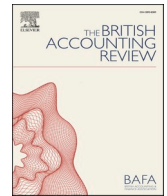




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# High-quality assurance, ESG legitimacy threats and board effectiveness

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## ABSTRACT

This study aims to investigate whether companies engage high-quality assurance in response to legitimacy threats caused by media coverage of negative sustainability events. Since responsive strategies designed to maintain or repair legitimacy directly emanate from boards, the paper also analyses whether board effectiveness reinforces defensive strategies to maintain a company's reputational capital and public image under environmental, social and governance (ESG) concerns by supporting high-quality sustainability assurance. Using a sample of STOXX Europe 600 index firms from 2015 to 2020, the empirical results confirm the substantive role of assurance. When a company's legitimacy is at risk due to media coverage of ESG misconduct, the assurance of sustainability information is employed as an instrument to aid in repairing the company's legitimacy. In addition, our results confirm that boards with desirable attributes of independence and activity act jointly with assurance quality to legitimise companies. In addition, this paper also brings evidence about the mediating effect of board effectiveness; the impact of negative media ESG coverage on sustainability assurance quality appears to be justified by the effectiveness of the board. The evidence also points to interesting findings concerning controversial industries and countries with tight cultures, where the assurance quality seems not to respond to the legitimacy threats associated with media coverage of undesirable ESG. However, and after studying how the European Directive 2014/95/EU affected the symbolic use of assurance, results confirm that there are no significant differences in the legitimising use of assurance quality after irresponsible ESG actions before and after the directive, and neither, depending on the level of sustainability performance or public enforcement.

## 1. Introduction

This paper examines the utilization of high-quality assurance by European companies in response to legitimacy threats arising from media coverage of negative sustainability events. While the primary objective of assurance is to improve the quality of sustainability information disclosed by companies and enhance stakeholders' confidence in sustainability reports, existing research highlights its potential to yield significant internal benefits for organizations (Casey & Grenier, 2015; Park & Brorson, 2005). Notably, a growing body of literature suggests that assurance can play a pivotal role in mitigating sustainability risks, addressing legitimacy threats, and garnering stakeholder support for sustainability performance (Boiral et al., 2019; Park & Brorson, 2005; Perego & Kolk, 2012;

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Simnett et al., 2009). Drawing upon legitimacy theory and media agenda-setting theory, this paper delves deeper into understanding how companies employ assurance for legitimacy purposes, exemplified through an extreme case of legitimacy crisis, such as media coverage of negative sustainability issues.

Societies are also becoming more demanding in terms of companies' sustainability behaviour, where legitimacy is vital to developing economic activities and company survival (Reno, 1994). With the proposed "social contract" (Deegan, Rankin, & Tobin, 2002; Gray, Kouhy, & Lavers, 1995), companies are compelled to obtain legitimacy to operate, which occurs when their activities are perceived to be in line with the systems of norms, values, beliefs and expectations prevailing in the society of which they are a part (Schuman, 1995; Deegan, Rankin, & Tobin, 2002; Cho & Patten, 2007).

Legitimacy must be obtained but also maintained. If society perceives that a company's sustainability behaviour is not congruent with societal values and expectations, a legitimacy crisis may arise. It may even lead to a situation where the "license to operate" is revoked (Branco & Rodrigues, 2006).<sup>1</sup> Therefore, since companies must manage legitimacy (Ashforth & Gibbs, 1990; Deegan, 2019), when an event negatively affects their legitimacy, firms must take action to reestablish the consistency between their behaviour and accepted social norms. In this way, their damaged legitimacy can be repaired (Cho et al., 2015; Deegan, 2014; Lindblom, 1994; Patten, 1991). Prior research has suggested that when a company's legitimacy in terms of sustainability performance is at risk, the assurance of sustainability information can be used as an instrument to help repair the company's legitimacy (O'Dwyer et al., 2011; Simnett et al., 2009; Smith et al., 2011). The legitimacy role of assurance lies in the fact that assurance has the potential to improve companies' sustainability behaviour and performance by identifying areas for improvement, weaknesses in internal control, data capture and data management and reducing sustainability risks (Casey & Grenier, 2015; Owen et al., 2000; O'Dwyer et al., 2011; Park & Brorson, 2005).

However, as previous research has suggested, companies may attempt to address legitimacy threats through symbolic activities only to create an impression (Deegan, 2002; Michelon et al., 2015; Milne & Patten, 2002). Drawing on this argument, in the sustainability context, assurance might be adopted as a mere symbolic process to obtain societal support but without significant changes in sustainability performance (Cho et al., 2015; Owen et al., 2000). Consequently, previous research has cast doubt on the ability of assurance to improve companies' sustainability behaviour due to, for example, the potential managerial capture of the assurance process, assurance providers' lack of independence and the superficial assurance engagement developed. Thus, companies may use assurance as an impression management tactic or "greenwashing" to manipulate stakeholders' perceptions of sustainability practices (Ball et al., 2000; Casey & Grenier, 2015; Clarkson et al., 2011; O'Dwyer & Owen, 2005; She & Michelon, 2019).

To clarify the substantive and symbolic roles of sustainability assurance in the context of a legitimacy crisis, in this paper, we analyse the level of assurance quality following the idea developed by Hummel et al. (2019). They state that the high-quality assurance can be considered an action genuinely aimed at addressing the events causing the legitimacy threat, therefore providing an appropriate scenario to understand the legitimacy role of assurance. This argument is based on two main premises. First, despite assurance is mandatory in several European countries during the period analysed, the level of quality assurance is driven by market forces (Cohen & Simnet, 2015).<sup>2</sup> The Non-Financial Reporting Directive 2014/95/EU, commonly known as the NFRD, was introduced by the European Union in 2014 with the purpose of requiring non-financial disclosure documents from public-interest entities (PIEs) that employ more than 500 people. The NFRD serves as an extension to the existing annual financial reporting requirements and offers guidelines for companies to disclose their approach to managing environmental and social challenges within their annual reports. The primary goal of the NFRD is to enhance transparency and accountability by compelling companies to engage in sustainability reporting regularly and outline their specific policies on such matters. While the directive does not explicitly mandate assurance, it is recommended. Consequently, certain countries have started to consider assurance as mandatory, even in the absence of issued assurance guidelines, and have suggested using international standards like the AA1000 Assurance Standard (AA1000AS) established by AccountAbility and the International Standard on Assurance Engagements (ISAE 3000) set by the International Audit Assurance Standards Board (IAASB).

Both assurance standards employ a principles-based framework that provides flexibility in various aspects of the assurance process, such as the engagement's objective, level and scope of assurance, employed procedures, competence and independence of the assurance provider, and the manner in which conclusions are rendered. As a result, the specific level of assurance quality is voluntarily determined by companies. Thus, high-quality assurance will be requested only when the expected benefits outweigh the costs. The expected benefits include obtaining, maintaining and repairing legitimacy, and the desire to improve damaged legitimacy might be one of the main drivers for high-quality assurance.<sup>3</sup> Therefore, high-quality will not be sought unless a legitimacy crisis exists, prompting companies to take substantive and effective actions to address the crisis. However, when companies are only looking for symbolic actions to cosmetically manage their legitimacy, a minimal investment in assurance quality would be expected. Second, prior research has found that there is considerable variation in the assurance quality companies require (Ball et al., 2000; Deegan et al., 2006; Mock et al., 2007; O'Dwyer & Owen, 2005). Given that a high level of assurance may produce substantive changes in the policies and activities that enhance sustainability performance, the greater the company's legitimacy requirements, the greater the high-quality assurance; that is, firms adjust their requirements for quality to their need for legitimacy.

When applying the legitimacy theory, it is important to analyse how legitimacy threats arise. As Chiu and Sharfman (2011) suggest,

<sup>1</sup> Deegan (2002) points out the negative effects of the legitimacy threat, such as reduced demand for products, limited access to economic resources (materials, financial and human resources) and stakeholder litigation.

<sup>2</sup> Specifically, to the best of our knowledge, the assurance is mandatory in Belgium, Denmark, France, Iceland, Italy, Netherlands, Spain and UK.

<sup>3</sup> Obviously, other concurrent benefits include increased stakeholder confidence in the reliability and relevance of sustainability information and reduced information asymmetries.

most of the legitimacy threats companies face come from the attention their sustainability activities attract, i.e. how visible companies are to society. In this respect, the principal source of visibility or attention to negative sustainability issues is the media (Brammer & Pavelin, 2006; Brown & Deegan, 1998; Deegan, Rankin, & Tobin, 2002; Patten, 1992). In this sense, such as suggest media agenda-setting theory, the attention paid to negative sustainability events can affect stakeholders' perceptions of a company's sustainability performance, leading to greater concern and scrutiny (Deegan, Rankin, & Tobin, 2002). Thus, companies with more media exposure are subject to increased stakeholder pressure and are more likely to take actions to legitimise their sustainability activities. Among the possible ways to address the legitimacy threat caused by media attention is to engage high-quality assurance. High-quality assurance contributes to improving sustainability performance and, therefore, leads to reducing stakeholders' scrutiny and social pressure, repairing damaged legitimacy (Gillet-Monjarret, 2015). As a new topic not examined in previous studies, the first objective of this paper is to provide insights into the relationship between negative media coverage and high-quality assurance.

The level of assurance quality must be analysed in the context of boards and directors at the forefront of managing and addressing social and environmental expectations (Bezemer et al., 2023). Boards of directors have the power to undertake responsive strategies to maintain or repair legitimacy (Aguilera et al., 2006; Michelon & Paboretti, 2012), reduce uncertainty (Hillman et al., 2000) and information asymmetries (Adams & Ferreira, 2009) and promote the image of their firms through socially responsible actions (Fabrizi et al., 2014). As sustainability disclosure strategies directly emanate from the board and considering the monitoring role of directors, we can expect boards to directly influence any defensive strategy performed to maintain a firm's reputational capital and corporate public image. In this regard, previous literature has shown the influence that effective boards have on reducing irresponsible corporate behaviour (Jain & Zaman, 2019; Neville, 2018). Moreover, the rise in sustainability concerns occurring during the last few decades has brought about changes in board composition in terms of more independence and diversity and less duality. These changes have important implications for firms' sustainability strategies (Zattoni & Pugliese, 2021). According to Michelon and Parbonetti (2012), effective boards and sustainability disclosures are complementary mechanisms companies use to legitimise their behaviour. Therefore, the second aim of this paper is to analyse the potential moderating effect of the most relevant internal corporate governance mechanism by examining whether boards with desirable attributes in terms of composition, activity and leadership act jointly with assurance quality in companies' legitimisation process. Thus, we examine board effectiveness and high-quality assurance as tools that work together to address legitimacy crises and mitigate legitimacy threats.

The possible relationship between assurance quality and boards when addressing a legitimacy crisis can be complementary or substitutive. From a substitutive perspective, the structure of the board of directors may be effective enough to face a legitimacy threat due to its role of safeguarding stakeholders' interests and ensuring that sustainability activities are in line with their expectations. Not surprisingly, in the context of irresponsible corporate activities, directors have led corrective actions, such as imposing fines and penalties, dropping seats held on other boards, or terminating managers (Burke, 2020; Colak et al., 2022; Jain & Zaman, 2020). From this perspective, the high-quality assurance may not be affected or even be reduced in the presence of an effective corporate governance structure if the company faces a legitimacy threat. On the other hand, with a complementary relationship (Peters & Romi, 2015; Zhou et al., 2016), companies with strong corporate governance systems led by an effective board of directors may use high-quality assurance to face legitimacy crises and preserve their reputational capital.

From the above, this paper aims to evaluate the legitimacy role of sustainability assurance by examining two main objectives. The first one is how certain threats to legitimacy, such as negative environmental, social and governance (ESG) media coverage associated with irresponsible ESG conduct affect the high-quality sustainability assurance. The second one, focusing on the governance structure of firms, investigates the moderating role of effective boards in the relationship between assurance quality and legitimacy threats. Our analysis of 3600 firm-year observations of STOXX 600 European firms for the 2015–2020 period confirms our main arguments and contributes to the existing literature in several ways. First, this paper shows that greater company legitimacy requirements caused by negative media coverage of irresponsible ESG behaviour results in increased the level of assurance quality as a symbolic tool. That is, companies are compelled to ensure the legitimacy of their activities due to media coverage of undesirable ESG by engaging high-quality sustainability assurance. The evidence also confirms that board effectiveness in terms of independence, activity and dual leadership works in tandem with high-quality assurance to ensure firm legitimacy. In other words, firms with more effective boards are better prepared to reduce the legitimacy damages caused by irresponsible ESG actions. As further evidence, this paper also brings light about how the influence that media coverage of negative ESG news has on a company's incentives to engage high-quality assurance is dependent on the board effectiveness from a mediating effect; in other words and following the Baron and Kenny (1986)'s research process for testing the mediation, this research confirms how the higher-quality assurance is dependent of the negative media coverage after irresponsible ESG actions but also of the board effectiveness.

Moreover, additional concurrent legitimacy threats, as well as institutional pressures and normative, could impact the level of assurance quality. Therefore, we also analyse (i) concurrent legitimacy threats related to weak sustainability performance and industry membership to controversial sectors; (ii) cross-country differences according to the strength of social norms and sanctioning (tight culture), as well as the level of external supervision (public enforcement); and (iii) the influence of the 2014/95/EU Non-financial Reporting Directive that was put into effect in 2018.<sup>4</sup>

Our evidence finds that responses to media coverage of corporate misconduct are highly dependent on industry type and the external monitoring mechanisms associated with tight cultures and institutional factors (Wong & Zhang, 2022), without finding

<sup>4</sup> Note that the normative reference nowadays is the Corporate Sustainability Reporting Directive (CSRD) that was approved in December 2022). The initial implementation of the new rules will require companies to adhere to them for the first time during the financial year of 2024, with the corresponding reports expected to be published in 2025.

differences in levels of sustainability performance or public enforcement, and neither, in normative regulation. The results suggest that due to their greater concerns about sustainability, intense stakeholder pressure and social scrutiny, the incentives to provide high-quality assurance after negative ESG media coverage can be greater in controversial industries, including sinful companies (e.g. alcohol, adult entertainment and tobacco), and firms involved in emerging environmental, social and ethical issues (e.g. oil and gas and hazardous waste). In loose cultures, managers' incentives to restore legitimacy after irresponsible ESG actions are greater than in tight cultures where countries are characterised by stronger sanctions, norms and social institutions.

This paper is structured as follows. Section two develops the theoretical background for the two research hypotheses of this study. Section three reports the method, sample, data and variable measurement, while in section four, the model and technique of analysis are described. Section five reports the multivariate and additional results. Section six concludes with a discussion of the results, contributions and limitations.

## 2. Theoretical background. Research hypotheses

### 2.1. High-quality assurance and negative ESG media coverage

As noted in the introduction companies determine voluntarily the level of assurance quality they seek, resulting in a diverse level of assurance quality across organizations (O'Dwyer & Owen, 2005). Previous studies have examined the various drivers influencing firms' decisions to pursue a particular level of assurance quality, drawing upon theories such as agency theory, institutional theory, signaling theory, and legitimacy theory (Deegan & Rankin, 1996; Brown & Deegan, 1998). In this paper, we adopt the legitimacy theory and media agenda-setting theory to elucidate the incentives behind companies' preferences for specific levels of assurance quality (Deegan & Rankin, 1996; Brown & Deegan, 1998).

Legitimacy theory posits that companies do not possess an inherent right to exist unless their value system aligns with the societal norms, values, beliefs, and definitions prevalent within their operating environment (Suchman, 1995, p. 574). According to this theory, a company's "license to operate" is granted by the immediate society in which it operates through an implicit contract, requiring the company to meet the society's expectations regarding its operations. By adhering to prevailing social norms, values, and performance expectations, companies acquire the necessary legitimacy to continue accessing social resources and maintain their license to operate, thus ensuring their long-term survival (Cho, 2009; Deegan, Rankin, & Tobin, 2002; Patten, 1992).

Conversely, if a company is perceived to have violated the implicit terms of its social contract by deviating from societal values, norms, and expectations, its legitimacy is jeopardized, potentially endangering the company's existence (Cho & Kim, 2012; Deegan, Rankin, & Tobin, 2002). The revocation of the license to operate can be evidenced by a decrease in customer demand for the company's products or services, restricted access to resources from suppliers (e.g., financial capital and labor), and legal sanctions (Deegan, 2002; Deegan & Rankin, 1996). Applying the reasoning of legitimacy theory to sustainability practices, it becomes apparent that negative incidents inconsistent with society's sustainability performance expectations can undermine the perceived legitimacy of companies.

A significant aspect that requires careful consideration is the analysis of how a legitimacy crisis emerges. It is important to highlight that legitimacy is based on the perceptions held by society at large, necessitating a study of how these perceptions are shaped (Aerts & Comier, 2009; Suchman, 1995). In this regard, an increasing number of studies drawing on media agenda-setting theory have examined the role of media coverage in the formation of society members' opinions regarding company behavior and, consequently, the perception of a company's legitimacy (Deegan et al., 2000; Branco & Rodrigues, 2008; Aerts & Comier, 2009; Brown & Deegan, 1998; Dawkins & Fraas, 2011; Deegan, Rankin, & Tobin, 2002; Islam & Deegan, 2010; Patten, 2002). This issue is particularly relevant in the context of sustainability because negative sustainable behavior is unlikely to be noticed if it does not receive media coverage, making media coverage the primary source of information regarding negative sustainability issues (Graf-Vlachy et al., 2020; Kölbel et al., 2017).

Media agenda-setting theory argues that the media not only reflects societal opinions but also has the ability to shape community concerns and create the public agenda (Ader, 1995; McCombs & Shaw, 1972). The emphasis placed by the media on various events influences the salience these events receive from the general public. Therefore, increased media attention leads to heightened community concern about different issues. Consequently, media coverage enhances public exposure to companies and can influence the information provided to society, thereby impacting how society interprets and evaluates the appropriateness and desirability of companies' behavior (Pollock & Rindova, 2003). Given that negative sustainability issues attract extensive media attention, companies that receive a higher level of media coverage of negative sustainability events are likely to face increased pressures and the potential for a legitimacy crisis (Pavelin, 2006; Brammer et al., 2012; Stähler & Fischer, 2020). Several studies have found empirical evidence of the severe effects of negative media coverage on various aspects, such as an increase in firms' cost of capital and stock price volatility (Pollock & Rindova, 2003; Liu et al., 2014; Kölbel et al., 2017), customers' purchasing behavior (Berger et al., 2010; Stephen & Galak, 2012), and CEO dismissals (Burke, 2021). This supports the argument that negative media exposure can lead to a loss of legitimacy for companies and the revocation of their license to operate.

To address the loss of legitimacy caused by media coverage of unfavorable sustainability issues, companies must undertake corrective actions by altering their activities to conform to societal norms and expectations regarding their operations. In this regard, previous research has indicated that assurance can be considered one of the strategies employed by companies to align their sustainability behavior with the values and expectations of society's members and, thus, restore damaged legitimacy (O'Sullivan & O'Dwyer, 2009; Simnet et al., 2009; Perego & Kolk, 2012; Cho et al., 2015; Segui-Mas et al., 2015; Datt et al., 2018, 2019; H. Umel et al., 2019; Ruiz-Barbadillo & Martínez-Ferrero, 2020).

The ability of assurance to restore damaged legitimacy rests on the argument that it can yield substantial and effective improvements in sustainability policies and practices (Ball et al., 2000; Park & Brorson, 2005; Jones & Solomon, 2010; O'Dwyer et al., 2011;

Guillet, 2012). In effect, assurance may offer insights into weaknesses in control systems and provide guidance in designing, developing, and implementing new processes that facilitate better decision-making regarding sustainability practices (Ball et al., 2000). Furthermore, assurance can contribute to an understanding of emerging sustainability issues, assisting companies in aligning their sustainability activities and policies with material issues that concern stakeholders (Park & Brorson, 2005; Guillet, 2012). If such efficiencies result in improved sustainability performance, assurance can help companies effectively manage significant sustainability risks, thereby preventing the recurrence of adverse sustainability events in the future. This contributes to reducing societal pressures and mitigating the negative effects of damaged legitimacy (Fonseca, 2010; Jones & Solomon, 2010; Simnett et al., 2009).

Drawing upon legitimacy theory and media agenda-setting theory, it is reasonable to anticipate that companies experiencing heightened negative media exposure because of poor sustainability performance will attract greater attention from society, leading to an increased loss of legitimacy. Consequently, it is expected that the level of assurance quality will not be uniform across companies, as the legitimacy requirements vary based on the visibility and attention that companies receive. Based on this line of reasoning, we propose the following hypothesis.

**H1.** More media coverage of negative ESG news events increases a company's incentives to engage high-quality assurance.

## 2.2. The moderating effect of internal corporate governance effectiveness

Previous literature has evidenced the negative consequences of adverse ESG media coverage on firm valuation (Wong & Zhang, 2021), financial risk (Kolbel et al., 2017; Khan, 2022), CEO permanence (Kang & Kim, 2017), earnings management (García-Meca & Martínez-Ferrero, 2023) and stock price volatility (Serafeim & Yoon, 2022). These severe consequences of threats to organisational legitimacy highlight that any firm can suffer a legitimacy crisis after receiving negative media coverage. Since irresponsible behaviour is often attributed to the board or top management (Connelly et al., 2016), it is usual to expect a credible response from the upper echelons of the firm (Berends et al., 2020).

According to Maguire and Hardy (2009), organizations usually develop defensive institutional mechanisms to minimise the disruptions caused by negative events or inappropriate practices. As an internal corporate governance mechanism, boards of directors play a significant role in reducing the gap between corporate and societal values and stakeholders' expectations since they have the power to undertake responsive strategies to maintain or repair legitimacy and reduce uncertainty (Hillman et al., 2000). In addition, boards of directors act as critical internal governance mechanisms, with their main functions being to monitor managers (Jensen & Meckling, 1976) and provide resources (Pfeffer, 1973). They are responsible for developing their firms' sustainability strategies and are deeply involved in promoting the image of their firms through social responsibility (Fabrizi et al., 2014). Therefore, when negative ESG issues are made public by the media, boards may try to carry out appropriate strategies to avoid being penalised by stakeholders (Pfeffer & Salancik, 1976). They can send signals that there is corporate distance from ESG misconduct (Graf-Vlachy et al., 2020).

However, not all board-level structures are similarly effective in monitoring managers and providing firm legitimacy when faced with episodes of corporate social irresponsibility (Jain & Zaman, 2020), and board efficiency varies depending on board composition and activity. Among board-level factors, the board's ability to act as an effective provider of legitimation and reputational capital and to exert an effective monitoring role depends largely on its independence (Hillman et al., 2000). Due to incentives to defend their reputation as expert monitors, independent directors plausibly use disclosure to signal stakeholders that they are effectively fulfilling their duties (Patelli & Prencipe, 2007). In this vein, independent directors have a role in protecting stakeholders (Daily & Dalton, 2004), especially in environments or situations more proactive to disclosing information (Haniffa & Cooke, 2005; García-Meca & Sánchez-Ballesta, 2010). Companies' strategic direction and organisational members' activities are also a reflection of the independence of CEO leadership structure. Prior research supports the separation of the CEO and board chair roles to enhance the board's ability to perform its monitoring function. Therefore, the literature confirms that separating CEO and board chair roles increases the CEO's ability and incentives to monitor the board and managers for misconduct (Neville et al., 2019). It also reduces the CEO's opportunities for wrongdoing. Finally, along with the independence of the board, the level of board activity is also an important determinant of its effectiveness and directors' monitoring efforts (Adams & Ferreira, 2012; Vafeas, 1999). Board activity is associated with greater diligence and more transparency to outsiders (Martínez-Ferrero & García-Sánchez, 2017), as well as less corporate social irresponsibility (Jain & Zaman, 2019).

Regarding the relationship between board efficiency and assurance quality in addressing legitimacy crises, we suggest that board efficiency can serve as a substitute for assurance quality or act in a complementary way to face legitimacy threats. From the complementary perspective, an effective board, defined as an active and independent board with non-CEO duality, may enable the company to legitimise its actions when faced with reputational threats by supporting high-quality sustainability assurance. Considering the influence that effective boards have on reducing corporate social irresponsibility (Jain & Zaman, 2019; Neville, 2018), effective boards and sustainability disclosure may act as complementary mechanisms to legitimise company behaviour (Michelon & Parbonetti, 2012). From the substitutive perspective, the effective structure of the board of directors may be sufficient to face a legitimacy threat because boards are responsible for safeguarding stakeholders' interests and ensuring that sustainability activities meet their expectations. Companies may use the internal mechanisms of independent and active boards to lessen the negative impacts of ESG scandals by projecting a favourable picture of the firm without encountering much scrutiny. They may even engage in specific strategies to demonstrate their commitment to ESG threats and alleviate stakeholders' concerns about firm ESG trustworthiness. In the context of irresponsible corporate activities, the literature has evidenced corrective actions by boards of directors after wrongdoing, such as hiring non-audit services (Asante-Appiah & Lambert, 2022) and dismissing managers (Jain & Jamali, 2016). From this substitutive perspective, more effective boards can face legitimacy threats after irresponsible ESG actions without needing to engage

high-quality assurance.

Overall, although previous literature supports that boards and sustainability assurance do perform roles as legitimacy providers, the above studies do not clarify whether they act as complementary or substitutive mechanisms to correct legitimacy damage. Therefore, we pose the following unsigned hypothesis.

**H2.** Board effectiveness moderates the influence that media coverage of negative ESG news has on a company's incentives to engage high-quality assurance.

### 3. Methodology

#### 3.1. Data

The sample of analysis was obtained through various stages. The first one corresponds to the selection of the initial sample, which was taken from the entire set of publicly listed European firms in the STOXX Europe 600 from 2015 to 2020. The STOXX 600 is a stock market index comprising the top 600 companies ranked by market capitalisation in Europe. This index has a fixed number of 600 constituents representing large, mid, and small-cap companies in 17 European countries, covering approximately 90% of the free market capitalisation of the European equity market. In the second stage, once the sample of analysis was identified, the economic, financial, and accounting data, as well as the ESG and board information for the selected firms, was collected from the Thomson Reuters database. In the third stage, the previous data was complemented with a hand-collection process, where we collected data about institutional variables from different sources like the World Development Indicators dataset. After the above steps, the final

**Table 1**  
Sustainability assurance quality index (AQ).

Ranking criteria	Definition	Scale (total 23 points)
1 <i>Addressee</i>	Information about the party to whom the assurance statement is formally addressed	0 No reference 1 Addressee is mentioned as "the readers" 2 Specific stakeholder is mentioned
2 <i>Assuror's responsibilities</i>	Explicit statement that the reporter is responsible for expressing an opinion on the subject matter.	0 No reference 1 Reference
3 <i>Assuror's independence</i>	Statement expressing the independence of all the involved parties.	0 No reference 1 Mere statement expressing independence 2 Compliance with IESBA and IFAC codes of ethics
4 <i>Assurance engagement objective</i>	Explicit objective to be achieved through the engagement.	0 No reference 1 Limited assurance 2 Reasonable assurance
5 <i>Assurance engagement scope</i>	Assurance statement coverage	0 No reference 1 Reference to specific environmental pollution section 2 Reference to multiple specific sections 3 Reference to entire report
6 <i>Criteria</i>	A reference to particular criteria with which the sustainability report has been prepared.	0 No reference 1 Reference to publicly specific nonpublic criteria 2 Reference to publicly available criteria.
7 <i>Assurance standard (s)</i>	Following commonly used standards which are available to govern the work of the assuror: AA1000AS, IAE3000, etc.	0 No reference provided 1 Reference to nonpublic criteria 2 Reference to publicly available local criteria 3 Reference to generally accepted standards, like AA1000AS and IAE3000
8 <i>Work summary</i>	Explanation of the actions taken to arrive at a conclusion	0 No reference 1 Reference available
9 <i>Materiality</i>	Degree of information provision on the materiality level.	0 No reference 1 Reference limited to a broad statement. Furthermore, there is mention that the assuror has not confirmed that all material issues are included. 2 Reference and explanation of materiality setting or reference limited to a broad statement and stakeholder perspective introduced. 3 A clear reference and explanation of the materiality setting. The materiality setting from a stakeholder perspective introduced.
10 <i>Completeness</i>	All material aspects are covered by the assurance report.	0 No reference 1 Reference
11 <i>Responsiveness to stakeholder</i>	A clear statement that refers to the firm's ways of identifying stakeholder interests and concerns	0 No reference 1 Reference
12 <i>General opinion</i>	Statement expressing the result of the assurance exercise.	0 No reference 1 A general remark or a statement giving the opinion of the assurance provider (e.g., "XY's report is a fair presentation of XY's CSR performance"). 2 More detailed explanatory statement that includes recommendations for improvement.

Source: Martínez-Ferrero et al. (2018).

sample consisted of 3600 firm-year observations from 600 unique firms from 2015 to 2020.

### 3.2. Variables

#### 3.2.1. Dependent variable: sustainability assurance quality

Sustainability assurance quality is not directly observable, and several proxies have been used in the limited prior literature. In this regard, some previous studies (Hummel et al., 2019; Manetti & Tocafondi, 2012; Martínez-Ferrero et al., 2018; Perego & Kolk, 2012; Ruiz-Barbadillo & Martínez-Ferrero, 2023; Zorio et al., 2013) have used a content analysis of the assurance statement as a proxy for quality assurance, following the evaluative framework developed by O'Dwyer and Owen (2005). Examining assurance reports is useful since they are the only visible outcome of the assurance process (Ruiz-Barbadillo & Martínez-Ferrero, 2023; Zorio et al., 2013). In this respect, assurance reports present an overall view of material information like the aim of the engagement, level and scope of the assurance, procedures employed, competence and independence of the assurance provider and the way the conclusions have been rendered. All these issues are closely related to assurance quality. In the absence of clear measures to evaluate sustainability assurance quality, a content analysis comparing assurance statement with the key elements for high quality assurance as suggested by international organization such as the GRI, FEE, AccountAbility and IFAC has been considered by previous research as an acceptable procedure to evaluate the assurance quality performed.

In line with Martínez-Ferrero et al. (2018) and Ruiz-Barbadillo & Martínez-Ferrero, 2020, 2023), we measure sustainability assurance quality, AQ, by examining the assurance statement of each firm and year and creating a specific index. The assurance quality index summarized in Table 1 proposes 12 items, with their specific coding rules in a range from 0 to 23, which are relevant measures to understand the quality of assurance reports. These items set minimum standards for statement information (Perego & Kolk, 2012). The 12 items consider material information regarding relevant aspect of performed assurance engagement associated with assurance quality in accordance with the AccountAbility, Federation of European Accountants, and GRI guidelines (Perego, 2009; Perego & Kolk, 2012).

Several studies have examined and supported that the assurance practice in general, and its quality, is dependent on the institutional context in which the firm operates and the mimetic pressure that its industry exerts. Table 2 reports differences in terms of assurance quality by country and industry. By country, the Republic of Ireland, the United Kingdom and Belgium are the countries with the highest mean values of assurance quality. By industry, these values correspond to the Materials sector.

Table 2 also provides the results for assurance quality of the Kruskal–Wallis test to examine significant differences between two or more groups. Looking at the Kruskal–Wallis test by country and industry, the significance level is 0.001. Thus, there is a significant

**Table 2**  
Assurance quality.

Panel A. Differences by country		
Country	Mean	Std. Dev.
Austria	16.784	0.558
Belgium	19.002	2.833
Denmark	16.907	5.751
Finland	13.776	0.106
France	12.749	1.167
Germany	14.812	5.777
Ireland; Republic of	20.057	0.477
Italy	14.983	2.464
Netherlands	16.369	5.444
Norway	16.142	7.144
Poland	6.265	9.821
Portugal	15.210	1.725
Spain	14.607	2.294
Sweden	14.413	6.076
Switzerland	14.410	8.963
United Kingdom	19.092	3.482
Kruskall-Wallis test	Chi <sup>2</sup> with ties. Prob = 0.0001	
Panel B. Differences by activity sector		
Communication Services	16.518	3.046
Consumer Discretionary	15.615	4.797
Consumer Staples	16.652	5.078
Energy	16.418	3.811
Financials	15.373	5.678
Health Care	13.416	7.299
Industrials	14.906	5.365
Information Technology	13.626	5.235
Materials	17.121	4.708
Real Estate	13.933	7.268
Utilities	15.949	2.505
Kruskall-Wallis test	Chi <sup>2</sup> with ties. Prob = 0.0001	

Sample: 3600 firm-year observations in the period 2015–2020.

difference in the quality of assurance among countries and activity sectors.

### 3.2.2. Independent variable: negative ESG media coverage

Negative ESG media coverage (**NegESG\_MediaC**) (Burke, 2021; Cai et al., 2012) was obtained from the Thomson Reuters database, where news sentiment scores provide daily insights into companies' environmental and social behaviour, helping investors and companies assess corporate sustainability performance in between sustainability report releases. This score is based on the raw count of stories labelled negative by the model from an investor's perspective. It indicates that companies are involved in adverse activities and events, like violating environmental and labour laws, harming the natural environment, losing lawsuits, failing to acknowledge or manage risks and using subcontracted factories with poor labour practices, among others (Capelle-Blancard & Aurélien Petit, 2019).

ESG media coverage is contingent on the country where the firm is located as well as its activity sector. For example, there are differences in media pressure between firms in the energy sector and the utility sector. Table 3 reports the mean values of negative ESG media coverage by country and year. It highlights the countries with the most stories labelled negative by the model from an investor's perspective, which indicates that companies are involved in adverse actions. The countries ranking the highest are Belgium, Poland, and Finland. In terms of sector, firms operating in real estate activities have a mean value above 99, which is surprising. Again, the results of the Kruskal–Wallis test, where the significance level is 0.001, confirms that there is a significant difference in negative ESG media coverage among countries and activity sectors.

### 3.2.3. Moderating variable: board effectiveness

Board effectiveness has been measured with the proxy proposed by Garcia Lara et al. (2009) and employed by Martínez-Ferrero and García-Meca (2020) (Martínez-Ferrero and García-Meca (2020)). These authors identify three internal governance characteristics that comprise the governance strength and effectiveness measure. The first characteristic refers to CEO independence as a dichotomous variable that codes as one if the CEO is not also the chairperson of the firm (CEO non-duality) and 0 in case of CEO duality. The second characteristic is board independence, measured as the ratio of independent directors to the total directors on the board. The third one refers to board attendance, expressed by the number of board meetings per year. In accordance with evidence reported by Garcia Lara et al. (2009), internal corporate governance strength increases as CEO independence (CEO non-duality), board independence and board meetings increase.

In line with Martínez-Ferrero and García-Meca (2020) (Martínez-Ferrero and García-Meca (2020)), a factorial analysis has been developed to synthesise the three characteristics into a single score: **BoEff**. This represents corporate governance strength from the board perspective. After performing the factorial analysis and obtaining the corporate governance score, board independence is the indicator with the highest charge (0.3267), followed by CEO non-duality (0.2711) and board attendance (0.2219). The Kaiser–Meyer–Olkin (KMO) is 0.5142 (above the threshold of 0.5). It measures sample suitability and ensures the validity of the factorial analysis. Additionally, the Bartlett test of sphericity is significant at a 99% confidence level (Hair et al., 1998).

As above, the specific individual attributes of the internal governance strength measure also show differences by country and industry. Table 4 reports them. The high score for CEO duality in countries like France, the highest rate of board independence for Finland and the large number of board meetings in Finland and Sweden stand out. By sector, the greatest proportion of CEO non-duality is found in firms operating in the Financial and Materials sectors; the highest board independence is in the Materials sector; and firms operating in Materials, Financials and Energy are those with more board meetings per year.

Finally, and similar to the previous variables, Table 4 also reports the results of the Kruskal–Wallis test. With a significance level of 0.001, there is a significant difference in the three indicators comprising internal corporate governance effectiveness among countries and activity sectors.

## 4. Method

### 4.1. Model and technique of analysis

The research design implements a multidimensional structure where the observations correspond to countries and industries and are crossed over years for the STOCKK 600 from 2015 to 2020, using a balanced panel data (600 firms in 6 years for a total of 3600 observations). Dependence techniques for panel data are used to regress the proposed models of analysis since they: (i) increase the explanatory power of the regression analysis; (ii) offer more informative data and greater variability; and (iii) control for unobservable heterogeneity.

Regarding the technique of analysis, several aspects should be considered. In this respect, one of the traditional econometric problems that the proposed regression models can suffer, conditioning the technique of analysis, is endogeneity. Endogeneity, which can result from reverse causality, is a potential concern because, in our case, negative ESG media coverage and assurance quality are not random decisions. The reverse causality in our model is associated with changes in the dependent variable (the level of assurance quality) that change the value of at least one of the covariates (negative ESG media coverage). The technique of analysis must solve the econometric problem caused by reverse causality.

Regarding the endogeneity problem and before estimating the simultaneous equations, it is necessary to test whether a set of estimates obtained by ordinary least squares (OLS) are consistent or not. At this respect, Davidson and MacKinnon (1993) suggest an augmented regression test (Durbin-Wu-Hausman test), which can easily be formed by including the residuals of each endogenous variable, as a function of all exogenous variables, in a regression of the original model. In our case and because of the obtained in the regression is different from 0, the OLS estimate is not consistent and it is necessary to use instrumental variables (IV). IV methods allow for consistent estimation when the explanatory variables (covariates) are correlated with the error terms in a regression model, solving the self-selection bias.

**Table 3**  
Negative ESG media coverage.

Panel A. Differences by country		
Country	Mean	Std. Dev.
Austria	87.339	23.377
Belgium	94.024	18.474
Denmark	91.296	22.007
Finland	92.453	19.631
France	84.516	27.337
Germany	80.865	31.519
Ireland; Republic of	89.910	25.593
Italy	82.183	30.714
Netherlands	85.352	28.819
Norway	87.171	25.316
Poland	93.319	22.031
Portugal	83.074	24.148
Spain	87.065	23.734
Sweden	91.079	21.877
Switzerland	89.670	25.740
United Kingdom	84.909	29.109
Kruskal-Wallis test	Chi <sup>2</sup> with ties. Prob = 0.0001	
Panel B. Differences by activity sector		
Communication Services	84.485	26.240
Consumer Discretionary	84.415	29.385
Consumer Staples	83.189	27.807
Energy	62.905	37.501
Financials	81.336	61.668
Health Care	89.955	23.672
Industrials	90.871	22.9 + 09
Information Technology	92.743	18.756
Materials	85.199	28.032
Real Estate	99.131	6.126
Utilities	82.726	28.900
Kruskal-Wallis test	Chi <sup>2</sup> with ties. Prob = 0.0001	

Sample: 3600 firm-year observations in the period 2015–2020.

However, additional economic problems can exist, which may again condition the use of IV. In this paper and after examining the modified Wald test and the Wooldridge test, the regression models also suffer from heteroskedasticity and autocorrelation. The conventional IV estimator (although consistent) is inefficient in the presence of heteroskedasticity and autocorrelation. In this case and given our models suffer from the three econometric problems (heteroskedasticity, serial autocorrelation and endogeneity), we use the two-step GMM estimator developed by [Arellano and Bond \(1991\)](#) as an IV estimator that guarantees that these problems are controlled. Specifically, we have used the dynamic estimator as an instrumental variable estimator that controls heteroskedasticity, serial autocorrelation and endogeneity.

This primary aim of this research is to investigate the legitimising role of sustainability assurance by examining two objectives. The first one is to study how companies act when faced with certain threats to their legitimacy, such as the negative ESG media coverage associated with irresponsible ESG conduct (Model 1). The second one focuses on the governance structure of the firm and investigates the moderating role of board effectiveness in the relationship between the level of assurance quality and legitimacy threats (Model 2). To do this, our paper relies on multivariate modelling techniques to test our hypotheses. The estimations are as follows:

$$AQ = \beta_1 \text{NegESG\_Media}C_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{CSRCom}_{it} + \beta_5 \text{BGender}D_{it} + \beta_6 \text{SDG}_{it} \\ + \beta_7 \text{ESG}_{it} + \beta_8 \text{Inst\_Governance}_{it} + \beta_9 \text{Industry}_i + \beta_{10} \text{Year}_t + \eta_i + \mu_{it} \quad [1]$$

$$AQ = \beta_1 \text{NegESG\_Media}C_{it} + \beta_2 \text{BoEff}_{it} + \beta_3 \text{NegESG\_Media}C * \text{BoEff}_{it} + \beta_4 \text{Size}_{it} + \beta_5 \text{Leverage}_{it} + \beta_6 \text{CSRCom}_{it} + \beta_7 \text{BGender}D_{it} \\ + \beta_8 \text{SDG}_{it} + \beta_9 \text{ESG}_{it} + \beta_{10} \text{Inst\_Governance}_{it} + \beta_{11} \text{Industry}_i + \beta_{12} \text{Year}_t + \eta_i + \mu_{it} \quad [2]$$

where *i* represents the firm; *t* the time period;  $\eta$  is unobservable heterogeneity;  $\mu$  is the classical error term; **Size** is measured as the natural logarithm of total sales; **Leverage** is measured as the total debt to total equity ratio; **CSRCom** is measured as a binary variable, coding as one if the board has a specialised sustainability committee and zero otherwise; **BGenderD** measures the gender diversity of the board as the ratio of female directors to the total number of directors on the board; **SDG** measures the firm's SDG reporting using a binary variable coding as one if the firm reports SDG information in their sustainability or integrated reporting and zero otherwise; **ESG** measures firms' ESG performance based on ten categories weighted proportionately and according to the three pillar scores (environmental, social and governance): resource use, emissions, innovation, management, shareholders, CSR strategy, workforce, human rights, community and product responsibility ([Sassen et al., 2016](#)). This score also ranges from 0 to 100, with a higher value indicating better ESG performance; and **Inst\_Governance** is a composite score of the six items proposed by Kaufman et al. (2009) from

**Table 4**  
Board effectiveness.

Country	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Austria	0.958	0.202	78.245	18.573	6.396	1.433
Belgium	0.750	0.435	49.745	18.885	9.212	3.924
Denmark	0.873	0.334	56.216	16.158	10.170	4.447
Finland	0.750	0.435	90.106	13.518	12.931	4.423
France	0.277	0.448	55.023	17.156	9.062	3.176
Germany	0.805	0.396	63.599	32.222	7.296	3.986
Ireland; Republic of	1.000	0.000	66.738	19.395	8.987	4.718
Italy	0.727	0.446	62.391	18.800	11.669	5.538
Netherlands	0.786	0.411	87.605	18.863	9.604	5.307
Norway	0.728	0.447	65.079	25.154	12.080	4.514
Poland	0.815	0.392	51.712	18.305	10.166	4.262
Portugal	0.750	0.442	43.381	11.950	8.875	2.864
Spain	0.444	0.498	52.392	13.215	11.893	3.975
Sweden	0.685	0.465	65.620	16.907	12.162	6.494
Switzerland	0.531	0.499	63.669	37.888	8.666	3.997
United Kingdom	0.907	0.291	64.492	12.341	8.540	3.326
Kruskall-Wallis test	Chi2 with ties. Prob = 0.0001		Chi2 with ties. Prob = 0.0001		Chi2 with ties. Prob = 0.0001	
Panel B. Differences by activity sector						
Communication Services	0.745	0.436	65.312	22.859	9.933	4.088
Consumer Discretionary	0.648	0.478	57.411	22.702	8.702	3.880
Consumer Staples	0.677	0.468	55.328	23.605	8.642	3.238
Energy	0.655	0.477	68.769	22.060	10.239	2.811
Financials	0.831	0.374	65.650	20.396	10.800	5.216
Health Care	0.591	0.492	66.629	24.370	9.003	4.472
Industrials	0.675	0.468	64.053	23.462	9.147	3.888
Information Technology	0.549	0.499	65.402	24.033	8.933	3.885
Materials	0.862	0.345	70.038	21.239	8.854	3.681
Real Estate	0.658	0.475	63.215	26.068	10.396	8.135
Utilities	0.767	0.423	59.365	19.501	9.975	3.775
Kruskall-Wallis test	Chi2 with ties. Prob = 0.0001		Chi2 with ties. Prob = 0.0001		Chi2 with ties. Prob = 0.0001	

Sample: 3600 firm-year observations in the period 2015–2020.

the Worldwide Governance Indicators.<sup>5</sup> Appendix 1 shows a detailed description of the variables used and their source.

## 4.2. Data description

The summary statistics of the main variables are shown in Table 5, which covers the full sample of 3600 firm-year observations. In Panel A and with a range of 0–23, the assurance quality of sustainability information has a mean value of around 15, thus showing significant room for improvement in the quality of assurance reporting. With a range of 0–100, the media coverage indicator, as a measure of ESG controversies and negative pressure from the press, is around 86, evidencing strong pressure and scrutiny from the stakeholders to whom the company must respond to ensure its legitimacy. Regarding the variables associated with greater board effectiveness, 70% of the companies analysed have separate CEO and chairperson roles, they meet an average of 9.4 times a year, and approximately 63% of the directors are independent. In Panel B, the bivariate correlation analysis matrix of the variables used in the proposed models. The correlations between the independent variables are not high, meaning that multicollinearity is not a problem in our models.

## 5. Results

### 5.1. Multivariate analyses

Table 6 reports the two-step GMM results for Models 1 and 2. Model 1 estimates whether companies will engage high-quality

<sup>5</sup> (i) **Voice and Accountability**, which reflects perceptions on how freely citizens are able to participate in selecting their country's government, as well as freedom of expression, freedom of association, and a free media; (ii) **Political Stability** and Absence of Violence/Terrorism, which measures perceptions of political instability and/or politically-motivated violence, including terrorism; (iii) **Government effectiveness**, which reflects perceptions of the quality of public services, the quality of the civil service, and independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies; (iv) **Regulatory quality**, which reflects perceptions of the government's ability to formulate and implement sound policies and regulations that permit and promote private sector development; (v) **Rule of law**, which captures perceptions of how much confidence agents have in the rules of society and whether they abide by them. It specifically focuses on the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence; and (vi) **Control of Corruption**, which reflects perceptions of how public power is exercised for private gain, including petty and large-scale corruption, as well as the "capturing" of the state by elites and private interests.

sustainability assurance to safeguard the legitimacy of their activities after media coverage of undesirable ESG. Model 2 estimates whether board effectiveness in terms of independence, activity and dual leadership works in tandem with high-quality sustainability assurance to ensure the firm's legitimacy.

Regarding the first model, the results confirm the positive and significant effect of media coverage of negative ESG issues on the level of assurance quality (coef. 0.003,  $p < 0.01$ ). That is, those companies that suffer greater pressures after negative coverage of irresponsible ESG actions show a clear strong incentive to provide high-quality assurance, addressing so the legitimacy threats they face. Hypothesis 1 is therefore supported since we can confirm that high-quality assurance of sustainability information is used as an instrument to repair company legitimacy after media coverage of undesirable ESG. Thus, the level of assurance quality responds to a substantive activity of impression management: mitigating the legitimacy threats caused by negative media coverage of ESG issues.

In Model 2, the results again show the positive and significant effect of ESG misconduct on high-quality assurance (coef. 0.003,  $p < 0.01$ ). The interaction term between media coverage and board effectiveness is also positive and significant (coef. 0.005,  $p < 0.01$ ). The interaction term should be examined in detail since it supports the moderating role of board effectiveness on the impression management use of high-quality assurance to restore legitimacy. Specifically, the evidence supports that firms use high-quality assurance as a substantive tool to manage legitimacy crises. Thus, the results confirm that the level of assurance quality responds to the desire to mitigate the legitimacy threats caused by negative media coverage after irresponsible ESG actions (coef. 0.002) and how this level is greater when companies have boards with specific desirable properties (activity, independence, and non-duality) (coef.  $0.002 + 0.005 = 0.007$ ) than when boards are less effective in terms of ESG actions (coef. 0.002). From the above, results confirm that that boards and sustainability assurance do perform roles as legitimacy providers, supporting they act as complementary mechanisms to correct legitimacy damage. Results here reported find evidence that board effectiveness moderates the influence that media coverage of negative ESG news has on a company's incentives to engage high-quality assurance.

Thus, and supporting hypothesis 2, the results confirm the moderating effect of board effectiveness in terms of independence, activity and the dual role of CEO and chairperson on the use of high-quality assurance as a tool to repair legitimacy threats. The evidence confirms that in the face of a legitimacy crisis, the more effective the board is, the greater the level of quality. In other words, the board is helped by the quality of the assurance, and therefore, they play complementary roles when it comes to dealing with legitimacy crises after irresponsible ESG actions.<sup>6</sup>

<sup>6</sup> Despite of the above evidence using the GMM estimator where autocorrelation, heteroskedasticity and endogeneity are controlled and corrected, our results could suffer from a potential sample bias because assurance quality is also not random as previously was detailed. This issue must also be controlled to avoid unsuitable extrapolations from the reported findings. Following previous studies (e.g., Habid et al., 2017), we used Heckman's two-step method, where we first ran a regression modelling irresponsible ESG conduct, obtaining the Inverse Mills Ratio (IMR). Second, the IMR was used as a control variable in the GMM estimation models. Once the IMR was included, the results for the set of proposed models were qualitatively similar. Then, a controlling for sample bias, the evidence was robust and the results are available upon request. In addition, results are also robust by using the difference-in-difference. Difference-in-difference estimator estimates the average treatment effect on the treated (ATET) from observational data by difference-in-differences. The ATET of a binary or continuous treatment on a continuous outcome is estimated by fitting a linear model with time and group fixed effects. In panel data, the ATET of continuous treatment on a continuous outcome is estimated by fitting a linear model with time and panel fixed effects. Differences in differences is a quasi-experimental technique used in econometrics that measures the effect of a treatment in a certain period. It is often used to measure the change induced by a particular event, although it may be subject to certain trends (mean reversion bias, etc.). The difference-in-differences estimator represents the difference between the pre-post treatment, within the treatment and control groups. This estimator, widely used in econometrics, measures the effect of applying a treatment in a given period of time and compares it with the expected trend (the treatment and control groups are thus distinguished). But it should be acknowledged that the confirmation of causality does not imply that it is the only cause and sometimes several causes do not explain all the effects if we do not consider the synergies (correlations between the causes). The application method of the difference-in-difference estimator simply consists of extracting differences, first at two different moments for each individual - in our paper, for each company - and then between the average of the treatment group and that of the control group. What is evaluated is whether the dependent variable - assurance quality - presents significant variations in the treatment group compared to the control group that are attributable to the differences introduced in the independent variable - negative media ESG coverage -. This is usually studied through three metrics: 1) endogeneity, 2) intragroup correlation, and 3) autocorrelation. If there are differences between both groups before and after the application of the differentiation measure, the dependent variable will be a consequence of the independent variable. Note, however, that there may be time-varying unobservable confounders with an effect on the treatment group even after we control for time-invariant unobservable group characteristics. Difference-in-difference eliminates time-varying confounders by including a control group that is subject to the same time-varying confounders as the treatment group. The ATET is then consistently estimated, differencing the mean outcome for the treatment and control groups over time to eliminate time-invariant unobservable characteristics and differencing the mean outcome of these groups to eliminate time-varying unobservable effects common to both groups. These two differences give the difference-in-difference method its name and highlight its intuitive appeal. In this paper, the outcome of interest is the level of assurance quality caused by the negative media coverage after irresponsible ESG actions. To fit the difference-in-difference model, using Stata software of analysis, we specify the outcome of interest (assurance quality), the treatment variable as continuous variable measuring the treatment intensity (negative media ESG coverage), the group variable as the categorical variable that indicate the group level at which the treatment occurs (the identifier of each firm) and time variable as a time variable (year). Results supports the preliminary evidence reported using the GMM estimator of Arellano and Bond (1991); that is, the greater the legitimacy crisis after irresponsible ESG actions, the higher-quality assurance. As treatment indicator and being the coefficient of the independent variable significant at 1%, the conclusion is that the impact of the treatment (negative mean ESG coverage) combined with time (before and after), has led to an increase in the variable of interest, of the level of assurance quality. Again, results are available upon request.

**Table 5**  
Descriptive statistics.

Panel A. Descriptive statistics									
Variable	Mean	Std. dev.							
Dependent variable									
AQ	15.482	5.316							
Independent variables									
NegESG_MediaC	86.286	27.214							
CEONon-duality	0.706	0.455							
BIndep	63.563	23.019							
BMeetings	9.444	4.517							
Control variables									
Size	23.116	1.877							
Leverage	0.957	5.325							
CSRCom	0.786	0.410							
BGenderD	30.560	11.796							
SDG	0.213	0.409							
ESG	64.071	17.938							
Inst_Governance	1.234	0.359							
Panel B. Bivariate correlations									
	1	2	3	4	5	6	7	8	9
1. AQ	1								
2. NegESG_MediaC	-0.1460***	1							
3. BoEff	0.1368***	-0.1125***	1						
4. Size	0.1414***	-0.4728**	0.0863***	1					
5. Leverage	-0.0068	-0.0384**	0.0410*	0.0745***	1				
6. CSRCom	0.1799***	-0.1851***	-0.0018	0.3092***	0.0142	1			
7. BGenderD	-0.0382*	-0.0942***	0.0386**	0.1681***	-0.0170	0.1607***	1		
8. SDG	0.0209	-0.1146***	0.0584***	0.1154***	0.0332*	0.1501***	0.2064***	1	
9. ESG	0.1979***	-0.3134***	0.1739***	0.4740***	-0.0021	0.5460***	0.2768***	0.1907***	1
10. Inst_Governance	0.1330***	0.0356*	0.2039***	-0.2243***	-0.0280	-0.0376**	0.0047	-0.0758***	-0.1109***

Sample: 3600 observations in the period 2015–2020.

\*, \*\*, and \*\*\* represent statistical significance at 10%, 5%, and 1%, respectively.

**Table 6**  
Multivariate analysis.

	Model 1		Model 2	
	Coef.	St. Dev.	Coef.	St. Dev.
Independent variable				
NegESG_MediaC	0.003***	0.000	0.002***	0.001
BoEff			-0.128	0.174
NegESG_MediaC* BoEff			0.005***	0.002
Control variables				
Size	0.824***	0.166	0.937***	0.176
Leverage	0.001	0.001	-0.001***	0.000
CSRCom	-0.044	0.122	-0.070	0.087
BGenderD	0.004	0.003	0.001	0.003
SDG	-0.003	0.026	-0.010	0.031
ESG	0.029***	0.004	0.031***	0.005
Inst_Governance	-0.523***	0.212	-0.644**	0.319
Wald test <sup>a</sup>	Prob > chi2 = 0.000		Prob > chi2 = 0.000	

Controlled by year and industry.

Sample: 3600 observations in the period 2015–2020.

\*, \*\*, and \*\*\* represent statistical significance at 10%, 5%, and 1%, respectively.

<sup>a</sup> Wald is a test of the joint significance of the reported coefficients, asymptotically distributed as  $\chi^2$  under the null hypothesis of no relationship.

## 5.2. The mediating effect of board effectiveness

The objective and evidence of this paper was supporting that (i) more media coverage of negative ESG news events increases a company's incentives to engage high-quality assurance; and that (ii) board effectiveness moderates the influence that media coverage of negative ESG news has on a company's incentives to engage high-quality assurance. In this respect, along the paper, the relationship between board efficiency and assurance quality in addressing legitimacy crises was proposed and examined building upon the possible substitute or complementary role. Nonetheless, the possibility of more relationships under the perspective of a mediating effect could also exist. That is, does the impact of negative media ESG coverage on sustainability assurance quality appears to be justified by the effectiveness of the board?

From the above, further analysis aims to bring evidence about how the influence that media coverage of negative ESG news has on a company's incentives to engage high-quality assurance is dependent on the board effectiveness from a mediating effect; in other words and following the step procedure proposed by Baron and Kenny (1986) around the mediation, this research aims to also bring evidence about how the higher-quality assurance is dependent of the negative media coverage after irresponsible ESG actions but also of the board effectiveness.

To test the mediating effect of board effectiveness, we follow the Baron and Kenny's (1986) process in three steps. First, the mediator (board effectiveness) is regressed on independent variable (the media coverage of negative sustainability events). Second, the dependent variable (assurance quality) is regressed on the independent variable. Third, the dependent variable is regressed on both the independent and mediator variable. At this stage, Baron and Kenny (1986, p. 1177) required that "the effect of the independent variable on the dependent variable must be less in the third step than in the second step".

Thus, the following three models are:

$$BoEff = \beta_1 NegESG\_MediaC_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 CSRCom_{it} + \beta_5 BGenderD_{it} + \beta_6 SDG_{it} + \beta_7 ESG_{it} + \beta_8 Inst\_Governance_{it} + \beta_9 Industry_i + \beta_{10} Year_t + \eta_i + \mu_{it} \quad [3]$$

$$AQ = \beta_1 NegESG\_MediaC_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 CSRCom_{it} + \beta_5 BGenderD_{it} + \beta_6 SDG_{it} + \beta_7 ESG_{it} + \beta_8 Inst\_Governance_{it} + \beta_9 Industry_i + \beta_{10} Year_t + \eta_i + \mu_{it} \quad [4]$$

$$AQ = \beta_1 NegESG\_MediaC_{it} + \beta_2 BoEff_{it} + \beta_3 Size_{it} + \beta_4 Leverage_{it} + \beta_5 CSRCom_{it} + \beta_6 BGenderD_{it} + \beta_7 SDG_{it} + \beta_8 ESG_{it} + \beta_9 Inst\_Governance_{it} + \beta_{10} Industry_i + \beta_{11} Year_t + \eta_i + \mu_{it} \quad [5]$$

The main mediating analysis results are those reported in Table 7. Regarding the first step, results of Model 3 provide interesting evidence about how board effectiveness is also requested as mechanism for solving or facing to legitimacy threats associated to negative media ESG coverage. Evidence confirms the positive and significant effect of irresponsible ESG actions on board effectiveness (coef. 0.004,  $p < 0.01$ ). In other words, companies are incentivised to have boards with specific desirable properties (activity, independence, and non-duality) to lessen the negative impacts of ESG scandals by projecting a favourable picture of the firm and alleviating stakeholders' concerns about firm ESG trustworthiness. Meanwhile, regarding Model 4 – which is the same than the basis Model 1 –, the results again confirm the positive and significant effect of media coverage of negative ESG issues on the high-quality assurance (coef. 0.003,  $p < 0.01$ ); e companies have stronger incentives to provide high-quality assurance for addressing the legitimacy threats they face after irresponsible ESG actions.

Finally, the last step of the mediation analysis involves the joint testing of the impact of the mediator variable – board effectiveness

– and the independent variable – negative media ESG coverage – on sustainability assurance quality for solving legitimacy threats. Note that this step requires two assumptions. First, the relationship between the mediator and the dependent variable must be statistically significant. Second, “the effect of the independent variable on the dependent variable must be lower in the third step than in the second step” (Baron & Kenny, 1986, p. 1177). That is, in Model 5 the coefficient of  $\beta_1$  must be lower than in Model 4. Results show that the high-quality assurance level responds to the desire to mitigate the legitimacy threats caused by negative media coverage after irresponsible ESG actions (coef. 0.002) and how this quality is dependent and justified by board effectiveness as mediator (coef. 0.291,  $p < 0.05$ ). Meeting with mediating requests, the mediator is statistically significant at 5% of confidence level and, the coefficient of the independent variable is lower in the third step (coef. 0.002) than in the second one (coef. 0.003).

Thereon, the above results support the existence of a mediating effect of the board effectiveness on the high-quality assurance after the negative media ESG coverage to face with legitimacy threats. In other words, the impact of the irresponsible ESG actions on the level of sustainability assurance quality for controlling the associated legitimacy risks appears to be justified, at least in part, by the effectiveness of the board.

### 5.3. Additional analysis

Our previous evidence supports that the greater the legitimacy crisis after irresponsible ESG actions, the greater the high-quality assurance. It also shows the complementary role of board effectiveness when companies face legitimacy crises. However, the empirical relationships detected may be affected by several other contingency factors related to alternative legitimacy threats that, together with media coverage and institutional pressures, could impact the level of assurance quality. Thus, to provide further explanations for our findings, several analyses have been performed building on the evidenced differences in the sustainability assurance services across firms, industries, and countries, all of which are presented in Table 8. Questions have been proposed to test whether the high-quality assurance after negative ESG media coverage and the moderating role of board effectiveness are affected by the following: (i) firms’ ESG performance; (ii) belonging to controversial sectors; and (iii) the tightness of the culture and public enforcement.

#### 5.3.1. Concurrent legitimacy threats

Previous studies have analysed the effect of two legitimacy threats, weak sustainability performance and industry membership, on assurance quality levels. Regarding the first question, ESG performance is closely associated with negative ESG media coverage that impairs the legitimacy of the firm. Companies with inferior sustainability performance are under greater scrutiny and pressure from stakeholders, which may change stakeholders’ perceptions of sustainability activities and affect companies’ better-quality assurance (Hummel et al., 2019; Ruiz-Barbadillo & Martínez-Ferrero, 2020).

Following this reasoning, the baseline models have again been regressed on two specific contexts: (i) the sample of firms with low ESG performance (40.36% of the firm-year observations examined in our sample); and (ii) the sample of firms with the highest levels of ESG performance in terms of the mean value of ESG scores (defined in section 3) (59.64% of the firm-year observations).

The results of the further analyses are reported in Table 8. Results find evidence that confirms that the level of assurance quality is used as an instrument to aid in repairing companies’ legitimacy concerning sustainability performance reporting the positive and significant effect of media coverage of negative ESG issues on the high-quality assurance (coef. 0.0102,  $p < 0.01$  in low ESG subsample; coef. 0.0008,  $p < 0.01$  in high ESG subsample). We also find that more active and independent boards act jointly with assurance quality in companies’ legitimising process regardless of their ESG performance (Panel A). In detail, in low ESG subsample the high-quality assurance caused by negative media coverage after irresponsible ESG actions (coef. 0.0102) and how this quality is greater when companies have boards with specific desirable properties (activity, independence and non-duality) (coef. 0.0102 + 0.0231 = 0.0333) than when boards are less effective in terms of ESG actions (coef. 0.0102). While, in high ESG subsample the high-quality assurance

**Table 7**

The mediating effect of board effectiveness.

Dependent variable	Model 3		Model 4		Model 5	
	BoEff		AQ		AQ	
	Coef.	St. Dev.	Coef.	St. Dev.	Coef.	St. Dev.
Independent variable						
NegESG_MediaC	0.004***	0.001	0.003***	0.000	0.002***	0.000
BoEff					0.291**	0.132
Control variables						
Size	0.047**	0.018	0.824***	0.166	0.881***	0.185
Leverage	0.000***	0.000	0.001	0.001	-0.001***	0.000
CSRCom	-0.046***	0.018	-0.044	0.122	-0.090	0.089
BGenderD	0.002***	0.001	0.004	0.003	0.003	0.003
SDG	0.028***	0.008	-0.003	0.026	-0.009	0.031
ESG	0.003***	0.001	0.029***	0.004	0.030***	0.005
Inst_Governance	-0.160***	0.057	-0.523***	0.212	-0.587*	0.320
Wald test	Prob > chi2 = 0.000		Prob > chi2 = 0.000		Prob > chi2 = 0.000	

Controlled by year and industry.

Sample: 3600 observations in the period 2015–2020.

\*, \*\*, and \*\*\* represent statistical significance at 10%, 5%, and 1%, respectively.

**Table 8**  
Additional analysis.

Panel A. ESG performance				
	<i>Low ESG</i> <i>Subsample: 1453</i>		<i>High ESG</i> <i>Subsample: 2147</i>	
	Coef.	St. Dev.	Coef.	St. Dev.
Independent variables				
NegESG_MediaC	0.0102***	0.0016	0.0008*	0.0005
BoEff	0.8244	0.5041	-0.1558	0.1439
NegESG_MediaC* BoEff	0.0231***	0.0054	0.0034**	0.0014
Control variables				
Size	0.0928	0.1783	1.0305***	0.1914
Leverage	0.3206***	0.0797	-0.0008***	0.0002
CSRCom	-0.1350	0.0875	0.1310	0.0975
BGenderD	0.0053	0.0056	0.0046*	0.0025
SDG	0.199**	0.0879	0.0521**	0.0223
ESG				
Inst_Governance	-4.2417***	0.6706	-0.3233	0.2355
Wald test	Prob > chi2 = 0.000		Prob > chi2 = 0.000	
Controlled by year and industry				
Panel B. Controversial industries				
	<i>Non-Controversial</i> <i>Subsample: 2808</i>		<i>Controversial</i> <i>Subsample: 792</i>	
	Coef.	St. Dev.	Coef.	St. Dev.
Independent variables				
NegESG_MediaC	0.003***	0.000	-0.007***	0.001
BoEff	-0.135	0.127	-0.418***	0.148
NegESG_MediaC* BoEff	0.005***	0.001	0.021***	0.001
Control variables				
Size	1.621***	0.096	0.496***	0.088
Leverage	-0.001***	0.000	-0.105***	0.010
CSRCom	-0.186**	0.086	0.090	0.122
BGenderD	0.003	0.002	-0.029***	0.002
SDG	-0.038	0.027	0.286***	0.025
ESG	0.038***	0.004	0.106***	0.005
Inst_Governance	-0.700***	0.167	1.151***	0.350
Wald test	Prob > chi2 = 0.000		Prob > chi2 = 0.000	
Controlled by year and industry				
Panel C. Tight cultures				
	<i>Loose</i> <i>Subsample: 948</i>		<i>Tight</i> <i>Subsample: 2652</i>	
	Coef.	St. Dev.	Coef.	St. Dev.
Independent variables				
NegESG_MediaC	0.008**	0.003	-0.009**	0.003
BoEff	0.252	0.495	0.610	0.739
NegESG_MediaC* BoEff	0.021***	0.006	-0.006	0.008
Control variables				
Size	-0.483***	0.083	0.569***	0.113
Leverage	0.215***	0.081	-0.009	0.008
CSRCom	0.202	0.307	3.943***	0.427
BGenderD	-0.088***	0.009	-0.068***	0.012
SDG	0.610***	0.129	-0.151	0.148
ESG	0.081***	0.009	0.055***	0.013
Inst_Governance	0.433	0.444	-0.260	0.377
Wald test	Prob > chi2 = 0.000		Prob > chi2 = 0.000	
Controlled by year and industry				
Panel D. Public Enforcement				
	<i>Lower Public Enforcement</i> <i>Subsample: 1638</i>		<i>Higher Public Enforcement</i> <i>Subsample: 1962</i>	
	Coef.	St. Dev.	Coef.	St. Dev.
Independent variables				
NegESG_MediaC	0.002***	0.000	0.003***	0.000
BoEff	-0.611***	0.082	0.231**	0.110
NegESG_MediaC* BoEff	0.011***	0.001	0.011***	0.001
Control variables				
Size	1.514***	0.125	1.245***	0.064
Leverage	-0.001***	0.000	0.045***	0.004

(continued on next page)

Table 8 (continued)

Panel A. ESG performance				
	Low ESG Subsample: 1453		High ESG Subsample: 2147	
	Coef.	St. Dev.	Coef.	St. Dev.
CSRCom	-0.554***	0.056	0.649***	0.124
BGenderD	0.017***	0.001	-0.032***	0.002
SDG	0.285***	0.022	-0.492***	0.025
ESG	0.034***	0.002	0.083***	0.004
Inst_Governance	-1.489***	0.182	0.640***	0.018
Wald test	Prob > chi2 = 0.000		Prob > chi2 = 0.000	
Controlled by year and industry				
Panel E. NFRD				
	Before NFRD Subsample: 1800		In and after NFRD Subsample: 1800	
	Coef.	St. Dev.	Coef.	St. Dev.
Independent variables				
NegESG_MediaC	0.006*	0.006	0.007***	0.002
BoEff	-1.490**	0.660	0.739***	0.248
NegESG_MediaC* BoEff	0.015**	0.006	0.007***	0.002
Control variables				
Size	0.110	0.275	0.749***	0.222
Leverage	-0.003	0.002	0.002**	0.001
CSRCom	-0.177*	0.099	-0.064	0.168
BGenderD	-0.020***	0.007	0.006	0.004
SDG	Dropped due to		-0.128***	0.038
ESG	0.017**	0.008	0.040***	0.007
Inst_Governance	0.319	0.300	-0.689	0.597
Wald test	Prob > chi2 = 0.000		Prob < chi2 = 0.000	

Controlled by year and industry.

Sample: 3600 observations in the period 2015–2020.

\*, \*\*, and \*\*\* represent statistical significance at 10%, 5%, and 1%, respectively.

caused by negative media coverage after irresponsible ESG actions (coef. 0.0102) and how this quality is greater when companies have boards with specific desirable properties (coef.  $0.0008 + 0.0038 = 0.0046$ ) than when boards are less effective in terms of ESG actions (coef. 0.0008). Thus, results support that the response to media coverage of corporate misconduct is not dependent to the level of sustainability performance.

Concerning the second question related to controversial sectors, the type of industries companies belong to may also pose legitimacy threats. Companies in environmentally sensitive industries are subject to more pressure and scrutiny from stakeholders regarding their sustainability activities, implying that the high level of assurance quality to restore legitimacy may be higher in industries with more environmental and social impact (Perego & Kolk, 2012; Segui-Mas et al., 2015). In accordance with Jo and Na (2012), Jo and Park (2021) and García-Meca and Martínez-Ferrero (2020), we examine two categories of firms: those operating in sinful industries, which include the alcohol, tobacco and gambling industries (i), and those operating in industries involved in emerging environmental, social and ethical issues, such as weapons, oil and gas and hazardous waste (ii) (Jo & Park, 2021). The influence of controversial sectors on the baseline relationships is examined by regressing Models 1 and 2 in two specific contexts: (i) non-controversial sectors (78.00 % of the firm-year observations); and (ii) controversial sectors (22.00 % of the firm-year observations).

Specifically, the high-quality assurance and its work in tandem with board effectiveness is only found significant in non-controversial industries. Specifically, in non-controversial industries (Panel B), the evidence shows that firms use high-quality assurance to mitigate damages to legitimacy after irresponsible ESG actions (coef. 0.003,  $p < 0.01$ ). This quality is greater when companies have boards with a specific set of desirable characteristics (activity, independence, and non-duality) (coef.  $0.003 + 0.005 = 0.008$ ) than when boards are less effective in terms of ESG actions (coef. 0.003). However, in controversial industries, the evidence shows that firms have less incentive to engage high-quality assurance to restore their legitimacy after ESG misconduct (coef.  $-0.007$ ,  $p < 0.01$ ). Since they face greater scrutiny and pressure, we suggest that controversial companies may not use assurance quality as a legitimacy tool to avoid additional damage to their reputation. Nonetheless, this negative effect is moderated when firms have more active and independent boards, confirming that the effect of negative ESG media coverage on assurance quality is lower and even corrected in firms with effective boards (coef.  $-0.007 + 0.021 = 0.014$ ) compared to firms with boards that are less effective in terms of activity and independence (coef.  $-0.007$ ). Overall, this result shows that controversial firms only use high-quality assurance as a legitimacy tool after irresponsible ESG actions when their boards are more active and independent. Overall, the results suggest that due to their greater concerns about sustainability, intense stakeholder pressure and social scrutiny, the incentives to provide high-quality assurance after negative ESG media coverage can be greater in controversial industries, including sinful companies (e.g. alcohol, adult entertainment, and tobacco), and firms involved in emerging environmental, social, and ethical issues (e.g. oil and gas and hazardous waste).

### 5.3.2. Institutional pressures and quality assurance

In a cross-country setting, companies' incentives to request high-quality assurance could also be partially determined by compliance with the institutional and legal environment where they operate (Segui-Mas et al., 2015; Sethi, Martell, & Demir, 2017a, 2017b; García-Sánchez et al., 2020; Larrinaga et al., 2020). If institutional forces pressure firms to request a certain level of assurance quality, our main evidence may be affected by the institutional setting. Therefore, we analyse whether two country-wide institutional traits, tight culture and the strength and quality of the institutional legal regime, are significant factors in explaining companies' assurance engagements.

Regarding the first trait, tight cultures have many regulations and little tolerance for deviant behaviour. Gelfand et al. (2011) consider that tight/loose cultures are part of a multidimensional system, comprising distal ecological and historical threats, narrow socialisation in societal institutions, weakness in daily situations and some microlevel psychological dimensions. To measure tightness, we use the Gelfand et al. (2011) score, a six-item Likert scale that assesses the degree to which social norms are persuasive, clearly defined and reliably imposed by nations. Higher scores reflect tighter cultures. We investigated the influence of cultural tightness in two specific groups of countries according to the mean value of the score. We distinguish between (i) loose cultures (26.33% of the firm-year observations); and (ii) tight cultures (73.67% of the firm-year observations).

In tight cultures (Panel C), the evidence does not support the moderating role of board effectiveness as an internal corporate governance mechanism. Our evidence shows that in countries where social norms are more persuasive, clearly defined and reliably imposed by nations, the high-quality assurance does not correspond to legitimacy threats caused by media coverage (coef.  $-0.009$ ,  $p < 0.10$ ) due to the negative and significant coefficient. Meanwhile, in loose cultures, the evidence supports the high-quality assurance to respond to the legitimacy threats caused by negative ESG media coverage and the work in tandem with more active and independent boards (coef.  $0.008$ ,  $p < 0.10$ ). In addition, only in loose cultures it is possible to support the moderating effect of board effectiveness by showing how firms with more effective boards are better prepared to reduce the legitimacy damages caused by irresponsible ESG actions (coef.  $0.008 + 0.021 = 0.029$ ) than less efficient boards (coef.  $0.008$ ). Therefore, in loose cultures, managers' incentives to restore legitimacy after irresponsible ESG actions are higher than in tight cultures, where countries have stronger sanctions, norms and social institutions. Results confirm, then, that responses to media coverage of corporate misconduct are highly dependent on the external monitoring mechanisms associated with tight cultures.

Overall, when cultures have stronger social norms and sanctions (tight), the effect of ESG failures on defensive strategies that can be perceived as "window-dressing" is weaker. This reinforces the substitution approach since tight cultures themselves play a legitimising role in ESG concerns. Companies operating in these cultures may prefer other, more severe corrective actions, such as dismissals or dropping seats held on other boards (Colak et al., 2022).

Finally, regarding public enforcement, in line with Djankov et al.'s (2008) proposal, the traditional measure of public enforcement uses an index indicating whether all disclosure and approval requirements have been met with a range between 0 and 1. Specifically, 0.25 points are assigned to each one of the four indicators making up the aggregate score: (i) fines for the approving body; (ii) jail sentences for the approving body; (iii) fines for Mr. James; and (iv) jail sentence for Mr. James. To investigate the effect of public enforcement on the triple association of irresponsible ESG practices, internal corporate governance effectiveness and assurance quality, two specific contexts are examined according to the mean value of the referenced index: (i) less public enforcement (54.50% of the firm-year observations); and (ii) more public enforcement (45.50% of the firm-year observations).

The results reported in Panel D again confirm there are no differences in the higher level of assurance quality after irresponsible ESG actions in terms of public enforcement. That is, we found no differences and then, sustainability assurance quality is employed as an instrument to repair company legitimacy (coef.  $0.002$ ,  $p < 0.01$  in lower public enforcement subsample; coef.  $0.003$ ,  $p < 0.01$  in higher public enforcement subsample) and, high-quality assurance works in tandem with board effectiveness to mitigate legitimacy threats after irresponsible ESG actions. Under lower public enforcement, the high-quality assurance caused by negative media coverage after irresponsible ESG actions is greater when companies have more efficient boards (coef.  $0.002 + 0.011 = 0.013$ ) than when boards are less effective (coef.  $0.002$ ). Again, under higher public enforcement, this high-quality assurance is greater when companies have boards with specific desirable properties (activity, independence and non-duality) (coef.  $0.003 + 0.011 = 0.014$ ) than when boards are less effective in terms of ESG actions (coef.  $0.003$ ). Thus, results support that the response to media coverage of corporate misconduct is not dependent to the level of public enforcement as external supervision.

### 5.3.3. Institutional regulation: the NFRD

The primary objective of the Directive 2014/95/EU was to boost the reliability of published information, thereby fostering trust among stakeholders. However, it did not impose a mandatory assurance requirement for non-financial information. Additionally, following the enactment of the Directive, every Member State was obligated to incorporate the legislation into its own national framework, allowing for some discretion in its implementation.

Following the institutional theory some studies have investigated the level of corporate reporting pre and post the implementation of the Directive (Fiechter et al., 2022) and the impact of this Directive on the assurance of corporate sustainability information (García-Sánchez et al., 2022). In this respect, and from our analysis we wonder whether the NFRD regulation can affect the symbolic use of the assurance practice to face legitimacy threats. As of 2018, all 28 member states of the EU have adopted the directive into their national law, we explore the relationships proposed in two specific subsamples: (i) before 2018 (50% of the firm-year observations; years 2015, 2016 and 2017); and (ii) in and after 2018 (50% of the firm-year observations; years 2018, 2019 and 2020).

The results reported in Panel E again confirm there are no differences in our main evidence before and after the NFRD directive, which had to report for the first time in 2018 (for the 2017 financial year). We found no differences considering the NFRD; that is, results confirm that the negative media ESG coverage positively influence on sustainability assurance quality (coef. 0.006,  $p < 0.1$  before 2018; coef. 0.007,  $p < 0.01$  in and after 2018), and, how the level is greater when firms, even more, have more independent and active boards. Thus, results support that the symbolic use of the assurance practice in response to irresponsible ESG actions is not dependent to the normative regulation announced in the NFRD. These results are in line with García Sanchez et al. (2022), who found that although the NFRD had stimulated transformations in the assurance market regarding service providers, it still fell short in terms of ensuring the quality of the obtained service. These findings are also consistent with some previous evidence that noted (e.g. [Fiechter et al., 2022](#)) that EU firms started to improved transparency of CSR before the directive came into force in 2018, what could justify the lack of significant differences between both groups.

## 6. Discussion and conclusion

### 6.1. Discussion of results

Using a European sample of listed firms in the STOXX 600 index for the period 2015–2020 and after testing several dependency regression models for panel data, this paper examines: (i) whether companies are compelled to ensure the legitimacy of their activities due to media coverage of undesirable ESG by engaging high-quality sustainability assurance; and, (ii) whether board effectiveness in terms of independence, activity and dual leadership work in tandem with high-quality sustainability assurance to ensure firms' legitimacy.

The results of this paper provide useful and interesting findings about how companies employ the quality of sustainability assurance reports as a discretionary tool to respond to legitimacy crises caused by the fact that their behaviour is not congruent with societal and environmental concerns and norms. Then, we confirm that, given that negative sustainability issues attract extensive media attention, companies that receive a higher level of media coverage of negative sustainability events are likely to face increased pressures and the potential for a legitimacy crisis. In this regard we suggest that legitimacy theory provides a valuable theoretical foundation for understanding the adoption of voluntary assurance practices following media coverage of ESG threats. When faced with ESG threats, such as the media coverage of environmental disasters, human rights violations, or unethical practices, firms may experience a legitimacy gap that undermines their reputation and social standing. Legitimacy theory supports that firms are motivated to improve assurance quality as a response to external pressures, stakeholder demands, and expectations for transparency and accountability occurred after negative media coverage of ESG events. By obtaining high quality assurance, companies aim to demonstrate their commitment to responsible practices and their willingness to be held accountable for their ESG performance, enhancing their legitimacy, rebuilding trust with stakeholders, and mitigating reputational risks arising from ESG threats. Then, our findings support previous evidence about the role of sustainability assurance in repairing firms' legitimacy damage ([Simnett et al., 2009](#); [Smith et al., 2011](#); O'Dwyer et al., 2011), as well as the role of high-quality assurance as a mechanism to influence stakeholders' perceptions of ESG misconduct, as [Michelon et al. \(2015\)](#), [Cho et al. \(2015\)](#) and [She and Michelon \(2019\)](#) postulated.

Furthermore, our findings confirm the complementary role of effective board composition. We find that companies with boards containing a set of desirable properties (activity, independence, and non-duality) increase the high-quality assurance when faced with ESG-related reputational risk. We support that board effectiveness disciplines managers after media coverage of ESG misconduct by strengthening the level of assurance quality. We also confirm that firms with more active and independent boards are better equipped to repair the legitimacy damages caused by irresponsible ESG actions. In addition, our empirical findings suggest that effective boards engage high-quality sustainability assurance to demonstrate their commitment to addressing credible ESG threats and thus retain their legitimacy, avoid reputational risk, and satisfy stakeholder expectations. In addition, results also show that the high-quality assurance level responds to the desire to mitigate the legitimacy threats caused by negative media coverage after irresponsible ESG actions and how this quality level is dependent and justified by board effectiveness as mediator. Then, findings also support the impact of the irresponsible ESG actions on the level of sustainability assurance quality for controlling the associated legitimacy risks appears to be justified, at least in part, by the effectiveness of the board.

In this respect, our results support the following. First, following [Zattoni and Pugliese \(2021\)](#), we have shown how more effective boards play a crucial role in determining ESG actions, as well as the board's relevance in formulating sustainability strategies and the socially responsible image of the firm. Second, our results coincide with the previous evidence by [Peters and Romi \(2015\)](#) and [Zhou et al. \(2016\)](#), showing how companies with an effective board of directors engage high-quality assurance when faced with legitimacy crises to preserve their reputational capital and repair legitimacy threats (e.g., [Aguilera et al., 2006](#)). Concretely, we find that board independence is a crucial factor in board effectiveness in ensuring stakeholders' protection ([Daily & Dalton, 2004](#)). CEO non-duality is the board effectiveness factor able to constrain and limit management misconduct ([Neville et al., 2019](#)) and, according to [Jain and Zaman \(2019\)](#), more active boards (boards with more meetings) can better monitor management's possible misconduct.

Our results also confirm that board effectiveness in advocating for high-quality assurance is maintained with different levels of ESG performance and public enforcement. However, we find that media coverage of ESG wrongdoing and its effects on high-quality assurance are not equal among cultures. Specifically, the incentives of effective boards to restore legitimacy are greater in countries with weaker sanctions and regulations and higher tolerance to deviation (loose cultures). On the other hand, we observe that sustainability assurance quality is lower in countries with stronger social norms and stricter sanctions (tight cultures), as this norm-based cultural attribute is a key mechanism for protecting investors, and boards are disciplined by greater social and regulatory pressure ([Gelfand et al., 2011](#)) and scrutiny from auditors and regulators. This result reinforces the substitution approach that predicts

that tight cultures themselves play a legitimacy role in ESG concerns. These findings also add new evidence to previous results (Jiang et al., 2022; Leuz et al., 2003) that show a strong association between corporate misconduct strategies and external supervision mechanisms, as well as the previous literature about the association between culture and cross-country accounting differences (Han et al., 2010). Finally, after studying how the European Directive 2014/95/EU affected the symbolic use of assurance, results confirmed that there are no significant differences in the legitimising use of assurance quality after irresponsible ESG actions before and after the NFRD directive. These findings could be justified by the absence of mandatory and strict assurance requirements for most of the countries affected by the directive, as well as by the differences in the transposition. Therefore, we suggest that although previous literature finds that the NFRD had prompted changes in the quality of sustainability reporting, it did not fully rise the quality of the assurance of this information even after a legitimacy threat.

In terms of industry differences, and contrary to our expectations, the empirical evidence suggests a greater legitimacy role of assurance and a reinforcing effect of boards in non-controversial companies. These results extend some previous findings (Wong & Zang, 2020), suggesting that stakeholders react more strongly to adverse ESG coverage in non-controversial industries because they do not initially associate these companies with ESG wrongdoing. On the other hand, we do not find increased assurance quality in controversial industries after media coverage of ESG misconduct. This also supports the view that sometimes attempts to legitimise controversial companies can be perceived as unethical and untrustworthy. These attempts can backfire and result in firm risk (Jo & Na, 2012) or reputation damage (Hill, 2001). If controversial and environmentally sensitive companies realise this, they could prefer to respond to ESG wrongdoing with more severe corrective actions, such as dismissals, substantial fines and penalties or board composition restructuring (e.g. Volkswagen, British Petroleum). Interestingly, in controversial sectors, adverse ESG media coverage only leads to better assurance quality when the firm has desirable board attributes in terms of activity and independence, confirming the monitoring role of board effectiveness regardless of industry considerations.

## 6.2. Contributions

This paper contributes to the literature on corporate misconduct and corporate corrective actions, where the evidence is scarce and still unclear (Hersel et al., 2019; Riera & Iborra, 2017). The study sheds light on the effectiveness of high-quality assurance as a tool to restore reputational capital following negative media coverage of ESG misconduct and corroborate previous evidence regarding the role of sustainability assurance in repairing firms' legitimacy damage and shaping stakeholders' perceptions of ESG misconduct. We confirm previous results concerning the media's role as an agitator of corrective corporate actions (e.g. Wiersema & Zhang, 2013; Burke, 2020) and, specifically, its relevance as a credible and legitimate third party in instigating corporate reaction to sustainability issues (Graf-Vlachy et al., 2019).

With this paper, we also contribute to a better understanding of monitoring and bonding mechanisms related to board composition to fight against this misconduct (Dharwadkar et al., 2021; Jain & Zaman, 2020). This study examines the role of board characteristics in influencing the quality of assurance requested by firms post-ESG misconduct and highlights the importance of effective boards, characterized by attributes like independence and activity, in driving higher-quality assurance. This contribution enhances the understanding of how boards engage in corporate strategy amid environmental and governance crises.

In addition, we contribute to the previous literature by finding insights into the importance of culture and industry after media coverage of ESG failures (Wong & Zhang, 2022; Schnatterly et al., 2018). This study is one of the first to apply a framework based on norm-based cultural differences (tightness/looseness) to explain the defensive actions taken after media coverage of ESG misconduct in terms of assurance quality. Furthermore, our study also enhances comprehension of how regulations influence the role of assurance following irresponsible ESG actions. Analyzing the effects of the European Directive 2014/95/EU on assurance quality's legitimising function, we find no notable differences pre- and post-directive implementation, regardless of sustainability performance or public enforcement levels. This outcome offers crucial insights into the regulatory impact on corporate responses to ESG misconduct and emphasizes the necessity for deeper investigation into the mechanisms underlying regulatory mandates' interaction with corporate behavior concerning sustainability assurance.

Finally, this study is of special interest due to its practical implications. First, the results help companies to become aware of how the quality of assurance reports has the potential to recuperate the loss of legitimacy caused by media coverage of less sustainable actions. By engaging higher-quality assurance, companies can avoid paying significant costs (e.g. increased cost of capital, fewer financing opportunities, difficulty in accessing financial resources, etc.) that can put the survival of the company at risk. Second, the evidence is especially interesting for stakeholders, who can see how companies address their social and environmental concerns through high-quality assurance, which increases credibility and confidence and reduces information asymmetries. Moreover, higher-quality assurance can be perceived as a substantive tool to reach congruence between companies' sustainability behaviour and stakeholders' expectations, connected to functional approaches defending the relevance of assurance provision (Boiral et al., 2019). Therefore, our results are useful for assurance providers since they reinforce the use of high-quality assurance as a legitimising and functional mechanism to face ESG crises. Finally, for regulatory bodies, the evidence clearly points to the need to make assurance mandatory (where it is not yet) and regulate a minimum legal audit quality level to decrease the variation among companies and enable sustainable economic development.

## 6.3. Limitations and future research

Despite the contributions of this paper, it also has some limitations. First, the proposed models include some board characteristics, like board composition in terms of gender diversity and the existence of a CSR committee that were not included in the composite score

of internal governance effectiveness. Several previous studies have examined and confirmed the positive influence that boards with more female directors exert on ESG performance, reporting and assurance quality. However, for the sample of analysis used in this paper, female directors are still underrepresented on boards. This also occurs in several other countries, like the USA, preventing them from reaching representative quotas that allow them to express their ideas, opinions, different points of view, etc. Therefore, it is difficult for women to influence the effectiveness of internal corporate governance. Although the proposed models include some relevant internal corporate governance factors as potential drivers of effectiveness in terms of sustainability assurance quality, omitted variables, such as board gender diversity or aspects related to CEOs' or directors' remunerations, might affect the results. In addition, future studies should examine other moderating drivers, such as ownership structure, status as a family business, other industry segmentation, financial reporting quality and other cultural system classifications. Moreover, the factors driving sustainability assurance quality will require further investigation when countries introduce more precise regulation about assurance. Another limitation is that our study is restricted to a sample of European, large and listed firms. Future studies should try to extract all the available information on sustainability assurance and irresponsible ESG media coverage for a larger number of companies, not necessarily the most capitalised firms, located in more countries (thus obtaining more generalisable results). And finally, the period of analysis ends in 2020. After that, the European Commission announced on 2021 the proposal of the CSRD that will ultimately replace the NFRD with specific requirements in terms of external assurance that clearly will affect the evidence here examined and reported. Future studies should (i) expand the period of analysis; and (ii) examining the influence of the CSRD normative, as well as its main consequences for the assurance practice and market.

### Data availability

The authors do not have permission to share data.

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### Appendix 1. Summary of variables

Symbols	Detail	Source
<b>Dependent Variable</b>		
AQ	Score of sustainability assurance quality in the range 0–23 composed by 12 items that set minimum standards for statement information and define assurance procedures, a reporting format, opinions and recommendations.	Hand-collected from corporate reports and websites. Thomson Reuters Refinitiv.
<b>Independent Variables</b>		
NegESG_MediaC	Score based on the raw count of stories labelled negative by the model from an investor's perspective.	Thomson Reuters Refinitiv.
BoEff	Factorial analysis that represents corporate governance strength composed of three internal governance characteristics: (i) CEO independence as a dichotomous variable that codes as one if the CEO is not also the chairperson of the firm (CEO non-duality) and 0 in case of CEO duality; (ii) board independence, measured as the ratio of independent directors to the total directors on the board; and, (iii) board attendance, expressed by the number of board meetings per year.	Thomson Reuters Refinitiv.
<b>Control Variables</b>		
Size	The natural logarithm of total assets.	Thomson Reuters Refinitiv.
Leverage	The debt-to-equity ratio.	Thomson Reuters Refinitiv.
CSRCom	Dummy variable that takes the value of 1 if the company has a CSR committee and 0 otherwise.	Thomson Reuters Refinitiv.
BGenderD	The ratio of female directors to the total number of directors on the board	Thomson Reuters Refinitiv.
SDG	Dummy variable that takes the value of 1 if the firm reports SDG information in their sustainability or integrated reporting and 0 otherwise	Thomson Reuters Refinitiv.
ESG	This score ranges from 0 to 100, with a higher value indicating better ESG performance according to the three pillar scores (environmental, social, and governance).	Thomson Reuters Refinitiv.
Inst_Governance	Composite score of the six items proposed by Kaufman et al. (2009) from the Worldwide Governance Indicators: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and, control of corruption.	Worldwide Governance Indicators
<b>Additional Variables</b>		
Controversial	Dummy variable that takes the value 1 if the firm operates in sinful industries, which include the alcohol, tobacco and gambling industries or in industries involved in emerging environmental, social and ethical issues, such as weapons, oil and gas and hazardous waste; and 0 otherwise.	Thomson Reuters Refinitiv.
Tightness	Score developed by Gelfand et al. (2011) which measures tightness by a six-item Likert scale that assesses the degree to which social norms are persuasive.	Gelfand et al. (2011)

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(continued)

Symbols	Detail	Source
Public Enforcement	Index developed by Djankov et al.'s (2008) indicating whether all disclosure and approval requirements have been met with a range between 0 and 1. Specifically, 0.25 points are assigned to each one of the four indicators making up the aggregate score: (i) fines for the approving body; (ii) jail sentences for the approving body; (ii) fines for Mr. James; and (iv) jail sentence for Mr. James. T.	Djankov et al.'s (2008)

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