

Unlocking success: exploring the relationship between multiple CSR initiatives, firm performance and the role of the regional quality of government

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Abstract

Purpose – Following signalling theory, this paper aims to study the impact of multiple corporate social responsibility (CSR) initiatives on firm performance, by considering commitment to the United Nations Global Compact (UNGC), the Occupational Health and Safety Assessment Series (OHSAS) 18001 and environmental commitment such as Kyoto Protocol or Paris Agreement, for a sample of Italian-listed companies. Through the adoption of contingency theory, the paper also aims to study whether the impact of CSR initiatives is moderated by the following contextual factors: quality of government, impartiality and corruption of the region. Information on CSR initiatives is obtained through a manual content analysis of companies' disclosure.

Design/methodology/approach – Studying a sample of Italian-listed companies, information on CSR initiatives is obtained through a manual content analysis of companies' sustainability or integrated reports. The authors run ordinary least square regressions to test research questions.

Findings – Results show that OHSAS 18001 has a positive influence on both sales growth and profitability when held alone. When the focus is on one single initiative, stakeholders tend to attribute more value to signals of the social dimension. This evaluation can be enhanced by combining OHSAS 18001 with firm commitment to UNGC and/or the Kyoto Protocol or Paris Agreement. By signalling a more comprehensive approach to CSR, firms can obtain reputational growth, which can generate competitive advantage. Finally, in regions with low corruption, high impartiality and high government quality, CSR initiatives are considered as more reliable signals, which further enhances firms' performance.

Practical implications – These results may have practical implication for managers as they confirm that using OHSAS 18001 certification ensures better performance. However, signalling commitment to a specific CSR initiative does not automatically imply an improvement in performance. Indeed, companies need to approach CSR initiatives in a strategic manner and may need to adjust their structure and philosophy to the principle of the initiative. Using a certification scheme has specific costs, which need to be considered.

Social implications – Findings show that the impact of CSR initiatives is affected by contextual factors such as the quality of government. Knowing this, firms could not be interested in sustainable practices in regions with low quality of government. In this sense, policymakers and regulators should enhance the quality of their



activity to improve the foster firms' commitment to CSR. A higher firms' commitment can be beneficial to the entire community.

Originality/value – To the best of the authors' knowledge, this paper is the first attempt to identify how the combination of multiple CSR initiatives affects corporate performance. In addition, this paper analyses the impact of commitment towards global environmental policies on firms' performance. Then, the authors offer insights about if and how regional differences in terms of quality of government can moderate these impacts.

Keywords CSR initiatives, Firm performance, Signalling theory, Contingency theory, Contextual factors

Paper type Research paper

1. Introduction

Growing social awareness of environmental and social issues in the past 20 years has raised the level of business sensitivity to corporate social responsibility (CSR) initiatives (Rasche, 2009) by which firms signal their commitment to CSR. As a result, CSR now plays a key role in firms' overall strategies which aim to meet a wide range of stakeholder requirements. Our objective is to study some of the main CSR initiatives, such as the United Nations Global Compact (UNGC), the Occupational Health and Safety Assessment Series (OHSAS) and environmental commitments to global climate policies, the Kyoto Protocol and the Paris Agreement. Academic studies show conflicting findings on the benefits of single CSR initiatives; OHSAS 18001, for example, shows both positive (Abad *et al.*, 2013; Yang *et al.*, 2021) and negative impacts (Lo *et al.*, 2011) on firm's economic and organizational performance.

We begin by analysing the impact of individual CSR initiatives on firm performance through the lens of signalling theory, which has previously been used to explain this relationship. Signalling theory suggests that companies communicate their commitment to social and environmental issues (Coulmont and Berthelot, 2015; Orzes *et al.*, 2020), which can attract new customers or investors, resulting in economic and financial benefits (King *et al.*, 2005; Narasimhan *et al.*, 2015; Starke *et al.*, 2012). In line with this perspective, we examine CSR initiatives that are widely adopted internationally, including general initiatives such as the UNGC, social initiatives like the OHSAS and environmental commitments aligned with global climate policies, such as the Kyoto Protocol and the Paris Agreement. The integration of these initiatives creates a robust framework for comprehensive CSR implementation. The UN Global Compact provides broader strategic guidance through 10 principles spanning human rights, labour standards, environmental protection and anti-corruption, offering a broad foundation for CSR efforts but, without specific actions required. It defines a general foundation that can be strengthened by more specific initiatives. OHSAS 18001 outlines systematic approaches to occupational health and safety management, thereby addressing internal stakeholder welfare. Meanwhile, the Kyoto Protocol and Paris Agreement complement these frameworks by providing specific environmental targets and mechanisms, particularly regarding greenhouse gas emissions reduction, which aligns with both the general environmental principles of UNGC and the OHSAS 18001's risk management focus. Among the various environmental guidelines and policies developed over the past three decades, we decide to study Kyoto Protocol and Paris Agreement for their historical significance, widespread international adoption and transformative impact on corporate environmental policies (Mohammed, 2019; UNFCCC, 2017a). The Kyoto Protocol, as a pioneering global emissions-reduction strategy, serves as a foundational reference for future subsequent climate agreements (Mohammed, 2019; UNFCCC, 2017a). These initiatives represent a comprehensive approach to CSR; however,

few studies in literature address their impacts. For this reason, our first research question aims to analyse the impact of the single initiatives in raising firm performance.

Although many CSR initiatives are available to firms, few studies have explored the relationship between multiple concurrent initiatives and corporate performance ([Ferrón Vilchez et al., 2017](#); [Hernandez-Vivanco et al., 2019](#)). To date, no research has analysed the combined impact of adopting general best practices, such as the UNGC, alongside widely implemented initiatives focused on social commitment, like the OHSAS, and environmental commitments, such as the Kyoto Protocol and the Paris Agreement. For this reason, we develop our second research question analysing which combination of initiatives could be the most effective in raising the level of firm performance. Adopting multiple initiatives can be a challenge for firms, as they need to manage more complex practices and dynamics, which can cause conflict of interest and/or higher costs, and thus negatively impact performance ([Wiengarten et al., 2017](#)). But it can also represent an attempt to take a comprehensive approach to the social and environmental dimensions, which may be rewarded by stakeholders, with consequent impact on performance. [Hernandez-Vivanco et al. \(2019\)](#) study the combination of OHSAS with ISO, and on this basis, and with the aim of filling a gap in the literature, we here analyse different combinations of UNGC, OHSAS 18001 and the Kyoto Protocol/Paris Agreement.

The use of CSR initiatives could also be affected by contextual factors such as firms' technological development ([Lo et al., 2014](#); [Orzes et al., 2017](#)), country development level ([Lee et al., 2013b](#); [Sánchez et al., 2015](#)), geographical context ([Janney et al., 2009](#); [Ortas et al., 2015](#)), cultural features and company registration on the United Nations Global Marketplace as a United Nations vendor ([Orzes et al., 2020](#)). Starting from this consideration, our third research question is based on contingency theory and aims to take account of geographical differences. It asks whether the impact of CSR initiatives is affected by the contextual factors of quality of government, impartiality and corruption in the region.

All the research questions are empirically tested on a sample of listed firms headquartered in Italy, which make voluntary disclosure of CSR certification in social environmental sustainability or integrated reports. Italy is a useful setting as differences in contextual factors between regions influence the benefits of using CSR certification, and generalizations can potentially be made relating to other countries with varying levels of quality of government, impartiality and corruption. We perform a manual content analysis to search for information on CSR initiatives and run ordinary least square regressions to test the research questions. We find that OHSAS 18001 is the most impactful and has a positive influence on both sales growth and profitability when used alone. The impact is enhanced when OHSAS 18001 is combined with company commitment to UNGC and adherence to the Kyoto Protocol or Paris Agreement. We also find that in regions with low levels of corruption and high levels of impartiality and government quality, these initiatives are more effective in enhancing firms' performance.

The primary contribution of this paper is to focus on corporate initiatives that are specifically linked to CSR commitments and their potential relationship with corporate performance. The novelty of this manuscript lies, firstly, in analysing the relationship between multiple, combined CSR initiatives and firm performance. Secondly, it interprets this relationship through the mediating role of contextual factors, such as the quality of governance, impartiality and regional corruption.

The remainder of the paper is structured as follows. Section 2 outlines the theoretical background and existing literature and formulates the research questions. Section 3 describes the method used in the study, and Section 4 presents the results. Section 5 contains conclusions and a discussion of the implications of the study.

2. Literature and research questions

2.1 Corporate social responsibility initiatives and firm's performance

Previous research on CSR has focused on the drivers and barriers to adoption, as well as its impact on firm performance (Jastram and Klingenberg, 2018). CSR initiatives are widely followed and constantly evolving, in an attempt to meet stakeholder requirements. The most commonly adopted standards are the International Organization for Standardization (ISO) numbers 9001 and 14001, which exists in more than 190 countries, and have been extensively studied in the literature (Bernardo *et al.*, 2015). However, these standards primarily address management system requirements rather than direct CSR practices.

This study instead explores other initiatives that are more closely related to CSR commitments such as UNGC and OHSAS 18001 (Orzes *et al.*, 2018, 2020), as well as the adhesion to the Kyoto Protocol and the Paris Agreement (Hsu *et al.*, 2013; Iwata and Okada, 2011), and their relationship with firm performance. Moreover, these standards have been less studied than ISO 9001 and 14001 (Orzes *et al.*, 2018, 2020).

The synergy among these CSR initiatives reflects a multi-faceted approach to sustainability. The UNGC, the world's largest voluntary corporate citizenship initiative, promotes sustainable global economies through a commitment to human rights, labour standards, environmental responsibility and anti-corruption. This broad framework integrates social and environmental concerns, whereas OHSAS 18001 and the Kyoto Protocol or the Paris Agreement provide more targeted and substantial approaches, focusing respectively on workplace safety and climate change. Together, these standards enable firms to pursue CSR at both strategic and operational levels, ensuring a comprehensive alignment with global sustainability objectives (Gianni *et al.*, 2017; Lozano, 2013). These frameworks collectively promote systematic management, continuous improvement and stakeholder engagement, fostering a structured approach to balancing social, environmental and economic responsibilities.

On the social side, OHSAS 18001 was introduced by the British Standards Institution in 1999, but has spread rapidly. It is a voluntary certification that a company's Occupational Health and Safety Management System ensures safety in the workplace and protection from accidents and ill health (British Standards Institute, 2007). OHSAS 18001 complements the UNGC by focusing specifically on occupational health and safety, encouraging organizations to adopt rigorous standards to protect their workforce. This approach integrates the UNGC's social responsibility focus, ensuring that companies not only support ethical practices but also protect and value the well-being of their employees. OSHAS 18001 requires the identification of hazards, the assessment of safety risks and the implementation and measurement of safety controls to enhance the safety performance of firms (Fernández-Muñiz *et al.*, 2012). Increasing pressure from a variety of stakeholders has recently forced firms to pay more attention to occupational health and safety and the COVID-19 pandemic has added to this pressure. OSHAS 18001 has certain features in common with other external certifications such as ISO 9001 and 14001, both of which are widely regarded as capable of delivering improved operational performance (Corbett *et al.*, 2005; Lo *et al.*, 2012).

In the context of environmental and climate change policies, two of the best-known frameworks are the UNFCCC (2017a) and the UNFCCC (2017b). The Kyoto Protocol aims to reduce greenhouse gas emissions and promote a redistribution of the costs associated with climate change, following the simple principle of shifting these costs from countries that do not produce high emissions to countries that do. This principle was later expanded by the Paris Agreement to limit global warming to below 2 degrees Celsius. In line with the Kyoto Protocol, many countries have identified reducing emissions as a crucial aim and companies must reflect this in their environmental practice and performance. Brown and Deegan (1998)

argue that good environmental management generates cost reduction and higher profits and enhances the relationship of firms with their communities. Commitment to environmental issues is a crucial managerial issue and the literature shows that firms implementing proactive environmental strategies reap benefits, particularly in the long term. These benefits include improvement in reputation and image, and a competitive advantage that can ensure higher sales, larger market shares and higher profitability (Agan *et al.*, 2013).

There is debate in the literature on potential benefits of investing in CSR in relation to firm performance and corporate reputation, and because the number of studies is low and results conflicting, the debate is ongoing (Eccles *et al.*, 2014; Lee and Tang, 2018; Renneboog *et al.*, 2008; Rodriguez-Fernandez, 2016). This scenario of both positive and negative relationships between CSR initiatives and performance fits into a varied context of methodological approaches and, as reported by Tuczek *et al.* (2018), many different theoretical lenses have been adopted in voluntary standards research. These include signalling theory, resource-based view theory, stakeholder theory and institutional theory. As noted above, signalling theory (Spence, 1973) is the theoretical framework for two of our research questions, as CSR certification can be seen as a signal to the market about company value to stakeholders. It is therefore suitable for examining the external effects of certification.

First introduced by Spence (1973) and used in research in the fields of entrepreneurship and management (Connelly *et al.*, 2011), signalling theory focuses on information asymmetry and the selection process under information asymmetry. It posits that subjects, or firms, try to distinguish themselves through costly signals. Aiming to lower information asymmetry, companies whose products possess desirable attributes send signals to consumers, conveying relevant information in a concise manner (Akerlof, 1970). Signalling theory thus focuses on actions which shed light on elements that are not immediately visible, in other words, signals. CSR standards or initiatives can be examples of signalling, as they disclose an unobservable feature to the outside through a specific tool. A signal will be credible if firms with inferior capabilities and products perceive the costs of the signal to outweigh the benefits, whereas companies with superior capabilities and products perceive the benefits to outweigh the costs (Orzes *et al.*, 2020). The willingness to incur CSR costs is the distinctive sign of strongly committed firms. CSR tools, whose impact on firms' performance we address here, send costly "signals" to the market on different issues. OHSAS 18001, for example, signals attention to workforce safety, whereas UNGC signals respect for human rights, the use of environmentally safe processes and the fight against corruption. Commitment to the Kyoto Protocol and, or, the Paris Agreement signals the intention to reduce carbon emission and, therefore, attention to climate change issues. The literature shows that CSR standards can be considered as a signal (Coulmont and Berthelot, 2015; Janney *et al.*, 2009) and signalling a voluntary CSR initiative tends to indicate higher performance (King *et al.*, 2005; Narasimhan *et al.*, 2015; Starke *et al.*, 2012).

In more detail, and considering the individual effect of each CSR initiative on firm performance, the UNGC, the most widely recognised framework in the world, has attracted a large amount of research, which has generated mixed results. Through a systematic literature review, Orzes *et al.* (2018) identify five main clusters of existing research: motivations, weaknesses, impacts, contextual factors affecting adoption and performance. Given its very broad scope, UNGC has several implications for business performance. For example, some studies focus on increased investment reflecting the perception that adopting UNGC can signal potential benefits resulting from a firms' increased focus on human rights, the environment and anti-corruption (Arevalo and Aravind, 2017; Coulmont and Berthelot, 2015; Janney *et al.*, 2009). UNGC has been proven to have a positive impact on firm reputation, customer satisfaction, access to new markets and new partnership opportunities

(Arevalo and Aravind, 2017; Bennie *et al.*, 2007; Janney *et al.*, 2009; Mele and Schepers, 2013; Shoji, 2015). These reputational improvements can also improve firm performance, usually in terms of growth in sales. Orzes *et al.* (2020) focusing on a cross-country sample, found that UNGC companies show higher sales growth than their peers which are not certificated. UNGC may also improve firm profitability because it is less expensive to adopt than other CSR standards (Arevalo and Aravind, 2017; Lehmann *et al.*, 2010; Voegtlin and Pless, 2014). However, the few studies on the relationship between UNGC and profits show mixed results, ranging from no significant relationship reported by Rodriguez-Fernandez (2016), to the positive relationship reported by Orzes *et al.* (2020). Orzes *et al.* (2020) show that UNGC certification can enhance firms' profits as a result of a sales growth combined with a limited increase in costs (Orzes *et al.*, 2020). Following signalling theory, UNGC participation may signal a stronger commitment towards responsible practices (Arevalo and Aravind, 2017; Garayar *et al.*, 2016).

Also the effects on performance of adopting OHSAS 18001 have been examined in different contexts. Abad *et al.* (2013), focusing on Spain, identify a positive relationship when firm performance is measured with labour productivity. Lo *et al.* (2014) find that the adoption of OHSAS 18001 has a positive impact on firm performance in the USA, and gives significant benefits in terms of sales, labour productivity and profitability. The impact of OHSAS 18001 on profitability is also confirmed by Bianchini *et al.* (2017), who find enhanced profits for larger firms, whereas the implementation and maintenance of OHSAS 18001 is especially costly for smaller firms. Yang *et al.* (2021) provides evidence that OHSAS 18001 early adopters benefit from higher profitability improvements than later adopters. In the framework of signalling theory, adopting OHSAS 18001 allows firms to gain legitimacy among important customers (Staw and Epstein, 2000; Suchman, 1995). It signals the commitment of firms to include health and safety matters in management areas. Certification may also meet customers' own safety requirements (Law *et al.*, 2006) and can thus improve firm sales performance and profits.

Considering environmental issues, most of the studies has focused on the impact on firm performance of ISO 14001, an environmental certification, but here too there are conflicting findings (Berchicci and King, 2007). de Jong *et al.* (2014) find no consistent positive relationship between certification and firms' performance immediately after adoption, but find an improvement in the long term. Teng *et al.* (2014) obtain similar results, following a different approach using longitudinal data, with firms that benefit in the long-term after an initial negative impact. Other studies find positive initial impact of ISO 14001 on firm performance (Jacobs *et al.*, 2010; Morrow and Rondinelli, 2002; Nishitani, 2011), but these findings conflict with others where no positive impact is found (He *et al.*, 2015; Lisi, 2015).

According to Porter and Linde (1995), and the "Porter Hypothesis", environmental regulations and environmental standards, when they are not too stringent, can trigger innovation that can counterbalance the cost of being compliant. Environmental regulations may thus enhance economic performance as well as promoting environmental innovation and environmental activities. And the corporate environmental strategies required by the Kyoto Protocol to reduce carbon emissions can also have a positive impact on financial performance (Al-Tuwaijri *et al.*, 2004; Brammer and Millington, 2008; Hsu *et al.*, 2013; Iwata and Okada, 2011; King and Lenox, 2002; Klassen and McLaughlin, 1996; Orlitzky *et al.*, 2003; Semenova and Hassel, 2008). Eighteen years after the Kyoto Protocol, the Paris Agreement aims to strengthen countries' capacity to address the effects of climate change and support them in their efforts. It aims to push firms to adopt sustainable environmental strategies, and firms that commit to it follow climate change related strategies that can impact on their performance. The debate on the impact of adopting climate change policies is still

open, and the impact is in fact still unclear (Beatty and Shimshack, 2010). Secinaro *et al.* (2020) find that firms pursuing climate change mitigation can reduce their production costs and increase profits as a result of innovative solutions required to lower environmental impact.

Following signalling theory, we posit the following research question:

- RQ1. Is there a significant relationship between corporate social responsibility initiatives and firm performance?

2.2 Multiple corporate social responsibility initiatives and firm's performance

In a context of the numerous possible CSR initiatives available to firms, and the need to meet a wide range of stakeholder needs (Ivanova *et al.*, 2014; Labodová, 2004), there is the need identify the impact on firm performance of combining initiatives. The scenario of adopting multiple initiatives is complex as it is closely related to corporate strategies and firm performance.

The topic is little studied in literature and requires further analysis (Gianni *et al.*, 2017). Some research reports that the integration of environmental and social initiatives can enhance the benefits of adopting a single measure and that the positive effects of integrated procedures outweigh the negative ones (Deltas *et al.*, 2014; Goedhuys and Sleuwaegen, 2013). This study focuses on the impact on firm performance of joint adoption of OHSAS 18001 or UNGC and climate change related policies related to commitment to the Kyoto Protocol, on which there are few existing studies. The two types of scheme, however, appear to be compatible, as shown by Labodová (2004). Hernandez-Vivanco *et al.* (2019) study the impact of multiple certifications on firm performance studying ISO 19001, ISO 14001 and OHSAS 18001, and find that combining them can boost performance, especially in the case of triple certifications. These results are consistent with the findings of Wang *et al.* (2016) that the combination of three certifications boosts performance.

Nowadays, however, firms have the opportunity to pursue a wider dimension of sustainability by following other initiatives such as UNGC and the Kyoto Protocol or Paris Agreement. Each scheme adopted singly appears to have beneficial effects for firms, which could probably be enhanced by combining them, but it is not clear what the most productive combination is.

Although there is little empirical evidence, combining multiple initiatives seems to have a positive impact on firm performance. In fact, firms are thus able to learn from different perspectives (Silva *et al.*, 2017) and can send signals to a wider number of stakeholders. According to signalling theory, integrating multiple CSR initiatives has a positive impact on firm performance.

Our second research question is therefore:

- RQ2. Which combination of initiatives is most effective in raising the level of firm performance?

2.3 Moderating effects of on government effectiveness and public policy perception

According to contingency theory, we have to consider that the impact of CSR initiatives on firm performance can be moderated by contextual factors. Contingency theory (Donaldson, 2001) argues that there is no single optimal way to manage an organization (Fiedler, 1964): rather there is a mixture of internal and external pressures that determine the best strategies and actions (Donaldson, 2001). Contingency theory can be used to investigate the

performance effects of voluntary CSR certification, and we hypothesize that there are both internal and external factors that can moderate the relationship between the initiative and firm performance. There are a few examples of previous research on the relationship between CSR practice and firm performance, which identify a set of moderating factors. The most significant factors include the business environment, which can include the economic development of the country (Hou *et al.*, 2016; Lee *et al.*, 2013a; Lee *et al.*, 2013b; Sánchez *et al.*, 2015), firm technology and labour intensity (Lo *et al.*, 2013, 2014), firm size (Hou *et al.*, 2016; Youn *et al.*, 2015) and industry (Lo *et al.*, 2013).

Previous studies identify certain contextual factors affecting the impact of CSR initiatives on firm performance: firm technology (Lo *et al.*, 2014; Orzes *et al.*, 2017), country development level (Lee *et al.*, 2013b; Sánchez *et al.*, 2015) and geographical context (Janney *et al.*, 2009; Ortas *et al.*, 2015) are the most common. Orzes *et al.* (2020) find that country development and cultural features affect UNCG impact on sales performance, whereas appearing on the list of United Nations vendors affects the impact on profitability. It is widely recognized that Italy is characterized by a historical pattern of regional inequality and economic growth and the reasons for the persistent North-South divide remain a topic of debate (Felice, 2018; González, 2011). Among other factors that could affect CSR impact on performance, we therefore focus on government effectiveness and public policy perception in different regions of Italy.

Government effectiveness and public policy perception is related to the quality of public services, the degree of its independence from political pressures and the quality of policy formulation and implementation. Government quality deals with the quality of public education located, as well as the quality of the public health-care system and the quality of the police force in a region. Following de Villiers and Marques (2016), who identify a positive impact of better government effectiveness on CSR practices, we focus on two of the main factors involved in public services; law enforcement and education levels.

In the meanwhile, in the relationship with Public Administration, impartiality is a very important general principle. Impartiality deals with the perception about certain citizens of received preferential treatment in the delivery of services, or whether the tax authorities treat all people equally, or whether all citizens were treated equally in the provision of services.

In addition, we also focus on the level of corruption in the region. This represents the perception of the extent to which public power is exercised for private gain and/or “captured” from the state by elites and private interests. Literature on social norms identifies corruption as an external contextual element that affects individual as well as corporate behaviour (Zakaria, 2018). It is an endemic feature sometimes present even in well-functioning systems of government (Neu *et al.*, 2013). It has been demonstrated that a negative and corrupted context leaves room for opportunistic behaviours, whereas high standards in the public governance quality discourage firms’ opportunistic behaviours through specific transactions (Medioli *et al.*, 2024). In the meanwhile, we also have empirical evidence about the fact that corruption is a symptom of instability and influences managers’ decision-making processes, pushing them to shift income towards less corrupted countries and so, high bribery reduces the incentive to attract foreign income, confirming the positive effects of responsible business and the attractiveness of countries that control for corruption (Marchini *et al.*, 2020). Operating in contexts where questionable practices are established, firms may acknowledge that investing in CSR initiatives is not efficient. They may be less open to spending time and resources on CSR initiatives where the external context makes it less effective.

Following contingency theory, we state that the impact of CSR initiatives on firm performance is affected by levels of government quality, impartiality and corruption of the region. The third research question is thus:

RQ3. The prior relations are affected by levels of government quality, impartiality and corruption of the region where the firm is located.

3. Method

3.1 Sample selection and content analysis

Our sample consists of listed firms headquartered in Italy, which make voluntary disclosure of CSR initiatives in sustainability or integrated reports. We downloaded the name and website of Italian companies listed on the Milan Stock Exchange and hand collected documents referring to CSR initiatives. The final sample includes 517 firm-year observations from 2012 to 2019 (Table 1).

We conducted a manual content analysis of sustainability reports or integrated reports, if available, to search for information on CSR initiatives. These documents serve as valuable sources of raw data for CSR research, particularly for listed companies (Albertini, 2014; Gray et al., 1995; Marchini et al., 2022). Companies often use the reporting mechanism to signal what they consider relevant to their operations. Important topics or issues are disclosed, while elements deemed less significant are omitted. Thus, content analysis is an effective method for capturing the signalling strategies of listed companies (Beck et al., 2010; Bryman and Bell, 2015). Reliable and replicable analyses is crucial to assure the quality of a content analysis procedure, and to ensure achieving these results, we followed the recommendations of previous scholars (Bouten et al., 2011; Krippendorff, 2012). We search with keywords using both the full name and the acronyms of certifications of interest: UNGC, OHSAS 18001, Global Reporting Initiative (GRI), the Kyoto Protocol and Paris Agreement. The Paris Agreement was based on the Kyoto Protocol and the two are considered as alternatives. Data about GRI were collected but not used in the analysis, because all firms in the sample use it and therefore there is not variability. The co-authors initially defined the keywords and the coding grid. Then, a pilot study was initially conducted by two co-authors independently on the same report and then, repeated by the other two co-authors, to ensure the reliability of the coding process. This was followed by the cross-validation of the results to ensure consistency and reliability of the content analysis procedure (Bouten et al., 2011). The content analysis is objective, not involving researcher discretion, and there were no significant discrepancies between the analyses.

Financial statement data are retrieved from AIDA-Bureau Van Dyck, covering a time span from 2012 to 2019. Data on corruption and governance at regional level are from the European Quality of Government Index (EQI) of the Quality of Government Institute of

Table 1. Sample selection

Description	N
Italian companies listed on the Milan Stock Exchange	505
Delete: companies with missing voluntary disclosure about certification	-387
Total number of companies in the sample	118
Number of firm-year observations (unbalanced sample) for the period 2012–2019	517
Source(s): Authors' own work	

Gothenburg University (Charron *et al.*, 2015). EQI survey questions focus on quality, impartiality and corruption, and these data focus on perception and experience of public sector corruption, and the extent to which citizens believe public sector services are allocated impartially and are of good quality. The survey was run in 2010, 2013 and 2017. Data were collected by region for Italy, and the index reveals significant differences between regions. We use EQI data from the most recent survey for each year; for example, 2010 data are used for years from 2010 to 2012, until the next survey was published in 2013.

3.2 Regression models

We use the following ordinary least square regression models for RQ1:

$$\text{Firm performance} = \beta_0 + \beta_1 \text{CSR initiative} + \beta_n \text{Control variables} + \text{fixed effects} + e \quad (1)$$

Firm performance is the dependent variable and is measured using Sales growth and Profitability, following (Orzes *et al.*, 2020). The independent variable, *CSR initiative* is a dichotomous variable that considers the UNGC, OHSAS 18001, and Kyoto (or Paris) commitment. This variable is assigned a value of 1 if the firm has disclosed information on CSR initiatives, indicating that it is certified or committed to the Kyoto protocol. It is assigned a value of 0 if no such information is disclosed. The econometric models include year and industry fixed effects based on the standard industry classification code and control variables based on prior literature on the effects of CSR initiatives on firm performance (Orzes *et al.*, 2020). Consistent with prior literature we control for firm and industry-level factors. Firstly, we control for firm size (*Size*) as larger firms may benefit from economies of scales to enhance revenue and profits (Xie *et al.*, 2019). Leverage (*Leverage*) is used to control for financial risk, as highly leveraged firms may face negative effect on profitability and revenues due to the loss of market share (Opler and Titman, 1994; Xie *et al.*, 2019). Market-to-book value (*Mtb*) is used to control for market capitalization. Firms with higher market value can have higher profitability due to their better resource access. *Mkt_share* is calculated as the ratio of firm sales to industry sales (Ghosh, 2004), and it represents the level of competition and pressure in the industry, higher competition may result in lower sales growth and profitability. Environmental dynamism (*Env_Dyn*) is a measure of the variance in industry sales structure, following Dess and Beard (1984) and Gong *et al.* (2024). Following this approach we determine *Env_Dyn* using a three-step procedure: firstly, industry sales are regressed against time using three-digit standard industry classification, and we use the standard error of the regression slope coefficients. Secondly, following the approach of Engelen *et al.* (2015), each regression is based on three years of data, for example, data from 2010 to 2012 are used to predict dynamism in 2013. In the final step, *Env_Dyn* is calculated as the ratio between the standard errors of the regression slope coefficients and the average sales of the previous three years. *p*-Values are calculated with robust standard errors to control for heteroskedasticity. A dynamic environment can have either positive or negative effects on sales growth and hence profitability, depending on a company's ability to respond to external threats and opportunities (Dess and Beard, 1984; Gong *et al.*, 2024).

For RQ2, we use the same model, but it includes not only the stand-alone CSR initiative but also their combination, trying to understand if the use of the initiatives in combination with others can be effective. Based on the three CSR initiatives that have been collected, four combinations are possible: UNGC and OHSAS 18001, UNGC and KYOTO, OHSAS 18001 and KYOTO, then the combination of the three. Appendix shows in detail all the variables included in the regressions.

For RQ3, we use the same baseline models but add the interaction effect represented by the EQI. The higher this index is, the higher the citizens' perception and confidence in the quality of government. The following is the ordinary least square regression model for RQ3:

$$\begin{aligned} \text{Firm performance} = & \beta_0 + \beta_1 \text{CSR initiative} + \beta_2 \text{CSR initiative} \\ & * \text{EQI index} + \beta_n \text{Control variables} + \text{fixed effects} + e \quad (2) \end{aligned}$$

4. Results

4.1 Descriptive statistics and correlation matrix

Descriptive statistics (Table 2) for dependent variables of *Firm performance* show that there are firms with negative and positive sales' growth in the sample (Columns Min and Max), but in average and median, firms are positively growing. Operating profitability also shows an average positive situation, and approximately 2% of operating profit over total assets are invested. There are also cases of operating loss but lower than the 25th percentile of the sample.

The most frequent CSR initiative is *OHSAS18001*, which is used by 71.5% of the sample. The other CSR initiatives investigated, *UNGC* and *KYOTO*, are present in less than half of the sample (respectively, 35.5% and 34.8%). We next investigate the presence of different combinations of these initiatives. *OHSAS18001* is very frequent, but only 12.7% of the sample has committed to *UNGC* in addition to *OHSAS18001*, and only 15.4% declares its commitment to Kyoto protocol or Paris agreement in addition to *OHSAS18001*. The final combination of initiatives, with the three combined together, covers 11.8% of the sample. Finally, only 1.3% of the sample does not possess *OHSAS18001* certification but has the

Table 2. Descriptive statistics

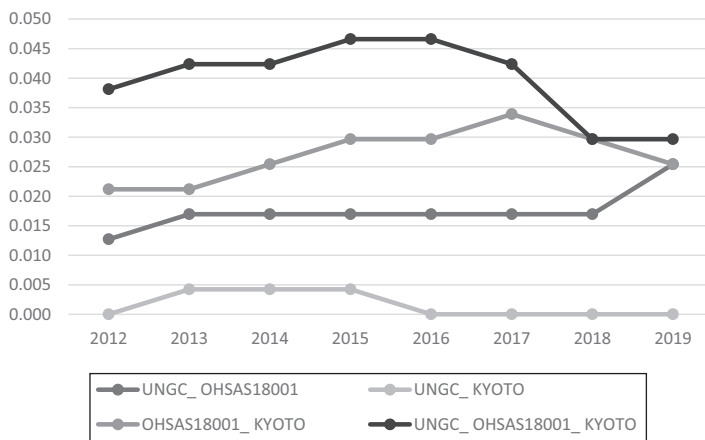
Variables	Mean	SD	25% percentile	Median	75% percentile	Min	Max
<i>Dependent variables</i>							
Sales growth	0.024	0.111	0.000	0.002	0.042	-0.809	0.811
Profitability	0.023	0.037	0.001	0.003	0.047	-0.107	0.235
<i>Certification</i>							
UNGC	0.355	0.478	0.000	0.000	1.000	0.000	1.000
OHSAS18001	0.715	0.451	0.000	1.000	1.000	0.000	1.000
KYOTO	0.348	0.477	0.000	0.000	1.000	0.000	1.000
UNGC_ OHSAS18001	0.127	0.334	0.000	0.000	0.000	0.000	1.000
UNGC_ KYOTO	0.013	0.115	0.000	0.000	0.000	0.000	1.000
OHSAS18001_ KYOTO	0.154	0.362	0.000	0.000	0.000	0.000	1.000
UNGC_ OHSAS18001_ KYOTO	0.118	0.386	0.000	0.000	0.000	0.000	1.000
<i>Control variables for firm features</i>							
Firm size	13.869	1.935	12.506	13.681	14.909	9.157	18.862
Leverage	0.431	0.201	0.289	0.399	0.540	0.076	0.965
Eqi	-0.720	0.404	-0.805	-0.705	-0.385	-1.573	0.118
Env_Dyn	0.191	0.703	0.003	0.013	0.053	0	4.880
Mkt_share	0.006	0.06	0.000	0.000	0.000	0.000	0.682
Mtb	0.002	0.004	0.000	0.000	0.001	0.000	0.078

Source(s): Authors' own work

combination of *UNGC* and *KYOTO*. There is great variability in the combinations of the certifications, and not many firms appear to believe that using all certifications together brings benefits.

Following [Hernandez-Vivanco et al. \(2019\)](#), Figure 1 shows the time trend of multiple CSR initiatives. [Hernandez-Vivanco et al. \(2019\)](#) show that *OHSAS18001* certifications in Portugal maintain a persistent growth rate from 2007 to 2015, and there is a similar growth rate in Italy up to 2017. [Hernandez-Vivanco et al. \(2019\)](#) also show the use of multiple certifications with *OHSAS18001* and ISO increased continuously up to 2014 and appears to have remained steady since then. Italy also saw the growth of multiple initiatives with *OHSAS18001*, together with *UNGC* and *KYOTO*, but only up to 2016 when the trend reversed. It is interesting to note that firms stopped using multiple initiatives, and it may indicate that firms do not see as advantageous all combinations of initiatives.

The descriptive statistics show firms of similar size; well capitalized with an average equity representing 43.1% of total assets and no wide variability in capitalization. Firms in this sample do not appear to have been affected by the economic crisis. Regional data from the Quality of Government Institute show the average negative perception (mean -0.72) that people have public sector corruption, impartiality in the allocation of public services and quality of public sector services by region ([Table 3](#)). The maximum value (0.118) is relatively low, confirming the low level of citizens' trust. In 2010, the region with the lowest index is Lazio, where Rome is located, followed by Lombardy, where Milan is located. The situation is similar over time, with a slight improvement in the Milan region; Italy's two largest cities have serious problems in terms of citizens' perceptions. In 2017 Central Italy shows on average worse indicators than Northern Italy. The North is generally more developed and dynamic than Southern Italy ([Cannari and Franco, 2010](#)); Southern regions have always been less industrialized, internationalized and innovative than Northern and Central Italy ([Svimez – Associazione per lo sviluppo dell'industria nel mezzogiorno, 2011](#)). The presence of organized crime and other significant institutional factors, such as education



Source(s): Authors' own work

Figure 1. Multiple certifications by year

Table 3. European Quality of Government Index (EQI) by Italian regions

Regions included in the sample by period of the survey	The European Quality of Government Index (EQI)		
	2010	2013	2017
<i>North</i>			
Liguria	-0.600	-0.978	-1.147
Lombardy	-0.710	-0.705	-0.385
Piedmont	-0.270	-0.805	-1.091
Emilia–Romagna	-0.458	-0.412	-0.357
Friuli–Venezia Giulia	0.005	0.118	-0.383
Veneto			-0.355
<i>Centre</i>			
Lazio	-1.158	-1.573	-1.431
Marche			-1.268
Tuscany	-0.637	-0.695	-0.751
Source(s): Authors' own work			

system, justice and bureaucracy also contribute to a significant divide (Nifo and Vecchione, 2014).

The correlation matrix (Table 4) shows no specific collinearity issues, with just a close correlation between *Firm size* and *Kyoto commitment* (0.625). However, *Firm size* is retained in the regression analysis because it is a key determinant of firm performance. Variance inflation factors reported in the regression tables show that there is no problem of multicollinearity.

4.2 Regression results

Table 5 shows results for the relationship between CSR initiatives and firm performance (RQ1). The initiative with a positive and significant relation is *OHSAS18001*. It shows a positive and significant relation with both measures of firm performance, sales growth and profitability. This confirms signalling theory, but not for all certifications. Signalling elements that are not immediately visible brings value to firms, and we show that the adoption of *OHSAS18001* is a valuable signal. It effectively signals the commitment of firms to include health and safety issues in their practice.

Table 4. Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11
1 Sales growth	1.000										
2 Profitability	0.135	1.000									
3 UNGC	0.003	0.158	1.000								
4 OHSAS18001	0.025	0.351	0.279	1.000							
5 KYOTO	-0.019	0.248	0.290	0.380	1.000						
6 Firm size	-0.032	0.345	0.479	0.420	0.625	1.000					
7 Leverage	-0.061	-0.093	-0.164	-0.203	-0.142	-0.383	1.000				
8 EQI	0.023	-0.099	-0.188	-0.041	-0.261	-0.294	-0.076	1.000			
9 Env_Dyn	0.054	0.049	0.032	0.069	0.146	0.054	0.025	-0.011	1.000		
10 Mkt_share	0.109	-0.058	-0.059	-0.098	-0.071	-0.003	-0.075	0.045	0.03	1.000	
11 Mtb	0.0917	-0.152	-0.168	-0.140	-0.190	0.470	0.122	-0.029	-0.051	-0.019	1.000
Source(s): Authors' own work											

Table 5. Regression – RQ1

	Sales growth		Profitability	
	Estimate	p-value	Estimate	p-value
UNGC	0.105	0.422	–0.006	0.341
OHSAS18001	0.030	0.017	0.025	0.000
KYOTO	0.018	0.165	–0.000	0.782
Firm size	–0.027	0.000	0.006	0.000
Leverage	–0.035	0.174	0.016	0.138
Eqi	0.023	0.143	0.002	0.176
Env_Dyn	0.012	0.067	0.003	0.267
Mkt_share	–0.144	0.150	–0.014	0.647
Mtb	–0.021	0.001	0.009	0.521
Intercept	0.409	0.000	–0.056	0.000
Year fixed effects	Included		Included	
Industry fixed effects	included		Included	
Mean VIF	1.70		2.35	
Max VIF	2.44		3.86	
Adj. R ²	0.344		0.442	
N	517		517	

Note(s): P-values are two-tailed and robust to heteroscedasticity

Source(s): Authors' own work

However, *OHSAS18001* certification can be used in combination with other certifications or alone (RQ2). Table 6 shows that when a firm uses only *OHSAS18001* certification, there is a significant positive relation with firm performance (both sales growth and profitability). When *OHSAS18001* is used in combination with *UNGC*, the positive influence on firm performance is confirmed although with a weaker significance ($p < 0.010$). *KYOTO* is not significant when it is the only initiative implemented by the companies. However, when it is combined with *OHSAS18001* show a positive relationship with profitability. Other initiatives used without *OHSAS18001* are not significant. Then, the combination of the three initiatives has a positive relationship with profitability. Looking at the magnitude of the regression coefficient, we can see a stronger relation for the combination *UNGC_ OHSAS18001*, followed by *OHSAS18001* alone. This confirms the view that adopting multiple initiatives shows that a firm is taking a comprehensive approach to both the social and environmental dimension and that this is rewarded by stakeholders. We agree that firms implementing more than one scheme in fact learn from the different perspectives (Silva et al., 2017) and we show that firms can send signals to a wider number of stakeholders ensuring benefits for firms' performance.

Finally, Table 7 answers at RQ3. Variables resulting from RQ1 and RQ2 are interacted with *EQI* computed for the region of firm location. For RQ1, the interaction between *EQI* and *Kyoto* is positive and significant. Reporting the commitment towards *Kyoto* protocol or *Paris* agreement is important in regions where the government index is higher. Quality and impartiality of government and a low level of corruption increase the positive effects of this commitment and help in improving firm performance, i.e. sales growth and profitability.

For RQ2, we interacted *EQI* with the combinations that included *OHSAS18001*, because this is the initiative with significant results. The interaction between *EQI* and the combination *OHSAS18001_KYOTO* is positive and significant for sales growth. The positive relation of *OHSAS18001_KYOTO* is increased by the quality of the government of

Table 6. Regression – RQ2

	Sales growth		Profitability	
	Estimate	p-value	Estimate	p-value
UNGC	−0.004	0.824	0.006	0.382
OHSAS18001	0.028	0.033	0.033	0.000
KYOTO	0.002	0.872	0.027	0.163
UNGC_ OHSAS18001	0.029	0.074	0.055	0.000
UNGC_ KYOTO	0.046	0.536	−0.067	0.154
OHSAS18001_ KYOTO	0.005	0.799	0.029	0.002
UNGC_ OHSAS18001_ KYOTO	0.035	0.163	0.016	0.045
Firm size	−0.001	0.622	−0.001	0.651
Leverage	−0.024	0.321	0.018	0.284
Eqi	0.008	0.550	−0.013	0.103
Env_Dyn	0.002	0.596	−0.001	0.730
Mkt_share	−0.003	0.916	−0.012	0.650
Mtb	−0.425	0.615	0.175	0.230
Intercept	0.070	0.410	0.038	0.722
Year fixed effects	Included		Included	
Industry fixed effects	Included		Included	
Mean VIF	2.44		2.35	
Max VIF	3.25		3.88	
Adj. R ²	0.129		0.168	
N	517		517	

Note(s): p-values are two-tailed and robust to heteroscedasticity

Source(s): Authors' own work

the region. In regions with low corruption, high impartiality and government quality, the presence of *OHSAS18001* and *KYOTO* increases firm growth more.

This shows that external pressures influence the strategies and actions in company management and thus confirms contingency theory. In particular, we show a significant effect for quality of government, impartiality and corruption of the region in which the firm operates.

4.3 Robustness

We perform additional tests to verify the robustness of our findings. In particular, we investigate the potential lagged effect, as the impact of independent variables on a firm's performance may emerge gradually over time. To capture this, we introduce a one-year lag for the explanatory variable and re-evaluate our results. Table 8 displays the regression outcomes with the lagged independent variable, which support our initial findings.

To further test the robustness of our results we apply bootstrapping, a resampling method that provides more reliable estimates by repeatedly sampling from the data with replacement. Bootstrapping allows us to account for potential sample-specific biases and the inherent variability in the data set, producing empirical distributions of our parameter estimates without relying on strict assumptions about the data's underlying distribution. In the context of CSR initiatives, different levels of CSR engagement across firms can affect estimates, bootstrapping offers a flexible approach to estimate standard errors. By simulating multiple samples, we gain insight into the stability and reliability of our findings. The bootstrapped confidence intervals allow us to determine if the observed relationships between CSR

Table 7. Regression – RQ3

	Sales growth			Profitability		
	Interaction with RQ1	Interaction with RQ2	Interaction with RQ1	Interaction with RQ2	Interaction with RQ1	Interaction with RQ2
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
	p-value	p-value	p-value	p-value	p-value	p-value
UNGC	-0.035	0.183	-0.008	0.224		
KYOTO	0.039	0.269	-0.006	0.196		
OHSAS18001	-0.000	0.972	0.022	0.000	0.031	0.000
UNGC_OHSAS18001					0.008	0.329
OHSAS18001_KYOTO					0.006	0.054
UNGC_OHSAS18001_KYOTO					0.010	0.030
EQI_UNGC	-0.053	0.207	-0.004	0.583		
EQI_KYOTO	0.052	0.041	0.005	0.048		
EQI_OHSAS18001	-0.005	0.805	0.002	0.543	0.014	0.105
EQI_UNGC_OHSAS18001					-0.017	0.204
EQI_OHSAS18001_KYOTO					-0.022	0.139
EQI_UNGC_OHSAS18001_KYOTO					-0.005	0.514
EQI	0.006	0.736	0.002	0.521	0.002	0.615
Firm size	-0.001	0.695	0.004	0.003	0.005	0.000
Leverage	-0.028	0.278	0.009	0.393	0.009	0.361
Env_Dyn	0.004	0.396	0.002	0.484	0.001	0.607
Mkt_share	0.220	0.092	-0.025	0.006	-0.019	0.010
Mtb	0.170	0.059	0.025	0.454	0.078	0.553
Intercept	0.100	0.227	-0.071	0.002	-0.085	0.000
Year fixed effects	included		Included		Included	
Industry fixed effects	included		Included		Included	
Mean VIF	4.15	3.90	4.15	3.90	4.15	3.90
Max VIF	4.70	4.84	4.70	4.70	4.79	4.79
Adj. R ²	0.107	0.109	0.242	0.242	0.213	0.213
N	517	517	517	517	517	517

Note(s): P-values are two-tailed and robust to heteroscedasticity

Source(s): Authors' own work

Table 8. Robustness with lagged variable

	(1)		(2)		(3)	
	Sales_growth	Profitability	Sales_growth	Profitability	Sales_growth	Profitability
L_UNGC	0.020 (0.202)	-0.002 (0.474)	-0.051 (0.741)	0.003 (0.576)	-0.039 (0.165)	-0.006 (0.389)
L_OHSAS18001	0.033 (0.017)	0.025 (0.000)	0.018 (0.026)	0.038 (0.000)	0.007 (0.709)	0.028 (0.000)
L_KYOTO	0.017 (0.249)	0.000 (0.796)	0.008 (0.459)	0.032 (0.095)	0.053 (0.143)	-0.004 (0.597)
L_UNGC_OHSAS18001			0.060 (0.049)	0.015 (0.009)		
L_UNGC_KYOTO			0.016 (0.011)	-0.048 (0.122)	0.016 (0.548)	0.007 (0.379)
L_OHSAS18001_KYOTO			0.006 (0.116)	0.034 (0.044)	0.035 (0.086)	0.004 (0.040)
L_UNGC_OHSAS18001_KYOTO			0.161 (0.132)	0.018 (0.014)	0.026 (0.444)	0.012 (0.067)
L_EQL_UNGC					-0.053 (0.207)	
L_EQL_KYOTO					0.077 (0.063)	-0.003 (0.646)
L_EQL_OHSAS18001					0.005 (0.840)	-0.007 (0.469)
L_EQL_UNGC_OHSAS18001					0.004 (0.585)	0.004 (0.625)
L_EQL_OHSAS18001_KYOTO					0.003 (0.812)	-0.019 (0.282)
L_EQL_UNGC_OHSAS18001_KYOTO					0.046 (0.088)	-0.029 (0.214)
Controls					0.005 (0.739)	-0.005 (0.419)
Intercept	Included	Included	Included	Included	Included	Included
Year fixed effects	0.084 (0.000)	-0.056 (0.008)	-0.082 (0.351)	0.028 (0.547)	0.109 (0.194)	-0.050 (0.027)
Industry fixed effects	Included	Included	Included	Included	included	included
Adj. R ²	Included	Included	Included	Included	included	included
	0.334	0.357	0.152	0.176	0.108	0.210

Note(s): p-Values are two-tailed and robust to heteroscedasticity; L_ variable are lagged by one year

Source(s): Authors' own work

initiatives and firm performance are consistent across varied resamples, thus strengthening the robustness of our conclusions.

Table 9 shows stable results, obtained using bootstrapping with 1.000 replications, compared to the main analyses. The observed stability increases confidence in the reliability of the estimated effects, although the level of significance is lower, particularly concerning RQ3.

5. Discussion and conclusion

This study investigates the broad and complex landscape of CSR initiatives, which firms can exploit to signal commitment to sustainability issues to meet stakeholder requirements. It focuses on the role of certifications and commitment to international initiatives in relation to firm performance.

We extend existing knowledge in an under-explored area by testing the impact of multiple CSR initiatives, including combinations of initiatives, on firm performance in terms of sales growth and profitability, drawing on signalling theory. We also assess, following contingency theory, whether the impact is affected by contextual factors such as the level of local corruption and the impartiality and quality of government measured by the EQI index. We formulate three research questions and apply regression analysis to a sample consisting of 236 firm-year observations covering years from 2012 to 2019.

The results partially confirm our expectations, as they highlight that OHSAS 18001 is the only CSR initiative that has a positive influence on sales growth and profitability when used alone (Abad *et al.*, 2013). Its positive influence on sales and profitability means that its adoption guarantees sufficient growth in sales to cover the costs of its implementation. On the other hand, no significant relationship between commitment to the UNGC or the Kyoto Protocol or Paris Agreement is found. When it is question of one single initiative, stakeholders tend to appreciate most the social dimension signalled by the adoption of OHSAS 18001.

Our second research question asks whether a wider approach to CSR, signalled by combining CSR initiatives, is positive for companies (Gianni *et al.*, 2017). The empirical analysis shows no significant association between UNGC and commitment to the Kyoto Protocol or Paris Agreement, but the combination with OHSAS 18011 certification has a positive influence on performance. Using UNGC combined with OHSAS 18001 can in fact enhance the impact on sales growth, which shows that combining the two initiatives produces higher benefits than using a single initiative. By signalling a more comprehensive approach to CSR, firms could improve their reputation and thus generate a competitive advantage. The fact that a comprehensive approach could reward companies is also shown by the positive influence of combining the three initiatives, OHSAS 18001, UNGC and the Kyoto Protocol or Paris Agreement. This is an interesting insight, as combining the three initiatives requires the management of multiple stakeholder interests which may be in conflict. These results are consistent with previous studies on multiple certification adoption, which proved the positive influence of the combination of the instruments on firm performance (Hernandez-Vivanco *et al.*, 2019). Our results may give rise to some interesting considerations, as we have found that among the initiatives we have analysed, OHSAS 18001 is the one with the greatest impact on business performance. This could be linked to a number of elements: firstly, a safer workplace could have a positive impact on the motivation and involvement of staff, which could lead to an improvement in their work. Secondly, OHSAS 18001 is the only one of the initiatives analysed that is subject to an audit process to ensure compliance by companies (Lo *et al.*, 2014; Bianchini, *et al.*, 2017). In this sense, stakeholders may tend to value this initiative more than others where there is no guarantee of

Table 9. Regression with bootstrapping

	(1)		(2)		(3)	
	Sales_growth	Profitability	Sales_growth	Profitability	Sales_growth	Profitability
UNGC	0.105 (0.459)	-0.006 (0.231)	-0.004 (0.839)	0.006 (0.571)	-0.035 (0.189)	-0.008 (0.227)
OHSAS18001	0.030 (0.014)	0.025 (0.000)	0.028 (0.037)	0.033 (0.000)	-0.000 (0.982)	0.022 (0.000)
KYOTO	0.018 (0.210)	-0.000 (0.732)	0.002 (0.886)	0.027 (0.199)	0.039 (0.267)	-0.006 (0.435)
UNGC_OHSAS18001			0.029 (0.087)	0.055 (0.000)	0.023 (0.526)	0.008 (0.359)
UNGC_KYOTO			0.046 (0.613)	-0.067 (0.178)		
OHSAS18001_KYOTO			0.005 (0.801)	0.029 (0.002)	0.069 (0.091)	0.006 (0.062)
UNGC_OHSAS18001_KYOTO			0.035 (0.181)	0.016 (0.086)	0.026 (0.519)	0.010 (0.058)
EQL_UNGC					-0.053 (0.207)	
EQL_KYOTO					0.052 (0.077)	-0.004 (0.591)
EQL_OHSAS18001					-0.005 (0.839)	0.005 (0.149)
EQL_UNGC_OHSAS18001					0.020 (0.487)	0.002 (0.621)
EQL_OHSAS18001_KYOTO					0.015 (0.743)	-0.017 (0.260)
EQL_UNGC_OHSAS18001_KYOTO					0.089 (0.081)	-0.022 (0.154)
Controls					0.012 (0.742)	-0.005 (0.518)
Intercept	Included	Included	Included	Included	Included	Included
Year fixed effects	0.409 (0.000)	-0.056 (0.000)	0.031 (0.676)	0.038 (0.535)	0.100 (0.393)	-0.071 (0.000)
Industry fixed effects	Included	Included	Included	Included	included	included
Adj. R ²	Included	Included	Included	Included	included	included
	0.344	0.422	0.129	0.164	0.112	0.199
					0.107	0.213

Note(s): *p*-values are two-tailed and robust to heteroscedasticity

Source(s): Authors' own work

practical commitment. This positive effect of OHSAS 18001 also seems to drive the positive effect of other initiatives associated with it. In fact, if we look at UNGC or Kyoto commitment (Beatty and Shimshack, 2010) alone, they have no effect on performance, but when combined with OHSAS 18001 they improve performance. This could be related to the fact that these initiatives focus on broader and long-term issues and therefore stakeholders may need more time to reward companies' commitment without significant results. In addition, we could argue that the positive effect of the combination with OHSAS 18001 could be related to the fact that signals from companies with this certification are perceived as more credible due to the audit process, which ensures a concrete commitment.

Consistently with contingency theory, we find that contextual factors may in fact influence the impact of CSR initiatives on firm performance (Hou *et al.*, 2016; Lee *et al.*, 2013a; Lee *et al.*, 2013b; Sánchez *et al.*, 2015). We examine this influence by looking at the concepts of quality, impartiality and corruption level of government as perceived by citizens (Neu *et al.*, 2013; Zakaria, 2018). The empirical analysis shows that commitment to the Kyoto Protocol or Paris Agreement has a positive influence on performance in regions with a perceived higher quality of government. But it suggests that company commitment to climate change and environmental initiatives are not perceived as reliable signals by stakeholders in contexts which are not perceived as credible.

These results may be useful for companies, as they confirm that using OHSAS 18001 certification ensures better performance. However, they also highlight that signalling commitment to a specific CSR initiative does not automatically imply an improvement in performance. This implies that companies need to approach CSR initiatives in a strategic manner and may need to adjust their structure and philosophy to the principle of the initiative. Using a certification scheme has specific costs which need to be considered. This study is the first to investigate the impact of firm commitment to international agreements such as the Kyoto Protocol and the Paris Agreement. Our findings reveal no significant relation looking at the impact of using a single scheme, but they suggest that a more comprehensive approach to sustainability which includes both social as well as environmental issues is advantageous to firm performance. A further implication for management is that CSR initiatives are relatively ineffective for firms operating in regions where there is low confidence in the quality of local government and policymakers. From the perspective of policy and regulators, this also implies that local authorities should strive to improve their quality and reliability to foster firm commitment to internationally important environmental initiatives. As the implementation of a CSR initiative has a greater impact in regions with a higher quality of government, regulators should strive to improve their operations, which in turn can have a positive impact on companies' decisions to invest in sustainable initiatives that can benefit the whole community (Zakaria, 2018; Neu *et al.*, 2013). This paper may also have further implications for policy makers, because if we discuss that the positive impact of OHSAS 18001 on firms' performance may be due to the fact that there is an audit process that ensures firms' actual commitment, a similar process could also be designed for other CSR initiatives. For example, commitment to the Kyoto Protocol or the Paris Agreement to mitigate climate change issues could be coupled with actual controls on firms' operations. Finally, focusing on policy implications, our results show that the multiple combinations of the three CSR initiatives can improve profitability. This means that signalling a comprehensive approach to sustainability can be rewarded by stakeholders. This is very timely as it is consistent with the approach of the EU *Corporate Sustainability Reporting Directive (CSRD)* – 2022 / 2464/EU, which aims to achieve comprehensive disclosure on sustainability.

This study is not without limitations and opens up several avenues for future research. The main limitation is related to the sample, which is relatively small and includes only Italian companies. Secondly, the analysis of our panel data shows an association but not causality; in this sense, it might be interesting to conduct an analysis focusing on the differences between performance before and after the initiatives. We are unable to carry out this analysis due to data availability constraints. This poses some problems, because to gain a deep and comprehensive knowledge of the relationship studied, we need to understand if companies are trying to improve their performance with these initiatives. Or, on the other hand, whether these initiatives can only be implemented by profitable companies that have the resources to manage them. Thirdly, a longitudinal analysis would be useful to see if there are significant differences over time. A final limitation is that the study uses companies' own statements about their commitment to the Kyoto Protocol and the Paris Agreement without examining whether they are actually taking steps to meet the climate change mitigation criteria set out in these initiatives and whether these steps are effective. Future research could analyse the practical initiatives that companies are taking to mitigate climate change and whether these have similar or different effects on performance compared to the commitment statements.

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Appendix

Table A1. Variable definitions

Variables	Definitions
<i>Dependent variables</i>	
Sales growth	$(\text{Sales } t - \text{Sales } t - 1) / \text{Sales } t - 1$
Profitability	Operating profit / total assets
<i>CSR initiatives</i>	
UNGC	1 if the firm has disclosed the presence of the certification in the social-environment-sustainability-integrated-non_financial_disclosure report; 0 otherwise
UNITED NATIONS GLOBAL COMPACT	1 if the firm has disclosed the presence of the certification in the social-environment-sustainability-integrated-non_financial_disclosure report; 0 otherwise
OHSAS 18001	1 if the firm has disclosed the commitment to Kyoto protocol or Paris agreement in the social-environment-sustainability-integrated-non_financial_disclosure report; 0 otherwise
KYOTO	1 if the firm has disclosed the commitment to Kyoto protocol or Paris agreement in the social-environment-sustainability-integrated-non_financial_disclosure report; 0 otherwise
<i>Combinations of certification</i>	
KYOTO and UNGC	1 if the firm has disclosed the presence of BOTH the certifications in the social-environment-sustainability-integrated-non_financial_disclosure report; 0 otherwise
OHSAS 18001 and UNGC	1 if the firm has disclosed the presence of BOTH the certifications in the social-environment-sustainability-integrated-non_financial_disclosure report; 0 otherwise
KYOTO and OHSAS 18001	1 if the firm has disclosed the presence of BOTH the certifications in the social-environment-sustainability-integrated-non_financial_disclosure report; 0 otherwise
KYOTO and OHSAS 18001 and UNGC	1 if the firm has disclosed the presence of the THREE certifications in the social-environment-sustainability-integrated-non_financial_disclosure report; 0 otherwise
<i>Quality of Government</i>	
The European Quality of Government Index (EQI)	Survey data on corruption and governance at regional level in the EU, reporting perception and experience of public sector corruption, and the extent to which citizens believe various public sector services are allocated impartially and are of good quality. Survey questions concern quality, impartiality and corruption and ask about respondents' experience and perceptions. The main public services of interest are those expected to maximize regional variation, i.e. education, health services and law enforcement
<i>Control variables for firm features</i>	
Firm size	Natural logarithm of total assets
Leverage	Equity / total assets
Mtb	Market value of equity / book value of equity
Mkt_share	Company's sales / industry sales
Env_Dyn	Regressing industry (three-digit SIC) sales against time and dividing the standard errors of the regression slope coefficients by the mean sales over the past three years

Source(s): Authors' own work

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