Zhongguo Kuangye Daxue Xuebao
Journal of China University of Mining and Technology

2024 | Vol 29 | Issue 4 | Page 238-245
Journal Homepage: https://zkdx.ch/
DOI: 10.1654/zkdx.2024.29.4-23

Environmental Performance in Sustainability Assurance: Its Key Role and Impact

Anis JARBOUI*
University of Sfax-Tunisia
*Corresponding author

Mohamed Amine Bouraoui
Department of business, College of business, King Khalid University, KSA

Abstract
Our study aims to examine the relationship between environmental performance (EP) and the adoption of sustainability assurance (*SA*). In addition, the study determines the role of *EP* in explaining choices related to *SA*. We conducted an empirical study on French firms listed on the Paris stock exchange (CAC 40 index) spanning the period from 2012 to 2022. In order to estimate the econometric models, we utilized the Feasible Generalized Least Squares (FGLS) regression method. Our findings demonstrate that firms with good *EP* are more inclined to engage independent third parties. This engagement provides assurance for their sustainability reports compared to firms with poorer *EP*. In addition, our findings indicate that firms with poorer *EP* are more likely to select a higher assurance level compared to firms with good *EP*.

Keywords
Environmental sustainability performance, Sustainability assurance, Assurance level, Signaling theory, legitimacy theory, French context

1. Introduction
In recent decades, the disclosure of non-financial information has become a mandatory business practice, gaining comparable importance to traditional financial information (Braam and Peeters, 2018; Simoni et al., 2020). In fact, annual reports fail to adequately address the diverse concerns of stakeholders, particularly regarding environmental and social matters (Băndoi et al., 2021; Esteban-Arrea and Garcia-Torea, 2022). As a result, corporate sustainable development reports, commonly known as triple bottom line reporting, encompass a firm's economic, ecological, and social performance (Simnett et al., 2009; Kolk and Perego, 2010; Casey and Grenier, 2015). Recently, there has been a global surge in the demand for sustainability assurance (*SA*) services (KPMG, 2013). Stakeholders may question the credibility of corporate social responsibility (*CSR*) information and call for *CSR* assurance (*CSRA*) (Clarkson et al., 2015; Simoni et al., 2020).

The growing concern for *CSRA* arises from the increasing complexity and comprehensiveness of *CSR* reporting (Braam and Peeters, 2018). The primary objective of *SA* is to provide transparency and credibility to sustainability reports, meeting stakeholder expectations and pressures, for instance. In fact, firms that strive to improve the credibility and accountability of their *CSR* reporting are more inclined to seek *CSRA* (Simnett et al., 2009, Kolk and Perego, 2010; Casey and Grenier, 2015; Simoni et al., 2020). Essentially, they feel compelled to align with a socially constructed framework of values and expectations to justify their operations and address stakeholder pressure (Braam and Peeters, 2018).

Unlike a financial statement audit, *SA* is typically a voluntary practice and is not subject to extensive regulations in most jurisdictions. Consequently, there is a lack of consensus on the standardized approach for conducting *SA* engagements (Farooq and De Villiers, 2017). For instance, the French government has implemented regulations and guidelines on social and environmental reporting, which have prompted numerous organizations to engage in sustainability reporting. This, in turn, may foster the *SA* adoption. An example of such legislation is the "Grenelle 2 Law" in France, which encourages organizations to undertake sustainability reporting and obtain third-party assurance for their sustainability reports (Gillet-Monjarret, 2015). Previous research has indicated that European countries have been at the forefront of the third-party assurance sector (Mock et al., 2013).

Numerous studies have aimed to examine the relationship between sustainability performance and SA (Zorio et al., 2013; Casey and Grenier, 2015; Clarkson et al., 2015; Peters and Romi, 2015; Braam and Peeters, 2018; Hummel et al., 2019; Dutta, 2020; Simoni et al., 2020). However, these studies have not yet reached a general consensus on the matter. From a sociopolitical perspective, there is a negative association between sustainability performance and SA (Cohen and Simnett, 2015; Braam and Peeters, 2018). On the other hand, from an economic perspective, firms with stronger performance are more likely to seek assurance for their sustainability reports (Clarkson et al., 2015 ; Simoni et al., 2020). Given these inconclusive results, our study aims to examine the relationship between corporate environmental sustainability performance (*EP*) and *SA*. In addition, we aim to explore how *EP* influences the assurance quality, particularly the assurance level. In fact, unlike Casey and Grenier (2015), who solely investigated the role of sustainability performance in *SA* engagements, our study goes beyond the *SA* adoption and delves into the details of assurance quality by examining the assurance level chosen by the firm. Our study utilizes a sample of French firms listed on the CAC 40 index during the period from 2012 to 2022. The findings indicate that firms exhibiting better environmental performance tend to be more inclined to request *CSRA* compared to firms with poorer environmental performance. Furthermore, firms with lower environmental performance show a greater preference for a higher level of assurance compared to firms with higher environmental performance.

The paper is structured as follows: Section 2 reviews the literature and theoretical background. Section 3 describes the research methodology, including data collection and econometric models. Section 4 discusses and analyzes the main findings. Section 6 summarizes the research and presents key conclusions.

2. Literature Review and Hypotheses Development

Prior research has extensively explored the voluntary *CSR* process, drawing on theories such as *legitimacy theory* and *stakeholder theory* as sociopolitical perspectives, as well as economic theories like *signaling theory* and *agency theory* (Cohen and Simnett, 2015; Braam and Peeters, 2018; Simoni et al., 2020). In fact, according to the sociopolitical theories, firms with poor *EP* extensively demand external assurance in order to legitime their poor performance and manage stakeholders perceptions (Braam and Peeters, 2018; Simoni et al., 2020). On the other hand, from an economic perspective, firms with higher corporate sustainability performance proactively engage an external party to provide assurance in order to highlight their positive sustainability performance (Clarkson et al., 2015; Simoni et al., 2020).

2.1 The Relationship Between *EP* and the *SA* Adoption

Research on sustainability disclosure extensively highlights the crucial influence that sustainability performance has in shaping a company's disclosure practices. However, as far as we are aware, there is limited research examining the role of sustainability performance in the decision to adopt external assurance (Casey and Grenier, 2015; Braam et al., 2018; Hummel et al., 2019). Casey and Grenier (2015) found that firms with both strong and weak sustainability performance are more likely to seek CSRA. They noted a positive link between strong sustainability and assurance adoption, suggesting firms with poor performance may not pursue assurance. This could be to enhance credibility or for impression management.

Similarly, Clarkson et al. (2015) observed a positive correlation between public perception of *CSR* performance and the demand for *CSRA*. Braam and Peeters (2018) examined the relationship between sustainability performance and the demand for *CSRA*. They found that firms with stronger sustainability performance are more likely to engage an external party and provide an independent assurance opinion on their sustainability reports, as compared to firms with weaker performance. Dutta (2020) conducted a study to examine the impact of corporate environmental performance on the voluntary external assurance of sustainability reports. The study analyzed data from 176 firm-year observations of listed finnish firms over an eight-year period (2008-2015). The sample consisted of companies that had released sustainability reports during this timeframe. The findings of the study revealed that finnish firms with excellent environmental performance, specifically in relation to greenhouse gas emissions and water consumption, were more likely to have their sustainability reports externally assured. Simoni et al. (2020) conducted a study with a specific focus on European-listed firms. These companies were required to have published at least one sustainability report between 2012 and 2016. One of the hypotheses proposed that companies with higher environmental performance levels would be more inclined to undergo *SR*s assurance. Through empirical analysis, they confirmed this hypothesis and provided evidence that firms with superior environmental performance are more likely to have their SRs assured by a third party. The findings of these previous studies support the framework of *signaling* theory and *agency* theory which suggest that firms seek assurance to differentiate themselves from other firms. According to these theories, firms with high corporate sustainability performance proactively engage an external party to provide assurance in order to highlight their positive sustainability performance. This can enhance stakeholders' confidence in their sustainability performance, thereby improving their overall image.

H1.a: *Firms with higher environmental performance are more likely to request for SA than firms with lower environmental performance.*

On the contrary, *legitimacy* and *stakeholder* theories as sociopolitical theories suggest that firms with weaker environmental performance are more likely to publish *CSR* reports. According to these theories, firms facing government

scrutiny and legitimacy risks due to their low sustainability performance may seek external assurance as a risk management tool to mask poor performance and effectively manage stakeholders' perception of the relevance of *CSR* information (Braam and Peeters, 2018; Simoni et al., 2020). This can help enhance the firm's reputation and address legitimacy concerns. Employing an independent third party to verify sustainability performance aims to divert attention from poor sustainability performance, address legitimacy issues, and instill confidence in various stakeholders. The objective of independent third-party assurance is to ensure that the *CSR* information disclosed in sustainability reports is reliable, accurate, and compliant with reporting standards.

Publishing credible information proactively helps generate greater stakeholder confidence in a firm's commitment to sustainability, thereby enhancing its reputation and perceived legitimacy (Odriozola and Baraibar-Diez, 2017; Braam and Peeters, 2018). For this purpose, firms with lower sustainability performance may seek external assurance to divert attention from their weaknesses and mitigate the negative impacts on their legitimacy (Braam and Peeters, 2018). In this context, Clarkson et al. (2015) concluded that poorer *CSR* performers are more likely to selectively release "soft" and inaccurate information in an attempt to improve their public image (one option being to request *CSRA*). Zorio et al. (2013) suggested that poorly performing firms seek assurance to improve their performance and legitimacy. Peters and Romi (2015) found a negative link between environmental performance and the need for SA. Hummel et al. (2019) identified a positive relationship between sustainability concerns and assurance engagement, indicating that underperforming firms often seek more extensive assurance services.

H1.b: *Firms with lower environmental performance are more likely to request SA compared to firms with higher environmental performance.*

2.2 The Relationship Between *EP* and the Assurance Level

The ISAE 3000 distinguishes between "reasonable assurance engagements," which offer a positive assurance opinion (Braam and Peeters, 2018; Hodge et al., 2009; GRI, 2013), and "limited assurance engagements," which provide a less favorable assessment (O'Dwyer et al., 2011).

Firms with strong environmental performance tend to seek higher quality assurance to differentiate themselves, while weaker performers opt for lower assurance (Clarkson et al., 2015; Cohen and Simnett, 2015; Braam and Peeters, 2018). Signaling theory suggests that high-performing firms choose in-depth assurance services to send stronger signals, which lower-performing firms find hard to replicate (Braam and Peeters, 2018). These higher assurance levels enhance stakeholder confidence and signal credibility (Hodge et al., 2009), leading to a positive link between environmental performance and assurance levels.Thus, the second hypothesis can be formulated as follows :

H2.a: *Firms with higher environmental performance are more likely to seek higher assurance levels than those with lower performance.*

From a sociopolitical perspective, firms with poorer environmental performance may seek more comprehensive CSR assurance to enhance credibility. Legitimacy theory suggests these firms might choose partial assurance to mitigate legitimacy risks (Park and Brorson, 2005; Hummel et al., 2019). Studies show that weaker sustainability performers often invest in extensive assurance services to improve their internal processes and credibility (Hummel et al., 2019).

They argued that the depth of the assurance process encompasses factors such as the coverage of key sustainability performance indicators, the assurance level, the use of different assessment methods and the evaluation of report materiality.

The concept of *SA* is seen as a strategic process employed by management primarily for the purpose of enhancing the corporate image. Even minimal-depth assurance can serve as an adequate indicator to preserve legitimacy. A lower level of assurance can still send a positive message to stakeholders and the public. Thus, firms with weaker environmental performance are likely to seek higher assurance levels to strengthen their legitimacy. This suggests a negative relationship between environmental performance and the assurance level.This leads to the formulation of the hypothesis (2.b) as follows:

H2.b: *Firms with lower environmental performance are more likely to seek higher assurance levels than those with better performance.*

3. Research Methodology

3.1 Empirical Models

Our sample consists of French firms listed on the CAC 40 index during the period from 2010 to 2022. The data sources for our research are annual and sustainability reports extracted from the Datastream database (www.thomsonone.com). Assurance data is gathered using the GRI's Sustainability Disclosure Database. Sustainability assurance in France involves independent verification of companies' sustainability reports to ensure accuracy and reliability. It is guided by various regulations and standards, such as those set by the French Financial Markets Authority (AMF) and international frameworks like the Global Reporting Initiative (GRI). In France, companies are increasingly engaging in sustainability assurance to enhance credibility, manage risks, and meet regulatory requirements, reflecting a growing emphasis on transparency and accountability in corporate sustainability practices. In France, environmental performance refers to how

effectively companies manage and reduce their environmental impacts, including aspects such as energy use, waste management, and emissions. French regulations, such as the Energy Transition Law and the Climate and Resilience Law, mandate that companies track and report their environmental performance. Many French firms are also guided by international standards and certifications, such as ISO 14001, to improve their environmental practices. The emphasis on environmental performance is driven by both regulatory requirements and increasing public and consumer demand for sustainable practices.

Our study aims to examine the relationship between EP and SA engagement, as well as the assurance level provided through sustainability and annual reports for French stock exchange firms listed on the CAC 40 index. To achieve this, we have developed the following two regression models:

Model 1:

$$SA_{it} = \beta_0 + \beta_1 * EP_{it} + \beta 2_0 * Firm\ size_{it} + \beta_3 * Firm\ profitability_{it} + \beta_4 * Firm\ leverage_{it} + \beta_5 * Activity\ sector_{it} + \mu_{it}$$

Model 2:

$$SA\ level_{it} = \beta_0 + \beta_1 * EP_{it} + \beta_2 * Firm\ size_{it} + \beta_3 * Firm\ profitability_{it} + \beta_4 * Firm\ leverage_{it} + \beta_5 * Activity\ sector_{it} + \mu_{it}$$

Where, "*i*" represents cross-sectional data, and "*t*" represents time-series data. "*SA*" represents sustainability assurance engagement, which serves as the first dependent variable. "*EP"* is the corporate environmental sustainability performance. "*SA level*" refers to the level of *SA* engagement. The coefficient in the regression model is denoted by β. Further details regarding the independent variables can be found in Table 1. It summarizes the variables of our study, including definitions for the dependent, independent, and control variables.

Table 1 Variables Definition

Variables	Measurement	Authors
	Dependent variables	
The Sustainability assurance (SA)	A dummy variable of 1 if a firm's sustainability report is assured by an independent third party, and 0 if not.	Zorio et al., 2013; Peters and Romi, 2015
The assurance level	A dummy variable equals 1 if the GRI database shows a reasonable level and 0 if it shows a limited level.	Braam et al., 2018; Hummel et al., 2019.
	Independent variable	
Environmental performance (EP)	A dummy variable of 1 if the firm is ISO 14001 certified and 0 otherwise.	Hardiyansah et al., 2020.
	Control variables	
Firm size	NL of total assets.	Ackers Barry, 2017; Braam et al., 2018.
Firm profitability	(ROA)	Simnett et al., 2009; Sierra et al., 2013; Casey and Grenier, 2015; Braam et al., 2018.
Firm leverage	The ratio of debt	Clarkson et al., 2015
Activity sector	A dummy variable of 1 if the industry is sensitive and 0 otherwise.	Martınez-Ferrero and Garc´ıa-Sa´nchez 2016; Ackers Barry, 2017; Braam et al., 2018.

3.2 Empirical Findings

In our sample, firms were classified by their SA status. Firms on the CAC 40 index with independent third-party assurance for their sustainability reports were labeled as adequately assured (SA=1), while those without such assurance were labeled as not assured (SA=0). Table 2 indicates that, on average, firms with independent assurance for their sustainability reporting exhibit better *EP* compared to firms without assurance (Mean = 0.742 > 0.673). For Panel 1 (where SA=1), *firm size* and *firm profitab*ility are higher compared to Panel 2 (where SA=0).

Table 2 Descriptive Statistics (SA)

Variables	SA=1			SA=0		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. dev
EP	212	0.742	0.402	140	0.673	0.434
Firm size	212	6. 567	0.505	140	0.042	0.421
Firm profitability	212	1.097	0.221	140	0.591	0.234
Firm leverage	212	0.235	0.148	140	0.348	0.573
Activity sector	212	0.812	0.323	140	0.028	0.098

To assess the significance of the differences in variables, we conducted a one-way ANOVA (One Way ANOVA). The results are presented in Table 3.

Table 3 The one - way ANOVA test

Variables	ANOVA		Levene test		Welch test	
	F	***Sig.***	***Statistique***	***Sig.***	***Statistique***	***Sig.***
EP	*9.834*	*0.000****	*3.86*	*0.0332***	*2.54*	*0.085**
Firm size	*5.87*	*0.004****	*1.56*	*0.0009****	*12.84*	*0.000****
Firm profitability	*9.34*	*0.000****	*21.75*	*0.0000****	*4.12*	*0.039***
Firm leverage	*4.43*	*0.0065****	*17.95*	*0.0000****	*2.93*	*0.068**
Activity sector	*1.43*	*0.318*	*10.44*	*0.0000****	*0.20*	*0.172*

EP: *Corporate environmental sustainability perf;* ***SA:*** *Sustainability Assurance.*

Levene's test indicates that none of the variables meet the assumption of homogeneity of variance at a maximum level of 5%. To address this violation, Welch's test, which is more powerful than the F-statistic when the assumption of equal variance is violated, was employed to test the robustness of the ANOVA results. It suggests that only the ANOVA results for *EP*, *firm profitability*, and *firm size* are robust. The results in Table 3 support the conclusion that there is a significant difference in *EP* in terms of *SA*. However, no significant differences in *activity sector* were found between these two sustainability assurance groups.

Table 4 presents the descriptive statistics for the independent and control variables related to the two assurance levels, specifically, the higher and lower quality of assurance. For firms that choose to assure their sustainability reports, we aimed to evaluate the impact of *EP* on the level of assurance engagement provided.

Table 4 Descriptive statistics (assurance level).

Variables	Reasonable assurance level			Limited assurance level		
	Obs.	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**
EP	226	0.743	0.411	126	0.825	0.383
Firm size	226	6.83	0.543	126	6.734	0.832
Firm profitability	226	0.123	0.218	126	-0.059	0.693
Firm leverage	226	0.212	0.145	126	0.162	0.131
Activity sector	226	0.739	0.368	126	1	0

Table 5 presents the regressions results. Both models demonstrate overall significance as indicated by the significant Wald chi-squares at the 1% level. These findings suggest a significant impact of *EP* on *SA* engagement, including the assurance level. As presented by Table 5, *EP* has a significant positive impact on *SA* (coef. = 0.245, p-value < 1%). Thus, our first hypothesis (1.a) is confirmed, rejecting hypothesis (1.b). Our findings suggest that firms with superior *EP* are more inclined to engage an independent third party to provide assurance on their sustainability reports compared to firms with inferior *EP*. There are several possible explanations for these findings. It could be attributed to the fact that good environmental performers seek supplementary assurance to improve reliability and increase their internal sustainability structures, thereby differentiating themselves from poor environmental performers. Our findings are supported by the framework of economic theories, which proposes that assurance on sustainability reports acts as a costly signal, favorable for firms with respectable environmental performance. This assurance enhances stakeholders' confidence and helps firms to proactively demonstrate their sustainability achievements. In addition, our findings are consistent with Braam and Peeters (2018), who found a positive association between *EP* and assurance engagement, as well as Clarkson et al. (2015), who observed a similar connection. In contrast, our results contradict the sociopolitical theories, which suggest that firms with weaker sustainability performance may rely on third-party assurance to mask their poor performance and signal credibility to influence stakeholders' perceptions and confidence.

Regarding the relationship between *EP* and the assurance level, model 2 reveals a negative significant coefficient (coef. = -0.541, p-value <1%). Hence, our second hypothesis (2.b) is supported, rejecting hypothesis (2.a). This suggests a negative relationship between *EP* and the assurance level. A possible explanation is that firms with poor sustainability performance may opt for higher assurance level to strengthen their credibility and obtain increased corporate legitimacy. By doing so, their sustainability reports become more accountable, clearer, and more trustworthy, thereby reducing legitimacy threats towards stakeholders or society. Our findings are consistent with the sociopolitical perspective and support Hummel et al. (2019), who identified a negative relationship between environmental and social sustainability performance and the depth of assurance.

However, they contradict the predictions of *signaling* and *agency* theory, which suggest that good sustainability performers would report information on third-party assurance policies that are difficult for lower sustainability performers to replicate. Furthermore, these findings contradict Braam and Peeters (2018), who found that superior performing firms are more inclined to opt for a reasonable assurance level to differentiate themselves from other firms. They explained their findings by highlighting that in environments where sustainability assurance is optional, the probable benefits of assurance are more likely to compensate the associated costs for higher performing firms compared to those with inferior sustainability performance.

Regarding the control variables, *firm size* is found to have a negative significant relationship with the adoption of *SA* in the first model (coef. = -0.024, p-value < 1%). This suggests that smaller firms are more inclined to ensure their sustainability reports through an independent third party as they may be seeking to gain legitimacy. These results match

Peters and Romi (2015), who found a negative link between firm size and CSRA. However, they contradict Ackers Barry (2017), Martínez-Ferrero and García-Sánchez (2016), and Simnett et al. (2009), which suggest larger firms have more resources for CSR assurance. In the second model, firm size has an insignificant effect on assurance level decisions (coef.= -0.044, p-value > 10%), differing from Zorio et al. (2013), who found a positive link between firm size and assurance quality.

Table 5 Regressions results

Variables	Model 1		Model 2	
	Coefficient	p- value	Coefficient	p- value
EP	0.245***	0.003	-0.541***	0.000
Firm size	-0.024***	0.008	-0.044	0.254
Firm profitability	-0.027	0.673	0.132**	0.030
Firm leverage	-0.271*	0.076	0.546**	0.049
Activity sector	0.082	0.295	0.043	0.370
Intercept	0.345***	0.000	1.846***	0.000
R2between	22.39%		22.67%	
Chi2	114.74		116.46	
(p-value)	(0.000)		(0.000)	
Breusch and Pagan	42.54		36.83	
(p-value)	(0.000)		(0.000)	
Durbin Watson	1.834		1.561	

Notes: ** Significant at 1% level, ****** Significant at 5 % level, ***** Significant at 10% level.*

In terms of *firm profitability*, no significant relationship is found in the first model, indicating that there are no significant differences between profitable and unprofitable firms in terms of their engagement in *SA* (coef. = -0.027, p-value > 10%). These findings are consistent with prior studies such as Sierra et al. (2013) and Simnett et al. (2009), which reported no conclusive link between profitability and the decision to provide *CSRA*. However, in the second model, *firm profitability* shows a positive coefficient (coef. = 0.132, p-value < 5%) and a statistically significant relationship with the assurance level provided at the 5% level. This suggests that in more profitable firms, funds are more readily available for *CSRA* decisions. Profitable firms are more likely to choose a higher assurance level as high-quality assurance comes with costs that only profitable firms are more likely to bear.

Regarding *firm leverage*, the first model shows a negative coefficient (coef. = -0.271, p-value < 10%) and a statistically significant relationship with *SA*. This result aligns with prior findings such as Sierra et al. (2013), who found a negative relationship between firm leverage and the decision to secure *SA*. However, it contradicts Simnett et al. (2009), who reported that financial risk/leverage does not influence the decision to secure assurance, as well as Mnif Sellami et al. (2019), who found no significant correlation between leverage and *SA* demand. In the second model, a positive coefficient (coef.= 0.546, p-value < 5%) and a statistically significant relationship are found between *firm leverage* and the assurance level. This contradicts Zorio et al. (2013), whose findings revealed a negative relationship between leverage and assurance statement quality. Regarding the *Activity sector*, both models show positive but insignificant coefficients (coef. = 0.082 and 0.043, respectively, p-value > 10%). Thus, the *activity sector* does not significantly influence the decision to assure sustainability reports or the choices made regarding the assurance level.

4. Conclusion

The sustanaibility assurance (*SA)* serves as an external process that addresses the credibility issues associated with sustainability reports (Martínez Ferrero and García Sánchez, 2016). This study aims to provide empirical evidence on the relationships between environmental (*EP)* and the *SA* adoption. Additionally, it explores the role of *EP* in explaining choices related to *SA*.

Our findings demonstrate that firms with good *EP* are more likely to engage an independent body to ensure their sustainability reports compared to firms with poorer environmental performance. Our results align with economic theories, such as *signaling* theory, which propose that the expected benefits of *SA* outweigh the assurance costs for firms with superior *EP* compared to those with poorer *EP*. Furthermore, we demonstrated that firms with poorer *EP* are more inclined to choose a higher assurance level than firms with good *EP*. This practice is employed to mask poor performance and establish credibility in the disclosed information, with the intention of shaping stakeholders' perceptions, fostering confidence, and diverting attention away from insufficient sustainability performance.

The findings of our study have significant implications for practice, research and society. From practical perspective, firms with strong *EP* are more likely to opt for external assurance to enhance the credibility of their sustainability reports. This suggests that organizations should prioritize improving their environmental performance to signal their commitment to sustainability and attract stakeholders' trust. On the other hand, firms with lower EP show a higher inclination to choose a higher assurance level. This suggests that these firms may be using assurance as a strategy to mask their poor environmental performance and create a perception of credibility. Regulators and assurance providers need to be aware of this behavior and carefully assess the quality of assurance engagements to ensure transparency and accuracy in sustainability reporting. Firms should prioritize improving their environmental performance to enhance the

credibility and effectiveness of their sustainability reports. By focusing on genuine environmental improvements, companies can ensure that their sustainability reports are authentic and reliable, which will be further validated through external assurance. Managers must be aware that while high levels of assurance can enhance perceived credibility, they should not be used as a tactic to mask poor performance. Instead, assurance should be coupled with actual progress in environmental practices to avoid reputational risks. Additionally, it is crucial for firms to work with reputable assurance providers and ensure the quality of the assurance process to maintain transparency and accuracy in their reports. Staying informed about regulatory trends and requirements related to sustainability assurance is also important for strategic decision-making and ensuring compliance.

Acknowledgments

The authors extend their appreciation to the Deanship of Research and Graduate Studies at King Khalid University for funding this work through small group research under grant number RGP.1/372/45.

References

1. Ackers, B. (2017). Independent corporate social responsibility assurance: A response to soft laws, or influenced by company size and industry sector? *International Journal of Disclosure and Governance*, 14, 278–298. https://doi.org/10.1057/s41310-017-0026-7
2. Băndoi, A., Bocean, C. G., Del Baldo, M., Mandache, L., Mănescu, L. G., & Sitnikov, C. S. (2021). Including sustainable reporting practices in corporate management reports: Assessing the impact of transparency on economic performance. *Sustainability*, 13(2), 940.
3. Braam, G., & Peeters, R. (2018). Corporate sustainability performance and assurance on sustainability reports: Diffusion of accounting practices in the realm of sustainable development. *Corporate Social Responsibility and Environmental Management*, 25(2), 164-181.
4. Casey, R. J., & Grenier, J. H. (2015). Understanding and contributing to the enigma of corporate social responsibility (CSR) assurance in the United States. *Auditing: A Journal of Practice & Theory*, 34(2), 97–130.
5. Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal*, 35(1), 1–23.
6. Cho, C. H., & Patten, D. M. (2007). The role of environmental disclosures as tools of legitimacy: A research note. *Accounting, Organizations and Society*, 32, 639–647.
7. Cho, C. H., Michelon, G., Patten, D. M., & Roberts, R. W. (2014). CSR report assurance in the USA: An empirical investigation of determinants and effects. *Sustainability Accounting, Management and Policy Journal*, 5, 130-148.
8. Clarkson, P. M., Li, Y., Richardson, G., & Tsang, A. (2015). Voluntary external assurance on corporate social responsibility reports and the Dow Jones Sustainability Index Membership: International evidence. *Working paper, UQ Business School*. Retrieved from http://cear.gsu.edu/files/2015/09/Session-6-Richardson-Paper.pdf
9. Cohen, J. R., & Simnett, R. (2015). CSR and assurance services: A research agenda. *Auditing: A Journal of Practice & Theory*, 34(1), 59–74.
10. Dutta, P. (2020). Determinants of voluntary sustainability assurance: The importance of corporate environmental performance. *Social Responsibility Journal*, 16(8), 1403-1414.
11. Esteban-Arrea, R., & Garcia-Torea, N. (2022). Strategic responses to sustainability reporting regulation and multiple stakeholder demands: An analysis of the Spanish EU non-financial reporting directive transposition. *Sustainability Accounting, Management and Policy Journal*.
12. Farooq, M. B., & De Villiers, C. (2017). The market for sustainability assurance services: A comprehensive review of the literature and future avenues for research. *Pacific Accounting Review*, 29(1), 79–106.
13. Gillet-Monjarret, C. (2015). Assurance of sustainability information: A study of media pressure. *Accounting in Europe*, 12, 87-105.
14. Hodge, K., Subramaniam, N., & Stewart, J. (2009). Assurance of sustainability reports: Impact on report users' confidence and perceptions of information credibility. *Australian Accounting Review*, 19(3), 178–194.
15. Hummel, K., Schlick, C., & Fifka, M. (2019). The role of sustainability performance and accounting assurors in sustainability assurance engagements. *Journal of Business Ethics*, 154, 733-757.
16. Kolk, A., & Perego, P. (2010). Determinants of the adoption of sustainability assurance statements: An international investigation. *Business Strategy and the Environment*, 19(3), 182–198.
17. KPMG. (2013). The KPMG survey of corporate responsibility reporting 2013. Retrieved from https://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/corporate-responsibility/Documents/corporate-responsibility-reporting-survey-2013-exec-summary.pdf
18. Martínez-Ferrero, J., & García-Sánchez, I.-M. (2016). Coercive, normative and mimetic isomorphism as determinants of the voluntary assurance of sustainability reports. *International Business Review*, 26(1), 102–118.
19. Mock, T. J., Rao, S. S., & Srivastava, R. P. (2013). The development of worldwide sustainability reporting assurance. *Australian Accounting Review*, 23(4), 280–294.

20. Odriozola, M. D., & Baraibar-Diez, E. (2017). Is corporate reputation associated with quality of CSR reporting? Evidence from Spain. *Corporate Social Responsibility and Environmental Management*, 24(2), 121–132.
21. Park, J., & Brorson, T. (2005). Experiences of and views on third-party assurance of corporate environmental and sustainability reports. *Journal of Cleaner Production*, 13(10–11), 1095–1106.
22. Peters, G. F., & Romi, A. M. (2015). The association between sustainability governance characteristics and the assurance of corporate sustainability reports. *Auditing: A Journal of Practice & Theory*, 34, 163–198.
23. Pflugrath, G., Roebuck, P., & Simnett, R. (2011). Impact of assurance and assurer's professional affiliation on financial analysts' assessment of credibility of corporate social responsibility information. *Auditing: A Journal of Practice and Theory*, 30(3), 239–254.
24. Qi, G. Y., Zeng, S. X., Shi, J. J., Meng, X. H., Lin, H., & Yang, Q. X. (2014). Revisiting the relationship between environmental and financial performance in Chinese industry. *Journal of Environmental Management*, 145, 349–356.
25. Sierra, L., Zorio, A., & Garcia-Benau, M. A. (2013). Sustainable development and assurance of corporate social responsibility reports published by Ibex-35 companies. *Corporate Social Responsibility and Environmental Management*, 20(6), 359–370.
26. Simnett, R., Vanstraelen, A., & Chua, W. F. (2009). Assurance on sustainability reports: An international comparison. *The Accounting Review*, 84(3), 937-967.
27. Simoni, L., Bini, L., & Bellucci, M. (2020). Effects of social, environmental, and institutional factors on sustainability report assurance: Evidence from European countries. *Meditari Accountancy Research*, 28(6), 1059-1087.
28. Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87(3), 355–374.
29. Tan, S.-H., Habibullah, M. S., Tan, S.-K., & Choon, S.-W. (2017). The impact of the dimensions of environmental performance on firm performance in the travel and tourism industry. *Journal of Environmental Management*. https://doi.org/10.1016/j.jenvman.2017.02.029
30. Zorio, A., Garcia-Benau, M. A., & Sierra, L. (2013). Sustainable development and the quality of assurance reports: Empirical evidence. *Business Strategy and the Environment*, 22(7), 484–500.