7.02	36.58	0.08	35	11.46	19.75	1.00	2	43.75	52.50	35.00
Sweden	375	10.96	46.92	0.08	354	11.16	42.75	0.08	332	11.51	50.58	0.08	299	10.65	49.08	0.08	144	10.63	27.92	0.08	65	9.73	23.00	0.13

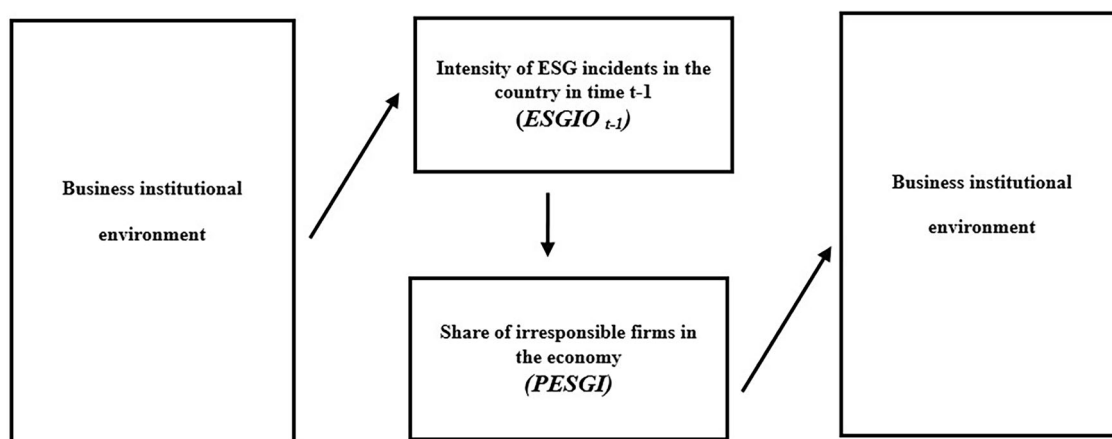


Fig. 1 Research design. Authors' own construction based on Gaganis et al. (2021) and Schienstock (2011).

Table 2 Description of Variables.

Variable	Label	Source	Description	Units
Dependent				
<i>PESGI</i>	Prevalence of ESG Incidents	RepRisk and Business Demography (Eurostat)	Share of firms involved in at least one ESG-related incident, out of all active firms in the country.	Per mille [‰]
Main effect				
<i>ESGIO</i>	Intensity of ESG incidents	RepRisk	Average RRI in the country.	-
Control				
<i>GDP_C</i>	GDP per capita	Eurostat	Gross domestic product (GDP) per capita in Purchasing Power Standards (PPS)	EUR thousand
<i>AIR</i>	Annual Inflation Rate	Eurostat	Harmonised indices of consumer prices - annual average rate of change	Percent [%]

This aggregated measure has the advantage of reflecting the overall level of corporate irresponsibility in a specific country. If a significant corporate scandal related to environmental, social, or governance issues occurs in a particular country and year, it is captured in the corresponding value for that country and time period. For the purposes of our empirical analysis, we refer to this measure as the **Intensity of ESG Incidents (*ESGIO*)**. To calculate this indicator, we used data from the period of 2015–2020. This period was intentionally selected because it ends before the onset of major exogenous shocks, such as the COVID-19 pandemic or geopolitical conflicts, which could introduce nonstandard influences on corporate behaviour and institutional responses. We included all firms in the EU-27 countries whose RRI values exceeded 0 and calculated the average for each country and year. The analysis was conducted on an annual basis with the following number of firms: 5852 incidents in 2015; 7084 in 2016; 8895 in 2017; 9110 in 2018; 8870 in 2019; and 8875 in 2020.

Our dependent variable, which captures the prevalence of violations of ESG principles, is calculated as the number of ESG-related incidents reported per country and year (i.e., the number of companies with a positive RRI in each year and country) relative to the total number of active companies in that country, which is taken from the Business Demography dataset from Eurostat. This measure captures the proportion of firms within a given economy that are involved in at least one ESG-related incident and is therefore labelled the **Prevalence of ESG Incidents (*PESGI*)**, providing a country-level indicator of how widespread unethical or irresponsible business practices are within the corporate population. *PESGI* offers the advantage of quantifying the prevalence of unethical practices within a country's business environment and provides a national-level perspective on sustainability-related infractions. To ensure the

validity of the *PESGI* calculations, we excluded countries whose official languages were not monitored by RepRisk for screening relevant information sources. Consequently, our sample is limited to 16 out of 27 EU member states: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Malta, the Netherlands, Poland, Portugal, Spain, and Sweden. This exclusion is necessary because our primary dependent variable, *PESGI*, depends on the detection of delinquent companies within a country, and a lack of language coverage by RepRisk would result in an artificially lower detection rate, rendering comparisons across countries unreliable. Additionally, firms with a RepRisk indicator of zero were excluded from the analysis. The number of ESG incidents in our dataset varied across the observation period, with 5463 incidents recorded in 2015, 6589 in 2016, 8273 in 2017, 9111 in 2018, 8250 in 2019, and 8254 in 2020 for the 16 EU countries combined.

All the variables, including descriptions of the measures and sources, are summarised in Table 2.

To test our hypothesis, we employed a regression analysis framework using panel data ($N = 16/27$, $T = 6$). We applied logarithmic transformation to all the variables, enabling the interpretation of the coefficients as elasticities. The analysis was conducted using SAS Studio software, which facilitates instrumental variable regression for both static and dynamic panel models where endogeneity is present. Endogeneity occurs when independent variables correlate with the error term, violating a fundamental assumption of classical linear regression models and potentially leading to biased and inconsistent estimates.

To address endogeneity, we implemented the Hausman–Taylor (HT) estimator. The Hausman–Taylor model (Hausman and Taylor, 1981) effectively combines the consistency found in fixed

effects models with the efficiency characteristic of random effects models. The HT estimator employs internal instruments to address endogenous explanatory variables. We selected two instrumental covariates, gross domestic product per capita in PPS (purchasing power standard) and the annual inflation rate, following established practices in similar research (Delmas and Montes-Sancho, 2011; Li and Wu, 2020; Rahi et al., 2023).

To validate our model, we employed the Amemiya–MaCurdy estimation method, which builds upon the Hausman–Taylor framework. This approach uses time-varying exogenous regressors across entire cross-sections, although it requires balanced data. The Amemiya–MaCurdy estimator assumes that regressors are uncorrelated with individual effects, enabling the use of a more comprehensive set of instrumental variables for improved efficiency.

Our regression model takes the following general forms:
Hypothesis 1: $IPESGI = IESGIO + IGDP_{C_{it}} + IAIR_{it} + \varepsilon_{it}$
 $IPESGI = IESGIO (-1) + IGDP_{C_{it}} + IAIR_{it} + \varepsilon_{it}$
where *IPESGI* is the log-transformed Prevalence of ESG Incidents in each EU-16 country, *IESGIO* (-1) is the lagged log-transformed Intensity of Incidents (average RRI in the country) in each EU-16 country, *IGDP_C_{it}* represents the log-transformed gross domestic product per capita in the Purchasing Power Standard in a specific country and year, *IAIR_{it}* signifies the log-transformed annual inflation rate in a specific country and year, and ε_{it} represents the error term.

Table 3 Descriptive statistics.						
Variable	Label	N	Mean	StDev	Min	Max
<i>IPESGI</i>	Prevalence of ESG Incidents	96	-0.448	1.131	-3.134	1.877
<i>IESGIO</i>	Intensity of ESG incidents	96	2.399	0.124	2.053	2.725
<i>IGDP_C</i>	GDP per capita	96	4.747	0.315	4.234	5.642
<i>IAIR</i>	Annual inflation rate	96	0.773	0.460	-1.204	1.649

All the variables were log-transformed.

All the variables underwent logarithmic transformation, with their descriptive statistics shown in Table 3, encompassing sample size, mean, standard deviation, and range values.

Results and discussion

As an initial step in our analysis, we developed maps illustrating the distribution of irresponsible business practices across the European Union. A visual representation of the intensity of corporate social irresponsibility across the EU-27 countries across the analysed years is presented in Fig. 2. The *ESGIO* indicator provides an estimate of the average value of the RRI for each country in a given year. This value is influenced by the extent to which businesses in a country violate ESG principles. In particular, a higher *ESGIO* reflects a greater degree of corporate misconduct and ethical breaches within a country’s business sector. When a country experiences corporate scandals or widespread unethical practices, the *ESGIO* increases accordingly. This map offers insight into how corporate irresponsibility evolves across different national contexts, providing a basis for further investigation into the underlying factors contributing to these trends.

The map indicates that the value of the *ESGIO* indicator remains relatively stable over time in individual countries. More pronounced fluctuations observed in some states result from isolated instances of corporate scandals, typically followed by a gradual stabilisation of the situation. A key question in our research is whether an increased *ESGIO* level indeed leads to subsequent improvements in the behaviour of other businesses within the country. This hypothesis is thoroughly tested on the basis of the calculation of the dependent variable, represented by the Prevalence of ESG Incidents (*PESGI*). Figure 3 highlights a subset of these EU16 countries whose official languages are covered by RepRisk, forming the basis of our research sample. For each country, we present the annual Prevalence of ESG Incidents, expressed as the number of companies per 1000 that committed sustainability-related violations in a given year.

Table 4 presents the results of the estimation of the impact of the intensity of past ESG incidents on the prevalence of ESG incidents. The negative prefix for the estimated coefficients in

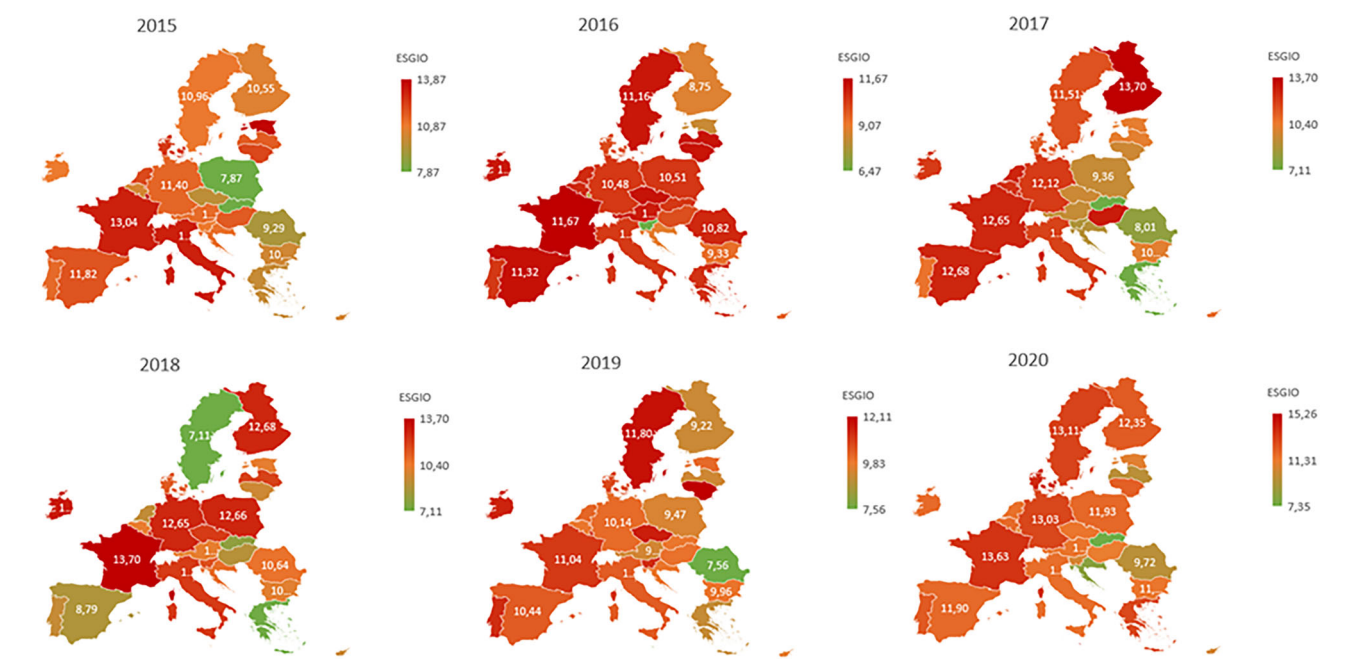


Fig. 2 Intensity of ESG incidents (*ESGIO*) in the EU 27 from 2015–2020—average RRI per country.

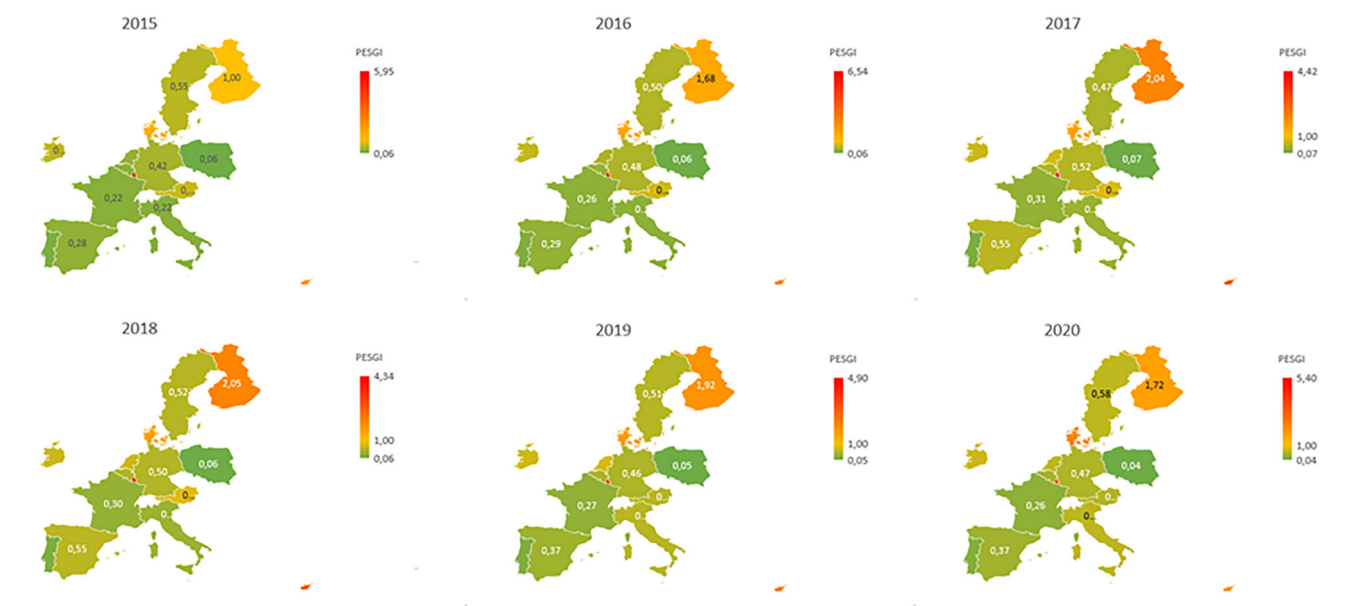


Fig. 3 Prevalence of ESG Incidents (PESGI) in the EU 16 for 2015–2020.

Table 4 Dependence of the Prevalence of ESG Incidents on the past Intensity of ESG Incidents.					
Main effect Xit	Intercept	Xit	GDP_C	AIR	R ²
IESGIO—Hausman-Taylor	−3.4076	0.237562 (0.2337)	0.482604 (0.9837)	0.128446 (0.0681)	0.0822
IESGIO—Amemiya-MaCurdy	−6.775671	0.256671 (0.230394)	1.183420 (0.811397)	0.122687 (0.067039)	0.1036
IESGIO (T-1)	1.023943	−0.58417* (0.2397)	−0.03984 (0.9701)	0.151163 (0.0660)	0.1032

GDP_c and AIR are control variables; standard error in parentheses, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.
Model 18: The Amemiya-MaCurdy model is not supported for unbalanced data.

Table 3 indicates that there is a negative relationship between the independent variable, time (t-1), and the Prevalence of ESG Incidents (PESGI) at time t. Specifically, the relationship is statistically significant and negative. Consequently, the results presented here support the assertion made in Hypothesis 1 that the intensity of ESG incidents in the past is related to a lower current Prevalence of ESG Incidents. Consequently, our original assumption is validated, namely, that if past violations of ESG principles have resulted in a loss of competitiveness in the subsequent period, firms adapt their behaviour in response to this experience and change the way they do business in relation to sustainability in the following period. This dynamic aligns with institutional theory, which posits that firms respond to external pressures from formal and informal institutions (DiMaggio and Powell, 1983; North, 1990). Furthermore, the results illustrate the principles of path dependency, where past events, such as ESG scandals, influence the trajectory of corporate behaviour and institutional norms (Djelic and Quack, 2007; Schienstock, 2011). Specifically, firms appear to shift their strategies towards improved ESG compliance to regain a competitive advantage, as suggested by França et al. (2023), reinforcing the argument that institutional environments and historical contingencies shape corporate adaptation and sustainability trajectories.

Our findings support institutional theory, especially the concept of path dependency discussed by Djelic and Quack (2007). This concept suggests that decisions and events from the past influence later actions and behaviours. Additionally, our results align with the work of D’Aveni et al. (2010), which highlights the need for organisations to adapt to environmental changes and continuously seek new ways to maintain a competitive edge. In

cases of major ESG scandals in a country, our research shows that other companies respond by adapting to the stricter oversight from governments and stakeholders in the following period. As a result, these firms demonstrate more responsible behaviour, leading to a decline in ESG violations over time. This highlights the connection between company-level adjustments and broader institutional changes. While individual firms react to the consequences of past ESG issues, their actions collectively shape changes in institutional norms and expectations. This feedback loop illustrates the dual nature of path dependency, where institutions influence the behaviour of firms, and firms, in turn, influence institutional development.

Our findings suggest that ESG-related scandals or an increase in their intensity lead to greater corporate responsibility in the affected country during subsequent periods. This perspective complements some previous studies, which have focused primarily on firm-level responses to ESG controversies rather than broader national trends. For instance, Heflin and Wallace (2017) argued that firms facing scandals implement strategic measures to strengthen corporate social responsibility, whereas Utz (2017) reported that scandals initially cause a temporary decline in retrospective ESG indicators, followed by long-term improvements. These studies support the idea that firms react individually to ESG controversies, but they do not directly address whether such incidents influence overall corporate behaviour within an economy. Additionally, existing research highlights the role of firm size and governance structures in shaping ESG responses. Larger firms tend to face greater public scrutiny and are more vulnerable to reputational risks (Xue et al., 2023; Barkemeyer et al., 2020; D’Amato and Falivena, 2019). Moreover, companies with

stronger corporate monitoring experience more pronounced negative effects from ESG controversies (Xue et al., 2023), which aligns with Kordsachia et al. (2022), who argue that external oversight enhances corporate awareness of sustainability issues, and Baldini et al. (2018), who provide evidence in support of corporate public and private visibility as a tool to induce corporate legitimization through higher levels of ESG disclosure. While Elamer and Boulhaga (2024) emphasize the negative impact of ESG scandals on firm performance, they also highlight the role of corporate governance in mitigating these effects and even turning crises into opportunities for growth. Similarly, Wu et al. (2023) report that ESG controversies drive firms to improve their environmental and social performance, particularly when strong governance structures are in place. While these studies provide valuable insights into firm-level adaptations, they do not directly examine the systemic impact of ESG scandals on corporate behaviour across an entire economy. Our findings suggest that scandals may serve as broader regulatory and reputational signals, prompting firms beyond those directly involved to adopt more responsible practices. This implies that ESG controversies may not only trigger firm-specific responses but can also lead to a collective shift towards greater corporate responsibility at the national level.

In summary, these findings suggest that while ESG scandals initially pose significant challenges to firms, they can also act as drivers of change. Companies facing such controversies often respond by enhancing their sustainability efforts, improving their governance structures, and adopting more responsible business practices. These adjustments not only help firms recover from negative events but also contribute to broader institutional shifts towards higher ESG standards and corporate accountability.

Conclusion

Our study has two main findings. (1) There is a significant inverse relationship between the historical intensity of ESG violations and the current prevalence of ESG violations. (2) ESG scandals lead to behavioural changes in the context of sustainability compliance not only among scandal-affected firms but also among other firms in different countries.

The detection of scandalous ESG incidents has an impact on the behaviour of companies and is correlated with a subsequent decrease in the overall Prevalence of ESG Incidents in a country. The introduction of public control has prompted firms to adopt a more cautious approach. If past ESG scandals are associated with a loss of competitiveness in the subsequent period, firms adapt their behaviour in response to this experience and change the way they do business towards sustainability. Subsequently, the prevalence of ESG-related incidents in a given country tends to decline. The behaviour of organisations is influenced by institutional pressures, which prompt them to adapt their strategies in accordance with the expectations of the institutions in question (Ioannou and Serafeim, 2012). This process, described by Arranz and Arroyabe (2023) as institutional isomorphism, ultimately serves to legitimise the organisations in question.

Building on these findings, our research aligns with that of Eccles et al. (2014) and Fatemi et al. (2018), who emphasize the importance of transparency in managing ESG risks. For example, Eccles et al. argue that mandatory ESG disclosures increase accountability and encourage firms to adopt better practices, whereas Fatemi et al. (2018) suggest that although ESG reporting can be demanding, it builds stakeholder trust and mitigates greenwashing risk. This is evident in our analysis, which shows that firms facing reputational risks from past scandals adapt by aligning their practices with evolving societal and regulatory

expectations. Consequently, it is of paramount importance for policy-makers to implement robust regulatory oversight and to provide substantial support to NGOs and other stakeholders engaged in monitoring corporate activities (Campbell, 2007; Matten and Moon, 2008; Toukabri and Al Adawi, 2023). Consequently, they can assist in the promotion of more sustainable business practices not only within EU countries but also across jurisdictions. Stricter reporting requirements and standardized frameworks for ESG disclosures can minimize ambiguity, reduce greenwashing, and foster accountability. Publicly accessible platforms to track ESG violations and sustainability rankings can amplify the visibility and costs of misconduct, whereas penalty mechanisms tied to ESG violations can deter unethical behaviour and reward sustainability excellence.

From a theoretical perspective, this study contributes to institutional theory and path dependency theory by showing that ESG scandals can act as critical turning points rather than as sources of permanent lock-in. While path dependency theory traditionally emphasises the stability and persistence of established practices (Schienstock, 2011; Sydow et al., 2009), our results demonstrate that negative ESG events may redirect institutional trajectories when irresponsible behaviour becomes associated with competitive disadvantage. In line with North (1990) and DiMaggio and Powell (1983), firms respond to both formal and informal institutional pressures, leading to institutional isomorphism towards more responsible behaviour (Arranz and Arroyabe, 2023). This finding extends prior research by showing that path-dependent processes in sustainability are dynamic and corrective, supporting the idea that institutional environments and historical contingencies jointly shape long-term corporate sustainability trajectories (D'Aveni et al., 2010; França et al., 2023).

From a practical and policy perspective, our findings suggest that ESG scandals generate spillover effects that influence corporate behaviour beyond the firms directly involved. Increased transparency, public scrutiny, and reputational risk encourage firms to adjust their strategies towards sustainability, reducing ESG violations at the national level. This highlights the importance of strong regulatory oversight, mandatory ESG disclosure, and support for NGOs and other monitoring actors (Campbell, 2007; Matten and Moon, 2008). Policy-makers should strengthen standardized ESG reporting frameworks and ensure public access to information on ESG violations, as these mechanisms increase accountability and discourage misconduct. Consistent with Eccles et al. (2014) and Fatemi et al. (2018), our results show that transparency is not only a reporting tool but also a driver of behavioural change. Overall, creating an institutional environment in which the costs of irresponsible behaviour exceed its short-term benefits can promote sustainable business practices and enhance long-term competitiveness and credibility across economies.

This research has several limitations that should be considered. This study focuses exclusively on the EU-27, specifically the EU-16, which may limit the generalizability of the results to other regions with different institutional and cultural contexts. Additionally, the data cover only a six-year period from 2015 to 2020, which may be relatively short for observing long-term changes in corporate behaviour and institutional norms. For future research, it would be beneficial to expand the geographical scope to include regions outside the EU-27, such as emerging markets or other developed economies. This could provide a broader perspective on the impact of ESG scandals on a global scale. Extending the study's time horizon would also be advantageous, as it would allow for a better understanding of the long-term effects of ESG scandals on corporate behaviour and institutional change.

Data availability

The datasets generated and analysed during the current study are publicly available in the Zenodo repository under DOI [**10.5281/zenodo.18086476**](https://doi.org/10.5281/zenodo.18086476).

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Author contributions

G.Ch. conceptualized the research idea, designed the methodology, and operationalized key variables. R.K. and H.Ch. conducted the literature review and contributed to the theoretical framing. J.Š. was responsible for econometric modelling and data analysis. All authors contributed to the writing of the manuscript and reviewed the final version. The authors declare no conflicts of interest that could influence the objectivity or validity of the research findings.

Competing interests

The authors declare no competing interests.

Ethical approval

This article does not contain any studies with human participants performed by any of the authors. The research was conducted using secondary data on corporate behaviour and practices, which were sourced from publicly available databases and reports.

Informed consent

This article does not involve human participants, and therefore, informed consent was not required. The study utilized secondary data related to corporate actions, and no personal data of individuals were collected or used.

Additional information

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