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CSR AND ENVIRONMENTAL RESPONSIBILITY: STRATEGIES AND MANAGEMENT PRACTICES

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SUMMARY

ABSTRACT
This dissertation explores how firms translate Corporate Social Responsibility (CSR) ambitions into responsible actions and measurable social impact through the Antecedent–Decision–Outcome (ADO) framework. It examines the organizational, strategic, and relational mechanisms that shape CSR, combining theoretical insights from value creation theory, stakeholder theory, resource-based theory, resource dependence theory, social integration theory, institutional theory, legitimacy theory, and socioemotional wealth theory. The dissertation comprises four papers, each addressing one stage of the ADO framework.

The first and second papers focus on the Antecedent stage. The first paper investigates how diversity at the micro (board), meso (firm), and macro (regional) levels influences firms' ESG performance. This study offers a novel, multi-level perspective that integrates the micro, meso, and macro dimensions of diversity to address gaps in ESG research. It highlights the interconnectedness of diversity, corporate governance, and ESG outcomes.

The second paper examines family ownership as an additional antecedent of CSR engagement. It shows that family firms' identity and community embeddedness motivate authentic CSR communication on social media aimed at preserving moral legitimacy and long-term trust.

The third paper, representing the Decision stage, conceptualizes CSR communication on social media as a deliberate strategic process. Through stakeholder and legitimacy lenses, it illustrates how firms use digital platforms (particularly Twitter) to negotiate legitimacy, co-create meaning with stakeholders, and dynamically adjust their CSR strategies in response to public feedback.

Finally, the fourth paper, corresponding to the Outcome stage, measures the social value generated by inclusive CSR initiatives using the Social Return on Investment (SROI) methodology. The analysis quantifies multidimensional outcomes (economic, relational, and societal), showing how collaboration and stakeholder engagement amplify social impact and strengthen firm legitimacy.

Overall, the dissertation advances understanding of CSR as a dynamic and recursive process: antecedents shape responsible orientations, decisions translate them into communicative and strategic actions, and outcomes validate their societal relevance. The integrated ADO perspective contributes to both theory and practice by offering a multilevel explanation of how firms create sustainable and inclusive value through the interaction of governance, communication, and impact.

Keywords: Corporate Social Responsibility; ESG performance; Diversity; Family firms; Social media communication; SROI; Antecedent–Decision–Outcome framework; Value creation.

SOMMARIO

Questa dissertazione esplora come le imprese traducano le ambizioni di Corporate Social Responsibility (CSR) in azioni responsabili e in un impatto sociale misurabile attraverso il framework Antecedent–Decision–Outcome (ADO). Analizza i meccanismi organizzativi, strategici e relazionali che modellano la CSR, combinando contributi teorici provenienti dalla value creation theory, dalla stakeholder theory, dalla resource-based theory, dalla resource dependence theory, dalla social integration theory, dalla institutional theory, dalla legitimacy theory e dalla socioemotional wealth theory. La dissertazione comprende quattro articoli, ciascuno dei quali affronta una fase del framework ADO.

Il primo e il secondo articolo si concentrano sulla fase degli Antecedenti.

Il primo articolo indaga come la diversità a livello micro (board), meso (impresa) e macro (regione) influenzi la performance ESG delle aziende. Questo studio propone una prospettiva innovativa e multilivello che integra le dimensioni micro, meso e macro della diversità per colmare le lacune presenti nella ricerca ESG. Evidenzia l'interconnessione tra diversità, corporate governance e risultati ESG.

Il secondo articolo esamina la proprietà familiare come ulteriore antecedente dell'impegno CSR. Mostra come l'identità e il radicamento comunitario delle imprese familiari favoriscano una comunicazione CSR autentica sui social media, orientata a preservare la legittimità morale e la fiducia di lungo periodo.

Il terzo articolo, corrispondente alla fase Decisionale, concettualizza la comunicazione CSR sui social media come un processo strategico deliberato. Attraverso le lenti della stakeholder theory e della legitimacy theory, illustra come le imprese utilizzino le piattaforme digitali (in particolare Twitter) per negoziare la legittimità, co-creare significati con gli stakeholder e adattare dinamicamente le proprie strategie CSR in risposta ai feedback pubblici.

Infine, il quarto articolo, relativo alla fase degli Outcome, misura il valore sociale generato dalle iniziative di CSR inclusiva utilizzando la metodologia Social Return on Investment (SROI). L'analisi quantifica risultati multidimensionali (economici, relazionali e sociali), mostrando come la collaborazione e il coinvolgimento degli stakeholder amplifichino l'impatto sociale e rafforzino la legittimità dell'impresa.

Nel complesso, la dissertazione contribuisce a una comprensione avanzata della CSR come processo dinamico e ricorsivo: gli antecedenti plasmano le orientazioni responsabili, le decisioni le traducono in azioni strategiche e comunicative, e gli outcome ne validano la rilevanza sociale. La prospettiva integrata ADO contribuisce alla teoria e alla pratica offrendo una spiegazione multilivello di come le imprese creino valore sostenibile e inclusivo attraverso l'interazione tra governance, comunicazione e impatto.

Parole chiave: Corporate Social Responsibility; Performance ESG; Diversità; Imprese familiari; Comunicazione sui social media; SROI; Framework Antecedent–Decision–Outcome; Value creation.

1 INTRODUCTION

This dissertation presents empirical evidence on how diversity, online communication, and collaboration shape Corporate Social Responsibility (CSR) and social impact. In particular, it explores how firms translate their sustainability ambitions into strategy and actions that generate value for stakeholders. By combining four studies, the dissertation examines the responsible corporate behavior, from the internal and contextual conditions that foster it, to the communication and engagement choices that express it, and finally to the measurable outcomes it produces in society.

CSR takes many forms, and its impact depends on a complex interplay of internal motivations, institutional pressures, and stakeholder expectations (Gillan et al., 2021; Kuo et al., 2021). What represents a driver of transformation for one firm may remain purely formal for another (Gillan et al., 2021; Kuo et al., 2021). This dissertation does not advocate a single model of responsibility; rather, it highlights the importance of giving firms the space and flexibility to develop CSR strategies that fit their structure, culture, and ecosystem. The central aim of this dissertation is to demonstrate that responsible firm strategies and practices are not static or symbolic, but dynamic processes that connect governance, communication, and inclusion. These strategies should be transparent, inclusive, and accountable.

The research builds on the Antecedents–Decisions–Outcomes (ADO) framework to understand how responsible behavior emerges and evolves (Aggarwal et al., 2025).

Within this structure, the first part of the dissertation examines the Antecedents of responsible firm behavior. It investigates how multilevel diversity and family ownership shape firms' approaches to environmental, social, and governance performance and their CSR communication on social media, illustrating how structural factors and identity-based motivations influence commitment to CSR. The second part corresponds to the Decision stage of the ADO framework. It analyzes how firms and stakeholders interact in the digital sphere, conceptualizing social media as a strategic arena for two-way dialogue, legitimacy negotiation, and real-time adjustment of CSR strategies. The final part captures the Outcomes stage. It assesses the social value generated by gender and inclusion initiatives using the Social Return on Investment (SROI) approach, demonstrating how collaborative CSR models create measurable community benefits and reinforce firm legitimacy.

Together, these components operationalize the ADO logic by linking structural and contextual drivers (Antecedents), strategic communication choices (Decisions), and the resulting social impact (Outcomes). By connecting these levels, the dissertation contributes to the literature on CSR by showing that firms can act as agents of positive social change. It argues that when diversity, dialogue, and collaboration are aligned, CSR moves from being a symbolic exercise to becoming a transformative process, one capable of generating shared value for both businesses and society.

1.1 General background

In recent years, the growing integration between Corporate Social Responsibility (CSR) and Environmental, Social, and Governance (ESG) performance has reshaped how firms conceptualize and operationalize sustainability. The incorporation of ESG principles into business strategy has become an essential dimension of corporate responsibility (Gillan et al., 2021; Kuo et al., 2021). While CSR traditionally referred to voluntary initiatives and ethical commitments toward society, ESG has institutionalized these principles into measurable criteria that assess firms' responsibility and transparency (Waheed & Zhang, 2022). ESG can be seen as the evolution and quantification of CSR, translating social and environmental values into performance indicators that guide investment and governance decisions (Gillan et al., 2021; Kuo et al., 2021).

Firms increasingly recognize that long-term competitiveness depends not only on financial performance but also on their ability to respond to environmental and social challenges (Waheed & Zhang, 2022). This shift reflects growing stakeholder expectations and public awareness of the role that firms play in sustainable development (Amin et al., 2021; Arayssi et al., 2016). As a result, the boundaries between economic value creation and societal impact are becoming progressively intertwined, with firms expected to contribute to collective well-being while maintaining legitimacy with their stakeholders (Freeman, 2010; Suchman, 1995).

Yet, how firms interpret and operationalize this responsibility varies widely. Some focus on symbolic disclosure, using sustainability reporting primarily as a communication tool (Radwan & Russo, 2024), while others embed CSR into their governance structures, culture, and stakeholder relationships (Zattoni et al., 2023). These differences stem from both internal factors, such as board composition, ownership structure, and leadership diversity, as well as external influences, including institutional environments, stakeholder pressure, and social norms (Scott-Young, 2013).

At the same time, digital transformation has redefined the relationship between firms and their audiences. Social media, in particular, has shifted CSR communication from a one-way disclosure model to a two-way, interactive dialogue (Okazaki et al., 2020; Pons et al., 2021). This transformation enables firms to engage directly with stakeholders, co-create meaning, and monitor public perceptions of their responsible practices in real-time. Communication has thus become not only a matter of transparency but also a strategic decision through which firms build trust, defend legitimacy, and adapt to societal expectations (Radwan & Russo, 2024).

In parallel, a growing body of literature emphasizes the social dimension of ESG (including inclusion, equity, and community engagement) as a vital component of corporate performance (Scelles et al., 2024). Measuring the effectiveness of these initiatives, however, remains challenging. Traditional financial and environmental indicators often fail to capture the broader value generated by social programs such as gender equity and inclusion projects. For this reason, the Social Return on Investment (SROI) methodology has emerged as a valuable tool for assessing the tangible and intangible benefits of CSR initiatives, providing a structured approach to evaluate their societal outcomes (Eweje et al., 2021; Nonet et al., 2022).

1.2 Aims and objectives

This dissertation aims to provide an integrated understanding of how CSR emerges, is enacted, and generates value. It investigates the structural and identity-based antecedents that shape firms' orientation toward CSR, the strategic decisions through which firms communicate and negotiate responsibility with stakeholders, and the measurable outcomes produced by inclusion-oriented initiatives. The following sections examine each of these dimensions in turn.

Despite the growing academic and policy interest in firm CSR, existing research has often examined its core components in isolation, resulting in a fragmented understanding of how environmental, social, and governance dimensions interact. A substantial body of literature has focused on governance diversity (particularly board composition) as a key determinant of firms' ESG performance. Scholars have demonstrated that diversity in terms of gender, nationality, and expertise enhances the cognitive variety and strategic oversight of boards, thereby improving decision-making and responsiveness to CSR challenges (Zattoni et al., 2023). However, this stream of research has largely centered on structural attributes, often neglecting the behavioral and contextual mechanisms through which diversity translates into actual social or environmental outcomes. The objective of this section is therefore to deepen our understanding of how diversity functions as an antecedent of responsible firm behavior, not only by shaping governance structures but also by influencing the processes and conditions through which CSR is enacted.

Similarly, studies on family ownership have contributed important insights into how identity, continuity, and long-term orientation shape responsible corporate behavior (Cennamo et al., 2012). The socioemotional wealth (SEW) perspective highlights that family-controlled firms, motivated by the preservation of reputation and family legacy, tend to engage in CSR initiatives that align with moral legitimacy and community values. Yet, despite this distinctive emotional and relational dimension, research on family firms has typically analyzed why they engage in CSR, rather than how these motivations are operationalized and communicated to stakeholders in practice. The objective of this section is therefore to shed light on the mechanisms through which family identity and socioemotional goals are translated into concrete CSR communication strategies, with particular attention to how these firms construct, signal, and negotiate their legitimacy in the digital sphere.

A parallel body of literature has examined CSR communication as a strategic tool for managing stakeholder relations and maintaining legitimacy. Firms use CSR disclosure to gain stakeholder approval, mitigate reputational risks, and align with societal expectations (Okazaki et al., 2020; Radwan & Russo, 2024). Nonetheless, much of this work remains focused on one-way disclosure mechanisms, such as sustainability reports or corporate websites, and pays limited attention to the interactive and dialogical nature of CSR communication that has emerged with digital and social media. As a result, the processes through which stakeholders actively shape, contest, or co-create the meaning of CSR remain underexplored. The objective of this section is therefore to examine how CSR communication unfolds within interactive digital environments, investigating the strategic decisions through which firms engage with stakeholders, negotiate legitimacy in real time, and integrate public feedback into their responsible practices.

Finally, while environmental performance and governance quality have been extensively quantified, the social pillar of ESG (particularly initiatives addressing inclusion, equity, and gender equality) has received comparatively less empirical attention. Assessing the social impact of CSR initiatives presents methodological and conceptual challenges: many outcomes, such as empowerment, well-being, and community cohesion, are intangible, context-dependent, and multidimensional. Consequently, the ability to measure and compare social value creation across initiatives and firms remains limited (Scelles et al., 2024). The objective of this section is therefore to advance the measurement of social impact by applying the Social Return on Investment (SROI) framework to inclusion-oriented CSR initiatives, providing a structured and comparable approach to capturing their economic, relational, and societal value.

Overall, the literature provides valuable yet partial perspectives on the drivers, strategies, and outcomes of CSR. This dissertation contributes to the emerging area by investigating how and under what conditions firms engage in responsible and inclusive strategies, how they communicate these initiatives, and what value these initiatives generate for society.

2 FRAMEWORK ADO (ANTECEDENTS, DECISIONS, OUTCOMES)

The ADO (Antecedents–Decisions–Outcomes) framework offers a comprehensive lens for analyzing complex phenomena in management and CSR research (Aggarwal et al., 2025). The model posits that any strategic behavior of firms can be interpreted as a chain of causally related stages:

(i) contextual and structural *Antecedents* that shape firm behavior;

(ii) *Decisions* that represent strategic and operational choices;

(iii) *Outcomes* that emerge as measurable consequences of such decisions.

In the field of CSR, the ADO framework has been increasingly adopted to bridge micro–meso–macro perspectives, connecting individual or firm characteristics (e.g., board composition, ownership, legitimacy concerns) with strategic actions (e.g., CSR communication, stakeholder engagement) and their social or environmental impact (Aggarwal et al., 2025; Aguinis & Glavas, 2012).

The present dissertation adopts the ADO framework to integrate four empirical studies (Figure 1) that, while independent in scope and methodology, collectively explain:

how and under what conditions firms engage in responsible and inclusive strategies, how they communicate them, and what value these initiatives generate for society?

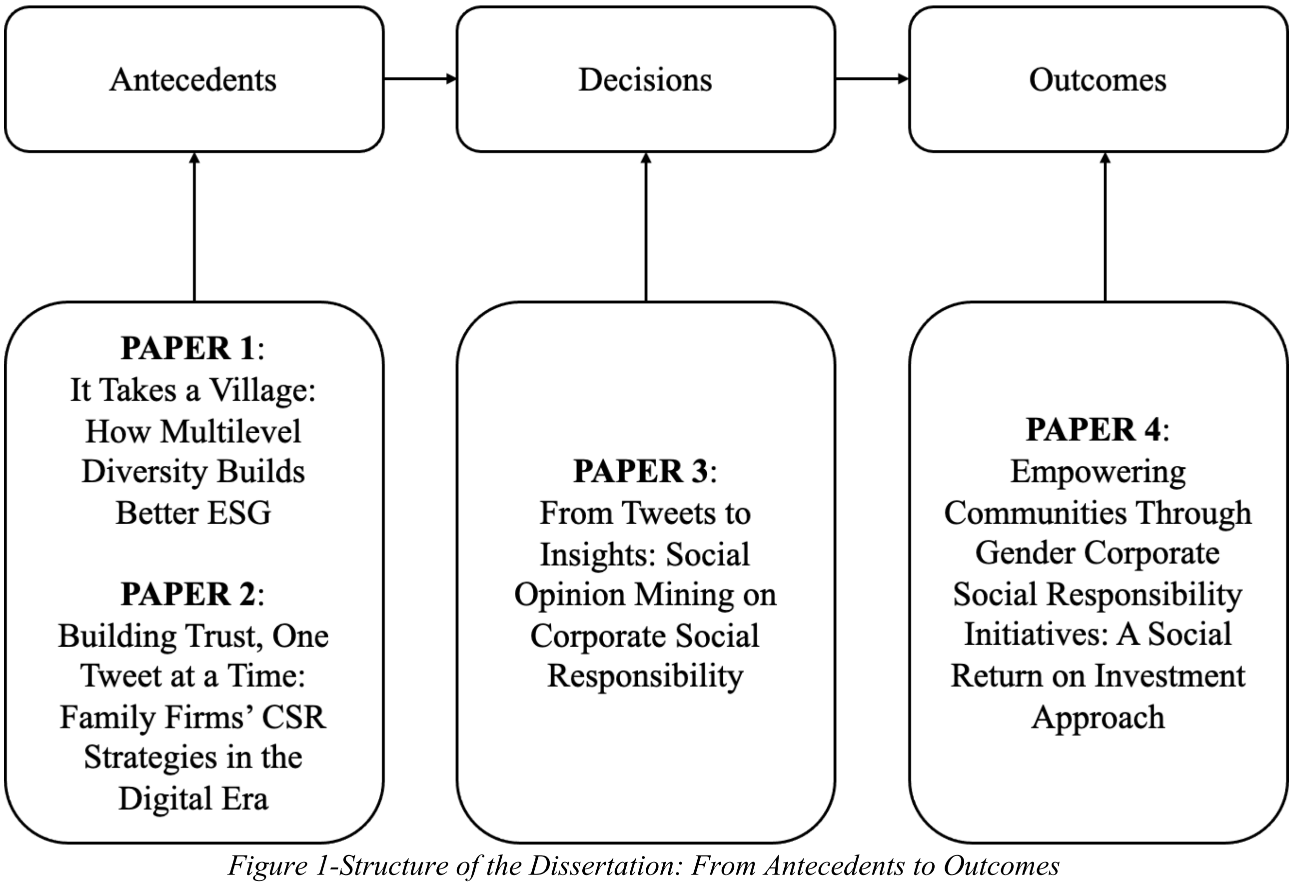

Figure 1-Structure of the Dissertation: From Antecedents to Outcomes

Antecedents capture the contextual, institutional, and organizational drivers that shape a firm's orientation toward responsible and sustainable behavior. Antecedents include both structural features, such as governance diversity, ownership concentration, and board composition, and contextual influences like national institutions, cultural norms, and regional ecosystems of legitimacy. In the first article (Chapter 3), *"It Takes a Village: How Multilevel Diversity Builds Better ESG"* diversity is conceptualized as a multilevel antecedent that operates simultaneously across three interrelated levels: the board of directors (micro level), the firm culture (meso level), and the regional institutional

environment (macro level). To capture the complexity of these relationships, the study adopts a multi-theoretical framework that integrates four complementary perspectives: Stakeholder Theory (Freeman, 2010), Resource-Based Theory (Barney, 1996), Social Integration Theory (Ramirez-Valles et al., 2010), and Institutional Theory (Scott, 1987). At the micro level, stakeholder and resource-based perspectives explain how diverse boards represent both a cognitive and strategic asset. Using a panel dataset of 574 listed companies in France, Spain, Italy, and Germany (2013–2022), the study demonstrates that diversity at all levels jointly foster superior ESG performance, providing a multi-level view of how structural and contextual factors drive responsible corporate behavior.
Diversity in gender, nationality, education and age broadens the range of perspectives available to directors, enhancing decision-making quality, responsiveness to ESG challenges, and the firm's ability to manage multiple stakeholder interests. From a stakeholder theory perspective, board heterogeneity acts as an antecedent of corporate legitimacy, as it aligns decisions with the expectations of diverse stakeholders and strengthens trust. From a resource-based view, diversity operates as a strategic capability, enabling firms to develop superior ESG practices and gain competitive advantage. At the meso level, drawing on social integration theory, firm diversity contributes to internal cohesion and innovation, fostering cross-functional collaboration, psychological safety, and the effective implementation of ESG strategies. Diversity policies that attract and promote varied talents thus serve not only as ethical commitments but also as mechanisms for learning and continuous improvement.
At the macro level, institutional theory explains how regional cultural diversity shapes corporate ESG performance. Inclusive and gender-equal social environments exert normative and mimetic pressures, encouraging firms to internalize societal values and reinforce internal diversity initiatives. Overall, diversity functions as a multilevel antecedent of responsible corporate behavior, a strategic resource, a mechanism for stakeholder alignment, a source of social cohesion, and an institutional signal of conformity with societal norms, ultimately predisposing firms to adopt more balanced and substantive ESG strategies.

In the second antecedent-related study (Chapter 4), *"Building Trust, One Tweet at a Time: Family Firms' CSR Strategies in the Digital Era,"* family ownership is examined as a structural and emotional antecedent that shapes how firms engage in and communicate CSR on social media. The study analyzes 38,327 Twitter posts from 76 Italian listed family firms (2015–2022) to assess how family involvement, succession stage, and transgenerational orientation influence CSR communication. The study builds on Legitimacy Theory (Suchman, 1995) and the Socioemotional Wealth (SEW) perspective (Cennamo et al., 2012) to explain the distinctive CSR communication patterns observed in family-controlled firms. From a Legitimacy Theory standpoint, family ownership acts as a key antecedent of CSR disclosure, as family firms seek social approval and moral legitimacy to safeguard their reputation and long-term survival. Because these firms are closely identified with the family's public image and local community ties, CSR communication becomes a primary tool to justify their actions and signal accountability. Social media, particularly Twitter, transform this process into an ongoing dialogue with stakeholders, reinforcing transparency, trust, and reputational capital. The SEW perspective complements this view by explaining that family firms engage in CSR not only for instrumental legitimacy but also to preserve identity, emotional attachment, and transgenerational continuity. Differences in family involvement and succession stage condition the intensity of CSR engagement: later-generation firms tend to adopt more transparent and proactive communication, while founder-led firms remain more selective and protective. Overall, family ownership functions as a multidimensional antecedent of CSR disclosure, combining

structural governance factors with affective and identity-based motivations. The interplay between legitimacy concerns and socioemotional goals clarifies why family firms are especially sensitive to stakeholder perceptions and reputation management in the digital sphere.
Within the ADO framework, this paper illustrates how deep-seated family values (antecedents) translate into specific CSR communication behaviors (decisions), setting the stage for later outcomes of trust, credibility, and social value creation.

Taken together, these two studies position diversity and family embeddedness as complementary antecedents of CSR-oriented behavior. Both construct the socio-cognitive conditions under which firms make strategic CSR decisions, whether through pluralistic governance or community-rooted legitimacy motives.

Decisions represent the *strategic and operational translation* of those antecedents into concrete actions. Within the ADO framework, decisions encompass the mechanisms through which firms express their responsible orientation and interact with stakeholders.
This dissertation focuses on communication and engagement choices, with particular attention to the role of digital media.
The third study (Chapter 5), *"From Tweets to Insights: Social Opinion Mining on Corporate Social Responsibility,"* examines how firms and stakeholders interact within the digital communication sphere. It uses large-scale social opinion mining on 349,370 Italian tweets (2006–2022) to analyze sentiment, participation trends, and key CSR topics. The paper adopts Stakeholder Theory (Freeman, 2010) and Legitimacy Theory (Suchman, 1995) as its foundational lenses to explain the dialogical and strategic nature of CSR communication on social media.
From a stakeholder theory perspective, CSR communication constitutes a decision process through which firms actively negotiate their social role with stakeholders. Rather than a unidirectional disclosure, it becomes a two-way exchange of expectations and judgments about corporate behavior. Social media, particularly Twitter, transform this process into a dynamic arena of meaning co-creation, where stakeholders' comments and reactions help define what is considered responsible conduct. In this sense, firms' choices about *what, when,* and *how* to communicate CSR initiatives are deliberate strategic decisions aimed at listening, learning, and engaging with diverse publics.
From a legitimacy theory standpoint, digital CSR communication represents a strategic response to legitimacy pressures. Firms use online dialogue to align their visible behavior with evolving societal norms and expectations. Social media thus become real-time legitimacy arenas, where firms can demonstrate authenticity and transparency but also face amplified risks of contestation. By monitoring stakeholder sentiment, firms can adjust their CSR discourse and actions, reinforcing trust and credibility.
Overall, this study conceptualizes CSR communication as the "Decision" stage within the ADO framework: a mediating mechanism that translates structural antecedents (such as governance diversity or family ownership) into outcomes like trust, legitimacy, and social impact. In doing so, it shows how digital interaction has redefined corporate responsibility as an ongoing negotiation rather than a one-way declaration.

Outcomes refer to the tangible and intangible results that emerge from the interaction between antecedents and decisions. Within the CSR literature, outcomes are multidimensional, encompassing social value creation, legitimacy reinforcement, and stakeholder trust (Freeman, 2010).

The fourth study (Chapter 6), *"Empowering Communities Through Gender Corporate Social Responsibility Initiatives: A Social Return on Investment Approach,"* focuses on the tangible and intangible social value generated through inclusive and gender-oriented CSR initiatives. It evaluates the social outcomes of gender and inclusion-oriented CSR initiatives using the Social Return on Investment (SROI) methodology. Building on Value Creation Theory, Stakeholder Theory, and Resource Dependence Theory, the paper investigates how collaborative CSR models involving external partners (e.g., universities, associations, and community organizations) enhance the effectiveness, legitimacy, and scalability of social outcomes.

From a Value Creation Theory perspective, CSR engagement represents the Outcome phase of the ADO framework, in which firms transform responsible actions into tangible and intangible forms of value for both business and society. Gender-related CSR initiatives generate economic value (through productivity and reputation gains), relational value (through trust and social capital), and societal value (through empowerment and inclusion). The Social Return on Investment (SROI) methodology enables these multidimensional outcomes to be quantified, translating qualitative benefits such as employability, self-esteem, and community cohesion into measurable social returns.

Through a Stakeholder Theory lens, collaboration and engagement emerge as key mechanisms of value creation. Multi-stakeholder partnerships foster trust, co-design, and responsiveness to community needs, aligning corporate objectives with societal expectations. When marginalized groups are involved in planning and evaluation, CSR initiatives achieve greater legitimacy and durability. Finally, from a Resource Dependence perspective, collaborative CSR models expand the firm's resource base by leveraging external expertise, funding, and networks. Partnerships with institutions, universities, and third-sector organizations enhance organizational capacity and accountability, amplifying both social impact and shared learning.

Overall, CSR outcomes materialize when firms convert responsible decisions into co-created value, measurable impact, and strengthened legitimacy, completing the ADO cycle.

Within the ADO framework, this paper represents the culmination of the causal chain: antecedents (diversity and family identity) shape firms' responsible orientations; decisions (CSR communication and stakeholder dialogue) determine engagement mechanisms; and outcomes (measurable social value) validate and reinforce the legitimacy of responsible behavior. The study advances theoretical and practical understanding of how collaborative, gender-focused CSR initiatives transform symbolic responsibility into substantive social change, providing a replicable model for operationalizing the social dimension of CSR strategies.

3 IT TAKES A VILLAGE: HOW MULTILEVEL DIVERSITY BUILDS BETTER ESG A PANEL STUDY OF EUROPEAN FIRMS ACROSS BOARD, FIRM, AND REGIONAL LEVELS

Leggerini, C., & Bannò, M.

Abstract
This study investigates the impact of diversity on Environmental, Social, and Governance (ESG) performance across three levels: board diversity (micro), firm cultural diversity (meso), and regional cultural diversity (macro).
Using panel data from 574 European listed firms (2013–2022), the study applies a multi-level framework. At micro level and according to stakeholder and resource-based theories, board diversity prioritizes stakeholder perspectives and improves resource management, fostering ESG performance. At meso level, and according to social integration theory, firm cultural diversity fosters inclusivity and adaptability, thereby promoting ethical and sustainable practices and improving ESG performance. At macro level and according to institutional theory, regional cultural diversity shapes social norms, bolstering community support and overall ESG performance.
Board diversity improves ESG performance by aligning stakeholder priorities and optimizing resources. Firm-level cultural diversity fosters inclusivity and adaptability, enhancing ethical and sustainable practices. Regional cultural diversity shapes social norms, strengthening community support for ESG performance. Together, these insights demonstrate the critical role of diversity at all levels.
This study provides a novel multi-level perspective, integrating diversity's micro, meso, and macro dimensions to address gaps in ESG research. It highlights the interconnectedness of diversity, corporate governance, and ESG performance.
Our findings contribute to advancing knowledge in ESG policymaking by emphasizing the importance of promoting diversity at all levels. The study also offers insights into how diversity initiatives can be effectively implemented within firms to enhance sustainability and governance practices.
Encouraging diversity at all levels improves fairness in society, makes ESG performance better, and supports long-term growth and sustainability by encouraging welcoming behaviors and social unity.

Keywords: diversity, ESG performance, board of directors, policy diversity, regional cultural diversity

Note
A preliminary version of the study was presented at:

- Sinergie-SIMA Management Conference Proceedings (2024) Management of sustainability and well-being for individuals and society.
- ICGR 7th International Conference on Gender Research (2024).

A preliminary version of the study will be presented at the AiIG conference in 2026.
Submitted to Corporate governance: An International Review.

3.1 Introduction

Firms increasingly use Environmental, Social, and Governance (ESG) performance to demonstrate their commitment to sustainable development and stakeholder engagement (Kuo et al., 2021; Pope et al., 2004). An ESG strategy, by integrating environmental, social, and governance factors into business decision-making and operations (Gillan et al., 2021), aims to create long-term value by considering the impact of business activities beyond financial performance (Gillan et al., 2021).

In recent decades, scholars, policymakers, practitioners, and investors have shown significant interest in and closely examined the ESG performance of firms (Abdelkader et al., 2024). Some researchers have examined how external factors, such as the industrial environment, can affect the ESG performance (Hawn & Kang, 2018). On the other hand, other scholars have taken an internal perspective to investigate how firm attributes and strategy can contribute to competitive advantage (Sandhu & Kulik, 2019). They also explore how these factors can ultimately lead to an increase in market value (Hawn & Kang, 2018).

In response to a call for studies, we identify diversity as a critical element in understanding what factors affect ESG performance across different levels of analysis (Kassinis et al., 2016; Zattoni et al., 2023). In particular, we argue there are three important levels of analysis to simultaneously consider (Zattoni et al., 2023): board diversity (*i.e.*, micro level), firm cultural diversity (*i.e.*, meso level), and regional cultural diversity (*i.e.*, macro level). Since a single theory will not be able to adequately explain the three links, we employ a multi-theoretical framework (Konadu et al., 2022). At the micro level of board diversity, we rely mainly on stakeholder theory (Freeman, 2010) and resource-based theory (Barney et al., 1996). At the meso level of firm cultural diversity, we rely on social integration (Ramirez-Valles et al., 2010). Finally, with regard to regional cultural diversity at the macro level, we draw on institutional theory (Scott, 1987).

While prior research has examined individual aspects of diversity, a comprehensive, multi-level perspective on its role in ESG performance is still lacking.

At the micro level, diverse board characteristics (*i.e.,* gender, age, nationality, education and size) may have beneficial effects on ESG performance (Nandi et al., 2024). Experts highlight the board's role in providing resources, strategic guidance, and networking opportunities (Nandi et al., 2024; Ortiz-de-Mandojana et al., 2019). A diverse board, integrating varied backgrounds and perspectives, enhances responsiveness to sustainability challenges, positively influencing ESG performance (Barney et al., 1996).

At the meso level, the firm's diversity policy leverages the unique strengths of a diverse workforce and enhances organizational efficiency and productivity (Hossain et al., 2020). In particular, diversity policy encompasses a firm's systematic efforts to attract, recruit, compensate, and advance a diverse range of resources (Grobler et al., 2006). As diversity policies have a significant impact on ESG performance as well as on organizational culture, the promotion of a firm's diversity policy may bolster and advance ESG performance.

At the macro level, inclusive and equitable cultural context also plays a crucial role (Stoermer et al., 2016). Culture emerges as a collective artifact in social environments where individuals share similar values, beliefs, and habits (Hofstede, 2011). Institutional context, such as culture, has an ultimate impact on decision-making regarding ESG performance (Kim et al., 2018).

To the best of our knowledge, no study has examined the impact of diversity on ESG performance, taking into account all three levels simultaneously.

Furthermore, at the micro level, our study is unique since it takes into account various features of the board (*i.e.*, gender, nationality, qualification, age, and board size). Given the multifaceted nature of board diversity, focusing solely on one or a small number of diversity aspects could potentially bias results (Zattoni et al., 2023). We argue that, at the meso level, looking into firm cultural diversity is the first way to fully understand how the many factors that affect ESG performance within firms work together. At the macro level, our study stands out as the first to consider the impact of cultural diversity at the regional level. The regional perspective allows us to better understand how local cultural factors influence firms' decisions and performance in terms of ESG performance. In particular, we want to provide a full picture of how diversity works and what that means for ESG performance by using a broad framework.

Empirically, we develop a panel model covering the years 2013 to 2022. We studied 574 listed firms in France, Spain, Italy, and Germany. The results suggest that it is important to simultaneously consider all three levels, the micro, the meso, and the macro, as all three can influence a firm's ESG performance.

3.2 Theoretical framework and hypotheses development

Our analysis spans three distinct levels of analysis: board diversity (*i.e.*, micro level), firm cultural diversity (*i.e.,* meso level), and regional cultural diversity (*i.e.,* macro level). Each level is informed by a specific theoretical lens that helps elucidate the mechanisms through which diversity affects ESG performance: stakeholder and resource-based theory at the micro level (Freeman, 2010; Barney et al., 1996), social integration theory at the meso level (Ramirez-Valles et al., 2010), and institutional theory at the macro level (Scott, 1987). Figure 2 shows the multi-theoretical framework.

However, we contend that studying these levels in isolation is not appropriate. Following Aguilera & Jackson (2003), we conceptualize ESG performance as institutionally embedded, shaped by the interplay of organizational agency (micro), normative expectations and policies (meso), and formal and informal institutional contexts (macro).

This multi-level integration is critical to fully capture the complexity of diversity's influence on ESG performance. By examining these three dimensions together, we are able to uncover whether diversity works as a mutually reinforcing mechanism across micro, meso, and macro levels. Our framework therefore not only deepens the theoretical understanding of diversity in ESG research but also highlights the importance of alignment across levels in shaping ESG performance.

We provide a detailed framework for each level of analysis along with related research hypotheses.

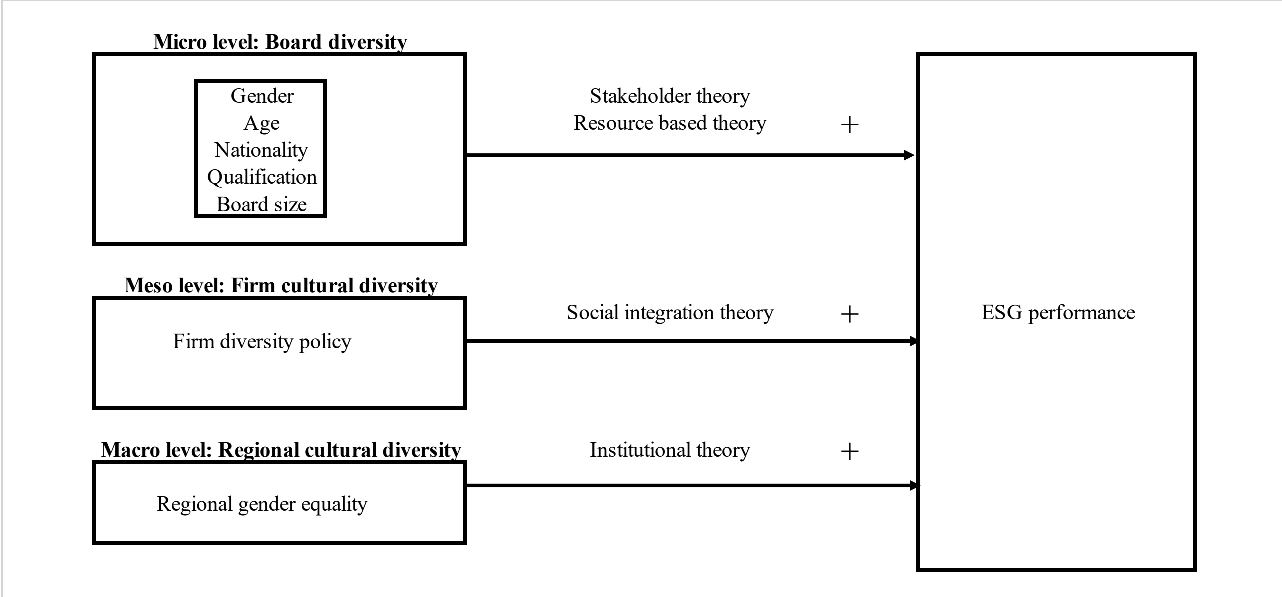

Figure 2-Theoretical framework

3.2.1 Micro level: board diversity

Boards of directors must effectively manage ESG issues to assess sustainability risks and incorporate them into strategic planning and decision-making (Paolone et al., 2024). A firm's success depends on its board of directors. They uphold corporate responsibility by enhancing the firm culture, monitoring the achievement of strategic goals, and providing support to the corporate governance framework (Paolone et al., 2024). The effectiveness and function of the board of directors in relation to ESG performance have been the subject of much study over the past ten years (Naciti, 2019; Zattoni et al., 2023). According to stakeholder theory, the board of directors should make it a priority to ensure that management decisions are in line with shareholders' values (Naciti, 2019) and should avoid potential conflicts of interest by taking stakeholders interests into account (Haniffa & Cooke, 2005). Stakeholder theory states that boards with clear and noticeable differences are more likely to put social and environmental issues first. This is because diversity ensures a range of views that make people more aware of and responsive to these issues (Katmon et al., 2019; Shahab et al., 2022; Zhang et al., 2013). A diverse board is more likely to be focused on stakeholder issues and to care about social and environmental issues (Katmon et al., 2019; Shahab et al., 2022; Zhang et al., 2013). In particular, a diverse board is better able to understand and respond to sustainability and environmental initiatives because it brings a broader range of resources, viewpoints, and experiences (Barney et al., 1996).

The heterogeneity of resources and capabilities forms the basis of resource-based theory (Katmon et al., 2019). The resource-based theory states that a firm can keep its competitive advantages by making good use of its resources, acquiring new skills, and amassing both tangible and intangible assets. Firms can get help to improve their ESG performance by having boards with various backgrounds. These boards connect firms to the outside world (J. Barney, 1991; Hoopes et al., 2003) and can spark new ideas and mental challenges that help with processing information and making decisions. A board with a wide range of structural and demographic backgrounds may be better able to secure resources that are crucial to a firm's strategy (J. Barney, 1991; Hoopes et al., 2003). These qualities may result in the provision of insightful counsel on social and environmental challenges (Galbreath, 2016).

Because gender, age, nationality, qualification, and board size are all characteristics associated with individuals that determine a diverse board, they may have, according to stakeholder theory and resource-based theory, an impact on ESG performance and should be considered simultaneously (Zattoni et al., 2023).

Literature praises gender diversity on boards of directors for its many advantages (Geletkanycz, 2020; Odriozola et al., 2024; Ramon-Llorens et al., 2021). These include better and more responsible ESG decisions that improve sustainability practices and a better reaction to sustainability measures (see, *e.g.,* Nguyen & Muniandy, 2021; Rao & Tilt, 2021).

Previous research has consistently emphasized the importance of ensuring an adequate number of women on corporate boards of directors. This is crucial not only to avoid perceiving their presence as merely symbolic, but also to empower them to have a meaningful and substantial impact on the strategic decisions of the firm (Gull et al., 2023). According to token theory, the presence of a single woman on a board is often insufficient to influence decision-making processes. This is because she may be perceived as a "token" representative of gender diversity, someone whose presence fulfills a formal requirement rather than signifying true inclusion. As a result, her opinions and contributions can be easily dismissed, limiting her ability to assert her viewpoints effectively (Konrad et al., 2008).

In contrast, the critical mass theory offers a more nuanced understanding of gender diversity's impact on board dynamics. This theory posits that when there is only one woman on a board, her presence tends to be symbolic and carries limited influence. The addition of a second woman introduces some change, as it begins to break the perception of tokenism. However, it is the presence of at least three women on the board that constitutes a "critical mass", a tipping point where women are no longer seen as outliers, and their voices start to carry weight in discussions and decision-making processes (Torchia et al., 2011).

Studies further reveal that a lone women board member may face significant challenges in asserting her authority and influencing outcomes. She may be overlooked by male counterparts, her skills undervalued, or she may lack the necessary support to drive meaningful contributions (You, 2021). However, once the number of women directors reaches three or more, their collective influence becomes more visible and impactful, allowing for greater participation and integration into the board's core activities (Schwartz-Ziv, 2017; You, 2021).

It is important to consider that the average size of a corporate board typically consists of around ten members (Joecks et al., 2013; Konrad et al., 2008). Within this context, having at least three women on the board marks a significant step toward gender balance. Reaching this threshold helps diminish the common issue of women feeling like outsiders in a predominantly male environment. This inclusion fosters higher levels of trust, stronger collaboration, and greater involvement from women directors, ultimately enhancing their ability to contribute meaningfully to governance and strategy (Konrad et al., 2008).

Moreover, recent findings by García-Meca et al. (2024) highlight that increasing the number of women on boards to a substantial and influential level brings broader organizational benefits. Specifically, a greater women presence is associated with improved performance in social and environmental initiatives, thereby enhancing a firm's overall ESG standing. This underscores the strategic importance of gender diversity not only from an ethical or symbolic standpoint but also as a driver of sustainable and responsible business practices.

These theoretical distinctions highlight that gender diversity on boards is a multi-dimensional construct, encompassing symbolic, threshold, and structural dynamics. Studying all three

perspectives together allows us to uncover which mechanisms, presence, influence, or balance, are most consequential for driving ESG performance.
According to Gardiner (2024) systematic review, ESG performance and age diversity were examined only in eight studies, with the majority of analyses reporting a positive association. Members of varying ages on a board enhance their understanding of international markets, gain access to additional resources, and offer unique perspectives (Gardiner, 2024). Boards with a range of ages tend to be better able to understand and meet the requirements of stakeholders and have a greater impact on environmental policy and practice (Ferrero-Ferrero et al., 2015).
Variety of nationality has a substantial and beneficial effect on the social and environmental aspects of sustainable performance (Naciti, 2019). Directors from different countries may offer a different cultural lens through which to see the impact on ESG performance (Harjoto et al., 2019). Liu et al. (2024) argued that firms with more diverse board nationalities face far fewer environmental lawsuits.
A diverse board of directors in terms of education can produce more perspectives, more creativity, and more competencies (Fernández-Gago et al., 2018; Ramon-Llorens et al., 2021). Several studies found a favorable relationship between board educational diversity and ESG performance (Fernández-Gago et al., 2018; Y. Liu et al., 2024).
Larger boards are more likely to participate in CSR initiatives and perform better in terms of ESG (Beji et al., 2021; Treepongkaruna et al., 2024). Smaller boards might lack diversity in education, expertise, gender, and stakeholder representation, leading to higher workloads and responsibilities for directors, which could reduce their monitoring effectiveness (Treepongkaruna et al., 2024). Conversely, larger boards offer better workload distribution and broader collective expertise (Treepongkaruna et al., 2024).

Therefore, we hypothesize that:

Hp 1: Board diversity (i.e., gender, age, nationality, education and size) has a positive effect on ESG performance.

3.2.2 Meso level: Firm cultural diversity

Scholars have highlighted the crucial role of human resources in fostering ESG performance and, in particular, the role of employees since they are one of the most important stakeholders (Starostka-Patyk et al., 2015).
Implementing responsible human resource management techniques, such as equal opportunity and diversity policies for all employees, can embed and maintain socially responsible principles within the firm culture (Starostka-Patyk et al., 2015). A firm's cultural diversity can be described through its human resource management policies and related procedures. Among other things, diversity policy helps uncover effective organizational strategies for attracting and supporting employees of different backgrounds and identities; more generally, it helps build a firm culture where diverse groups of employees may use their differences to their advantage (Kassinis et al., 2016). Furthermore, diversity-related beliefs and climates within the firm, such as those that promote inclusion and equitable treatment, serve as critical drivers of an inclusive culture. These elements are linked to enhanced employee attitudes and behaviors, including organizational commitment and reduced turnover, as they foster environments where diverse groups feel valued and integrated (Leslie & Flynn, 2024).
The best way to look at firm cultural diversity is through the lens of social integration theory, which focuses on the many social factors that contribute to creating communities of people from different

cultures within firms (Ramirez-Valles et al., 2010). According to social integration theory, in fact, firms should act to welcome and accommodate people of all backgrounds and identities because employees are more inclined to work together productively and to contribute to improved performance when they feel appreciated and included. In this direction, a firm's diversity policy, by boosting social integration, can improve competitiveness and financial performance.
Diversity policy also has a significant impact on ESG performance. Diversity policies link to a stronger emphasis on social and environmental issues, leading to more sustainable policies and practices for businesses (Kassinis et al., 2016). Embracing a diversity policy demonstrates a firm's commitment to social responsibility, increasing the firm's reputation (Jeong & Harrison, 2017; Mun & Jung, 2018). Additionally, this initiative focuses on enhancing organizational culture to broaden workforce diversity. This approach is in response to social pressure, the increasing diversity among customers, and evolving public policy (Gould et al., 2020; Moore et al., 2017). It's also better for a firm to be able to deal with outside forces like social and customer diversity if they have diversity climates that stress the inherent and practical value of diversity (Leslie & Flynn, 2024).
Diverse teams are more likely to recognize the importance of environmental and social responsibility, as they bring varied cultural and personal values concerning the environment and social equity (Kassinis et al., 2016).

In summary, a diversity policy can help foster an inclusive culture that is sensitive to ESG performance (Jeong & Harrison, 2017; Mun & Jung, 2018). For this reason, we hypothesize that:

Hp 2: Firm cultural diversity has a positive effect on ESG performance.

3.2.3 Macro level: Regional cultural diversity

The national or regional context is made up of all the social knowledge that people in different countries share with each other (Atinc et al., 2022). It shapes how people store and understand information and how they see the world around them (Lemma et al., 2022). This context subsequently affects personal decisions and actions (Lemma et al., 2022).

In particular, regional cultural context, as a part of institutional context, refers to the shared mentality of people, which is formed by patterns of beliefs and values that influence practices, behaviors, and various artifacts (Luo & Tang, 2016). In other words, regional cultural context is the social knowledge that people in various places share, and it establishes the "framework for encoding and interpreting" information and molds people's views of the outside world. As a result, it affects people's choices and actions (Lemma et al., 2022). Institutional theory can help to explain and clarify the ways in which societal norms, beliefs, and assumptions interact with the ways in which firms function (Mukherjee & Krammer, 2024; Scott, 1987). Regional cultural context can be regarded as the guiding principles that govern the conduct of firms (Esteban et al., 2017). The regional cultural context in which a firm operates significantly impacts the expectations of stakeholders, which in turn influences firms' adoption of sustainability behaviors. It is important to focus on the regional aspect because national-level analyses can obscure regional inequalities, especially when using synthetic indicators[1] (Di Bella & Culotta, 2023). Regional analyses are essential when the distribution of a phenomenon within a country indicates discrepancies that require attention in policy-making.

[1] The national average score may obscure regional disparities in a phenomenon, balancing low scores in some areas against high scores in others.

Territorial disparities within nations result from various factors, the origins of which are often controversial (Di Bella & Culotta, 2023).

The relationship between regional cultural context and ESG performance has been extensively investigated (Ibrahim et al., 2023; Kim et al., 2018); however, the effect of culture on the implementation of CSR activities and ESG performance has been inconsistent (Ibrahim et al., 2023), and little is known about why firms react differently to different institutional contexts (Schilke, 2018).

Regional cultural contexts vary in the extent to which society is dedicated to supporting diversity (Branisa et al., 2014; House & Global Leadership and Organizational Behavior Effectiveness Research Program, 2004). There are many aspects of the regional cultural context that could determine how cultural diversity affects employee performance (Tjimuku & Atiku, 2024). As a result of the growing societal interest in enhancing diversity, there has been an increase in expectations for social aspects in firms (Branisa et al., 2014; Mun & Jung, 2018). Everyone, including the government, shareholders, customers, non-governmental groups, and employees, is involved in societal aspects that reflect public rules and cultural context. Thus, in societies characterized by a lack of cultural diversity, firms will have a lower level of dedication to sustainability (Esteban et al., 2017; Garcia-Sanchez et al., 2016), and firms are not expected to adhere to practices that foster increased diversity and then sustainability (Esteban et al., 2017). Summarizing, firms' social behaviors and processes can be shaped by the regional cultural context (Ortas & Gallego-Álvarez, 2020).

As regional cultural diversity can have a substantial impact on ESG performance, we hypothesize that:

Hp 3: Regional cultural diversity has a positive effect on ESG performance.

3.3 Data

The research sample includes 574 firms from Germany (233 firms), Italy (108 firms), France (169 firms), and Spain (64 firms), covering the period from 2013 to 2022, resulting in a total of 5,166 observations.

We remain in the European context both as a matter of data uniformity and availability and because European policymakers are paying increasing attention to ESG issues within financial institutions and the markets. In addition, Europe has a rigorous regulatory landscape and takes a proactive approach to promoting sustainable finance (Del Sarto, 2025). Research focused on Europe may have direct implications for European policymakers and regulators who are actively engaged in shaping ESG practices (Ioannou & Serafeim, 2019).

We used different databases. BoardEx contains demographic data about the board. Thomson Reuters offers one of the largest ESG datasets, covering more than 400 ESG metrics dating back to 2002. Thomson Reuters provided the data about the firm's sustainable attributes and diversity policy. The REGEM project proposes the regionalization of the comprehensive gender equality indicator known as the Gender Equality Index, originally developed by the European Institute on Gender Equality. The primary objective of REgional Gender Equality Index (REGEI) is to tailor the Gender Equality Index to regional contexts, ensuring relevance and applicability across diverse geographic areas. REGEI seeks to assess gender disparities and levels of achievement within specific regions. The Orbis database (Bureau Van Dijk) provides financial information. The European Quality of Government Index is an index calculated by the Quality of Government Institute.

3.3.1 Variables

Table 1 shows where the dependent, independent, and control variables that measure ESG performance, board diversity, firm cultural diversity, and regional cultural diversity come from and what they mean.

Dependent variable. *ESG score* represents the overall score of a firm's ESG performance (Gregory, 2024; Y. Liu et al., 2024). A higher score indicates better performance in terms of ESG aspects.

Following Fandella et al. (2023) and Priem & Gabellone (2024), in the robustness tests we use: *ESG score governance pillar,* which represents the score of a firm's ESG governance performance; *ESG score social pillar,* which represents the score of a firm's ESG social performance; *ESG score environmental pillar,* which represents the score of a firm's ESG environmental performance; *ESG combined score,* which represents the overall score of a firm's ESG performance, also considering ESG controversies.

Independent variable. The independent variables measure the three different levels of investigation.

Micro level: board diversity. Board diversity is measured through five different measures that consider gender, nationality, education, age, and size.

To capture the multidimensional nature of gender diversity, we operationalize three distinct indicators.

First, we examined the symbolic presence of a single woman through *Board gender token*, a dummy variable that takes value 1 if the firm has just one woman director and 0 otherwise (Rixom et al., 2023). Second, we used *Board gender critical mass,* a threshold-based dummy reflecting the theoretical tipping point for influence, typically set at three women (García-Meca et al., 2024; Velte, 2024). Third, *Board gender Blau index,* a continuous measure of overall gender balance, represents the degree of gender diversity on the board, with higher values indicating greater gender equality (Collins & Blau, 1979).

$$Blau\ Index = 1 - \sum_{i=1}^{n} P_i^2$$

The variable Pi represents the percentage of each gender on the board, while i = (1, 2) represents the total number of genders (*i.e.*, men and women). This indicator can have values between 0 and 0.5, which represent the presence of one gender on the board and equal representation of men and women, respectively.

These indicators for gender diversity are not conceptually redundant. Rather, they capture different facets of board diversity. The token measure reflects the symbolic inclusion of women with limited impact. The critical mass measure reflects group dynamics and the conditions for meaningful participation. The Blau index captures structural balance and a general heterogeneity that may enhance information processing and stakeholder sensitivity. By including all three, we aim to explore whether symbolic presence, threshold participation, or proportional balance is most strongly associated with ESG performance.

The proportion of directors from different countries measures *Board nationality*, which represents diversity in terms of nationality of board members (Agnese et al., 2024; Harjoto et al., 2019).

Board education represents diversity in terms of qualifications attained, and it is measured by the standard deviation of the total number of qualifications of directors (Harjoto et al., 2019).
Board age represents diversity in terms of age, and it is measured by the standard deviation of the age of directors (Arena et al., 2024; Gardiner, 2024).
Board size represents diversity in a broader sense, as a large number of board members can ensure that there is diversity. It is measured by the total number of directors (Agnese et al., 2024; Arena et al., 2024).
Meso level: firm cultural diversity. We measure firm diversity policy by looking at the existence of two different types of policies. *Policy board diversity* is a dummy variable taking value 1 if a firm has a policy that aims to promote gender diversity on the board and 0 otherwise (Buse et al., 2016). This policy may include objectives and procedures for selecting board members that promote gender diversity. *Policy diversity and opportunity* is a broader firm policy that extends to many forms of diversity, such as ethnicity, race, sexual orientation, and disability. This policy may include measures to promote equality of opportunity within the firm, ensuring that career opportunities are accessible to all employees, regardless of differences. It is a dummy variable, taking the value 1 if a firm has a diversity and opportunity policy and 0 otherwise.
Macro level: regional culture of diversity. Regional cultural diversity is measured by the gender indicator R-GEI that represents the regionalization of the gender equality indicator known as the Gender Equality Index (Di Bella et al., 2021). Regional gender differences are often closely related to cultural and social inequalities in different areas of a country. As pointed out in the work of Di Bella & Culotta (2023), adapting the Gender Equality Index at the regional level, through the R-GEI, makes it possible to capture not only the differences in participation opportunities between men and women but also the normative and cultural specificities that characterize each region. This approach allows for a more precise understanding of regional inequalities, providing a detailed view of how local cultural characteristics affect different regions (Di Bella & Culotta, 2023). In particular, the R-GEI index covers key areas such as work, money, knowledge, power, health, and time, ensuring a comprehensive representation of gender equality across different facets of society (Di Bella et al., 2021). Each of these areas is represented by selected indicators that are meaningful and measurable at the regional level (Di Bella et al., 2021). Gender norms are often deeply rooted in local culture and influence aspects such as access to employment, political participation, and family roles (Cascella et al., 2022). A regional gender equality indicator, such as the R-GEI, can reflect these cultural nuances better than a national index, capturing how social and cultural norms influence the balance of genders in specific contexts (Cascella et al., 2022; Di Bella & Culotta, 2023).

Control variables. *Firm CSR sustainability committee* is a dummy variable indicating whether the firm has a dedicated committee or team for CSR. Previous research highlights that such committees strengthen corporate governance by integrating sustainability into decision-making processes, which in turn enhances ESG performance (L. Liu, 2024). These committees are critical for ensuring that corporate policies are in line with ESG principles because they decide a lot of what happens in terms of sustainability (Dixon-Fowler et al., 2017; L. Liu, 2024). *Firm women executive* represents the proportion of women holding executive roles within the firm. Research suggests that firms with higher women representation in executive roles demonstrate stronger commitment to social and environmental issues, leading to improved ESG performance (Manita et al., 2018). Women executives are also known to bring diverse perspectives that enrich decision-making processes (Manita et al., 2018). ROA measures *Firm profitability*, which is an indicator of firm productivity and profitability and has a positive impact on ESG performance (He & Jiang, 2019; Pan et al., 2021).

Prior studies have shown that profitable firms are better positioned to invest in sustainability initiatives, thereby achieving higher ESG performance (Pan et al., 2021). ROA helps capture the financial health of the firm, which can be a key enabler or constraint for ESG-related investments (He & Jiang, 2019; Pan et al., 2021). *Firm size*, represented by the number of employees, and *Firm Age* serve as proxies for firm complexity and firm experience (Agnese et al., 2024; Heubeck, 2024). Larger firms typically have more resources to allocate to ESG initiatives and may face greater scrutiny from stakeholders, both of which can positively influence ESG performance (Agnese et al., 2024). Older firms may have more established ESG practices and governance frameworks, contributing positively to ESG performance (Heubeck, 2024).

The literature recognizes the quality of institutions as a factor that can influence a firm's ESG performance (Pinheiro et al., 2024). *Institutional quality* is a part of the EQI index that uses data from citizen-based surveys to measure the quality of institutional settings across Europe (Charron et al., 2019). This dimension measures citizens' satisfaction with and trust in the reliability and efficiency of public services. High-quality services are characterized by effective operations, timely responses, and their ability to meet citizens' needs (Charron et al., 2019). Similarly, *Institutional impartiality* is a part of the EQI index that assesses the level of impartiality of the government; this dimension assesses whether public institutions treat citizens equally, without favoritism based on relationships, status, or other biases. It is evaluated through perceptions of privileged treatment or the belief in equal treatment within institutions like education, healthcare, and law enforcement. Finally, the variable *Institutional corruption* is also part of the EQI index and assesses the level of corruption of the government (Charron et al., 2019). This component captures citizens' perceptions and personal experiences of corruption in public institutions, defined as the abuse of public power for private gain. It includes experiences with bribery and perceptions of favoritism or lack of transparency (Charron et al., 2019). EQI in general evaluates the quality of institutional contexts across European regions using data from citizen-based surveys (Charron et al., 2019). These surveys collect perceptions and experiences regarding corruption, quality, and impartiality in key public services such as education, healthcare, and law enforcement. Unlike indicators that measure the quantity of services, the EQI focuses on their effectiveness and fairness. EU-wide surveys conducted in 2010, 2013, 2017, and 2021 collect data for the EQI, providing a comprehensive, longitudinal view of regional governance. By including these factors, the EQI gives a more complete picture of the quality of governance, showing both how well and fairly regional public institutions work.

Knowledge intensive industry is a dummy variable indicating whether the firm operates in a knowledge-intensive sector. The different sectors in which a firm operates can influence its ESG performance. We added this variable because we know that different industries face ESG risks and opportunities in different ways. Typically, these sectors face heightened stakeholder scrutiny and regulatory expectations, which incentivize stronger sustainability practices (Hawn & Kang, 2018).

Table 1-Variables definitions

Variable	Definition	Source
Dependent variables		
ESG score	Score from 0 to 100 represents the ESG performance of a firm	Thomson Reuters
ESG score governance pillar	Score from 0 to 100 represents the ESG governance performance of a firm	Thomson Reuters
ESG score social pillar	Score from 0 to 100 represents the ESG social performance of a firm	Thomson Reuters
ESG score environmental pillar	Score from 0 to 100 represents the ESG environmental performance of a firm	Thomson Reuters
ESG combined score	Score from 0 to 100 represents the ESG performance of a firm considering the ESG controversies	Orbis intellectual properties
Independent variables		
Micro level: Board diversity		
Board gender Token	Dummy variable takes the value 1 if a firm presents only one women director, and 0 otherwise	BoardEx
Board gender Critical mass	Dummy variable takes the value 1 if a firm presents at least three women directors and 0 otherwise	BoardEx
Board gender Blau index	Variable with value from 0, when there is only one gender on the board, to 0.5, when the board has an equal number of women and men	BoardEx
Board nationality	Proportion of Directors from different countries	BoardEx
Board qualification	Standard Deviation of Total Number of Qualifications	BoardEx
Board age	Standard deviation of the population of the ages of Directors for all the Directors	BoardEx
Board size	Number of Directors	BoardEx
Meso level: Firm cultural diversity		
Policy board diversity	Dummy variable takes the value 1 if a firm has a gender diversity policy on the board, and 0 otherwise	Thomson Reuters
Policy diversity and opportunity	Dummy variable takes the value 1 if a firm has a diversity and opportunity policy, and 0 otherwise	Thomson Reuters
Macro level: Regional cultural diversity		
Regional equality	Regionalization of the Gender Equality Index	REGEM
Control variables		
Firm CSR sustainability committee	Dummy variable that takes the value equal to 1 if the firm has a CSR committee or team, and 0 otherwise	Thomson Reuters

Firm women executive	Percentage of women executives	Thomson Reuters
Firm profitability	Income on total assets	ORBIS
Firm size	Number of employees	ORBIS
Firm age	Number of years since firm foundation	ORBIS
Institutional quality	Index quality of public service delivery	Quality of Government Institute
Institutional impartiality	Index impartiality of public service delivery	Quality of Government Institute
Institutional corruption	Index corruption of public service delivery	Quality of Government Institute
Knowledge intensive industry	Dummy variable takes the value 1 if a firm operates in knowledge intensive industry, and 0 otherwise	ORBIS

3.4 Model

To investigate the determinants of ESG performance, we employed several linear panel regression models, which are well-suited for capturing the longitudinal dynamics of firm-level characteristics (Wooldridge, 2010, 2019). This methodological approach is appropriate given the panel structure of our data, allowing us to control for unobserved heterogeneity and account for firm-specific effects that remain constant over time (Wooldridge, 2010, 2019). The relationship between diversity and ESG performance is inherently complex and may be influenced by potential endogeneity issues, as highlighted in prior literature (Adams et al., 2010; Weisbach & Hermalin, 2000). Specifically, board structures and firm policies are often not fully exogenous, as firms may design these governance frameworks to address specific challenges related to ESG. This creates concerns about reverse causality and omitted variable bias (Adams et al., 2010). To enhance the robustness of our findings, we explicitly address these endogeneity concerns by incorporating panel data techniques that mitigate bias (Wooldridge, 2010, 2019). The issue of omitted variable bias is commonly addressed in the literature through panel data analysis, which can help control for time-invariant unobserved heterogeneity under specific assumptions (Wooldridge, 2010, 2019). Researchers have debated the use of initial differences or fixed effects estimators to tackle endogeneity. Weisbach & Hermalin (2000), on the other hand, said that board structures are often determined from the inside, which means that traditional fixed effects estimators might be biased in this case. This is due to their failure to fully consider the impact of past firm performance on the current board structure (Wintoki et al., 2012). Moreover, it has been observed that governance changes, such as board diversity initiatives, may take time to translate into measurable performance improvements (Haniffa & Cooke, 2005; Manita et al., 2018). To address these challenges, we adopted the approach proposed by C. Liu (2018), introducing one-year lagged measures for key diversity variables at the micro, meso, and macro levels. This lagged design allows us to account for the time required for diversity to impact ESG performance, thereby mitigating concerns of reverse causality and endogeneity. For model estimation, we opted for random effects estimators. As argued by Hilbe (2011) and Manita et al. (2018), random effects are more efficient than fixed effects when analyzing large datasets with extensive panel structures. The Hausman test further validated this choice, confirming the suitability of random effects for our data. This choice is also supported by the fact that our dataset is made up of a large group of firms with a lot of variation within the group and unobserved heterogeneity that is thought to not be related to explanatory variables (Wooldridge, 2010, 2019).

Although lagged variables reduce concerns of reverse causality, we acknowledge that firms with high ESG performance may also be more likely to implement diversity policies or attract diverse board members. This two-way relationship is complex and widely debated in the literature. Also, we acknowledge that our approach may not fully eliminate all sources of endogeneity. Nevertheless, by combining lagged regressors, a rich set of firm-level and regional controls, and country-level robustness checks, we believe our design offers a cautious yet effective strategy to mitigate endogeneity risks and support reliable inference.

We tested our hypotheses by examining the effects of board diversity, firm cultural diversity, and regional cultural diversity on ESG performance. This multi-level approach is particularly suitable for investigating ESG determinants, as it allows us to capture the complex and interconnected dynamics influencing ESG outcomes across different firm and institutional contexts. By considering diversity at multiple levels, our methodology provides a more comprehensive framework for understanding how governance structures and cultural factors shape ESG performance.

*ESG Score = f((Board gender token + Board gender critical mass + Board gender Blau index + Board age + Board nationality + Board qualification + Board size) + (Policy board diversity + Policy diversity and opportunity) + (Regional equality) + Control variable*s)

As a robustness check, we implemented several specifications of the *ESG score*, including the *ESG governance pillar*, *ESG social pillar, ESG environmental pillar*, and the *ESG combined score*, which incorporates data on controversies on ESG topics. These approaches are well-established in the literature on ESG performance, providing a comprehensive evaluation of the different dimensions of sustainability (*e.g.,* Fandella et al., 2023; Priem & Gabellone, 2024). Furthermore, we tested our hypotheses by analyzing each country individually (*i.e.*, Germany, Italy, France, and Spain) to account for potential national-level heterogeneity in institutional, cultural, and regulatory contexts. This methodological approach aligns with prior studies that emphasize the importance of disaggregating ESG performance to capture nuanced effects across different settings (*e.g.,* Gavrilakis & Floros, 2023; Odriozola et al., 2024).

3.5 Results

The value of variance inflation factors is 2.70, potential multicollinearity is not an issue (Shrestha, 2020). Table 2 reports the results of the panel regression analyses.

Table 2-Regression results

	Model 1	
	ESG score	**Standard error**
Micro level: Board diversity		
Board gender token	-0.690	(0.717)
Board gender critical mass	2.475***	(0.755)
Board gender Blau index	9.568***	(2.360)
Board nationality	2.708**	(1.302)
Board qualification	1.136**	(0.572)
Board age	0.032	(0.103)
Board size	0.493***	(0.082)
Meso level: Firm cultural diversity		
Policy board diversity	3.319***	(0.514)
Policy diversity and opportunity	5.650***	(0.814)
Macro level: Regional cultural diversity		
Regional equality	0.204*	(0.110)
Control variables		
Firm CSR sustainability committee	3.696***	(0.542)
Firm women executive	0.033*	(0.018)
Firm profitability	-0.013	(0.023)
Firm size	0.001***	(0)
Firm age	0.019*	(0.010)
Institutional quality	5.471***	(0.593)
Institutional impartiality	-0.710	(1.094)
Institutional corruption	-1.708	(1.146)
Knowledge intensive industry	-0.695	(1.096)
Constant	13.07	(8.842)
R^2 Between	0.4740	

*** p<0.01, ** p<0.05, * p<0.1

Micro level: Board diversity. *Board gender token* has a non-significant negative coefficient, indicating that the presence of only one woman on the board of directors does not have a significant impact on the firm's ESG score. The presence of at least three women on the board of directors, indicated by the *Board gender critical mass* variable, has a significant and positive impact on the ESG score, with a coefficient of 2.475 (p<0.001), suggesting that greater gender diversity on the board of directors is associated with better ESG performance. There is a strong positive relationship between the *Board gender Blau index* and the *ESG score* (with a coefficient of 9.568 and p<0.001). This implies that a more balanced representation of men and women on the board of directors improves ESG performance.

This aligns with existing literature, which views a single woman director as less competent and more symbolic. Our data suggests that having three women directors achieves the desired effect.

Accordingly, prior research has shown that when there are more women directors, barriers to minority views go down (Kanter, 2000), and outcomes are better when different groups interact (Wiersema & Mors, 2023). Our findings support the idea that supporting gender diversity is a good strategy to improve ESG performance.

With a coefficient of 2.708 (p<0.05), *Board nationality* has a positive and significant effect on the *ESG score*. This means that having more directors from different countries is linked to better ESG performance. This could imply that diversity in national backgrounds brings a variety of perspectives and experiences to the board, potentially leading to more comprehensive decision-making processes aligned with ESG principles.

Board education also exhibits a positive and significant effect on the ESG score, with a coefficient of 1.136 (p<0.05). A higher standard deviation of qualifications among directors is linked to better ESG performance. Diverse educational backgrounds and expertise among directors facilitate more informed and strategic decision-making that aligns with ESG goals.

Board age shows a positive but non-significant impact on the ESG score. While the coefficient is positive, it is not statistically significant, suggesting that the age of the board may not be a strong predictor of ESG performance.

Board size demonstrates a strong positive impact on the ESG score, with a coefficient of 0.493 (p<0.001). This implies that larger boards, potentially comprising a diverse set of perspectives and expertise, are associated with better ESG performance.

Meso level: Firm cultural diversity. Diversity policies have a significant and positive impact on the ESG score. *Policy board diversity* has a coefficient of 3.319 (p<0.001), suggesting that firms adopting diversity policies are more likely to achieve higher ESG performance, reflecting a commitment to inclusivity and varied perspectives within the decision-making processes. Similarly, *Policies diversity and opportunity* have a significant and positive impact on the ESG score, with a coefficient of 5.650 (p<0.001). This underscores that firms emphasizing diversity and equality of opportunity tend to outperform in ESG performance, indicating a correlation between inclusive policies and sustainable business practices. These findings emphasize the pivotal role of diversity and inclusion initiatives in fostering ethical governance and sustainable corporate performance.

Macro level: Regional cultural diversity. *Regional equality* (Regional culture of diversity) exhibits a positive and significant impact on the ESG score, with a coefficient of 0.204 (p<0.1). Regions with higher levels of gender equality may foster environments conducive to better ESG performance, highlighting the crucial role of diversity at the regional level in shaping firms ESG performance. Regions characterized by higher levels of equality may cultivate environments more conducive to superior ESG performance. Therefore, there is a connection between social norms, regional cultures, and corporate behavior.

Control variables. The presence of a *Firm CSR sustainability committee* shows a positive and significant effect, with a coefficient of 3.696 (p<0.001), suggesting that firms with dedicated CSR committees tend to exhibit better ESG performance. *Firm women executive* also demonstrate a positive and significant effect, with a coefficient of 0.033 (p<0.1), indicating that higher representation of women in executive positions is associated with improved ESG performance. *Firm profitability* exhibits a negative and significant effect on ESG performance, with a coefficient of -0.013 (p<0.05). *Firm size* shows a positive and significant effect on ESG performance, with a coefficient of 0.001 (p<0.001), indicating that larger firms tend to have better ESG performance. *Firm age* demonstrates a positive and significant effect on ESG performance, with a coefficient of 0.019 (p<0.1). *Institutional quality* of public services exhibits a strong positive effect on ESG performance, with a coefficient of 5.471 (p<0.001), suggesting that higher quality in public services is associated with better ESG performance. *Institutional impartiality*, *Institutional corruption*, and operating in a *Knowledge intensive industry* do not show statistically significant effects on ESG performance.

3.5.1 Robustness check

We test the robustness of findings by distinguishing the three categories of the *ESG score*: *ESG score governance pillar, ESG score social pillar,* and *ESG score environmental pillar* (Table 3). We also used a different measure of the ESG score, the *ESG combined score*, which considers the ESG controversies. Regarding board diversity, there are no significant differences compared to Model 1. Similarly, the use of board diversity policies and diversity and opportunity policies continues to demonstrate significant positive effects on ESG performance. All models find the change in regional cultural diversity to be non-significant. Finally, there are only a few changes in the magnitude and significance of the control variables on ESG performance.

Table 3-Robustness check

	Model 2 ESG score governance pillar	Model 3 ESG score social pillar	Model 4 ESG score environmental pillar	Model 5 ESG combined score
Micro level: Board diversity				
Board gender token	-3.305***	-0.806	-1.261	-1.725**
	(1.044)	(0.866)	(0.799)	(0.819)
Board gender critical mass	3.846***	2.652***	1.614*	3.166***
	(1.100)	(0.912)	(0.840)	(0.863)
Board gender Blau index	6.361**	14.310***	10.620***	12.550***
	(2.665)	(3.386)	(2.849)	(2.675)
Board nationality	4.029***	6.172***	5.466***	2.435
	(1.442)	(1.823)	(1.569)	(1.515)
Board qualification	1.148*	0.731	0.627	0.526
	(0.643)	(0.815)	(0.691)	(0.653)
Board age	0.153	-0.372**	0.128	0.171
	(0.115)	(0.145)	(0.124)	(0.119)
Board size	0.414***	-0.381***	0.395***	0.793***
	(0.091)	(0.115)	(0.099)	(0.097)
Meso level: Firm cultural diversity				
Policy board diversity	3.814***	7.521***	4.806***	2.207***
	(0.584)	(0.743)	(0.621)	(0.578)
Policy diversity and opportunity	8.611***	6.092***	8.852***	7.207***
	(0.927)	(1.181)	(0.983)	(0.910)
Macro level: Regional cultural diversity				
Regional equality	-0.0149	0.0789	0.0690	0.145
	(0.126)	(0.160)	(0.133)	(0.124)
Control variables				
	YES	YES	YES	YES
R^2 Between	0.2779	0.4718	0.4916	0.5109

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

As a further robustness test, we considered the impact of diversity at the three levels (*i.e.*, board diversity, firm cultural diversity, and regional cultural diversity) in every single nation under study (*i.e.,* Germany, Italy, France and Spain) (Table 4). Board diversity is the parameter that varies the most between nations, both in terms of sign and statistical significance. *Board gender token* does not generally have a significant effect on ESG performance. *Board gender critical mass* has a significant positive effect in Germany, but not in the other states. These results indicate that the number of women who improve ESG performance may vary across countries, necessitating further investigation. *Board gender Blau index* is positive and significant in all states except Spain.

Board nationality shows a significant positive effect only in France, while *Board qualification* is significant in Germany. *Board age* shows mixed results, with a significant positive effect in Italy but a negative one in France. Finally, *Board size* is positively significant in Germany and France, indicating that larger boards might contribute to better ESG performance.

These findings confirm that the effect of board diversity on ESG performance is context-dependent (Odriozola et al., 2024), national institutional and cultural contexts shape both the structure and the effectiveness of diverse boards. For instance, while France and Germany have implemented more binding quotas and enforcement mechanisms (*e.g.,* Copé-Zimmermann Law, Bundesgleichstellungsgesetz), Spain has adopted weaker incentives, and Italy is still consolidating its governance reforms. Such differences may influence how diversity translates into ESG outcomes.

These results show how complicated the effect of board diversity on ESG performance is. They also show how the usefulness of board-related factors changes depending on the country.

We can explain the variability in the results by considering the differences in cultural, regulatory, and institutional norms between the countries under study. For example, the positive effect of the critical mass of women on boards in Germany suggests that there are cultural or regulatory conditions in these countries that favor women's participation in leadership roles and their contribution to ESG performance. On the other hand, the absence of significant effects in Italy, Spain and France could indicate cultural or organizational barriers that limit women's influence.

ESG performance is more effective when supported by institutional legitimacy and internal governance mechanisms (Sandretto et al., 2025). Therefore, the same board configuration may lead to different outcomes depending on the country-specific context.

Furthermore, the variability in the effect of age, nationality, and qualifications of board members underlines the importance of considering national and regional specificities when assessing the impact of diversity on ESG performance. For example, the fact that nationality diversity is significant only in France could indicate that, in this specific context, the heterogeneity of international experiences brings added value to sustainable management, whereas in other countries, the same conditions do not apply. Several factors related to the board can have different effects on ESG performance in different countries. Such variability is because each country has its own institutions, culture, and rules.

This comparative approach helps to highlight how board diversity is not an inherently positive or negative element but rather a factor whose impact depends on local circumstances. Cross-country variability also reflects the uneven implementation of policies for diversity across Europe (Odriozola et al., 2024), reinforcing the need to avoid overgeneralizations in diversity-ESG research and to adopt more contextualized analytical strategies.

This comparative approach helps to highlight how board diversity is not an inherently positive or negative element but rather a factor whose impact depends on local circumstances.

Table 4-Robustness check

	Model 6 - Germany	Model 7 - Italy	Model 8 - France	Model 9 - Spain
	ESG score	ESG score	ESG score	ESG score
Micro level: Board diversity				
Board gender token	-1.244	1.713	0.833	-0.623
	(0.969)	(2.715)	(2.510)	(1.361)
Board gender critical mass	1.950*	1.032	2.483	1.889
	(1.159)	(2.476)	(1.537)	(1.566)
Board gender Blau index	10.290***	19.250**	13.280**	4.515
	(3.015)	(7.781)	(6.313)	(6.774)
Board nationality	0.981	0.0583	5.787***	1.696
	(2.123)	(3.381)	(2.150)	(3.079)
Board qualification	2.343*	0.460	0.576	0.015
	(1.215)	(0.925)	(1.234)	(1.203)
Board age	0.284	0.421*	-0.287*	-0.099
	(0.190)	(0.230)	(0.152)	(0.276)
Board size	0.595***	-0.056	0.520***	0.261
	(0.139)	(0.192)	(0.132)	(0.245)
Meso level: Firm cultural diversity				
Policy board diversity	2.462**	3.944***	2.171***	4.356**
	(0.988)	(1.189)	(0.705)	(1.768)
Policy diversity and opportunity	4.892***	4.692**	6.205***	8.881***
	(1.156)	(1.866)	(1.799)	(2.059)
Macro level: Regional cultural diversity				
Regional equality	0.782***	0.976**	0.494***	0.512**
	(0.282)	(0.435)	(0.144)	(0.217)
Control variables	YES	YES	YES	YES
Observations	1,104	511	979	433
Number firms	232	108	169	64
R^2 Between	0.5260	0.4786	0.5127	0.5833

*** p<0.01, ** p<0.05, * p<0.1

Despite these differences, policies promoting board diversity and broader diversity and opportunity policies consistently demonstrate significant positive effects on ESG performance across all countries. This evidence suggests that structured diversity policies can overcome national differences and enhance ESG outcomes.

Additionally, the regional culture of diversity is significant across all models, highlighting that a supportive regional environment for equality and diversity contributes positively to ESG performance. This consistency across national models demonstrates the value of both internal firm policies and external cultural factors in driving ESG success.

Finally, there are only a few changes in the magnitude and significance of the control variables with respect to ESG performance.

3.6 Discussion

At the micro level, our findings contribute to the growing body of research that explores the relationship between board diversity and ESG performance, aligning with both stakeholder theory and resource-based theory, as diverse boards integrate broader stakeholder perspectives and enhance firms' access to critical resources (J. B. Barney, 1996; Hoopes et al., 2003; Katmon et al., 2019; Shahab et al., 2022). At the micro level, our analysis confirms that board diversity positively influences ESG outcomes, emphasizing the importance of attributes such as gender, nationality, qualification, and board size. These characteristics not only enrich decision-making processes but also strengthen the board's ability to address sustainability challenges effectively (Galbreath, 2016; Barney et al., 1996).

One of the key insights from our study is the critical role of gender diversity on boards. Consistent with the token theory (Konrad et al., 2008), we find that having a single woman director does not significantly contribute to ESG performance (Abdelkader et al., 2024; Gull et al., 2023). In line with critical mass theory, gender diversity is beneficial only when at least three women are present on the board, mitigating tokenism and fostering meaningful engagement in ESG initiatives (Schwartz-Ziv, 2017; Torchia et al., 2011). According to previous studies, the presence of multiple women on boards also improves group dynamics, fostering trust, collaboration, and more inclusive decision-making processes (García-Meca et al., 2024; Schwartz-Ziv, 2017).

Nationality diversity similarly demonstrates a substantial and beneficial impact on ESG performance, particularly in the social and environmental dimensions. Directors from diverse cultural backgrounds offer a broader range of perspectives on sustainability issues and may help mitigate risks, such as environmental litigation (Y. Liu et al., 2024; Naciti, 2019).

According to previous scarce literature, qualification diversity is another important characteristic of board composition that affects ESG performance by encouraging creativity, bringing new ideas to the table, and improving the ability to make decisions (Fernández-Gago et al., 2018; L. Liu, 2024; Ramon-Llorens et al., 2021).

We find that larger boards tend to perform better in terms of ESG performance. This finding is consistent with prior research, which highlights that larger boards bring greater collective expertise, broader stakeholder representation, and better workload distribution, all of which contribute to more effective governance (Beji et al., 2021; Treepongkaruna et al., 2024).

The only diversity that is not significant is age. Age is often considered a key observable dimension of board diversity (Amin et al., 2025; Donkor et al., 2025), as different age groups bring distinct motivations, skills, and behaviors. Senior board members contribute experience, wisdom, and financial resources, while younger members tend to be more dynamic, open-minded, and innovative (Amin et al., 2025). However, the relationship between board age diversity and ESG performance remains inconclusive in the literature, with studies yielding contrasting results (Collevecchio et al., 2024; Ferraro et al., 2023; Gardiner, 2024). Some studies highlight age diversity positive effects, such as fostering diverse perspectives and improving decision-making (Ferraro et al., 2023), while others report negative impacts, citing communication challenges and slower decisions (Gardiner, 2024). Additionally, some find no significant relationship (Collevecchio et al., 2024). These findings highlight the complexity of this relationship and the need for further research. Donkor et al. (2025) suggest that generational cohort membership, rather than age diversity alone, may be a more relevant factor in understanding sustainability performance, as individuals are shaped by distinct historical and cultural contexts. These contrasting perspectives underscore the complexity of this relationship and highlight the need for further research. Importantly, these findings at the micro level do not stand in isolation. Rather, they interact with the broader organizational and contextual conditions explored in the meso and macro levels, reinforcing the idea that ESG performance is shaped by a constellation of mutually reinforcing diversity mechanisms.

At the meso level, our findings confirm that policies promoting board diversity and broader diversity and opportunity initiatives, which reflect firm cultural diversity, have a significant positive impact on ESG performance. This aligns with social integration theory, which emphasizes the importance of fostering inclusive environments where diverse groups of individuals feel valued and appreciated (Ramirez-Valles et al., 2010). According to this theory, socially integrated firm are better equipped to leverage the unique perspectives and experiences of their diverse workforce, enhancing collaboration, innovation, and decision-making. The implementation of robust diversity policies fosters an inclusive and equitable workplace, which, as highlighted by Kassinis et al. (2016), helps uncover effective organizational strategies for attracting and supporting employees of different backgrounds. These policies are instrumental in building a firm culture where employees can use their differences as an advantage, ultimately enhancing the firm's competitiveness and ESG performance.

Our empirical results suggest a complementary dynamic between micro and meso levels: firms with more diverse boards may be better positioned to design and implement effective diversity policies, while inclusive corporate cultures may in turn amplify the influence of diverse leadership on ESG outcomes.

Our results support the idea that regional cultural diversity has a big impact on ESG performance. This is in line with institutional theory, which says that societal norms, beliefs, and values shape how firms act (Mukherjee & Krammer, 2024; Scott, 1987). This theoretical framework provides a lens through which to understand how regional cultural contexts act as guiding principles, shaping firms' sustainability practices and aligning them with local stakeholder expectations (Esteban et al., 2017). Moreover, our study underscores the importance of conducting regional rather than national-level analyses to capture these dynamics. National averages often obscure critical regional disparities, as highlighted by Di Bella & Culotta (2023). These differences in territory, which have their roots in historical and socioeconomic factors, show how regional inequality affects how firms act and clarify that specific policy changes are needed. Regional cultural diversity has a big impact on ESG performance when looking at individual countries, but not when looking at the single ESG pillar. This evidence suggests that cultural diversity acts holistically, influencing overall ESG performance rather than each pillar separately (Atinc et al., 2022; Lemma et al., 2022). The governance pillar is likely more shaped by regulations, limiting the direct impact of cultural diversity, while social and environmental pillars are more responsive to societal norms but vary by industry and region, leading to weaker effects in aggregate models (Esteban et al., 2017; Luo & Tang, 2016).

These macro-level results offer important boundary conditions: regional cultures that support gender equality may create enabling environments in which both board diversity and firm-level inclusion policies become more effective. Macro-level diversity does not operate independently but rather strengthens or constrains the influence of micro- and meso-level diversity initiatives.

Taken together, our multilevel findings underscore the need to view diversity not as a set of discrete attributes but as a complex system of interrelated drivers that operate across organizational and institutional levels. The effectiveness of diversity initiatives depends not only on their internal design but also on how they resonate with broader firm cultures and societal norms. This integrated perspective advances both theoretical understanding and practical guidance on how to structure ESG-enhancing diversity strategies.

3.7 Conclusion

This study has several managerial and policy implications. One is the importance of promoting diversity and inclusion within corporate governance structures to enhance ESG performance. Our findings suggest that diversity should not be approached as a single-layer intervention but rather embedded across multiple levels. This approach entails implementing policies and initiatives to increase diversity across various dimensions, including board composition, workforce demographics, and firm culture. Firms should integrate diversity policies into their processes for selecting board members and develop training programs to foster inclusion and maximize the contribution of gender, age, and nationality differences. Managers and leaders can use the results of our study to design governance practices that promote diversity and enhance its impact on sustainable, long-term decisions. To ensure that diversity policies translate into tangible improvements, firms must implement structured mechanisms for tracking progress. Such actions can include setting measurable diversity targets, integrating diversity metrics into ESG reports, and establishing board-level committees dedicated to monitoring inclusion initiatives. Furthermore, firms can leverage external certifications and industry benchmarks to validate their efforts, fostering transparency and accountability in their diversity strategies. The implementation of diversity monitoring tools can improve the transparency and effectiveness of corporate strategies. Crucially, our findings indicate that cross-level mutual reinforcement enhances the effectiveness of diversity initiatives. This points out the need for proactive management strategies aimed at creating a more diverse, inclusive, and sustainable business environment. Diversity should be considered an integral part of corporate sustainability strategies.

The findings of this study can direct policymakers toward efforts that support diversity in corporate governance frameworks. Incentives for diversity can be created by regulators by requiring disclosure of board composition and diversity policies, similar to how firms already report on their sustainability. For instance, mandatory disclosure of diversity metrics in ESG reports, similar to the European Corporate Sustainability Reporting Directive, can incentivize firms to adopt more inclusive governance practices. Additionally, establishing compliance mechanisms, such as linking diversity performance to eligibility for government contracts or financial incentives, can encourage firms to prioritize diversity in governance. Furthermore, tax incentives or public recognition for firms that meet diversity benchmarks could further drive commitment to these initiatives. In contrast, firms that fail to demonstrate progress may face increased scrutiny, ensuring that diversity is not just symbolic. commitment but a core component of corporate governance. Policymakers may leverage this insight to tailor interventions that foster a more inclusive and equitable business environment, thereby enhancing overall ESG performance at both the meso (*i.e.*, firm level) and the macro level (*i.e.*, regional level). The multilevel structure of our analysis suggests that public policies should be both comprehensive and context-sensitive, aligning diversity incentives across governance, organizational, and territorial dimensions. The findings underline the need to support public policies that foster gender equality in firm contexts. For example, the introduction of tax incentives for firms that achieve specific diversity targets can be a powerful tool to strengthen the link between inclusive governance and sustainability. These results also highlight how crucial it is to consider regional cultural context when developing ESG practices and policies. Furthermore, this study encourages legislators to prioritize programs that advance inclusive workplace cultures and diversity in corporate leadership by emphasizing the beneficial effects of these factors on ESG performance. The regional cultural dimension, highlighted in the study, indicates that diversity policies should be adapted to local contexts, recognizing the variety of cultural and institutional barriers that may influence the effectiveness of initiatives.

The societal implications that emerged from the results of our study are particularly relevant, as they show that diversity in business contexts is not only an internal business issue but also represents a factor with a significant impact on society as a whole. In particular, the ability of diversity to positively influence ESG performance can help redefine public perceptions of the value of diversity and inclusion. As firms continue to navigate the complexities of sustainability and governance, diversity should be viewed not merely as a compliance requirement but as a strategic asset. Firms that actively integrate diverse perspectives into their leadership and operations are more likely to enhance innovation, strengthen stakeholder trust, and improve long-term financial performance.

The results of our study can be used to fuel awareness-raising campaigns that highlight the tangible benefits of diversity in terms of economic, social and environmental sustainability. The ability to demonstrate how diversity improves ESG outcomes can foster cultural change, strengthening public support for inclusion and equality policies. Furthermore, valuing diversity as a lever for sustainability could help reduce stereotypes and prejudices, promoting greater acceptance of plurality in firms and society. Finally, firms that adopt inclusive governance practices can become virtuous models, demonstrating that investing in diversity is not only ethically sound but also produces measurable benefits for all stakeholders, including society. This approach enhances the legitimacy of firms and positions them as key players in promoting a more equitable and sustainable future. In this sense, our study helps to underline the urgency of integrating diversity as a central element of corporate strategies and public policies, highlighting its transformative role in building a more inclusive and sustainable society.

Moreover, by embedding diversity into core business strategies, firms can contribute to addressing systemic societal challenges, such as inequality, social exclusion, and underrepresentation. When supported by enabling firm cultures and regional environments, inclusive firm practices serve not only internal stakeholders but also act as catalysts for broader institutional and cultural change, reinforcing democratic values and social resilience across regions and sectors.

Our study has some limitations. Our analysis focuses on listed firms in selected European Union countries. Because of Europe's strict rules and proactive approach to sustainable finance (Del Sarto, 2025), this choice makes sure that all the data is the same and shows that regulators are paying more attention to ESG issues. European research may have direct effects on European policymakers and regulators who are trying to change ESG practices (Ioannou & Serafeim, 2019). However, a more thorough comparison study that includes firms from outside of Europe would help us figure out if our results are because of the unique regulatory and institutional framework in Europe or if they are true in other places with different cultures and ways of running things. In the future, researchers could expand the study to markets outside of Europe to see if there are any differences in how diversity affects ESG performance in places with different legal systems, corporate governance models, and ESG regulatory approaches.

Despite our efforts, we acknowledge that our approach may not fully eliminate all sources of endogeneity. In particular, some unobserved time-varying factors could still influence both diversity and ESG performance. While instrumental variable techniques or dynamic panel methods (e.g., system GMM) could offer additional controls for endogeneity, their implementation in our context is constrained by the lack of strong and valid external instruments.

Future research could extend our findings by explicitly modeling cross-level interactions, for example through multilevel or structural equation modeling frameworks, to assess whether and how macro-level cultural contexts moderate the relationship between board or firm-level diversity and ESG performance. This approach would allow for a more nuanced understanding of how diversity operates as an interdependent, rather than additive, system.

Furthermore, future research should investigate additional dimensions of board diversity beyond those considered in this study. Factors such as tenure, executive vs. non-executive roles, industry expertise, and cognitive diversity could play a crucial role in shaping ESG performance but remain underexplored. These aspects could provide a more nuanced understanding of how governance structures influence corporate sustainability strategies.

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4 BUILDING TRUST, ONE TWEET AT A TIME: FAMILY FIRMS' CSR STRATEGIES IN THE DIGITAL ERA

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Abstract

This study investigates how family firms communicate corporate social responsibility (CSR) on social media, integrating legitimacy theory and the socioemotional wealth (SEW) perspective. Drawing on a unique dataset of 38,327 Twitter posts from 76 Italian listed firms between 2015 and 2022, it explores the impact of family involvement (in ownership and governance) and succession stage on CSR communication. Using Poisson panel regression models, the results reveal that family firms are more active than non-family firms in disseminating CSR content on social media, particularly when they have a structured succession plan and a long-term orientation. However, the relationship between family board involvement and CSR communication follows an inverted U-shaped pattern: moderate family participation on the board enhances CSR engagement, whereas higher family control reduces openness and transparency. Moreover, later-generation family firms exhibit a stronger propensity to use social media for CSR communication compared to founder-generation firms, highlighting the role of professionalization and stakeholder pressure across firm generations.

These findings enrich the understanding of how family-specific characteristics shape CSR strategies in the digital era, showing that social media act as a key tool to maintain legitimacy and strengthen stakeholder trust. The study offers practical implications for family firm leaders seeking to design effective CSR communication strategies, as well as for managers and policymakers aiming to promote transparency and accountability among family businesses. By linking family governance features to CSR communication dynamics, the research contributes to the ongoing discussion on how socioemotional wealth and legitimacy concerns interact to drive responsible behavior in family enterprises.

Keywords: CSR communication; family firms; twitter; social media

Note

A preliminary version of the study will be presented at the AiIG conference in 2026.

A preliminary version of the study was presented at:

- Second international conference on continuity in family business: preserving corporate heritage and legacy for long-term success (2025).

Submitted to Business Strategy and the Environment.

4.1 Introduction

The growing importance of social responsibility as a core firm strategy requires firms to leverage multiple channels to effectively communicate their corporate social responsibility (CSR) initiatives to stakeholders (Pérez & García De Los Salmones, 2023). These include sustainability reports, media ads, information disclosure on corporate websites, and social media posts (Barbeito-Caamaño & Chalmeta, 2020). In particular, social media offers novel opportunities, and firms increasingly use them, among web 2.0 tools, to enhance CSR communication and engage more effectively with stakeholders. This shift has transformed CSR communication from a one-way to a two-way interaction, allowing firms to increase transparency and engagement with stakeholders, which can consequently lead to a favorable assessment of the firms' image and reputation, ultimately cultivating stakeholders' trust in the short and long run (Farache et al., 2018). Prior research highlights that family firms tend to be more attentive to stakeholder perceptions and reputation management in their CSR communication, given their embeddedness in local communities and intergenerational orientation (Cennamo et al., 2012; Sageder et al., 2018). This suggests that social media can play a strategic role in reinforcing trust and legitimacy in family firms' stakeholder relationships.

The aim of this study is to investigate the family-related factors that affect listed family firms' use of social media to engage with their stakeholders. It also looks into the factors that influence how much CSR information is shared on social media, with a particular emphasis on family firms' characteristics.

Based on previous studies (Klein et al., 2005; Litz, 2008), we argue that the crucial issue is understanding how different family firm characteristics shape CSR strategies and stakeholder relations. CSR communication in family firms is in fact strongly influenced by factors such as family involvement (in ownership and governance) and succession stage (Graves & Thomas, 2008). These features determine the extent to which family firms leverage social media to engage stakeholders, safeguard reputation, and reinforce legitimacy over time.

To understand the family firms' strategies in CSR communication on social media we develop a theoretical framework that combines legitimacy theory and socioemotional wealth (SEW) theory. In brief, legitimacy theory argues that firms share CSR information to secure stakeholder approval and justify their actions (Haniffa & Cooke, 2005; Radwan & Russo, 2024). Within this communication process, the SEW perspective emphasizes the significance of the non-financial value that CSR communication on social media brings to family firms (Cennamo et al., 2012). This theoretical framework allows us to discuss how family firms not only seek to maintain their social legitimacy, but also to cultivate strong relationships with stakeholders and to preserve long-term orientation, intrinsic drive to behave responsibly, their image and reputation, which are fundamental elements for their long-term success.

We test our theoretical model with a dataset of 38,327 Twitter posts from the universe of 76 Italian listed firms that have a Twitter account. Twitter was chosen as it is one of the three most widely used social media for information sharing and stakeholder engagement (Pons et al., 2021). The data collection period spanned from January 2015 to December 2022 leading to a dataset that is heterogeneous regarding the degree of family involvement (in ownership and governance) and succession stage.

When examining the impact of family involvement (in ownership and governance) and succession stage, it is found that being a family firm influences CSR communication on social media positively. The presence of family members on the board of directors supports an inverted U-shaped relationship with CSR communication on social media. The presence of a succession plan positively influences CSR communication on social media, particularly in governance and social areas. The generational stage plays a crucial role, with later-generation family firms displaying a greater propensity to communicate CSR on social media, while founder-generation firms exhibit a more cautious and selective approach.

In several aspects, this paper contributes to the existing knowledge in the field. This research is the first study to investigate the propensity of family firms to commit to CSR communication on social media within the broader conceptual framework of legitimacy theory and SEW theory. Second, our study investigates how family involvement (in ownership and governance) and succession stage influence CSR communication, recognizing that their effects can differ depending on the characteristics of family firms (Miller & Le Breton–Miller, 2014). Third, although most prior research has concentrated on CSR communication in more conventional settings, including newspapers or firm websites, this article presents fresh data and analysis on the topic of CSR communication on social media platforms.

4.2 Theoretical background

4.2.1 Stakeholder engagement and legitimation in family firms

Literature offers diverse explanations for why firms engage in CSR communication. This study adopts and integrates legitimacy theory and SEW theory.

Legitimacy theory[2] provides a valuable and complementary theoretical lens by acknowledging that firms function within a social agreement that connects the acceptance of their goals to behavior that aligns with societal values (Deegan, 2002). Firms strive to synchronize their actions with the values of their stakeholders (Haniffa & Cooke, 2005; Radwan & Russo, 2024), as any discrepancies between societal standards and the principles upheld by the firm creates a credibility deficit (Radwan & Russo, 2024). Not adhering to established standards of acceptability puts a firm's legitimacy, resources, and durability at risk (Oliver, 1991). Therefore, it is crucial to ensure that the firm's activities are in line with the expectations of stakeholders to gain the legitimacy of the firm's actions in the eyes of stakeholders. Firms, in fact, rationalize and validate their actions towards stakeholders and their commitment to social responsibility by revealing CSR information (Cho et al., 2012; Radwan & Russo, 2024). Legitimacy theory suggests that this practice aligns with society's assessment of what is acceptable and desirable (Cho et al., 2012). In other words, firms share CSR information to obtain validation of their actions from stakeholders, thereby providing reassurance that their activities align with social standards and expectations.

Yet, this process of legitimization in the eyes of stakeholders is not uniform across firms: it depends on the firm's specific characteristics, which ultimately shape how CSR is communicated (Du et al., 2010). Family firms have distinct and notable attributes that set them apart from non-family firms in the perspective of external stakeholders (Panwar et al., 2014). These attributes can significantly influence the firms' CSR communication strategies, the way stakeholders assess CSR communication and the perceptions that stakeholders develop about the firms. CSR communication in family firms has been thoroughly examined using socioemotional wealth (SEW) theory (Campopiano & De Massis, 2015) which emphasizes the significance of non-economic usefulness in influencing the actions and behaviors of family firms (Morgan & Gomez-Mejia, 2014; Prencipe et al., 2014). SEW refers to the collection of values associated with emotions that the family obtains

[2] Legitimacy is defined as *a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially-constructed system of norms, values, beliefs and definitions* (Suchman, 1995).

from owning and managing their firm (Morgan & Gomez-Mejia, 2014). The SEW construct comprises various aspects, including the family's inclination to exert authority over the firm, its sense of belonging to the firm, close social connections among family members, emotional bonding of family members, and the reestablishment of the family's ties to the firm through hereditary succession (Cennamo et al., 2012; Morgan & Gomez-Mejia, 2014). Indeed, while family firms wish to gain a long-term competitive advantage, to pass on a healthy firm to the later-generation, and to maintain the family's image and reputation, non-family firms are more interested in complying with legal standards and achieving short-term goals related to profit and maintaining market share (Dangelico & Pontrandolfo, 2015).

In summary, legitimacy theory posits that firms disclose CSR information to gain stakeholders' approval and legitimize their actions. Within this communication dynamic, the SEW perspective emphasises the non-economic value that CSR communication holds for family firms.

4.2.2 CSR communication through social media

Most firms communicate CSR through their traditionally issued annual reports and websites, considered among the most important, widely used, and reliable methods of communication with stakeholders; yet, nowadays, firms also utilize web 2.0 applications such as photo and video sharing sites, blogs and social media to continuously engage with stakeholders (Radwan & Russo, 2024). Specifically, firms are actively pursuing methods to improve the quality of their CSR communication on social media to better engage with and meet the expectations of new stakeholders (Kent & Taylor, 2016). Social media, in fact, have revolutionized how CSR-related information is disseminated, and manages stakeholder interactions, transitioning from a unidirectional to a two-way process (Barbeito-Caamaño & Chalmeta, 2020). While firms leverage online social media to communicate their CSR activities, enhance corporate reputation, and gain the necessary authorization (Radwan & Russo, 2024), stakeholders use these platforms to share their opinions and insights on CSR matters (Barbeito-Caamaño & Chalmeta, 2020).

On the one hand, online social networks are ideal for CSR communication, as they facilitate interaction with stakeholders, enabling firms to understand their needs and take appropriate actions (Barbeito-Caamaño & Chalmeta, 2020). On the other hand, stakeholders can access more information about firms' CSR practices through social media, beyond what the firms and their interest groups willingly disclose. As such, public relations strategies used to communicate CSR on social media create new opportunities for genuine dialogue and stakeholder engagement (Kent & Taylor, 2016). When stakeholders perceive the firm's limited control over the communication channel, they are more likely to find the CSR message credible (Kent & Taylor, 2016). Hence, firms would utilize social media to effectively convey their CSR initiatives, thereby assuring stakeholder attention, and especially consumer trust (Kollat & Farache, 2017).

For family firms, it is particularly important to communicate CSR activities to their stakeholders since socio-emotional wealth plays a crucial role (Cabeza-García et al., 2017). Family firms tend to take a long-term view and engage in a two-way dialogue with their stakeholders (Memili et al., 2018). Effective CSR communication on social media can significantly contribute to improving a family firm's image and reputation (Sageder et al., 2018). Interacting with stakeholders not only enhances trust and transparency but also allows family firms to better align their activities with community and market expectations, thus consolidating their position and sustainability in the long run (Cabeza-García et al., 2017). CSR communication on social media is crucial for establishing legitimacy (Radwan & Russo, 2024) because of the alignment between a firm's actions and statements and the expectations and approval of stakeholders. This is particularly relevant in family firms that, to preserve SEW, are driven to behave responsibly, link with stakeholders, and care about image and reputation.

4.3 Hypothesis development

4.3.1 Family firms and CSR communication on social media

Family firms aim to ensure the continuation of labor, safety, and profit for future generations by making long-term investments, such as adopting a sustainability strategy (Memili et al., 2018). Also, family firms want to strengthen the stability of the relationship with stakeholders and promote the maintenance of special ties with the firm through long-term relational strategy based on trust, cooperation, and communication (Stanley & McDowell, 2014). This strategy includes a strong presence and tight ties within the community, a focus on long-term goals, increased consideration and favorable treatment of employees, recognition of family values, and building trusting relationships with suppliers and employees. By taking a long-term view, firms participate in CSR initiatives and ensure effective communication through social media channels as part of stakeholder engagement (Jo & Harjoto, 2011). In this way, leveraging digital platforms complements traditional communication methods, reinforcing transparency and fostering enduring relationships.

Second, the family prioritizes being recognized as a positive contributor to society, legitimizing its position in society (Cruz et al., 2014; Shepherd, 2016). The family's influence in decision making can therefore lead to choices and actions that are more socially responsible (Dyer & Whetten, 2006). This prosocial motivation reflects the desire to support, protect, or enhance the well-being of stakeholders and to address social issues that go beyond the firm's immediate interests (Cruz et al., 2014). Furthermore, family firms actively leverage social media platforms to showcase their responsible actions and engage with a broader audience, reinforcing their CSR commitment. The societal orientation of family firms stems from their role as active and deeply embedded members of the local community, as well as their enhanced digital communication that connects them with both local and distant stakeholders (Shepherd, 2016).

Third, family firms actively pursue relationships to establish and sustain strong ties with internal and external stakeholders more frequently than non-family firms (Venturelli et al., 2021). According to legitimacy theory, family firms gain support and legitimization of key stakeholders by demonstrating proactive and positive social performance (Cennamo et al., 2012; Nekhili et al., 2017). CSR implementation fosters stakeholder trust and enables the firm to cultivate positive ties with its key stakeholders (Park et al., 2014). Therefore, the dissemination through communication on social media of a family firm's environmental and social activities can be seen as unbiased, which in turn reduces stakeholder doubts and legitimizes the firm's actions, thus helping preserve SEW.

Fourth, reputation and image are crucial for family firms (Sageder et al., 2018), who desire to maintain both the family's and the firm's reputation strong within the community (Miller & Le Breton–Miller, 2014). Maintaining a strong image and reputation aligns with the family's goal of building a resilient firm to pass on to future generations (Cruz et al., 2014). The need to protect the family and the firm's reputation creates an awareness of how external stakeholder perceive the family's decision-making role within the firm (Zellweger et al., 2012). Moreover, preserving the firm's reputation positively reinforces the identities of family members (Mahto et al., 2010). Preserving a strong reputation and image, along with the tight connection with the community, are the driving forces that can motivate a family firm to adopt socially responsible practices (Cruz et al., 2014).

By utilizing digital channels and social media platforms, family firms ensure a wider and more immediate dissemination of their CSR initiatives, thereby strengthening stakeholder perceptions and enhancing their external image. This proactive initiative would lead family firms to enhance their CSR performance, providing additional value for firms (Lamb & Butler, 2018). For this reason, CSR communication is essential to improve the image and reputation of the family firm in the eyes of stakeholders and legitimize the firm's action.
Consequently, we hypothesize that:

HP 1. Being a family firm favors the propensity to CSR communication on social media.

Scholars increasingly emphasize the importance of considering specific family-related characteristics when examining family firms (Memili & Dibrell, 2019; Daspit et al., 2018). Building on this perspective, we propose a framework that links family involvement in ownership and governance, as well as the succession stage, to family firms' propensity to engage in CSR communication on social media.

Family involvement in the board. Existing literature offers mixed results on the relationship between family members' involvement in the board of directors and CSR communication. Some studies suggest that a higher family involvement in the board favors CSR communication, also on social media, as family members seek to enhance the firm's image and positive distinctiveness in order to protect their SEW (Kidwell et al., 2024; Sun et al., 2024). This typically occurs through greater attention to reputational issues, the promotion of values associated with the family legacy, and proactive engagement in socially responsible initiatives that can be showcased publicly to reinforce trust and legitimacy among stakeholders (Sun et al., 2024). Others highlight that high family involvement may reduce transparency and propensity to disclose CSR information due to the tendency of family firms to preserve internal control and avoid excessive public exposure, also on social media (Sun et al., 2024; Venturelli et al., 2021). This evidence suggests that the relationship between family board participation and CSR communication on social media might follow a non-linear pattern. We argue that in firms with a low family involvement in the board, CSR communication is stimulated by more formalized governance and attention to stakeholder expectations (Stock et al., 2024). With an intermediate level of family participation, a balance occurs between the desire to protect family identity and the need to maintain a positive reputation, leading to a higher propensity for CSR communication on social media (Aragon-Amonarriz et al., 2025; Kidwell et al., 2024). However, when family members dominate the board, the need for control and resistance to transparency may inhibit CSR disclosure through social media, instead favoring more confidential and direct forms of communication (Kidwell et al., 2024). Consequently, we hypothesize that:

Hp 2. There will be an inverted U-shaped relationship between family involvement in the board of directors and the propensity towards CSR communication on social media.

Succession plan. The family exhibits a long-term orientation and commitment to transfer their firm to future generations (Bannò et al., 2022). Transgenerational control is considered a significant element of SEW (Zellweger et al., 2012). Succession, a prominent feature and an important milestone for family firms, has garnered considerable attention due to its impact on CSR communication (Stübner & Jarchow, 2023). Several studies suggest that family firms are inherently inclined to adopt a long-term perspective, focusing on the needs of future generations (*e.g.,* Laguir et al., 2016). This inclination stems from the fact that planning for firm continuity involves investing in the future and ensuring stability for subsequent generations. This long-term orientation not only promotes the firm's sustainable growth but also strengthens trust among employees, customers, and other stakeholders. As such, dynastic succession is associated with greater CSR engagement and communication, also on social media (Marques et al., 2014). Consequently, we hypothesize that:

HP 3. The presence of a succession plan favors the propensity towards CSR communication on social media.

Generational stage. Family firms spanning multiple generations tend to develop an increasing propensity for CSR communication on social media, as their long-term survival is closely linked to building and maintaining a solid reputation (Izzo & Ciaburri, 2018; Stock et al., 2024). The literature points out that transgenerational family firms show a strong long-term orientation, with strategies to ensure the firm's continuity and preserve family honor (Nekhili et al., 2017; Venturelli et al., 2021). In this context, CSR communication can be seen as an essential tool to strengthen the perception of responsible firms, primarily through digital channels that facilitate direct engagement with stakeholders (Stock et al., 2024). In addition, generational transition is often accompanied by a process of professionalization, including an increased focus on transparency and corporate communication practices (Aragon-Amonarriz et al., 2025), leading to a more strategic use of social media to communicate CSR initiatives. As the firm grows and becomes more structured, stakeholder relations become more complex and formal (Aragon-Amonarriz et al., 2025), increasing the need for effective and accessible communication tools. In addition, long-lasting family firms tend to develop more social capital, consolidating ties with the local community, customers and employees (Aragon-Amonarriz et al., 2025) reinforcing the pressure to publicly demonstrate their social and environmental commitment, and making CSR communication on social media a key lever to maintain legitimacy and community support over time (Venturelli et al., 2021). Overall, the interplay between transgenerational control, professionalization and stakeholder pressure suggests that the longer a family firm is active, the greater its propensity to use social media to communicate its CSR initiatives. Consequently, we hypothesize that:

HP 4. Later-generation family firms show a higher propensity to communicate CSR on social media compared to founder-generation family firms.

Family involvement in the board and generational stage. The generational evolution of family firms shapes the way governance structures influence strategic decisions such as CSR communication on social media. Family involvement in the board represents a key governance mechanism through which families express control and transmit values across generations (Stock et al., 2024). However, the impact of such involvement on CSR communication on social media is not stable over time but depends on the generational stage of the firm.

From a SEW perspective, the founder-generation typically prioritizes firm survival and financial stability, concentrating decision-making power within the family board. This strong internal control may limit openness and the use of social media for CSR communication, as founders often rely on personal relationships and informal reputation mechanisms to preserve legitimacy (Aragon-Amonarriz et al., 2025; Stock et al., 2024). In these firms, greater family involvement on the board

may thus reduce external transparency, dampening the positive effect of family presence on CSR communication.
In contrast, later-generation family firms are generally more institutionalized and professionalized. They face stronger external scrutiny and stakeholder expectations, which heightens their need to communicate CSR strategically and transparently (Stock et al., 2024). As family members become less involved in daily management, CSR communication on social media becomes an important means to maintain family identity and legitimacy (Izzo & Ciaburri, 2018). In these contexts, moderate family involvement on the board can strengthen coordination between family and non-family managers, amplifying CSR communication efforts. Therefore, the generational stage moderates the relationship between family board involvement and CSR communication on social media. Specifically, the positive effect of family involvement is weaker in founder-generation firms, where higher control limits transparency and stronger in later-generation firms, where professionalization and external orientation reinforce the communication of CSR initiatives.
Consequently, we hypothesize that:

HP 5. The inverted U-shaped relationship between family board participation and CSR communication on social media is moderated by generational stage: the effect is weaker in founder-generation firms and stronger in later-generation family firms.

4.4 Data and Method

4.4.1 Data and variables

Our study focuses on the population of Italian listed firms with a Twitter account. Italy is an appropriate setting because family firms play a significant role in the country's entrepreneurial scene. In Italy, family firms are highly prevalent, including over 90% of firms in the country and accounting for 75% of employment and generating 80% of the GDP (Amato et al., 2024).
Furthermore, our sample is heterogeneous in terms of the degree of family involvement (in ownership and governance) and the stage of succession. This diverse composition provides an engaging environment to examine how different aspects of the family firm influence the propensity to communicate CSR on social media.

We have chosen Twitter as the preferred social media platform, as it stands out as one of the earliest platforms firms use for public disclosures (Farkas & Keshk, 2019). Additionally, it has the highest adoption rate for firm disclosures, surpassing platforms like Facebook (Farkas & Keshk, 2019). Twitter's prominence is further underscored by its reputation as the leading platform for investor relations. We discovered the Twitter accounts of the Italian listed firms by scanning their websites and Twitter accounts. In selecting the sample of 76 firms, we considered the universe of Italian listed firms with Twitter accounts (Ngai & Singh, 2021). Subsequently, we obtained tweets from the specified accounts using the Twitter application programming interface. 38,327 tweets were retrieved, spanning from January 2015 to December 2022.

The final dataset results from a merging process of the following datasets: Twitter, Boardex, Thomson Reuters, ORBIS (Bureau Van Dijk), and firms' financial, non-financial reporting and governance disclosure. Table 5 reports the definitions and sources of the dependent, independent, and control variables.

Table 5-Variables definitions

Variable	Definition	Source
Dependent variables		
Tweets CSR	Total number of tweets made by the firm on the topic CSR.	Twitter
Tweets environmental	Total number of tweets made by the firm on the topic environmental.	Twitter
Tweets social	Total number of tweets made by the firm on the topic social.	Twitter
Tweets governance	Total number of tweets made by the firm on the topic governance.	Twitter
Independent variables		
Family firm	Dummy variable is equal to 1 if family members hold at least 30% of the property at least one family member is on the board; otherwise, it is 0.	Financial, non-financial reporting and governance disclosure
Family involvement in the board	Percentage of family members on the board.	Financial, non-financial reporting and governance disclosure
Family involvement in the board square	Percentage of family members on the board squared.	Financial, non-financial reporting and governance disclosure
Succession plan	Dummy variable is equal to 1 if there is a succession plan, otherwise 0.	Financial, non-financial reporting and governance disclosure
Generation	Generation number the family arrived.	Financial, non-financial reporting and governance disclosure
Founder generation	Dummy variable is equal to 1 if the family firm is at first generation, otherwise 0.	Financial, non-financial reporting and governance disclosure
Later generation	Dummy variable is equal to 1 if the family firm is not at first generation, otherwise 0.	Financial, non-financial reporting and governance disclosure
Control variables		
Board gender diversity	Variable with value from 0, when there is only one gender on the board, to 0.5, when the board has an equal number of women and men.	BoardEx
Board size	Number of Directors.	BoardEx
Sustainability commitment	Dummy variable is equal to 1 if a firm signed the UN Global Compact, and 0 otherwise.	Thomson Reuters
CSR commitment	Dummy variable is equal to 1 if the firm has a CSR committee or team, and 0 otherwise.	Thomson Reuters

ESG combined score	Score from 0 to 100 represents the ESG performance of a firm considering the ESG controversies.	Thomson Reuters
Tweets not CSR	Total number of tweets made not on the topic CSR.	Twitter
Firm size	Number of employees.	ORBIS
Firm age	Number of years since firm foundation.	ORBIS
Firm profitability	Income on total assets.	ORBIS
Industry	Dummy variable is equal to 1 if a firm operates in a manufacturing with a high level of knowledge, and 0 otherwise.	ORBIS

Dependent variables. The dependent variable is measured by the total number of tweets the firm makes on the topic of CSR. Based on their content, we manually classified the tweets from 2015 to 2022 as CSR-related or non-CSR-related. The CSR-related keywords identified in the literature are categorized into three main categories: economic and governance, ethic and social, and environment (Okazaki et al., 2020). The economic and governance category includes terms associated with financial and governance-related aspects[3]. The ethical and social category encompasses terms related to ethics and social issues[4]. Keywords are essential for highlighting content that discusses social welfare, community development, and social justice. The environmental category focuses on terms associated with environmental aspects[5]. We also analyzed the relevant hashtags as they are a key indicator to identifying the topics covered in the tweets and understanding their context within CSR[6].

Independent variables. Consistent with our theories, we define *Family firm* from two perspectives: family involvement in ownership and in board positions (Cascino et al., 2010). We consider a family firm where two conditions existed simultaneously (Cirillo et al., 2017). First, one or more family members (related through blood or marriage) had to control at least 30% of voting rights, and second, one or more family members had to be involved in the board of directors (Cirillo et al., 2017). The proportion of family representatives serving on the board of directors (variable *Family involvement in the board*) is used as an indicator for the governance structure (Carney, 2005). And in particular, *Family involvement in the board square* is *Family involvement in the board* square. The variable *Succession plan* is a binary value, assigned a value of 1 if there is a succession plan and 0 if there is no succession plan (Mokhber et al., 2017).
Generation is a numeric variable indicating which generation the family firm management has reached (Sonfield & Lussier, 2004).

[3] For example, terms involve keywords such as financial aid, financial support, foreign aid, microfinance, credit, microcredit, entrepreneurship, monetary aid, donation, charity, and scholarship. These keywords help identify content that pertains to financial assistance and economic and governance activities.

[4] For example, terms involve keywords such as socially responsible, fair trade, transparency, human rights, ethics, philanthropy, working conditions, health, safety, consumer protection, labor standards, volunteering, collaboration, solidarity, social exclusion, equality, discrimination, education and community.

[5] Keywords like environment, CO2, emission, and renewable are used to identify content related to environmental protection, climate change, and the promotion of renewable resources.

[6] For example, #green, #zeroemissions, #fundraising, and #energytransition were considered signals of content relevant to environmental, social, or governance aspects.

Founder generation and *Later generation* are two dummy variables used to distinguish between founder-generation family firms and those that have already experienced a generational transition.

Control variables. Two variables were selected to measure the degree of board diversity. *Board gender diversity* represents the degree of gender diversity on the board[7], with higher values indicating greater gender equality (Collins & Blau, 1979). *Board size,* measured by the total number of directors, represents diversity in a broader sense, as a large number of board members can ensure diversity (Agnese et al., 2024). Three variables were selected to measure the commitment and performance in sustainability. The UN Global Compact is the most prominent international initiative that addresses multinational firms' social and environmental obligations through voluntary global governance (Voegtlin & Pless, 2014). Thus, we regard Global Compact Signatory as representatives of a firm's sustainability efforts and *Sustainability commitment* is a dummy variable equal to 1 if a firm signed the UN Global Compact, and 0 otherwise. Recent research has examined the presence of a *CSR commitment* as an important component of board governance, specifically about sustainability performance (Hussain et al., 2018). *ESG combined score* represents the overall score of a firm's ESG performance, and it also considers ESG controversies (Gregory, 2024). *Tweets not CSR* is the total number of tweets not on CSR topics. *Firm size*, represented by the number of employees, and *Firm age* are proxies for organizational complexity (Agnese et al., 2024) and the firm's experience (Srivastava & Gnyawali, 2011). Older firms may have more established processes and a deeper understanding of their operations, which can influence their ability to use social media for CSR communication. *Firm profitability* is measured by Return on Assets (Jiang et al., 2021). Higher profitability may provide the financial stability and resources needed to invest in CSR communication on social media. The variable *Industry* is a binary indicator that determines whether a firm operates in a manufacturing field requiring a high knowledge level. The nature of the industry can significantly impact a firm's engagement with CSR communication on social media.

4.4.2 The econometric model

The estimated model assesses the impact of family firm characteristics on the propensity to tweet on CSR topics, controlling for firm-specific effects. The model assesses the separate impact of family structure (*i.e.*, the presence of both ownership and family members on the board of directors), succession plan, and generational stage on the propensity to tweet on CSR topics. To account for the potential issue of endogeneity, we choose all independent variables with a lag of one year (Ashwin et al., 2015; Liang et al., 2013). Random effects were used because random-effects estimators are more efficient than fixed-effects estimators when dealing with a large population of observations and multiple panels of data[8] (Hilbe, 2011). The Hausman test confirms the validity of this decision. Poisson panel regression model estimates the propensity to tweet on CSR topics based on the count nature of the dependent variable (Greene, 2011; Wooldridge, 2010). To test hypothesis 1, 3 and 4 we use model 1:

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[7] Blau Index=1- $\sum_{i=1}^{n} P_i^2$ where *Pi* is the percentage of each gender on the board and *i* = (1, 2) is the number of genders (*i.e.,* men and women). This indicator can have values between 0 and 0.5, which represent the presence of one gender on the board and equal representation of men and women, respectively.

[8] Weisbach & Hermalin (2000) state that a board of directors is internally established. When the exogeneity conditions are not satisfied, the estimation of initial differences and fixed effects becomes unreliable. Fixed effects estimators in board structure analysis are biased because they do not consider the influence of firm performance on the existing board structure (Wintoki et al., 2012). Furthermore, it is fundamental for a firm to patiently await a specific duration to carefully assess any performance improvements after implementing a corporate governance structure (Haniffa & Cooke, 2005).

Model 1: *Propensity to tweet on CSR = f (Family firm; Succession plan; Generation; Control variables)*

To test hypotheses 2 we use model 2 and 3:

Model 2: *Propensity to tweet on CSR = f (Family involvement in the board; Succession plan; Generation; Control variables)*
Model 3: *Propensity to tweet on CSR = f (Family involvement in the board; Family involvement in the board square; Succession plan; Generation; Control variables)*

To test hypotheses 5 we use model 4, 5, 6 and 7:

Model 4: *Propensity to tweet on CSR = f (Family involvement in the board; Founder generation; Family involvement in the board square; Succession plan; Control variables)*
Model 5: *Propensity to tweet on CSR = f (Family involvement in the board*Founder generation; Family involvement in the board square*Founder generation; Succession plan; Control variables)*
Model 6: *Propensity to tweet on CSR = f (Family involvement in the board; Later generation; Family involvement in the board square; Succession plan; Control variables)*
Model 7: *Propensity to tweet on CSR = f (Family involvement in the board*Later generation; Family involvement in the board square*Later generation; Succession plan; Control variables)*

We consider the tweets made in the individual categories Environment, Governance and Social as a robustness check.

4.5 Empirical findings
4.5.1 Descriptive statistics
The variance inflation factors (VIF) value is under 2 in all models, and there is no concern regarding multicollinearity among variables (Shrestha, 2022).
Table 6 displays comprehensive descriptive information for the full sample.

Table 6-Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Tweets CSR	532	52.350	199.472	0	2,978
Tweets environmental	532	14.925	44.083	0	426
Tweets governance	532	11.927	28.066	0	222
Tweets social	532	25.498	163.118	0	2,669
Family firm	532	0.300	0.459	0	1
Family involvement in the board	532	6.772	11.216	0	45.454
Family involvement in the board square	532	171.431	359.980	0	359.980
Succession plan	532	0.115	0.319	0	1
Generation	532	0.691	1.141	0	5
Founder generation	532	0.161	0.368	0	1
Later generation	532	0 .193	0.395	0	1
Board gender diversity	532	0.429	0.093	0	0.5
Board size	532	11.203	3.654	3	28
Sustainability commitment	532	0.233	0.423	0	1
CSR commitment	532	0.831	0.375	0	1
ESG combined score	532	54.317	17.675	6.716	91.801
Tweets not CSR	532	212.353	752.523	0	6,403
Firm size	532	12,250.550	22,867.420	12	139,469
Firm age	532	61.714	74.628	0	549
Firm profitability	532	5.127	6.959	-22.890	38.945
Industry	532	0.724	0.448	0	1

4.5.2 Econometric results

Table 7 reports the results of the multiple panel regression analyses.

Table 7-Regression results

Variables	Model 1 Tweets CSR	Model 2 Tweets CSR	Model 3 Tweets CSR	Model 4 Tweets CSR	Model 5 Tweets CSR	Model 6 Tweets CSR	Model 7 Tweets CSR
Independent variable							
Family firm	4.244***						
	(0.994)						
Succession	1.035***	0.790***	0.282	0.285	-0.416*	0.284	-0.340
	(0.157)	(0.166)	(0.196)	(0.195)	(0.236)	(0.195)	(0.235)
Generation	1.331***	1.573***	1.390***				
	(0.0913)	(0.109)	(0.113)				
Family involvement in the board		0.297***	1.616***	1.607***	0.995***	1.611***	2.632***
		(0.0238)	(0.124)	(0.124)	(0.131)	(0.124)	(0.226)
Family involvement in the board square			-0.0278***	-0.0275***	-0.0203***	-0.0276***	-0.0460***
			(0.00261)	(0.00261)	(0.00345)	(0.00261)	(0.00454)
Founder generation				-1.417***	-29.15***		
				(0.113)	(2.407)		
Founder generation*Family board member					1.915***		
					(0.201)		
Founder generation*Family board member square					-0.0312***		
					(0.00458)		
Later generation						1.406***	25.80***
						(0.113)	(3.543)
Later generation*Family board member							-1.648***
							(0.293)
Later generation*Family board member square							0.0260***
							(0.00635)
Control variables							

Board gender diversity	-0.654***	0.0372	0.112	0.102	0.334	0.106	0.313
	(0.211)	(0.219)	(0.223)	(0.223)	(0.226)	(0.223)	(0.226)
Board size	0.138***	0.142***	0.144***	0.144***	0.145***	0.144***	0.145***
	(0.00421)	(0.00424)	(0.00425)	(0.00425)	(0.00425)	(0.00425)	(0.00425)
Sustainability commitment	0.245***	0.235***	0.238***	0.238***	0.234***	0.238***	0.235***
	(0.0350)	(0.0350)	(0.0350)	(0.0350)	(0.0351)	(0.0350)	(0.0351)
CSR commitment	-0.650***	-0.613***	-0.625***	-0.624***	-0.625***	-0.625***	-0.626***
	(0.0301)	(0.0303)	(0.0303)	(0.0303)	(0.0302)	(0.0303)	(0.0302)
ESG combined score	0.0298***	0.0298***	0.0297***	0.0297***	0.0296***	0.0297***	0.0296***
	(0.000807)	(0.000809)	(0.000808)	(0.000808)	(0.000808)	(0.000808)	(0.000808)
Tweets not CSR	-2.26e-06	1.64e-05	7.55e-06	7.80e-06	6.94e-06	7.67e-06	6.48e-06
	(1.95e-05)	(1.96e-05)	(1.96e-05)	(1.96e-05)	(1.95e-05)	(1.96e-05)	(1.96e-05)
Firm size	-4.42e-06***	-4.96e-06***	-5.38e-06***	-5.38e-06***	-5.43e-06***	-5.38e-06***	-5.39e-06***
	(1.55e-06)	(1.55e-06)	(1.55e-06)	(1.55e-06)	(1.55e-06)	(1.55e-06)	(1.55e-06)
Firm age	0.248***	0.244***	0.244***	0.244***	0.243***	0.244***	0.243***
	(0.00380)	(0.00380)	(0.00381)	(0.00381)	(0.00380)	(0.00381)	(0.00380)
Firm profitability	0.0253***	0.0266***	0.0288***	0.0288***	0.0281***	0.0288***	0.0281***
	(0.00282)	(0.00282)	(0.00283)	(0.00283)	(0.00283)	(0.00283)	(0.00283)
Industry	3.924***	3.860***	3.867***	3.632***	4.236***	3.814***	3.878**
	(1.238)	(1.260)	(1.393)	(1.362)	(1.359)	(1.372)	(1.519)
Constant	-5.639***	-5.964***	-6.011***	-5.770***	-5.843***	-5.954***	-6.108***
	(1.058)	(1.078)	(1.191)	(1.166)	(1.076)	(1.173)	(1.297)
/lnalpha	3.143***	3.179***	3.381***	3.329***	3.163***	3.350***	3.555***
	(0.133)	(0.132)	(0.132)	(0.133)	(0.133)	(0.133)	(0.135)
R^2	0.3097	0.3154	0.3212	0.3214	0.3252	0.3213	0.3237
Observations	532	532	532	532	532	532	532
Number of firms	76	76	76	76	76	76	76

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

In **Model 1** *Family firm* shows a significant positive coefficient of 4.244 ($p<0.01$), suggesting that family firms tend to have higher CSR communication on social media. Regarding *Succession plan*, the coefficient is positive and highly significant in **Model 1 and 2** (1.035, $p<0.01$; 0.790, $p<0.01$, respectively), confirming that firms with a structured succession plan are more engaged in CSR communication on social media. The number of generations involved in the firm has a consistently positive and significant effect on CSR communication (1.331, $p<0.01$ in **Model 1**; 1.573, $p<0.01$ in **Model 2**; 1.390, $p<0.01$ in **Model 3**), suggesting that long-term family control fosters stronger CSR communication on social media. The results indicate that *Family involvement in the board* and *Family involvement in the board square* are significant, suggesting a nonlinear relationship with Tweets CSR. A significant change in R^2 was observed between **Model 2** and **Model 3** ($\Delta R^2 = 0.0058$, $p < 0.01$), indicating that including the quadratic term improves model fit. However, since the significance of the quadratic term alone is a weak criterion to establish nonlinearity (Haans et al., 2016), we conducted a Sasabuchi test (Lind and Mehlum, 2010) to verify this relationship further. The test evaluates two key conditions: the turning point falls within the observed data range, and the slopes differ on either side of the turning point. The test result confirms a statistically significant inverted U-shaped relationship. To further assess robustness, we applied the Fieller method to estimate the confidence interval for the turning point. The estimated turning point was found at X = 28.59469, with 95 percent confidence interval. The above-mentioned tests were also performed for **Model 5** and **Model 7**. For **Model 5** the $\Delta R^2 = 0.0098$, $p < 0.01$, Sasabuchi test confirms a statistically significant inverted U-shaped relationship, the estimated turning point was found at X = 25.20403, with 95% confidence interval. For **Model 7** the $\Delta R^2 = 0.0083$, $p < 0.01$, Sasabuchi test confirms a statistically significant inverted U-shaped relationship, the estimated turning point was found at X = 28.25648, with 95% confidence interval.

Figure 3 illustrates the predicted relationship between the number of *Family involvement in the board* and CSR-related tweets. The results suggest that firms with a moderate number of *Family involvement in the board* tend to engage more in CSR communication on social media. However, the effect varies across different models, with later-generation family firms exhibiting the highest predicted CSR activity, while founder-generation firms show a weaker effect.

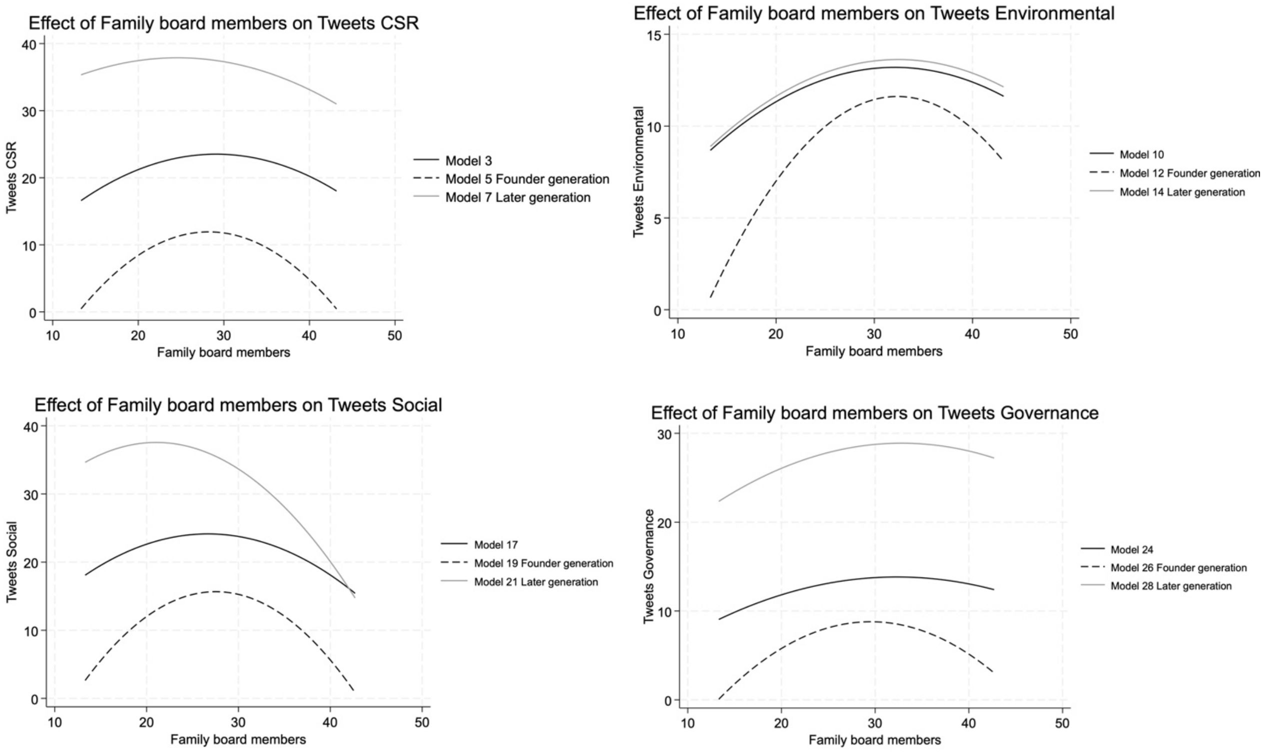

Figure 3-Inverted U-shaped relationship between Family board member and Tweets CSR, Tweets Environmental, Tweets Social and Tweets Governance

4.5.3 Robustness test

As a robustness test, we considered the tweets made in the individual categories Environment, Governance and Social as dependent variables (Table 8). The results align with those of the leading models, with a few minor differences.

Table 8-Robustness test

Variables	Model 8 Tweets environmental	Model 15 Tweets social	Model 22 Tweets governance
Independent variable			
Family firm	3.502***	3.150***	2.241***
	(0.947)	(1.215)	(0.734)
Succession	0.124	1.373***	1.525***
	(0.303)	(0.288)	(0.147)
Number of generation	0.596***	1.388***	1.525***
	(0.226)	(0.144)	(0.147)
	Yes	Yes	Yes
R^2	0.2179	0.4362	0.1715
Observations	532	532	532
Number of firms	76	76	76

*** p<0.01, ** p<0.05, * p<0.1

As shown in Figure 3, all three categories display a non-linear relationship between family involvement in the board and CSR communication on social media, with an initial increase followed by a decline once family representation becomes excessive. However, the magnitude and pattern of this relationship vary across dimensions.

Environmental tweets show a similar trend to CSR tweets, but with differences. While CSR communication on social media declines sharply after a certain number of board members, environmental communication shows more stability, with a more gradual decline. Moreover, founder-generation firms show a more pronounced decrease in environmental communication. For the later-generation, the difference with the basic model that includes all firms is not as marked as in *CSR Tweets*.

Social tweets show a similar trend to that of *CSR tweets*. The later-generation firms are the most active in social media communication, both the later-generation and the founder-generation show a more pronounced decline after the peak.

Governance tweets follow a similar trend to that of CSR and social tweets. However, compared to *CSR tweets*, the decrease is less pronounced, suggesting greater stability in communicating governance issues. Again, later-generation firms are the most active in communication, while the founder-generation shows a sharper decline after the peak.

4.6 Discussion

In light with the predictions based on legitimacy theory (Deegan, 2002), our results support that family firms tend to communicate CSR more on social media than non-family firms. Legitimacy theory suggests that firms must align with social expectations to maintain their acceptance in the market and society (Haniffa & Cooke, 2005; Radwan & Russo, 2024). This mechanism is particularly relevant for family firms, which consider CSR communication on social media as a tool to protect and strengthen their image and reputation, central elements of their identity (Cennamo et al., 2012; Cruz et al., 2014). SEW theory also explains that family firms do not limit themselves to pursuing economic objectives but attach great importance to intangible values such as community ties and intergenerational continuity (Prencipe et al., 2014). CSR communication on social media thus becomes a strategic tool for preserving socio-emotional capital and building stable and trusting relationships with stakeholders.

However, our study shows that the relationship between the presence of family members on the board and CSR communication on social media follows an inverted U-shaped pattern. In other words, while a moderate number of family members on the board stimulates CSR communication on social media, overly concentrated family governance tends to reduce openness and transparency. This dynamic is consistent with the literature that suggests that while family presence can strengthen value communication and social responsibility (Kidwell et al., 2024; Sun et al., 2024), excessive presence of family members on board can lead to less public disclosure to preserve internal control and reduce exposure to external criticism (Stock et al., 2024; Venturelli et al., 2021). Legitimacy theory explains this trend by indicating that family firms may fear that excessive CSR disclosure will increase pressure and scrutiny from stakeholders (Oliver, 1991). Furthermore, the need to protect the SEW may lead firms to prefer more confidential and selective modes of communication, avoiding the massive use of social media (Cennamo et al., 2012).

A key aspect that emerged from our analysis is the role of succession in CSR communication on social media. Firms with a structured succession plan tend to communicate more about their sustainability on social media, consistent with SEW theory, which conceives firm continuity as central to preserving family identity and firm reputation (Marques et al., 2014; Prencipe et al., 2014). However, our model suggests that simply having a succession plan does not necessarily guarantee improved CSR communication on social media, as the effectiveness of communication also depends on the level of professionalization of the new leadership (Laguir et al., 2016). According to legitimacy theory, generational changeover should be an opportunity to strengthen the relationship with stakeholders, but if it is not accompanied by transparent and structured governance, the risk is that CSR communication on social media decreases or becomes less effective (Radwan & Russo, 2024).

The intergenerational dimension of the firm plays a decisive role in defining the level of CSR communication on social media. Results show that later-generational family firms tend to communicate CSR more than founder-generation firms, confirming that corporate longevity fosters greater CSR communication efforts on social media (Izzo & Ciaburri, 2018; Stock et al., 2024). This result can be interpreted through SEW theory, which suggests that longer-lived family firms develop long-term strategies geared towards sustainability and building strong stakeholder relationships (Bansal et al., 2018; Nekhili et al., 2017). Furthermore, legitimacy theory highlights that long-lasting firms must ensure continuity and consistency in their communication strategy to maintain stakeholder trust and preserve their reputation over time (Dangelico & Pontrandolfo, 2015). The increased professionalisation of governance in later-generational family firms may further explain the increased use of social media for CSR communication as the firm becomes more structured and aware of the importance of transparency in managing stakeholder relations (Aragon-Amonarriz et al., 2025).

Another element of particular interest is the difference between founder-generation and later-generations. Our results indicate that founder-generation firms communicate CSR on social media less, but when family members are actively involved in the board, the positive effect of family governance on communication tends to increase. The results suggest that later-generation firms communicate CSR on social media more (Stock et al., 2024). Legitimacy theory helps explain this phenomenon by hypothesising that later-generations are more inclined to communicate CSR openly and transparently to gain consensus from stakeholders and strengthen firm continuity (Oliver, 1991; Radwan & Russo, 2024). However, overly focused family governance may limit this openness, preferring more selective communication strategies to maintain control over corporate reputation (Aragon-Amonarriz et al., 2025).

The analysis of differences in environmental, social and governance tweets shows that family firms adopt different communication strategies depending on the ESG dimension considered. In all categories, a non-linear relationship is observed between the number of family members on the board and communication, with an initial increase followed by a decline beyond a certain point.

4.7 Managerial and policy implications

The results of this work can help managers' and policymakers' choices in CSR communication on social media.

From a managerial point of view, it is crucial to obtain public endorsement and support to ensure the effectiveness of CSR communication on social media (Park et al., 2014). However, our findings indicate that different dimensions (environmental, social, and governance) of CSR communication on social media are not equally prioritized by family firms, suggesting that managers should adopt tailored communication strategies for each area. Stakeholders engagement is a measure to incentivize responsible firms that actively contribute to positive causes and to penalize those participating in socially irresponsible behaviors (Park et al., 2014). The extent and strength of stakeholder actions depend on a firm's ability to effectively manage the specific difficulties associated with CSR communication on social media. Coherently, the research highlights that the use of social media to communicate CSR initiatives can increase transparency and improve the firms' perception among stakeholders. Managers should therefore consider social media not only as a marketing tool but also as a fundamental platform to build and strengthen the firm's legitimacy in the long run. In particular, managers of family firms can benefit from a greater awareness of the specificities of their firm, such as the strong connection with stakeholders and the long-term orientation. These characteristics can be exploited to differentiate the firm in the market, using CSR communication on social media to strengthen the firm image and build stronger and more lasting relationships with stakeholders.

Furthermore, the study highlights that not all characteristics of family firms influence the propensity to communicate CSR on social media in the same way. Managers should therefore carefully evaluate these aspects and adapt their communication strategies to maximize the effectiveness and impact of their CSR initiatives. Since transparency is key to building trust and legitimacy, managers must focus on CSR communication on social media that actively involves stakeholders, reducing skepticism and promoting positive perceptions of the firm. This is particularly relevant in competitive environments, where trust and reputation are strategic assets. Incorporating the results of our study, which highlight how different characteristics of family governance influence

CSR communication on social media, can help managers develop targeted strategies that improve interaction with stakeholders. Furthermore, managers can benefit from adopting a long-term vision in CSR management, promoting sustainable practices that not only respond to current needs but also prepare the firm for the future. Effective communication of these initiatives can strengthen the firm's reputation and ensure greater stakeholder support, thus contributing to the firm's resilience and long-term success.

This study has also important policy implications in support of family firms. Targeted policies could be developed to support these firms, taking into account the different characteristics of family ownership and governance, to promote greater transparency and accountability to stakeholders. Considering that transparent CSR communication on social media can reduce stakeholder skepticism and strengthen firm legitimacy, policymakers could also introduce incentives for firms that adopt transparent and effective CSR communication practices, in particular through the use of social media. This would not only improve stakeholder trust but also promote greater awareness of CSR activities among the public. Finally, the study findings could encourage policymakers to promote education and training programs for firms, especially family firms, to improve their CSR communication skills. This would allow firms to better leverage the potential offered by social media to promote their social responsibility initiatives, contributing to a more sustainable and aware society.

4.8 Contributions to theory and closing remarks

This study provides new insights into CSR communication on social media, focusing on family firms. The findings highlight how the specific characteristics of family firms influence their propensity to communicate CSR initiatives on social media.

Our first contribution lies in enhancing the understanding of family firms' CSR communication strategies on social media from a SEW perspective. Non-economic objectives and priorities remain significant, particularly in family firms, which are driven by long-term orientation, an inherent commitment to responsible behavior, strong ties with stakeholders, and concerns about image and reputation (Cruz et al., 2014; Memili et al., 2018). In particular, the theoretical model used, which combines legitimacy theory and SEW theory, provides a solid basis for understanding the motivations behind CSR communication on social media in family firms. Family firms, with their strong long-term orientation and deep connection with stakeholders, tend to prioritize continuity, reputation, and social legitimacy. This explains why the effectiveness of CSR communication on social media is closely linked to the governance structure and succession plan.

Our second contribution responds to the call from family firm scholars to explore the diverse dimensions characterizing family firms (Memili & Dibrell, 2019). It is overly simplistic to consider family firms as a homogeneous group (Daspit et al., 2018). In this context, we propose a framework that illustrates the connections between family firm dimensions and CSR communication on social media (Daspit et al., 2018), contributing to advancing family firms literature both theoretically and empirically.

One of the main future developments of this research could be to expand the sample to include family and non-family firms from different countries and cultural contexts. Furthermore, it would be interesting to explore in more depth the impact of different social platforms on CSR communication outcomes. For example, future studies could compare the effectiveness of CSR communication on platforms such as Facebook, LinkedIn, and Instagram, compared to Twitter, to see if significant differences emerge. The study uses quantitative analysis based on regression models, which although powerful, do not necessarily capture the complexity and qualitative nuances of CSR communication on social media. Future studies could benefit from a mixed approach, integrating qualitative analysis to explore the motivations and perceptions behind CSR communication strategies.

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5 FROM TWEETS TO INSIGHTS: SOCIAL OPINION MINING ON CORPORATE SOCIAL RESPONSIBILITY

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Abstract
Corporate Social Responsibility (CSR) has become increasingly critical as firms seek to balance financial goals with social and environmental responsibilities. Our study introduces a three-phase structured method to analyze stakeholders' opinions on CSR through Social Opinion Mining, utilizing stakeholder and legitimacy theories. The method involves collecting, cleaning, and analyzing a dataset of 349,370 Italian tweets (2006–2022) using sentiment analysis, topic modeling, and exploratory techniques. This approach highlights trends in CSR discussions, stakeholder sensitivities, and sentiment variations across regions. The findings contribute to CSR literature by offering a robust framework for firms to align CSR strategies with stakeholder interests and for policymakers to design targeted, sustainable initiatives. Our research advances understanding of CSR communication on social media, emphasizing its potential for strategic planning and stakeholder engagement.

Keywords: CSR; twitter; social opinion mining; stakeholder engagement

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5.1 Introduction

Public awareness and concern regarding corporate responsibility for mitigating negative environmental and societal impacts have significantly increased recently (Amin et al., 2021; Arayssi et al., 2016). In response, firms have intensified their focus on corporate social responsibility (CSR)[9], driven by a growing recognition of the long-term competitive advantages that sustainable development can offer (Waheed & Zhang, 2022). Nowadays, firms in all sectors are trying to consider social and environmental impacts both during and after their operations (Radwan & Russo, 2024) and use CSR disclosure to improve stakeholders' views of their ethics and activities (Amin et al., 2021). However, CSR engagement goes far beyond merely shaping stakeholder perceptions (Waheed & Zhang, 2022). Firms also strategically employ CSR to legitimize their activities in response to institutional pressures, to gain a competitive advantage by differentiating themselves in the market, and to comply with regulatory and social expectations that increasingly demand responsible practices (Radwan & Russo, 2024). By adopting CSR, firms navigate the evolving regulatory landscape, strengthen their reputation, and align with broader societal values, making it a key component of their long-term strategy (Radwan & Russo, 2024; Waheed & Zhang, 2022). Therefore, understanding CSR requires a multidimensional perspective that considers both its communicative and strategic functions.

In light of the current importance of CSR, numerous researchers have initiated investigations into how firms convey their CSR efforts (Radwan & Russo, 2024).

Few studies have analyzed the many channels that firms use to provide information to stakeholders, and they directed their attention toward different business documents, such as integrated, sustainability, and annual reports (Ahmed & Hassan, 2025; Cardoni & Kiseleva, 2025). However, CSR communication is not limited to the simple dissemination of information by firms but also includes the reverse flow, in which stakeholders, through stakeholder engagement tools, express opinions, needs, and expectations (Kujala et al., 2022). Traditional methods include assemblies and consultations, roundtables, surveys, press releases and advisory committees (Kujala et al., 2022; Touratier-Muller & Cournac, 2025).

This two-way exchange, made increasingly relevant by the use of social media and interactive platforms, allows firms to gather valuable data and adapt their CSR strategies in line with societal demands. However, literature has largely overlooked the distribution of CSR information via social media platforms, thereby neglecting to analyze the extent and nature of CSR content shared through these mediums by firms' stakeholders (Aqueveque et al., 2018; Barbeito-Caamaño & Chalmeta, 2020; Vollero et al., 2019).

Social media platforms support dialogical and involvement strategies and offer the chance to engage in conversation and communicate with various stakeholders (Okazaki et al., 2020). Managing stakeholders on social media increasingly involves focusing on the large, often anonymous groups of *friends* and *followers* rather than the smaller, more traditionally known groups (Freeman, 2010). Many firms see this new wave as a chance to connect with stakeholders in a fresh way (Okazaki et al., 2020) and, consequently, firms give some degree of control over their reputation and brand to social media-interacting stakeholders (Amin et al., 2021; Radwan & Russo, 2024). The aim of our research is to understand stakeholders' opinions on CSR as expressed through social media, enabling

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[9] Although there is no consistency in the CSR definition, CSR can be defined as the approach that encompasses the economic, legal, and ethical impacts and obligations of a firm towards society. Still, the Green Book states that *CSR is the voluntary decision to contribute to the advancement of society and environmental protection by integrating social and ecological concerns into business operations and interactions with stakeholders* (European Commission, 2001).

firms to utilize this information for effective stakeholder engagement. We integrate two theories to present comprehensive and lucid perspectives on the scope (Radwan & Russo, 2024). Specifically, we utilized stakeholder and legitimacy theories. The majority of research employs stakeholder theory, which posits that a connection exists between a firm and its many internal and external stakeholders (Freeman, 1994, 2010). Legitimacy theory is the second most prevalent theory (Radwan & Russo, 2024; Suchman, 1995), and we use it because firms are sensitive to any legitimacy challenges when interacting with stakeholders (Clarkson, 1995; Freeman, 1994). Therefore, it is important to align the firm's activities with the stakeholders' expectations to make the firm's actions *legitimate*.

To understand stakeholders' opinions regarding CSR, we analyzed a large dataset of 349,370 Italian tweets published between 2006 and 2022. Twitter (now X), as one of the most widely used microblogging platforms, provides a unique opportunity for firms to engage in two-way communication with a broad spectrum of stakeholders (Amin et al., 2021; Xiong et al., 2018; Shin & Ki, 2022).

Our contribution lies in the development and application of a structured three-phase procedure, with particular emphasis on the final phase, which involves the systematic analysis of stakeholder-generated content. Drawing on established literature, we perform three complementary analyses: an exploratory analysis to detect participation trends and stakeholder profiles; a sentiment analysis using a state-of-the-art RoBERTa-based model to quantify affective orientations; and a topic modeling approach to uncover the latent thematic structure within the discourse (Marchi et al., 2022; Mastroeni et al., 2023; Müller-Hansen et al., 2022; Schallehn & Valogianni, 2022). This integrated methodology allows us to map the intensity, tone, and thematic focus of CSR-related discussions over time and across regions, offering a rigorous and scalable framework for social opinion mining in the CSR domain.

The results of our study contribute to the formulation of CSR strategies tailored to the Italian context, enabling firms to align their initiatives with the specific interests and sensitivities of stakeholders. Understanding stakeholder opinions via social media is crucial, as these platforms enable real-time dialogue, helping firms identify trends, address concerns, and refine CSR strategies (Okazaki et al., 2020; Radwan & Russo, 2024). Research shows that social media can transform qualitative insights into measurable firm goals, improving CSR assessment and decision-making (Barbeito-Caamaño & Chalmeta, 2020; García-Sánchez et al., 2022). Social opinion mining allows firms to move beyond traditional methods, fostering transparency and stakeholder trust through social media data-driven strategies (Bonsón & Bednárová, 2015; Farache et al., 2018). This shift from passive disclosure to active engagement underscores social media's strategic role in firm sustainability and legitimacy (Colleoni, 2013; Pons et al., 2021). Research focused on social media has, in fact, the potential to transform stakeholder engagement into measurable firm goals and provide a solid foundation for developing successful strategies.

Firms and policymakers can use our structured procedure to understand the interests of stakeholders. Policymakers can use our findings to gauge public sentiment and identify the barriers to CSR practice adoption and adjust their policies appropriately. Our research could also help policymakers gauge public opinion on proposed CSR and sustainability so that government agencies can better engage the public by monitoring their reactions in real time and responding accordingly.

Our paper adds to what is already known in the field in more than one way. First, it proposes a framework to comprehend the two-way dialogical relationship between firms and a large number of stakeholders. Second, while most prior research has concentrated on CSR disclosure in more conventional settings like printed media or firm websites, our paper presents new findings and

insights about CSR disclosure on social media. Third, to give a full picture of how social media are being used for CSR disclosure, the paper uses a large sample size over a long period of time. Finally, the Italian case is examined for the first time.
Our study has the following structure: Section 2 discusses stakeholder engagement and legitimation in CSR strategies; Section 3 discusses CSR information and stakeholders' engagement with social media; Section 4 is the proposed method; Section 5 describes results and discussion; Section 6 presents managerial, policy implications and conclusion.

5.2 Stakeholder engagement and legitimation in CSR strategies

Stakeholder engagement is the process by which a firm engages its key stakeholders to understand their expectations, build trusting relationships, and integrate their feedback into firm strategies (Kujala et al., 2022). Engagement can take place through various modes of communication and active participation, with the goal of creating shared value and improving CSR (Kujala et al., 2022). The concept is based on the active participation of stakeholders in firm policymaking, decision-making, and monitoring of CSR practices (Touratier-Muller & Cournac, 2025). Traditional tools for stakeholder engagement have long been used to facilitate dialogue and ensure that firms are able to respond to the expectations and needs of their stakeholders through established and formal means (Kujala et al., 2022; Touratier-Muller & Cournac, 2025). Notable among the traditional methods are assemblies and consultations, roundtables, surveys, press releases, and advisory committees (Kujala et al., 2022; Touratier-Muller & Cournac, 2025). The proliferation of social media and the subsequent emergence of interactive platforms, such as blogs and user communities, present an opportunity for stakeholder engagement (Viglia et al., 2018). On social media platforms, stakeholders exchange knowledge and experiences, discuss products and services, and express opinions, creating through their content information that firms can use to understand what topics are of interest to them and how they react to them (Viglia et al., 2018).

Literature adopts several theoretical perspectives to understand stakeholders'[10] opinions regarding CSR (Freedman & Jaggi, 2005; Radwan & Russo, 2024; Suchman, 1995) and many authors rationalize the implementation of such a strategy by adopting instrumental, political, integrative, and ethical theories (Garriga & Melé, 2004). In line with previous literature, our study thus integrates stakeholder and legitimacy theories (Bonsón & Bednárová, 2015; Colleoni, 2013; Giacomini et al., 2020; Radwan & Russo, 2024). In particular, we adopt stakeholder theory because our study analyzes how stakeholders' views on CSR, expressed on social media, influence firm strategies, and legitimacy theory because it examines how firms align their CSR objectives with stakeholders to gain and maintain social legitimacy in a context of dynamic public interaction.

Stakeholder theory centers on the public-private relationship and emphasizes the importance of stakeholders' roles and expectations in CSR (Aguinis, 2011; Dahlsrud, 2008; Freeman, 2010; Marais et al., 2020). Unlike shareholder theory, according to which firms are oriented toward profit maximization and the satisfaction of shareholders' needs only, stakeholder theory focuses on satisfying the needs of a wider range of subjects, stakeholders, who are interested in firm activity (Freeman, 2010; Mitchell et al., 1997).

[10] Stakeholders are any individual or group of individuals capable of influencing or being influenced by the achievement of corporate objectives (Freeman, 1994). There are three important criteria for stakeholders to be considered salient: they must have the ability to affect the firm's aims or survival, they must have a valid relationship with the firm, and their claim on the firm must be addressed quickly (Mitchell et al., 1997). So, stakeholders are those groups or individuals the firm is trying to affect (Murray & Vogel, 1997).

Stakeholder theory is founded on the principle that the political, social, institutional, and environmental context in which firms operate must be taken into account when examining the economic dimension (Deegan & Blomquist, 2006). Stakeholders are able to affect firm performance because they provide strategic resources for firms (García-Sánchez et al., 2022). In fact, stakeholder theory posits that the existence and performance of firms hinge on addressing the needs of all stakeholder categories (Deegan & Blomquist, 2006). Stakeholders are moral entities with their own rights, and firms should consider these needs using stakeholder engagement tools (Vitolla et al., 2019). Firms consider the interests of the more relevant stakeholders to achieve legitimacy, consent, and reputation in the context in which they operate (Ozdora Aksak et al., 2016). For these reasons, firms integrate these considerations into both their decision-making processes and their communication and reporting practices (García-Sánchez et al., 2022).

Firms are especially sensitive to any legitimacy challenges when interacting with stakeholders (Clarkson, 1995; Freeman, 1994; Radwan & Russo, 2024). Therefore, it is important to align the firm's activities with the stakeholder's expectations so as to make the firm's actions *legitimate*[11]. For this reason, studies on CSR communication have used legitimacy theory as their foundation (Bonsón & Bednárová, 2015; Colleoni, 2013; Radwan & Russo, 2024). Firms justify and legitimize their actions toward stakeholders and their social responsibility by disclosing CSR information (Cho et al., 2012). According to legitimacy theory, this practice aligns with the social evaluation of acceptability and desirability, meaning that firms seek to demonstrate that their activities are appropriate and beneficial in the eyes of society. By sharing CSR information, firms aim to legitimize their actions, reassuring stakeholders that their operations meet societal norms and expectations. In this evaluation, stakeholders look at how well a firm's actions and policies align with societal norms. As such, legitimacy could be considered a condition reflecting the cultural and social alignment of the firm (Cho et al., 2012). Firms establish their credibility through CSR communications, which demonstrate their commitment to social ideals and conformity with societal norms (Zimmerman & Zeitz, 2002). According to legitimacy theory, firms are bound to grow in accordance with socially accepted values, principles, and standards; failing to do so would be a *breach of contract*, resulting in a loss of legitimacy and possibly the firm's demise (Deegan & Blomquist, 2006).

In the context of CSR, active stakeholder engagement is essential for building strong relationships and gaining consensus. When used strategically, social media offers an effective channel for listening to and interacting with stakeholders, allowing firms to gather valuable information about their expectations. Aligning with these expectations improves firm reputation and enables firms to strengthen their legitimacy in the social and market environment.

5.3 CSR information and stakeholders' engagement with social media

CSR is based on the principles of openness and transparency to stakeholders (Lim & Greenwood, 2017), who anticipate and require precise and accessible information to assess the implications of firm sustainability practices (Michelon & Rodrigue, 2015).

Transparency in CSR communication is an ethical obligation and a strategic factor in managing stakeholder relationships, which are a source of competitive advantage (Surroca et al., 2010). Strong and positive stakeholder relationships can, in fact, generate financial benefits, protect the firm from

[11] Suchman (1995) defines corporate legitimacy as *a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.*

hostile situations (such as product-related crises), and encourage the adoption of social responsibility practices (Barrena Martínez et al., 2016). In addition, active stakeholder engagement contributes to the firm's survival, as their trust and support are essential strategic resources (Viglia et al., 2018). In this context, transparency and openness in CSR practices strengthen stakeholders' predisposition to support the firm with their resources (Viglia et al., 2018), creating a virtuous circle in which CSR is not just a means of communication but a key element for the long-term success and sustainability of the firm.

According to stakeholder and legitimacy theory, it is imperative that firms effectively align their CSR concerns with those of their stakeholders (Marais et al., 2020). So, a key component of CSR is stakeholder engagement (Radwan & Russo, 2024).

The evolution of CSR communication has transformed the way firms disseminate sustainability information, moving from annual reports and firm websites (Radwan & Russo, 2024) to more interactive and dynamic tools such as social media. Furthermore, it has also redefined the way firms can engage and interact with their stakeholders. Social media are distinguished by their capacity for real-time interactions (Kucukusta et al., 2019; Pilgrim & Bohnet-Joschko, 2022). In business communication, social media enables firms to engage more effectively with clients through real-time conversations, which promotes intimacy and connection. This may also pertain to a cause highlighting social responsibility (Kucukusta et al., 2019; Pilgrim & Bohnet-Joschko, 2022).

Literature has highlighted criticisms of firms for their engagement with stakeholders. Some research indicates that stakeholders consider CSR communication less reliable than financial reporting (Pizzi et al., 2021). However, other research suggests that social media tools in firm strategy communication can successfully address this shortcoming (Ma, 2014; Song & Wen, 2020). Some studies (*e.g.*, Colleoni, 2013) also show that the perceived authenticity of CSR messages depends on the interaction between firms and stakeholders and the level of control that firms exert over the narrative.

Nowadays, firms are embracing new, digital, and technologically advanced methods of sourcing useful information to integrate with their sustainability strategies and leveraging Web 2.0 applications (*e.g.*, photo and video sharing sites, social networks, and blogs) to maintain ongoing interaction with stakeholders (Radwan & Russo, 2024). In particular, using social media represents a solution to establish communication with stakeholders, satisfy their needs about environmental and social issues, improve firm reputation, and obtain legitimacy to operate in the reference context (Radwan & Russo, 2024).

Social media have created new possibilities for broadcasting CSR-related information and managing stakeholder relationships that have progressed from a one-way to a two-way process (Barbeito-Caamaño & Chalmeta, 2020; Pons et al., 2021) (Figure 4). Utilizing a two-way strategy in social media discussions with stakeholders yields significant information regarding stakeholder engagement (Lodhia et al., 2020). When firms participate in social media to encourage two-way interaction with stakeholders, it allows stakeholders' voices to be acknowledged and grants firms insight into issues significant to stakeholders, as well as the ability to address their concerns directly (Lodhia et al., 2020).

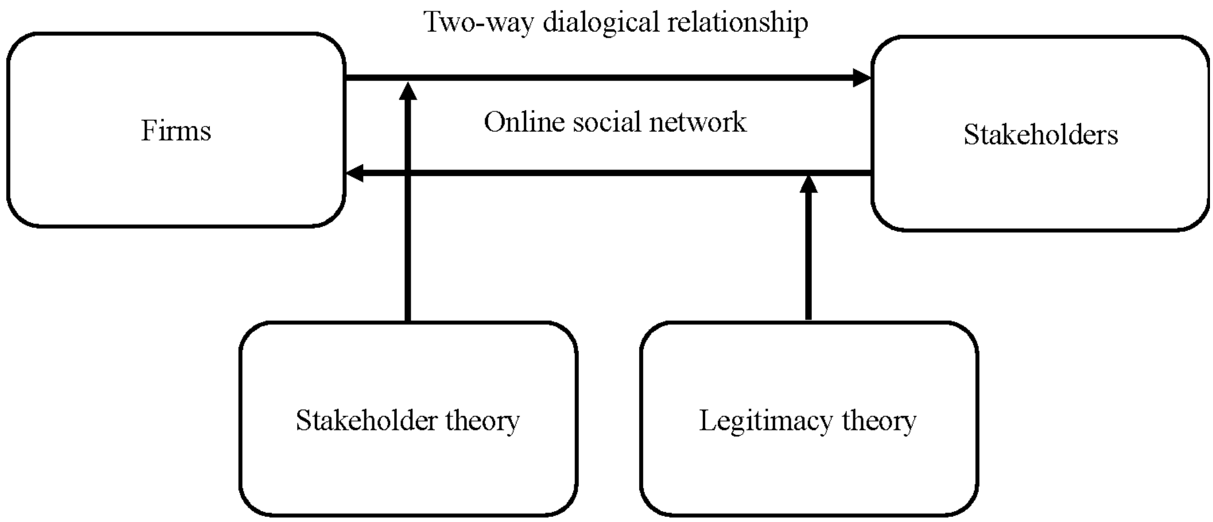

Figure 4-Conceptual framework

Firms utilize online social networks to convey their CSR initiatives, while their stakeholders employ online social networks to express their viewpoints and reflections regarding CSR (Barbeito-Caamaño & Chalmeta, 2020). On the one hand, according to stakeholder theory, online social networks are deemed suitable for CSR communication that ensures interaction with stakeholders and enables the firm to understand their needs and subsequently develop the necessary actions (Barbeito-Caamaño & Chalmeta, 2020). On the other hand, according to legitimacy theory, firms must ensure that their CSR communication aligns with stakeholder expectations to maintain and reinforce their legitimacy. Online social networks amplify stakeholder voices, making it easier for them to evaluate and challenge firms' actions. As a result, firms are compelled to adapt their CSR strategies and communication to reflect their stakeholders' evolving concerns and values. Failure to do so can lead to a loss of credibility and social legitimacy, while alignment with stakeholder expectations helps strengthen a firm's reputation and societal acceptance (Barbeito-Caamaño & Chalmeta, 2020).
Users of online social networks who are stakeholders can actively participate in shaping a firm's CSR image by creating material on social media platforms (Acuti et al., 2019). CSR-related content that stakeholders post on online social networks can serve as a source of information for firms for stakeholder engagement (Barbeito-Caamaño & Chalmeta, 2020).

Firms can collect information on their stakeholders' opinions, thoughts, and actions through online social networks; this content is readily available and can be collected and analyzed using big data analytics (Barbeito-Caamaño & Chalmeta, 2020). Online social networks are characterized by a large amount of information and the availability of real-time data. So, Social Opinion Mining (SOM), a specific big data analytics, is developed (*i.e.,* SOM is the discipline that deals with extracting opinions from web user-generated content) (Balazs & Velásquez, 2016). Interest in harnessing the power of automatically detecting and understanding opinions is so high that SOM is one of the most popular areas of research in the Natural Language Processing and Computer Science communities (Bashar et al., 2024). Using big data to analyze CSR information provided by a firm's stakeholders could be an alternative approach to gain insights and discover previously unknown, hidden, accurate, and valuable connections, patterns, and information (Barbeito-Caamaño & Chalmeta, 2020). Using SOM, firms can make more informed strategic CSR decisions, which allows for faster analysis, tailored responses to specific audiences or issues, and ultimately the creation of greater value for the community (Farache et al., 2018; Muniz et al., 2019). Since exposure to these ideas could affect stakeholders' perceptions of the firm, monitoring online sentiments and topics should be a top priority for businesses (Farache et al., 2018).

Despite the growing attention in the literature on the role of social media in CSR communication, most studies focus on firm strategies and how firms use these platforms to disseminate information and gain legitimacy (Cuervo-Carabel et al., 2023; De Luca et al., 2022; Lodhia et al., 2020; Pizzi et al., 2021). Many works have examined the effectiveness of firm posts in generating stakeholder engagement (Khanal et al., 2021; Kucukusta et al., 2019) and the ability of firms to control the CSR narrative through well-defined communication strategies (Giacomini et al., 2020; Viglia et al., 2018). However, little space has been devoted to the study of content generated by the stakeholders and their role in constructing the firm's sustainability discourse. This condition represents a significant gap in the literature, as stakeholders are not only passive recipients of CSR communication but also actively participate in the debate through the creation and dissemination of content on social media. Research has not yet investigated how stakeholder posts can influence the public perception of CSR and, consequently, push firms to adapt their strategies to maintain legitimacy. Our study aims to fill that gap by directly analyzing content posted by stakeholders on social media, examining how it contributes to the construction of the CSR narrative and how firms may respond to these dynamics. Unlike existing studies, which predominantly assess the effectiveness of firms' top-down CSR communication (De Luca et al., 2022; Lodhia et al., 2020), our research focuses on spontaneous stakeholder dialogue, offering a broader and more realistic perspective on the actual involvement and impact of digital communities in CSR.

We propose five research questions related to big data analysis on the online social network:

RQ1: How widespread and discussed is the topic of CSR by various stakeholders?
RQ2: Who are the main stakeholders discussing the topic on Twitter, and with whom could the firm collaborate?
RQ3: What is the general sentiment of stakeholders concerning CSR and how does it vary across thematic dimensions? And how do they vary over time and regions?
RQ4: Which dimension (e.g. economic, social, environmental, or governance) generates the most stakeholder tweets on Twitter?
RQ5: Which topics on Twitter are most frequently discussed by stakeholders?

These research questions aim to understand stakeholder perceptions of CSR and explore how firms can adapt their strategies in response to social media discourse, reinforcing the bidirectional nature of CSR communication.

5.4 Proposed method

With the rise of Web 2.0, the number of online users expressing opinions and sharing content has significantly increased. Online social networks like Facebook and Twitter play a crucial role, enabling users to share text, images, videos, and audio while interacting with each other. These platforms, characterized by vast amounts of real-time information, have facilitated the development of social media opinion mining (SOM), which extracts opinions from user-generated content, surpassing traditional market research tools such as surveys and questionnaires (Balazs & Velásquez, 2016). Twitter, in particular, is an optimal platform for content analysis (Cortis & Davis, 2021).

The methods used to respond to our research questions integrated the approaches of several authors, who focused on only one or a few steps, into one comprehensive procedure (Cortis & Davis,

2021; M. L. Loureiro & Alló, 2020; Marchi et al., 2022; Schallehn & Valogianni, 2022). We developed a procedure to assess whether geolocated tweets are positive, negative, or neutral, identify which dimensions of CSR are most commented on and on which topics stakeholders are most sensitive, to align the CSR activities carried out by a firm with the affective needs of the stakeholders involved.
The method has three phases (Figure 5). In the first phase, we collect and store the stakeholders' tweets about CSR. In the second phase, we clean and treat the relevant CSR tweets. Finally, in the third phase, we perform explorative analysis, sentiment analysis, and topic modeling on the tweets.

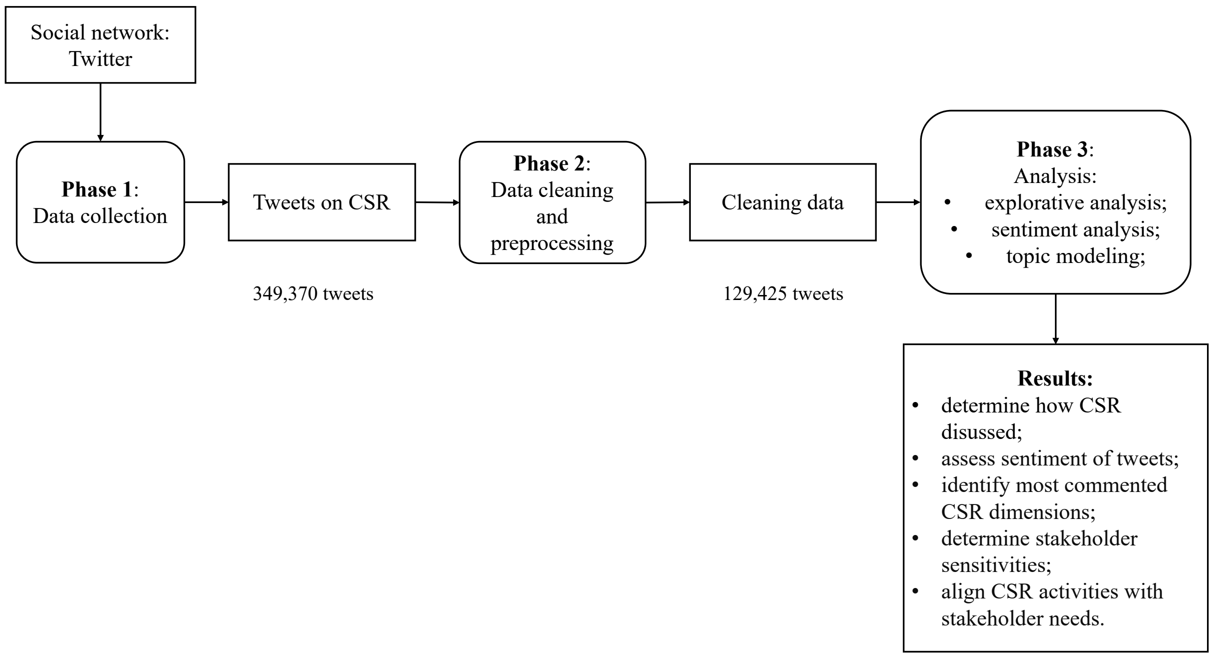

Figure 5-Procedure

5.4.1 Phase 1: Data collection

Twitter, an extremely popular microblogging platform, ranks among the top three social media platforms utilized by firms for sharing information and engaging with stakeholders (Cuervo-Carabel et al., 2023), and it remains a widely used source in Social Opinion Mining (SOM) studies due to the volume and diversity of user-generated content. While Twitter historically offered easy access to data through its APIs, recent policy changes (as of December 2023) have introduced limitations and paid tiers for data access. Nevertheless, its real-time nature, short-format content, and demographic variety continue to make it a valuable platform for analyzing public opinion (Cortis & Davis, 2021).
All the collected tweets[12] are written in Italian and published between 21 March 2006 (the day when the first tweet was posted) and 31 December 2022.
Python software was used to download the tweets, and the Twitter APIs were used to obtain all the information that users chose to share publicly, such as username, location, language, geolocation, presence of hashtags, *like n*umber, and retweets. In line with existing literature (M. L. Loureiro & Alló, 2020; Okazaki et al., 2020; Park et al., 2014), our keyword selection adhered to the following criteria:

- words related to CSR;

[12] Access to academic research has been requested. The service will allow users to download a maximum of 10 million tweets per month and provide advanced features designed to support research.

- words previously used in the literature for this type of study on CSR;
- systematic literature review about CSR;
- words associated with hashtags commonly used in relation to CRS discussions.

The resulting keywords are: Corporate Social Responsibility; *Responsabilità Sociale d'Impresa; Responsabilità d'Impresa; Impresa responsabile; Impresa sociale; Impresa etica; Business sostenibile; Business responsabile; Cittadinanza d'impresa; Etica d'impresa;* Environmental Social Governance; ISO 26000; SA 8000; Accountability Principles Standard 1000; *Bilancio sociale; Bilancio ambientale; Bilancio di sostenibilità; Bilancio sostenibile; Report di sostenibilità; Dichiarazione non finanziaria; Rendicontazione non finanziaria*.
To collect as many relevant tweets as possible and ensure representation, researchers also considered acronyms (such as CSR, RSI, and ESG) and plurals.
The total number of tweets downloaded is 349,370.

5.4.2 Phase 2: Data cleaning and preprocessing

A preliminary analysis shows that the database contained elements of noise, including tweets written in non-Italian languages. For this reason, the data has been preprocessed to eliminate content that is not relevant to the study. After the cleaning process, 345,324 tweets remained.
The next step was the geolocation of tweets (Nguyen et al., 2018). Reference has been made to the *author.location* information, which is the place where the user claims to live and not the momentary location where he/she is when he/she posts a tweet. Latitude and longitude data and country code were obtained. Tweets with a country code other than 'it' were deleted, and, for the remaining tweets, the corresponding Italian region was obtained.
Algorithms only support English texts, so tweets have been translated using the *deep_translator* Python library and using its *GoogleTranslator* function. Noise elements such as "n", "-", "_", "/", "&", and "amp" have been removed for the correct translation.
Only tweets from 2012 to 2022 were analyzed because the years between 2006 and 2011 had a too low number of tweets. The total number of Italian tweets geo-located from 2012 to 2022 is 129,425.
To verify that the geolocalization process did not introduce distortions into the data, we compared the temporal distributions of tweets between the geolocalized sample and the initial universe using two statistical tests (i.e., Kolmogorov-Smirnov and Mann-Whitney U). The results of all tests showed p-values greater than 0.05, indicating no significant differences between the two distributions, confirming that the geolocalized sample is representative of the initial universe.

5.4.3 Phase 3: Analysis

5.4.3.1 Exploratory analysis

Due to the versatility of tweets, a wide range of exploratory analyses are conducted. Precisely, we quantify the number of tweets made within a given year, day, and region. Examining the dates with the highest tweet activity is crucial, as these peaks may correspond to significant events related to the topic. Effective visual representations, such as word clouds[13], help explore the primary discussion topics (Barbeito-Caamaño & Chalmeta, 2020; Müller-Hansen et al., 2022). To this end, we grouped the 10 most active Twitter accounts into five stakeholder categories based on an inductive manual

[13] World cloud is a container of words, in the shape of Twitter icon, where the main words that make up the document are positioned, with the characteristic that the larger the font of a word, the more important it is in the document in question.

coding process. Classification was carried out by analyzing public metadata associated with each account, such as the username, biography, institutional affiliation, and self-declared role. The five categories are as follows (Kujala et al., 2022; Viglia et al., 2018; Lindgreen, A., 2017): 1) Media and information platforms, accounts belonging to newspapers, online magazines, news aggregators, and thematic media channels specialized in sustainability or CSR. 2) Training and educational institutions, including universities, research centers, professors, and educational programs in the field of CSR and sustainability. 3) Associations and federations, such as trade associations, NGOs, professional networks, and CSR coalitions. 4) Activists, individuals or collectives that promote CSR themes through advocacy, public commentary, or grassroots mobilization. 5) Consulting, firms and professionals offering strategic advice, CSR reporting support, or sustainability consulting. This categorization reflects the diversity of actors shaping the CSR discourse in Italy and provides a structured lens through which to analyze stakeholder dynamics in the digital public sphere.

5.4.3.2 Sentiment analysis

Sentiment analysis is the computational study of people's opinions, attitudes, and emotions toward an entity, which can represent individuals or arguments (Medhat et al., 2014). By applying natural language processing and text analysis techniques, sentiment analysis aims to identify and extract subjective information from the text and classify its polarity, which can be positive, negative, or neutral (Hussein, 2018).

Our paper used RoBERTa, an unsupervised machine learning model that acquires knowledge and experience for classification from a training set of data not labeled from different domains (Liu et al., 2019; D. Loureiro et al., 2022). These domains are: *BooksCorpus*, 800 million words; *English Wikipedia*, 2.500 million words; *CC-NEWS*, 63 million English articles scanned between September 2016 and February 2019; *OPENWEBTEXT*, web content extracted from URLs shared on Reddit[14]; *STORIES*, a subset of data CommonCrawl[15]. The initial model had been retrained eight times, adding 4,2 million tweets each time. RoBERTa is one of the best-performing models for the realization of sentiment analysis[16] (D. Loureiro et al., 2022) and divides sentiment into three categories: positive, negative, and neutral (Batra et al., 2021).

As a further analysis, we calculated the positive comparative advantage index (Hoen & Oosterhaven, 2006). It was calculated by considering in the numerator the ratio between the number of tweets classified as positive made in a region and the sum of positive and negative tweets made in the region and, in the denominator, the ratio between positive tweets made in Italy and positive and negative tweets made in Italy. When the value is greater than 1 the attitude in an Italian region is more positive than in Italy in general. Conversely, when it is less than 1 it is more negative than in Italy in general.

5.4.3.3 Topic modeling

Topic modeling is a set of unsupervised machine learning techniques designed to identify the topics prevalent within a corpus of documents (Vayansky & Kumar, 2020). The topic model used for our

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[14] It is a social news, entertainment and forum website where registered users can publish content in the form of text posts or hyperlinks (www.reddit.com).

[15] It is a non-profit firm that scans the Web and provides its archives and data sets to the public free of charge (www.commoncrawl.org).

[16] Sentiment analysis has two distinct types of classifications. The first, binary classification, involves categorizing sentiment into positive and negative groups (Supriya et al., 2016). The second type, multi-class classification, allows for dividing sentiment into three categories: positive, negative, and neutral (Batra et al., 2021).

study is Latent Dirichlet Allocation which is a hierarchical three-level Bayesian model (i.e., documents, arguments, words) that, in input, provides a collection of text documents and, in output, returns several groups of words, each of which represents an accurate and consistent topic (Blei et al., 2003; Churchill & Singh, 2022). Documents are considered a probabilistic distribution of arguments, and arguments are considered a probabilistic distribution of words (Messaoudi et al., 2022). Latent Dirichlet Allocation is based on the Bag Of Words approach, where the exact ordering of terms in a document is ignored, but the frequency of occurrence of each term is considered an important factor (Berry et al., 1999). This means that the words of a document are not all equally important, and to each word of the document, the model assigns a weight that depends on the number of occurrences in the document (Kherwa & Bansal, 2018). In our study, topic modeling aimed to identify the three dimensions of CSR (i.e., environmental, social, and economic).

A new text cleanup was done, eliminating punctuation marks, usernames, links, double spaces, and making all characters lowercase.

With the goal of getting the two main inputs of the model, dictionary and corpus, each tweet was broken down into individual words (*i.e.,* tokenization). We recorded the words to insert as lemmas in the dictionary, focusing solely on names, adjectives, verbs, and adverbs. Instead, to create the corpus, an ID (*word_id*) was associated with each unique term of the text, and its frequency of occurrence (*word_frequency*) was determined.

Another key aspect of the Latent Dirichlet Allocation model is choosing the number of topics to consider. There must be the right compromise between topic number and topic coherence value. The *topic coherence Cv* is a metric specially developed for the evaluation of the goodness of the topics produced by the model (Röder et al., 2015). To identify the optimal number of topics, we employed a Grid Search procedure that systematically tested various configurations of the Latent Dirichlet Allocation model by varying the number of topics, as well as the Dirichlet hyperparameters α (document–topic density) and β (topic–word density). The optimal model is based on the highest topic coherence Cv (Rkia et al., 2024; Egger & Yu, 2022).

5.5 Results and discussion

In response to RQ1 and RQ2, we conducted a wide range of exploratory analyses. First, we quantified the number of tweets made within a given year (Figure 6), day (Figure 7), and region (Figure 8).

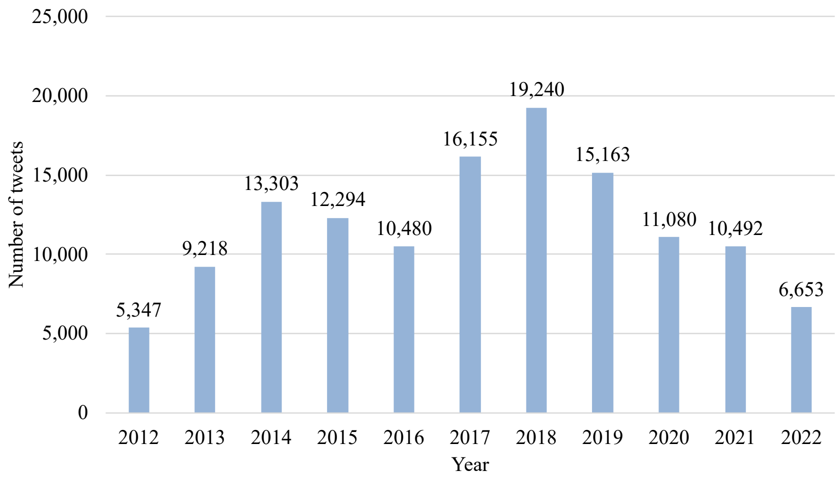

Figure 6-number of tweets per year, 2012-2022

The peak occurs in 2018 (19,240 tweets), while 2012 and 2022 are the years with the lowest number of tweets (5,347 and 6,653 tweets, respectively) (Figure 6). The trend fluctuates over time: after a strong initial growth, periods of increase and decline alternate, without a specific reason.

Figure 7 shows how specific events significantly influenced tweet volumes. For example, in early October the CSR and Social Innovation Exhibition (CSRIS) took place, in which 216 organizations, including businesses, non-profits, public bodies and startups, participated. The CSRIS is the main event in Italy dedicated to the themes of CSR and social innovation, contributing to the diffusion of the culture of social responsibility and offering opportunities for updating and facilitating networking between the various social actors. Between September and mid-October 2019, the hashtag #CSRIS19 was the third trending on Twitter. On 1 March 2014 the conference "Social enterprise: a chance for work and development" was held, organized by VITA and Bocconi University to delve into the aspects of the draft laws prepared for the Chamber and Senate which had the aim of adapting the legislation introduced by Legislative Decree 155/06 to the new economic-social context and the guidelines of the European Union on the subject of social economy and social entrepreneurship, and to reflect on the actions that the various subjects should have implemented so that the reform hypotheses are effective, producing effects in terms of development with employment.

These two examples help us understand how important it is to organize specific CSR events to generate awareness. These events function as catalysts for digital stakeholder engagement, confirming previous findings that CSR communication is not continuous but intensifies during moments of public attention (Colleoni, 2013; Pilgrim & Bohnet-Joschko, 2022). From a stakeholder theory perspective (Freeman, 2010; Kujala et al., 2022), these dynamics highlight how stakeholders, particularly institutional actors, advocacy groups, and informed citizens, use digital platforms to voice their concerns and expectations around CSR in conjunction with high-visibility events. The peaks correspond to occasions where stakeholders perceive a "window of influence" and actively seek to participate in shaping the discourse, consistent with the view that stakeholders are not passive recipients but co-creators of meaning. At the same time, legitimacy theory (Suchman, 1995; Colleoni, 2013) helps explain why firms and institutions intensify their CSR communication during these events. CSR-related tweeting is not only informative but often strategically aligned with efforts to gain or maintain social legitimacy by signaling alignment with societal expectations.

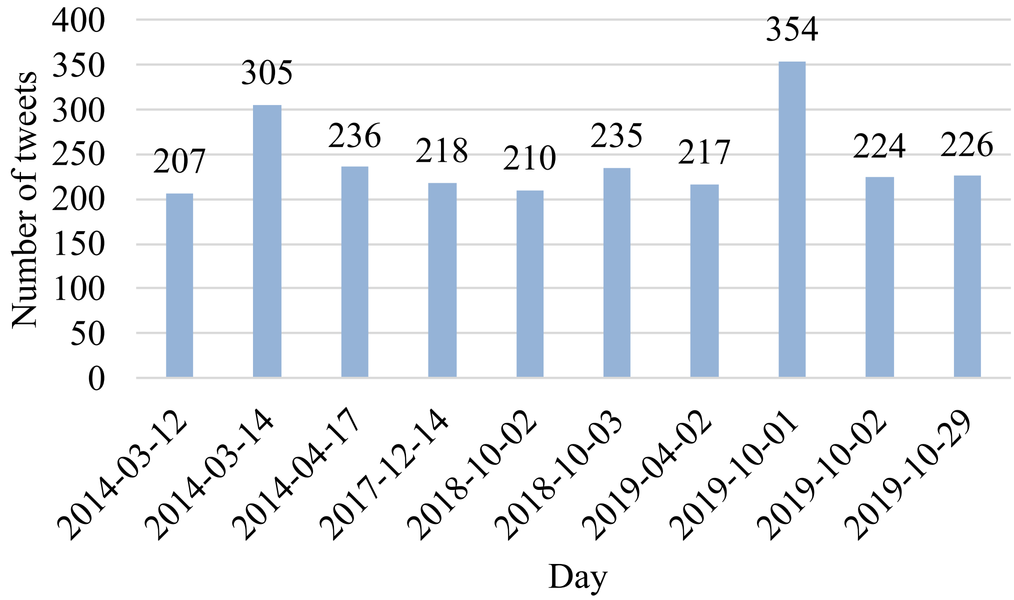

Figure 7-Day with the highest number of tweets, 2012-2022

Figure 8 represents the number of tweets made in each Italian region and the number of tweets divided by the thousands of people who use online social networks. The regions where people tweet the most are *Lombardia*, *Lazio* and *Emilia Romagna* whether considering the value in absolute terms or relative to population density.

These geographic variations reflect socio-economic differences across Italian regions and align with previous studies (Schallehn & Valogianni, 2022) that emphasize the role of regional context in shaping CSR practices and digital communication. More industrialized and institutionally dense regions are not only more active economically but also act as discursive hubs for CSR dialogue. From a stakeholder theory perspective (Freeman, 2010), these findings suggest that stakeholders in these regions have both greater capacity and incentive to influence CSR narratives. Stakeholder engagement is here revealed not as uniform but as territorially contingent.

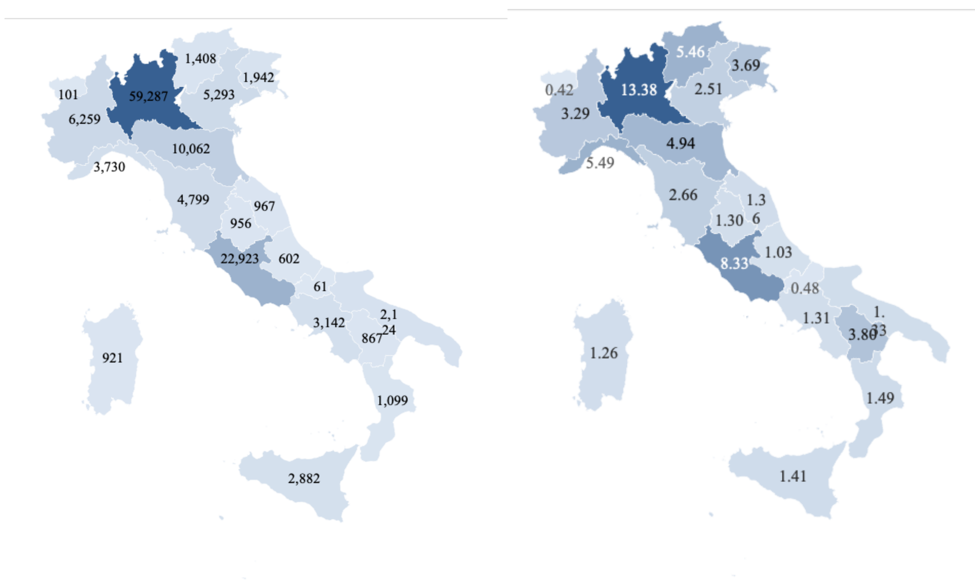

Figure 8-Number of tweets for each region and number of tweets divided by the thousands of people who use online social networks, 2012-2022

A word cloud was built to identify the most used words in tweets (Figure 9). The most used words are "sustainability", "social enterprise" and "social responsibility", followed by other significant terms such as "esg", "firms" and "development". Words align closely with these terms, indicating focused discussions. These words define the macro-topic and consider it an opportunity for firms and their business. No terms with a negative perception are identified. These results suggest that Twitter users in Italy frame CSR primarily in relation to opportunity and progress, echoing earlier observations by Amin et al. (2021) and Loureiro & Alló (2020) about the optimistic and opportunity-driven tone of CSR discourse on social media. Notably, no keywords suggest resistance, critique, or negative sentiment. According to legitimacy theory (Suchman, 1995; Colleoni, 2013), such discourse can be interpreted as a means by which stakeholders signal alignment with prevailing social norms around sustainability. The absence of adversarial or critical language implies a relatively high degree of normative consensus, which may reflect how CSR is being used not just for engagement but also to reinforce institutional legitimacy, especially among actors seeking to showcase compliance, innovation, or ethical alignment.

Figure 9-Word cloud of CSR tweets, 2012-2022

Similarly, we decided to identify the most used hashtags in tweets. Figure 10 represents this word cloud, which confirms what was deduced from the previous word cloud.

Figure 10-Word cloud of CSR hashtags, 2012-2022

Finally for RQ2, we identify the most active stakeholders. The authors that publish the most on CSR in Italy can be classified into different categories of stakeholders, each with its own specificity and role within the sustainability ecosystem: media and information platforms[17], training and educational institutions[18], associations and federations[19], consultancy[20], and activists[21] (Figure 11).

This typology, consistent with digital stakeholder engagement frameworks (Kujala et al., 2022; Viglia et al., 2018; Lindgreen, A., 2017), reveals the plurality of actors shaping CSR discourse in Italy.

These five categories of stakeholders represent the fundamental pillars for the dissemination and implementation of CSR in Italy. Media and information platforms play a crucial role in raising awareness and providing up-to-date and relevant information; they are the category that tweets the most and thus have the greatest resonance and visibility. Associations and federations create a support and promotion network for CSR practices, and they are the second category in terms of the number of tweets. Training and educational institutions contribute to professional growth, training new generations of leaders and professionals in the field of sustainability, and they are the third category for the number of tweets. Activists are the faces of change, inspiring and driving the adoption of

[17] ETicaNews and VITA.it are two media and information platforms, specialized respectively in news on sustainable finance and corporate social responsibility, and in social and sustainability issues. These portals provide updated news, insights and analysis, helping to spread awareness and knowledge on CSR issues.

[18] The School of Social Enterprise and AICCON fall into the category of training and educational institutions. The first is a training institution dedicated to the management of social enterprises and CSR, while AICCON promotes the culture of cooperation and non-profit through research and training activities, supporting professional growth in these sectors.

[19] Associations and federations such as Federsolidarietà IT, the Forum for Sustainable Finance, and Impronta Etica play a crucial role in promoting sustainability and social responsibility. Federsolidarietà IT is a federation representing social cooperatives and social enterprises, while the Forum for Sustainable Finance promotes sustainable finance in Italy. Impronta Etica is an association that works to promote CSR and sustainability among firms.

[20] Chiappe Revello stands out in the field of consultancy and strategic support, offering consultancy services in the CSR and sustainability fields. Their activity is crucial for businesses seeking to integrate sustainability into their business strategies.

[21] Activists such as Giuseppe Guerini and Davide Dal Maso represent leading figures in the field of CSR. Giuseppe Guerini, president of Federsolidarietà, is an activist known for his commitment in the sector, while Davide Dal Maso is an entrepreneur and promoter of sustainability and CSR.

sustainable practices, and they are the fourth category for the number of tweets. Finally, consulting will provide the necessary strategic support to firms.
Taken together, these findings demonstrate that CSR discourse on Twitter in Italy is not just a mirror of firm strategies but a complex field of distributed legitimation, where actors seek to define, negotiate, and reinforce acceptable norms and expectations through visible digital practices.

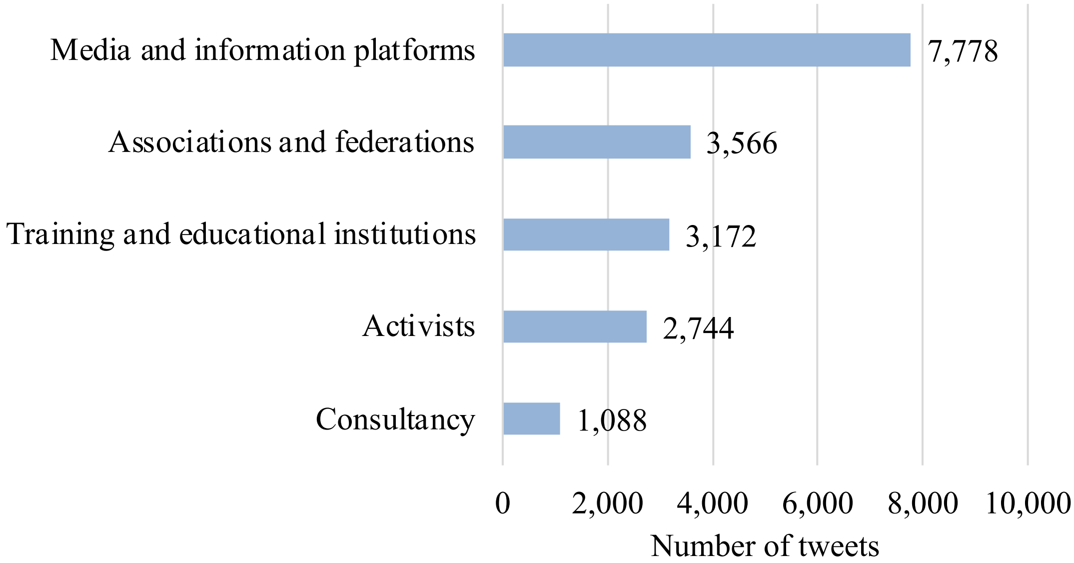

Figure 11-Stakeholders that publish the most on CSR, 2012-2022

5.5.1 Sentiment analysis results

In response to RQ3 Figure 12 shows the results of the sentiment analysis that reveal the stakeholder's emotions for the 10 years considered. For all years, neutral tweets have dominated, followed by positive and negative tweets, and no significant trend has been found. This pattern is consistent with prior studies (ElAlfy et al., 2024; Colleoni, 2013) that observed the prevalence of neutral or informational tones in CSR-related content shared on social media platforms. The data leads us to an intriguing reflection on users' behavior and how they perceive and interact with topics on the platform. The fact that the prevailing sentiment is neutral rather than positive suggests a perception of caution or, in some cases, indifference on the part of users. From a stakeholder theory perspective (Freeman, 2010), this trend suggests that stakeholders, particularly institutional and professional users, engage with CSR topics not through emotional reactions but via reasoned, deliberative discourse. This could be due to several factors. Firstly, users' expectations may be moderate concerning the topics discussed, leading them to respond less emotionally and more rationally. Secondly, many use Twitter to inform themselves and critically analyze news rather than express emotions. This may explain the predominance of neutral sentiments. Furthermore, neutrality may reflect the desire of users to participate in discussions constructively, through the lens of legitimacy theory (Suchman, 1995), trying to understand different points of view without being polarized. The wide range of content on Twitter, ranging from news to analytical insights, further contributes to an overall neutral sentiment. Observation has several implications for the communication strategies of firms on Twitter.

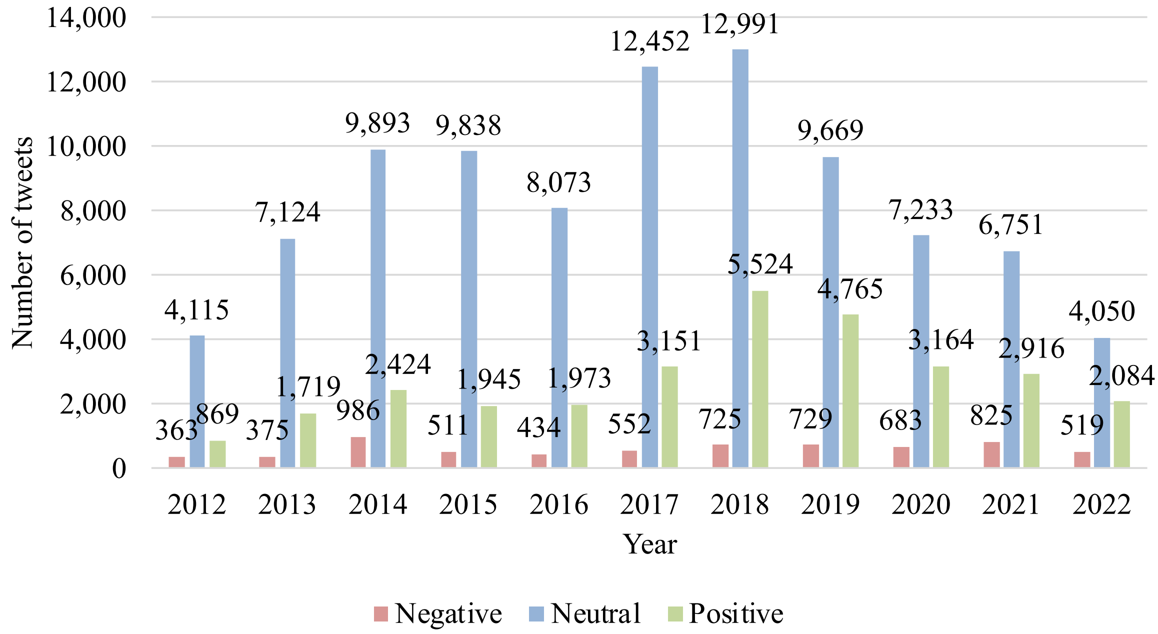

Figure 12-Results of the sentiment analysis, 2012-2022

Also, in response to RQ3 we calculated the positive comparative advantage index for each region. As we note in Figure 13, the regions with the most positive trend on the topic are *Basilicata*, *Lombardia*, *Liguria* and *Veneto*. However, if we normalize by considering the millions of inhabitants in a region who use social media, the result changes, and the regions in which there is a more positive propensity towards CSR are *Basilicata*, *Molise* and *Veneto*. These findings reinforce the idea that regional context matters, confirming what Schallehn & Valogianni (2022) observed regarding geographically contingent engagement with sustainability issues.

Regions with a smaller population but a high engagement rate, like *Basilicata* and *Molise*, may demonstrate a stronger community focus and a higher collective interest in CSR topics. Conversely, larger regions such as *Lombardia*, despite having a high overall engagement, may show a different pattern when the data is viewed per capita.

The initial results suggest that larger, more industrially developed regions like *Lombardia* and *Veneto* have a significant overall interest in CSR. This could be due to the higher concentration of businesses and a more robust economic structure that prioritizes CSR initiatives. On the other hand, the normalized data reveals that smaller regions with potentially fewer resources still maintain a high per capita interest in CSR, indicating a strong cultural or societal emphasis on social responsibility. Additionally, the variation in results before and after normalization highlights the diverse landscape of social media engagement across regions. It suggests that while some areas may have a large number of active users, others may have smaller but highly engaged communities. This can inform more nuanced and tailored approaches to CSR communication strategies, ensuring that messages resonate well with the intended audiences.

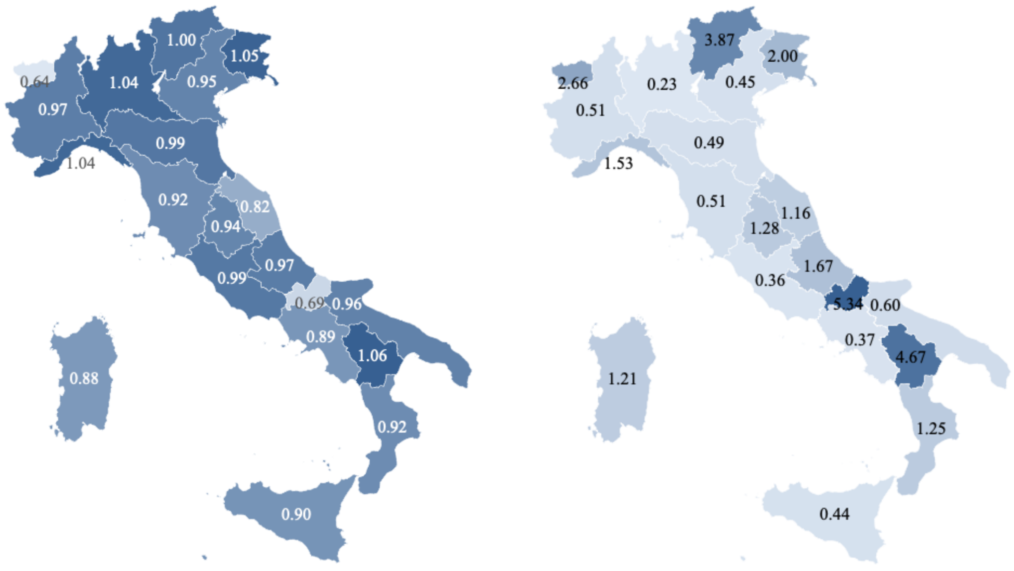

Figure 13-Comparative advantage index for each region and comparative advantage index divided by the millions of inhabitants who use social media for each region, 2012-2022

5.5.2 Topic modeling results

The prevalent and consistent topics within the 129,425 tweets are identified. The Grid Search found that the optimal number of topics is 5, with alpha *symmetric* and beta *0.61*. By inserting these parameters into the Latent Dirichlet Allocation model, the following words were obtained for each topic:

Topic 1. esg + investment + fund + finance + risk + sustainable + invest + market + firm + European.
Topic 2. firm + job + make + change + say + right + time + think + ethical + ethic
Topic 3. sustainability + talk + sustainable + event + day + conference + tomorrow + business + innovation + stage
Topic 4. sustainability + firm + report + business + sustainable + new + esg + environmental + value + strategy
Topic 5. social + enterprise + responsibility + corporate + innovation + new + firm + project + business + sector

Table 9 displays the titles assigned to each identified topic that corresponded with a CSR dimension.

Table 9-Topic titles

Topic number	Topic title	CSR dimension
1	Sustainable investing and finance	Economic dimension
2	Ethical work	Social dimension
3	Communicating sustainability	General
4	Environment as a corporate strategy	Environmental dimension
5	CSR as a source of innovation	General

In response to RQ5, each tweet was associated with a topic, and, for each topic, the corresponding number of tweets was counted (Figure 14).

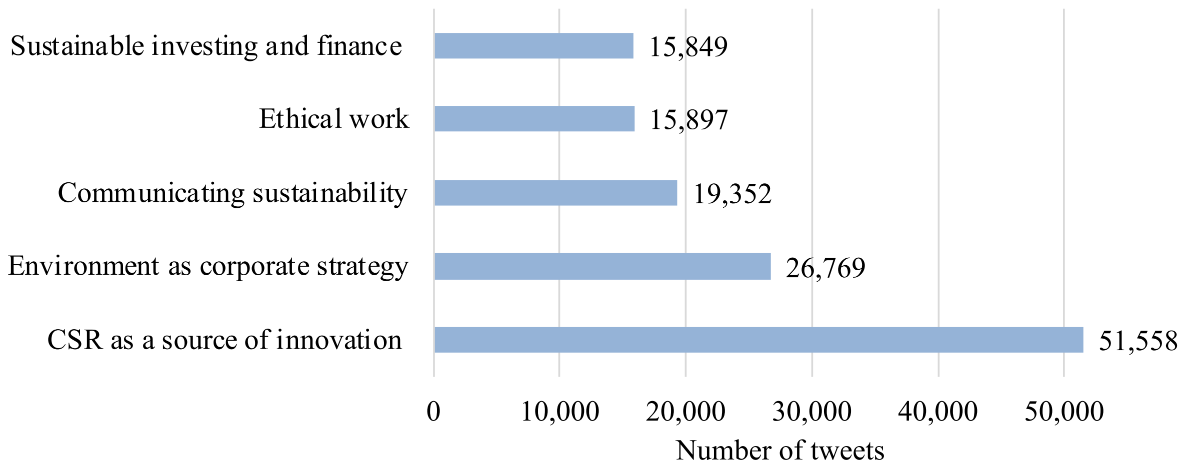

Figure 14-Results topic modeling, 2012-2022

In response to RQ4 the most discussed topic is *CSR as a source of innovation*, classified as general and not belonging to any of the three dimensions of CSR. Below is *Environmental as corporate strategy*, related to the environmental dimension of CSR. The topics related to the social and economic dimensions, however, are in fourth and last place. Therefore, in the Italian public opinion, the most important CSR dimension is environmental (20.68% of tweets), followed by social (12.28% of tweets) and economic (12.24% of tweets). These findings align with studies by Colleoni (2013) and Amin et al. (2021), which observe that CSR discourse on social media tends to favor forward-looking and strategic themes. From a legitimacy theory perspective, the emphasis on innovation and environmental topics reflects efforts to align with globally accepted sustainability standards and a performance-oriented narrative.

Figure 15 presents the sentiments associated with each of the five identified topics. RoBERTa classifies most tweets as neutral for all the topics identified. Specifically, for the topic *CSR as a source of innovation*, neutral tweets are much greater than positive and negative tweets. Negative tweets are reduced for all topics; for topics *Communicating sustainability* and *Environmental as a corporate strategy* they are almost zero.

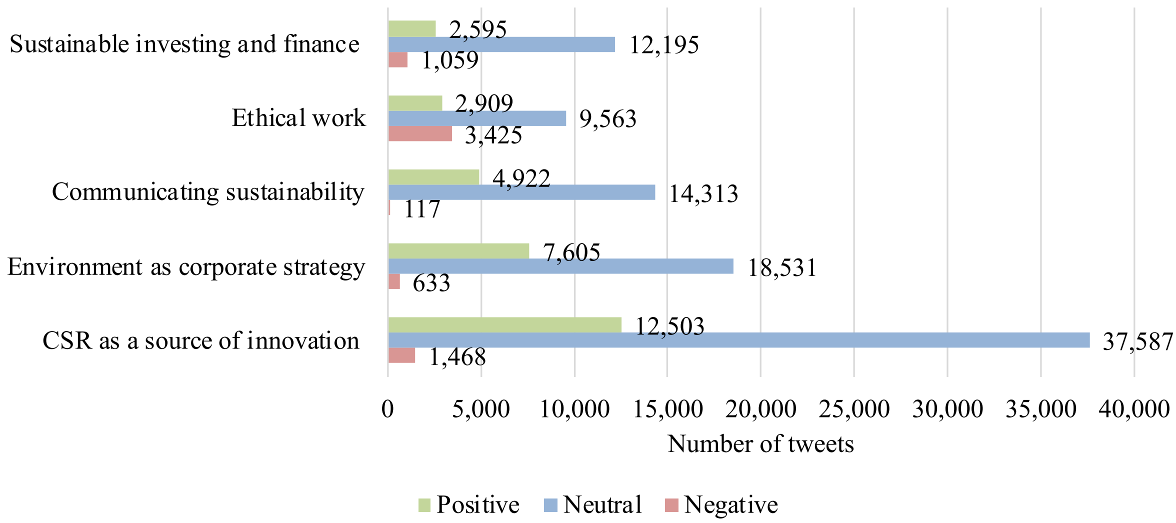

Figure 15-Crosses the results of Sentiment Analysis and Topic Modeling, 2012-2022

In response to RQ3, as already emerged, dominance of neutral tweets suggests that users may be engaging with these topics more informatively and analytically rather than expressing strong emotions. This indicates a more mature discourse around CSR topics, where users prefer to share information and insights rather than polarized opinions.

The topic *Ethical works* stands out as an exception, with some negative tweets. The trend can be attributed to the inherently sensitive and controversial nature of ethical discussions, which often provoke strong emotional responses. Ethical issues tend to elicit negative emotions due to the moral implications and potential controversies surrounding unethical practices. Users might express dissatisfaction or criticism when discussing ethical lapses, reflecting the high emotional stakes involved. As noted by Freeman (2010), ethical expectations are a key driver of stakeholder reactions, and negative sentiment here reflects public scrutiny toward corporate behavior in sensitive areas.

Conversely, positive tweets are more frequent for the topic *CSR as a source of innovation*. The forward-looking and optimistic nature of innovation might drive the trend. Discussions around innovation often evoke positive sentiments as they are associated with progress, future possibilities, and advancements that can bring about positive change. Users are likely to express enthusiasm and support for innovative practices within CSR, viewing them as solutions to current challenges and as steps toward a better future. This confirms what prior literature suggests: innovation is widely perceived as a promising and engaging aspect of CSR, associated with opportunity, future orientation, and change (Radwan & Russo, 2024).

The minimal presence of negative tweets for *Communicating sustainability* and *Environmental as a corporate strategy* suggests that these topics are generally perceived positively or neutrally. Such behavior could imply that users acknowledge and support efforts in these areas or that they discuss these topics more factually without strong emotional reactions. The almost zero negative sentiment in these areas could indicate a broad acceptance and approval of sustainability initiatives and environmental strategies as firm norms.

Understanding these sentiment trends is crucial for firms when crafting their communication strategies. For instance, the higher negative sentiment around ethics indicates that firms should approach ethical discussions with sensitivity, transparency, and a focus on addressing concerns to mitigate negative perceptions. On the other hand, leveraging the positive sentiment around innovation

can help promote CSR initiatives that highlight innovative solutions and future-oriented projects, thereby gaining greater public support.
Furthermore, neutrality suggests that providing balanced, informative content is key to engaging users in meaningful discussions. Firms can capitalize on this by sharing detailed reports, case studies, and factual information that encourage thoughtful discourse.

In response to RQ5 Figure 16 shows the evolution over time of the topics obtained by tracing their distributions by estimating the Kernel density[22]. Topic *CSR as a source of innovation* was the most discussed until 2020. After reaching its maximum peak in 2014, it followed a fluctuating and decreasing trend of discussion, which led it, in 2021, to be overtaken by the topic *Environmental as a corporate strategy* and the topic *Sustainable investing and finance*, characterized by a growing trend of discussion. This shift likely mirrors growing awareness of climate change and sustainable finance regulations (see EU Green Deal; Barbeito-Caamaño & Chalmeta, 2020).
Topic *Ethical work* has an almost constant trend. Despite the continuous trend, ethical work consistently provokes negative sentiments, as noted previously. Constancy suggests that ethical concerns remain a steady focus, potentially due to the constant challenges and controversies associated with maintaining ethical standards in the workplace, as part of a long-term legitimacy strategy (Suchman, 1995). Topic *Communicating sustainability* presents an increasing trend up to the maximum peak in 2018, with a consequent reduction.
Firms should take note of the rising interest in environmental strategies and sustainable finance and align their initiatives to meet the growing demand for sustainable practices. Adaptation is crucial for staying relevant and addressing stakeholders' evolving priorities. Given the steady interest in this topic, maintaining a consistent focus on ethical work is also essential. Transparent and ethical practices should remain at the core of firms' strategies. By proactively addressing ethical concerns, firms can help mitigate negative sentiments and build trust with their audience.
The peak in discussions in 2018 indicates that strategic moments can significantly boost engagement. Identifying and leveraging such moments can maximize impact, helping firms to convey their sustainability efforts and achievements effectively.
Lastly, despite the decline in discussions around CSR innovation, the importance of innovation within CSR remains crucial.
Firms should explore new areas within CSR innovation to reignite interest and stay ahead of emerging trends.

[22] a non-parametric way to estimate the probability density function of a random variable.

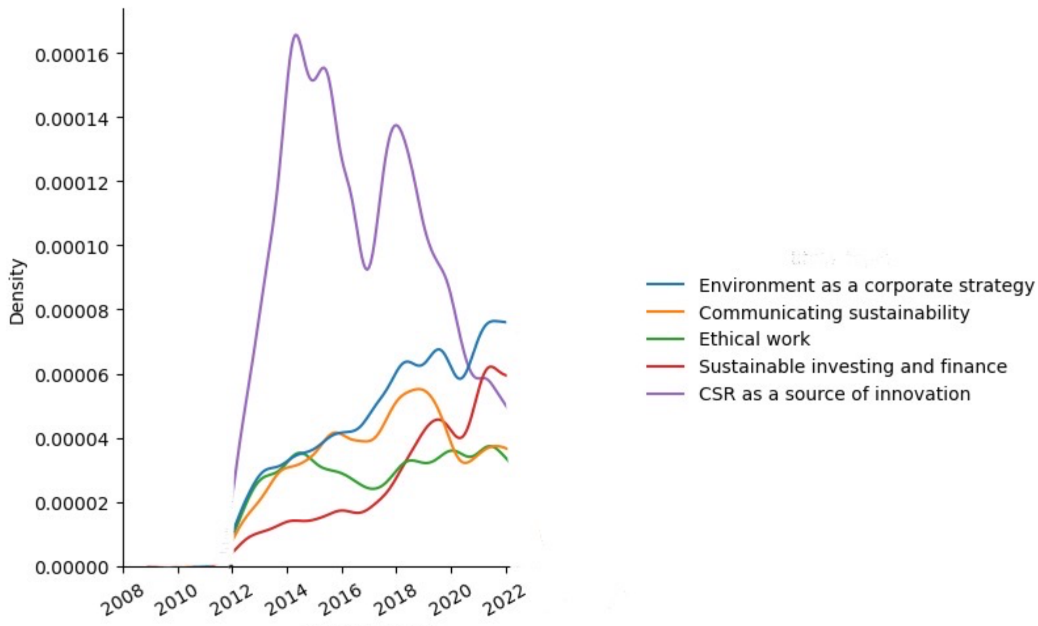

Figure 16-Evolution over time of the topics, 2012-2022

Finally, in response to RQ5, Figure 17 shows the percentage of presence of each topic for each area of Italy: North, Centre, South and Islands. The prevalent topic in all geographical areas is *CSR as a source of innovation*. In the North and Center, the most popular CSR dimension is the environmental one (21.88% and 19.84% respectively), while in the South and in the Islands, it is the social one (14.78% and 17.41% respectively). The social dimension is the least popular in the North (11.24%), while the Centre, the South and the Islands are less interested in the economic dimension of CSR (8.54%, 5.86% and 5.42% respectively). Recent events concerning the conditions of laborers in the agricultural sector have brought attention to ethical work practices in the Islands. Reports of exploitation and poor working conditions for farmworkers have highlighted significant ethical concerns that need to be addressed. Context underscores the importance of ethical work as a critical aspect of CSR in the Islands. Given these recent developments, the focus on ethical work in the Islands is particularly pertinent.

These differences reflect regional stakeholder priorities, consistent with stakeholder theory's emphasis on context-specific expectations (Freeman, 2010; Schallehn & Valogianni, 2022).

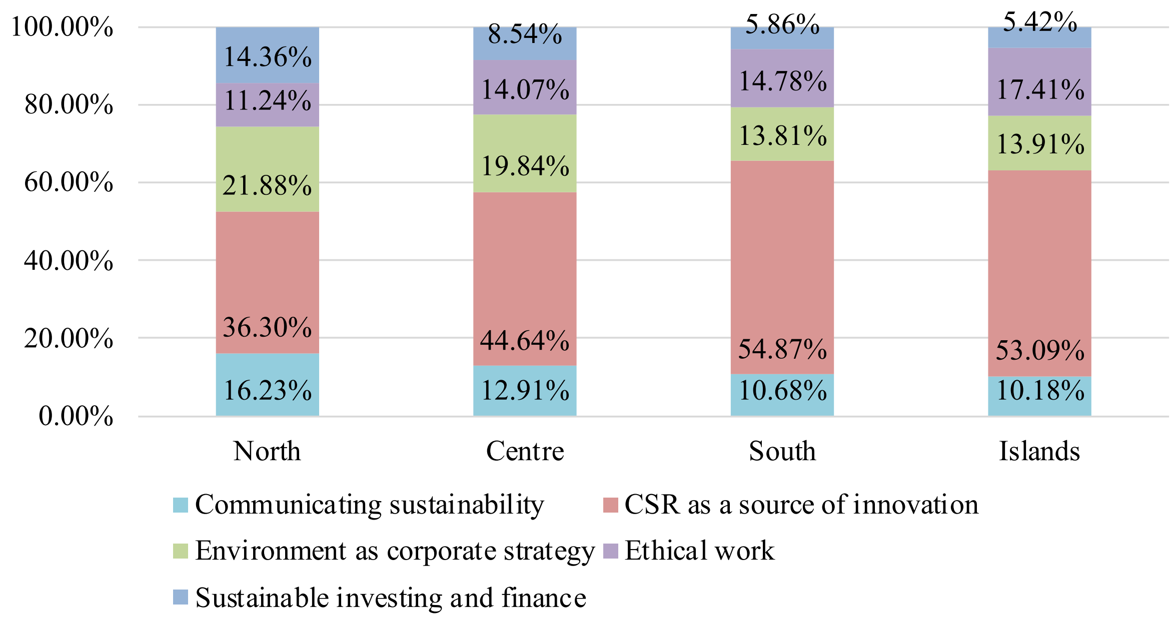

Figure 17-Percentage presence of each topic for each area of Italy, 2012-2022

5.6 Managerial, policy implications and conclusion

Our study has important managerial implications. In response to RQ4, Social media data analysis enables firms to understand CSR-related dynamics and stakeholder perceptions, reinforcing previous findings on the role of digital engagement in stakeholder theory (Okazaki et al., 2020; Radwan & Russo, 2024). This helps tailor CSR strategies to local emotional needs and expectations, improving stakeholder relationships and legitimizing firms, in line with legitimacy theory, which highlights the importance of aligning firm actions with societal expectations to maintain credibility (Bonsón & Bednárová, 2015; Colleoni, 2013; Radwan & Russo, 2024). Analyzing content on Twitter can help firms align with stakeholder interests by engaging in a true bidirectional dialogue (Barbeito-Caamaño & Chalmeta, 2020). Knowing the most discussed and sensitive CSR topics allows firms to adapt and improve their CSR activities to better respond to their stakeholders' concerns and desires. Also CSR communication via social media helps firms gain legitimacy and foster stakeholder trust (Bonsón & Bednárová, 2015). Sentiment analysis of social media conversations helps firms better understand public opinion and engage stakeholders more effectively, creating constructive and targeted dialogue. Furthermore, through social media, people can influence the goals or survival of the firm, creating a valid relationship with it, and their claims must be addressed quickly. Prior studies indicate that firms need to manage stakeholder relationships dynamically through continuous engagement on digital platforms (García-Sánchez et al., 2022; Pizzi et al., 2021). These analyses provide managers with concrete information for informed decision-making. They can guide the firm in identifying priority areas of focus.

In particular, we show how specific events significantly influenced tweet volumes. Firms should leverage key events to boost awareness and engagement in CSR. Hosting annual or biannual events could create regular peaks in discussions, keeping the topic of CSR in the public eye. Previous studies on CSR discourse in digital environments are consistent and suggest that while CSR topics generate discussion, they often do not provoke extreme emotional reactions (ElAlfy et al., 2024).

We identify the regions with the highest tweet volumes and the ones with strong positive sentiments when adjusted for population. Regional initiatives by firms could be tailored based on the level of engagement and sentiment towards CSR. For instance, firms might target regions with higher positive sentiments for pilot projects or sophisticated CSR programs, while regions with lower engagement might gain from awareness campaigns and introductory initiatives. Geographical differentiation supports prior findings that CSR engagement is not uniform across regions but depends on local economic and social factors (Schallehn & Valogianni, 2022).

We found the most frequently used words, indicating focused discussions. Firms should align their messaging with these key terms to resonate with the audience. Developing content and campaigns around these topics can enhance engagement. Moreover, monitoring trending hashtags can help in adjusting real-time communication strategies to stay relevant. Prior research shows that CSR communication on social media tends to cluster around key themes, such as sustainability, ethics, and corporate governance (Pizzi et al., 2021; Schallehn & Valogianni, 2022).

Media and information platforms, training and educational institutions, associations and federations, consultants, personalities, and activists have significant roles in CSR discourse. This reflects the broader trend in stakeholder engagement, where non-firm actors play an increasingly critical role in shaping CSR narratives (Kujala et al., 2022). Firm collaboration with these subjects can amplify CSR messages. Strategic partnerships for content creation, joint events, and educational programs can leverage their established credibility and audience reach. Additionally, identifying and nurturing new influencers in regions with lower engagement could help broaden the impact.

Thanks to sentiment analysis, we found that neutral sentiments dominate, with positive sentiments following, while negative sentiments are minimal. Generally, CSR topics generate discussion, and they often do not provoke extreme emotional reactions (ElAlfy et al., 2024; Schallehn & Valogianni, 2022). The predominance of neutral sentiments suggests a need for firms to create more compelling and emotionally engaging content to shift perceptions positively. Storytelling that highlights the tangible benefits and success stories of CSR initiatives can foster more positive sentiments. Also, addressing any emerging negative perceptions promptly can prevent them from gaining traction. An informative and fact-based approach to communication should be considered, as audiences tend to respond better to educational and informative content (Barbeito-Caamaño & Chalmeta, 2020). Furthermore, understanding that the audience shows a tendency towards neutrality can help manage expectations regarding emotional responses to published content. Firms' communication campaigns, therefore, should be designed accordingly. Finally, it is important to continue monitoring sentiment to identify any changes over time. Even if no significant trends emerge at present, the context and audience perceptions may evolve.

The social and economic dimensions are less discussed topics. The focus on innovation indicates a forward-looking perspective on CSR. However, it is necessary to balance this focus with more discussions on the social and economic dimensions to ensure a holistic approach. Programs that highlight social impacts and economic benefits of CSR could help. The North and Center of Italy focus more on environmental dimensions, while the South and Islands prioritize social dimensions. The geographic disparity in CSR discourse reflects the different socio-economic realities of these regions, supporting findings that CSR engagement varies based on local economic structures and industry presence (Schallehn & Valogianni, 2022). CSR strategies should be region-specific, addressing the predominant concerns and interests of each area. For instance, environmental initiatives might gain more traction in the North and Center, whereas social initiatives could be more impactful in the South and Islands. Tailoring CSR activities to regional priorities can enhance their effectiveness and community acceptance, as suggested by stakeholder theory (Freeman, 2010).

Our study also has important policy implications (García-Sánchez et al., 2022; Radwan & Russo, 2024). The information gathered can be used to develop policies that support and promote CSR based on an in-depth understanding of citizens' opinions and needs. Prior studies have highlighted that public opinion plays an important part in determining effective CSR policies, as regulatory frameworks that align with societal expectations tend to be more impactful (Michelon & Rodrigue, 2015). By knowing the most relevant and discussed dimensions of CSR, policymakers can promote the most effective and sustainable CSR practices within communities and firms. Furthermore, the results of the analysis provide an empirical basis for monitoring and evaluating the impact of CSR policies, enabling policymakers to make evidence-based and up-to-date changes. Governments can adopt subsidized tax policies, tax breaks, or other financial incentives to promote the adoption of CSR practices by firms. Empirical studies suggest that financial incentives play a significant role in encouraging firms to integrate CSR into their firms' strategies, particularly in industries with high environmental and social impacts (Radwan & Russo, 2024). Using the results of our study, policies can be designed to target areas of greatest stakeholder sensitivity and interest. Public policies can promote education and awareness of CSR issues, both among firms and the general public, with the aim of increasing positive sentiment about CSR among the population. Some examples are awareness campaigns, training programs for businesses, and the inclusion of CSR in school and university curricula. Governments can promote collaboration between the public and private sectors to address social and environmental challenges, starting with the results of SOM. Policies that facilitate dialogue and cooperation among stakeholders can foster the development of shared and sustainable solutions to address CSR issues. This aligns with stakeholder theory, which highlights that multi-sector engagement leads to more legitimate and widely accepted CSR practices (Freeman, 2010).

Policymakers should use significant events related to the firm's activity to increase participation and knowledge of CSR. Studies indicate that CSR discussions tend to peak around key events, suggesting that strategic timing in policy initiatives can maximize engagement (ElAlfy et al., 2024). Organizing yearly or biannual events could spark conversation at regular intervals and maintain CSR in the public discourse. Event planners should consider digital campaigns to ensure that engagement continues after the events.

Depending on the degree of participation and attitude toward CSR, regional programs could be customized. For instance, advanced CSR programs or pilot projects may be directed toward areas with stronger favorable feelings, while awareness campaigns and introduction activities may be more beneficial for regions with lesser engagement. Also, because neutral feelings are so common, policymakers can encourage the creation of more interesting and emotionally powerful CSR content by encouraging stories that show how CSR projects have helped people in real ways. This can help shift perceptions more positively and increase engagement. Previous research on CSR communication strategies, highlight the effectiveness of emotional appeals in increasing engagement and public trust (Farache et al., 2018).

Finally, as innovation in CSR is a much-discussed topic, it is important to balance the focus on innovation with discussions on the social and economic dimensions of CSR by promoting programs that highlight the social impacts and economic benefits of CSR initiatives.

Given the relevance of CSR in today's world and the significant economic and social implications it can bring to firms that implement it, it is important to know how stakeholders stand on the topic. Our article contributes to this direction, developing a Social Opinion Mining study on Italian tweets between 2012 and 2022. Twitter, being an extremely popular microblogging platform with millions of users sharing millions of personal posts daily, provides an extremely truthful view of a large range of stakeholders' opinions.

Based on stakeholder and legitimacy theory, our paper extends current knowledge about the relationship between CRS and firms. The paper outlines a structured method for determining how CSR issues are discussed, assessing the sentiment of social media conversations, identifying the CSR dimensions that are most discussed and sensitive to stakeholders, and finally aligning a firm's CSR activities with the emotional needs of the stakeholders involved.

For future projects, consider extending the analysis to other States and developing a SOM framework at a European and global level. Comparing the results of different states could also be fascinating, as it would show and help understand how possible congruences or differences of opinion can derive from the culture and thinking of citizens belonging to different geographical areas. Moreover, the majority of studies lack a longitudinal approach. Although our study provides valuable insights, it represents only one contribution, leaving ample room for further investigation (Radwan & Russo, 2024).

Another important aspect to consider is the detection of fake news related to CSR. With the increase in the use of social media, more and more people are accessing news through these channels rather than traditional media. While this ensures low cost, easy access, and rapid dissemination of information, it can also lead to the spread of fake news, which has strong negative impacts on individuals and society.

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6. EMPOWERING COMMUNITIES THROUGH GENDER CORPORATE SOCIAL RESPONSIBILITY INITIATIVES: A SOCIAL RETURN ON INVESTMENT APPROACH

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Abstract
Firms are increasingly expected to contribute to social sustainability through initiatives promoting gender equity. However, the effectiveness of such initiatives often depends on the collaborative corporate social responsibility (CSR) models adopted and the extent to which external stakeholders are involved. Building on value creation theory, stakeholder theory, and resource dependence theory, we analyse how collaborative CSR models in partnership with external resources (*i.e.,* firms, universities, and local associations) enhance the impact, effectiveness, and scalability of gender CSR external initiatives.
The empirical analysis is based on a case study of Italian firms. The study employs the Social Return on Investment (SROI) methodology to evaluate the social value generated by gender CSR external initiatives under various scenarios. In particular, the study quantifies both tangible and intangible outcomes across four scenarios: i) a single firm designs and implements the external initiative, relying solely on internal resources; ii) multiple firms collaborate to share resources and expertise, creating synergies for greater impact; iii) a single firm relies on an external partner, such as universities and/or associations, to support initiative design and execution; iv) multiple firms collaborate and involve external partners, combining internal and external resources for efficiency and effectiveness.
The findings reveal that collaborative CSR models in partnership with external resources generate higher social returns than isolated efforts. The results also confirm that gender CSR external initiatives contribute to community development, enhance firm legitimacy, and strengthen the bond between firms and stakeholders.
This study contributes to the CSR and sustainability literature by providing an empirically grounded framework for assessing the social impact of gender CSR external initiatives through collaboration. The results are relevant for both scholars and practitioners seeking to operationalise the "S" dimension in sustainability and advance SDG targets, particularly SDG 5 and SDG 17.

Keywords: Social impact measurement; Collaborative CSR model; CSR external initiatives; gender; Local community engagement; SROI

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6.1 Introduction

Sustainability has gained considerable attention recently, driven by growing awareness of environmental preservation and rising stakeholder expectations, in line with the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs) (Hoang, 2018; Neri, 2021; Song & Rimmel, 2021). While the environmental pillar has often received the most focus, the social and governance dimensions are equally essential for long-term firm resilience (Leggerini et al., 2025; Huang et al., 2023). In particular, social sustainability requires a deeper understanding of how firms integrate inclusivity, equity, and societal well-being into their strategies and performance systems (Bebbington & Unerman, 2018). The growing demand for firms to demonstrate value creation beyond financial outcomes, highlighting their contribution to communities and social progress, reflects these expectations.

The social dimension of corporate strategy reflects a firm's commitment to societal well-being (Kandpal et al., 2024). It encompasses key aspects such as human rights, labour standards, occupational health and safety, working conditions, community involvement, support for marginalised groups, and diversity and inclusion initiatives. Addressing these dimensions not only fulfils ethical and regulatory expectations but also strengthens firm reputation, stakeholder trust, and competitive advantage (Banker et al., 2023). Stakeholders who perceive a firm as socially responsible are more likely to support its activities, advocate for its products or services, and contribute to its long-term success (Kandpal et al., 2024).

Building on value creation theory, stakeholder theory, and resource dependence theory, this article aims to assess the social impact generated by gender corporate social responsibility (CSR) initiatives by applying different collaborative CSR models. In particular, the paper draws on value creation theory to evaluate outcomes and stakeholder theory to examine engagement processes, highlighting trust as a relational mechanism that underpins effective stakeholder collaboration and enhances organisational legitimacy (Ghassab, Tilt, & Rao, 2024). While according to resource dependence theory, we argue that collaborative CSR models in partnership with external resources (*i.e.,* multi-stakeholder partnerships where firms collaborate with external actors such as universities, local associations, and community groups) maximise the impact, effectiveness, and scalability of gender-external CSR initiatives (Eweje et al., 2021; Nonet et al., 2022). These models, in fact, leverage partnerships between firms and external stakeholders to pool resources, expertise, and networks, tackling complex societal issues, including gender inequality (Bhattacharyya & Verma, 2020). Through multi-stakeholder collaborations and collaborative CSR models, in partnership with external resources, social value is amplified, creating new opportunities and fostering shared learning, which addresses resource constraints that often limit individual firms' capacity to execute impactful initiatives (Eweje et al., 2021; Nonet et al., 2022).

However, despite the growing theoretical emphasis on collaboration in CSR, there is still limited empirical evidence on how such mechanisms translate into measurable social outcomes.

Empirical research often neglects the specific evaluation of social value generated by external initiatives, particularly those centred on gender equity. Moreover, while the importance of stakeholder engagement and collaboration is frequently emphasised in theory, few studies offer concrete, comparative insights into how different collaborative models influence social outcomes. This results in a lack of empirically grounded frameworks for assessing the effectiveness of gender-external CSR initiatives implemented in partnership with external actors. Our study addresses this gap by applying the SROI methodology. It provides a novel empirical contribution that links collaborative configurations to measurable social impacts in the field of gender CSR.

The study adopts an explanatory case study approach, which is particularly well-suited for examining complex social phenomena within their real-life context (Tsang, 2013). The analysis is based on a case study of Italian firms, with empirical evidence drawn from four distinct scenarios. The case study approach facilitates a deeper appreciation for how various configurations of collaboration impact the design, implementation, and social outcomes of gender-external CSR initiatives. The use of the Social Return on Investment (SROI) methodology complements the case study. This structured and theory-informed tool quantifies both tangible and intangible social outcomes (Pastore et al., 2025).

The findings show that collaborative CSR models, involving both inter-firm and external partnerships, generate the highest social returns compared to isolated firm initiatives. The results confirm that multi-stakeholder collaboration significantly enhances both the effectiveness and legitimacy of gender CSR initiatives.

Building on these premises, this paper contributes to the advancement of the literature in four main ways. First, it seeks to establish a meaningful connection between gender equity and CSR, positioning them as two essential pillars of social sustainability. While both concepts have been widely discussed individually, their integration as mutually reinforcing elements of a cohesive social strategy remains underexplored. In particular, this paper contributes to the literature by advancing an integrated perspective on gender equity and CSR, demonstrating how collaborative CSR models involving external stakeholders can enhance the social impact of corporate initiatives and provide a replicable framework for operationalising the social dimension of sustainability strategies.

Second, by bridging the gap between theoretical frameworks and practical implementation, this study contributes to a more comprehensive understanding of how firms can leverage collaborative CSR models involving external resources to act as catalysts for sustainable development. It draws on value creation theory to assess outcomes, stakeholder theory to examine engagement processes, and resource dependence theory to explore the role of partnerships.

Third, a key focus of this research is developing a methodology for measuring the social impact of gender-external CSR initiatives. Despite its importance, the social dimension poses unique challenges in measurement and reporting (Ibáñez-Forés et al., 2023). Unlike environmental indicators, such as carbon emissions, or governance metrics like board composition, social outcomes are inherently qualitative and context-dependent, making them less readily quantifiable (KPMG, 2022; Pratici et al., 2024). However, failing to address these factors adequately can lead to reputational risks and missed opportunities for value creation (Adams, 2017). By calculating the SROI, this paper proposes an actionable approach that allows firms to evaluate and communicate the tangible and intangible value generated by gender CSR external initiatives.

Ultimately, by providing a measurement tool, this study seeks to enrich the academic and practical debate on enhancing the external social impact of firms. Integrating theoretical research insights and a real-world case study highlights the synergies that arise from collaborative CSR models engaging external stakeholders, such as universities and associations, in promoting gender equity and strengthening local communities. The discussion highlights how these interconnected strategies can improve the effectiveness of external gender CSR initiatives and foster long-term value creation. Through these efforts, the paper aims to advance both scholarly understanding and practical application, equipping stakeholders with the tools and perspectives necessary to operationalise social sustainability (Eccles et al., 2011).

The paper is structured as follows. Following this introduction, the second section reviews the relevant literature, with a particular focus on the role of CSR initiatives, the dynamics of collaborative models involving external stakeholders, and the relationship between gender equity and CSR. The third section describes the methodological approach, focusing on the case study and the application of the SROI framework to assess social impact. The fourth section presents the results, comparing four different implementation scenarios to highlight how collaboration and external partnerships influence outcomes. The fifth section discusses the findings related to the theoretical frameworks and the broader scholarly debate. Finally, the concluding section reflects on the study's contributions, practical implications, limitations, and potential directions for future research.

6.2 Literature review

6.2.1 CSR initiatives and local communities

Corporate social responsibility (CSR) is a mechanism for implementing social sustainability goals, encompassing the practices and policies adopted by a firm to address the demands of diverse stakeholders, while also emphasising ethical governance and the transparency of information (Cook & Glass, 2018). CSR strategies provide firms with the tools and initiatives they need to operationalise their social objectives, translating sustainability principles into tangible outcomes (Michalski, 2024). CSR has increasingly evolved into a strategic approach for firms seeking to balance profit generation with positive societal contributions (Singh & Misra, 2022; Michalski, 2024).

Gender equity within CSR strategies can be framed across two complementary dimensions: internal equity within firms and external equity promoted through local community initiatives. Gender equity within firms, especially in leadership and CSR teams, significantly influences socially responsible strategies and firm performance[23]. Externally, CSR strategies that promote gender equity through initiatives such as vocational training, microfinance for women entrepreneurs, and educational programs empower communities and strengthen firms' goodwill while supporting resilient supply chains (Jin et al., 2023; Sterbenk et al., 2022). Gender CSR external initiatives focused on local communities offer opportunities for mutual value creation (Noah et al., 2024). By engaging stakeholders, such as schools, families, and local organisations, firms can foster social cohesion, build trust, and address systemic inequalities (Yusif & Hafeez-Baig, 2024). Summarising, CSR external initiatives consist of public and conspicuous actions and communication strategies that aim to acquire legitimacy by soliciting public acceptance of the firms and their procedures from external audiences (Hawn & Ioannou, 2016).

Within this framework, the relationship between CSR external initiatives and local communities is particularly significant, as firms often engage with their immediate environments to foster development, trust, and social cohesion (Carrera, 2022; Mokwakwa & Maphosa, 2023). CSR external initiatives have the potential to move beyond traditional philanthropic efforts when they actively engage local stakeholders in decision-making processes (Yusif & Hafeez-Baig, 2024). This engagement can foster long-term capacity building, empowering communities by promoting shared value creation rather than one-sided firm benefit (Khurshid & Snell, 2022). This aspect is particularly evident when firms involve community representatives in the co-creation of CSR external initiatives,

[23] Women leaders prioritise social and ethical considerations, driving gender CSR initiatives that address workplace equity, fair compensation, and career equity (Velasco-Balmaseda et al., 2024). Their presence fosters a culture of inclusivity and aligns firms with sustainability principles, enhancing reputation and employee engagement (Heubeck, 2024). Furthermore, increasing equity in gender representation in leadership fosters equitable workplaces (Heubeck, 2024). It enhances firm effectiveness, fulfils ethical responsibilities, improves performance, drives innovation, mitigates reputational risks, and creates long-term value (Bannò et al., 2023; Bear et al., 2010). Addressing gender-related barriers aligns with stakeholder priorities on social equity (Akbari et al., 2024).

ensuring that initiatives are aligned with local needs and expectations rather than being externally imposed (S. Y. Lee et al., 2020). When CSR external initiatives are co-designed with local actors, they can unlock higher levels of community participation, resulting in deeper social impact (S. Y. Lee et al., 2020). Local communities' perceptions of CSR external initiatives play a pivotal role in determining their overall effectiveness. CSR external initiatives perceived as genuine and impactful tend to strengthen community trust and firm legitimacy (Brejnholt, 2023). Transparency and consistency in CSR external initiatives are crucial for maintaining stakeholder trust (García-Sánchez, 2020). Conversely, symbolic CSR external initiatives fail to create tangible value and often result in reputational damage rather than the intended social impact (Brejnholt, 2023). CSR external initiatives risk becoming symbolic or performative when community engagement is superficial, failing to address structural inequalities or local power dynamics (Dawkins, 2021).
Gender equity forms only one part of a broader strategy. To fully understand how firms can contribute to gender equality through CSR, it is also essential to examine the role of external initiatives aimed at empowering women and supporting communities.

6.2.2 Collaborative CSR models in partnership with external resources

The collaborative CSR model refers to a multi-stakeholder partnership in which firms work jointly with external actors to design, govern, and implement external CSR initiatives. These models typically involve shared decision-making, pooled resources, and co-created projects aimed at achieving common social objectives. In particular, collaborative CSR models with external resources are multi-stakeholder partnerships where firms collaborate with external actors, such as universities and community groups, to maximise the reach and effectiveness of CSR-related external initiatives (Eweje et al., 2021; Nonet et al., 2022; Sterbenk et al., 2022). These models have gained increasing attention as effective mechanisms for enhancing the social impact of firm initiatives while addressing the resource constraints faced by many firms (Zhang et al., 2022).
Firms, in fact, often face significant barriers to implement comprehensive CSR external initiatives due to limited financial resources, specialised knowledge, and personnel dedicated to sustainability initiatives (Sitkin, 2013). Most firms lack dedicated CSR departments and are unable to independently design and execute effective social initiatives, particularly those targeting complex issues such as gender equity and local community development (Smith & Huang, 2023).
Collaborative CSR models in partnership with external resources may provide a solution by enabling firms to share resources, expertise, and operational capacity with external partners, thereby expanding their social impact (Bhattacharyya & Verma, 2020). Collaborative CSR models, often in partnership with external resources, involve multiple stakeholders working together toward a shared social objective. This multi-actor approach leverages the unique strengths of each partner. For example, firms provide funding and infrastructure, while universities contribute research capacity (Bhattacharyya & Verma, 2020). This approach directly aligns with Sustainable Development Goal 17, Partnerships for the Goals, and particularly with Target 17.17, which calls for effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships. By combining these complementary capabilities, collaborative CSR models that engage external resources can enhance the impact, effectiveness, and scalability of CSR initiatives, generating significantly higher social returns than isolated efforts (Bhattacharyya & Verma, 2020).
Taken together, the dimensions of purpose, structure, and process form a comprehensive framework for understanding CSR external initiatives. The purpose clarifies the social objectives and the underlying motivations of the firm, the structure defines the configuration of actors and resource

flows involved, and the process captures the mechanisms of interaction and coordination among stakeholders. By integrating these three dimensions, firms can design and implement CSR external initiatives that are strategically aligned, operationally feasible, and socially impactful.

6.2.3 Gender equity and CSR

Gender equity in CSR strategies can be analysed through two interrelated dimensions: gender internal initiatives (within firms) and gender external initiatives (fostered through community efforts). This dual approach aligns with Sustainable Development Goal 5: Gender Equality, which calls for the empowerment of all women and girls, as well as the elimination of gender disparities in both private and public spheres.

Concerning the first dimension, gender equity within a firm is critical in shaping socially responsible strategies (Orazalin, 2020). Internally, women in leadership positions and CSR teams tend to show greater sensitivity to ethical issues and broader social challenges, prioritising social and ethical dimensions in decision-making (Haque et al., 2024). Their perspectives often lead to the adoption of solutions that reduce a firm's negative social and environmental impacts and enhance the development of inclusive and equitable CSR initiatives (Post et al., 2011; Zalata et al., 2019). Moreover, women leaders can act as role models, fostering a culture of inclusivity that extends beyond CSR to other firm functions (Evans & Maley, 2021). This internal focus on equity not only aligns with sustainability principles but also strengthens the firm's reputation and employee engagement. Additionally, equity in general on teams enhances internal dynamics and fosters multiple perspectives, ultimately leading to improved firm performance (Haque et al., 2024).

Gender CSR external initiatives typically encompass public and conspicuous initiatives as well as communication strategies aimed at gaining legitimacy (Hawn & Ioannou, 2016). Gender CSR external initiatives can be highly effective tools for promoting gender equity within communities and creating long-term community benefits (Rao & Tilt, 2021). When CSR external initiatives integrate gender diversity as a core component, they contribute to social equity and generate positive economic outcomes (Kuzey et al., 2022). In particular, initiatives that enhance women's entrepreneurship, educational access, and leadership development tend to produce stronger social returns, empowering women both economically and socially and supporting greater household stability (Bannò et al., 2023). Firms that emphasise gender equity extend their commitments beyond their internal operations, implementing initiatives aimed at empowering women and girls in the regions where they operate (Setó-Pamies, 2015). Examples include vocational training programs to enhance women's employability, microfinance schemes that support women entrepreneurs, and educational campaigns designed to challenge traditional gender norms (Adefare et al., 2024; Hasan Emon & Nisa Nipa, 2024). These initiatives improve the socio-economic conditions of local communities and, in the long term, yield benefits for the sponsoring firms by fostering goodwill and establishing more resilient supply chains (Agarwala et al., 2022).

A compelling example of the impact of CSR external initiatives is the role of partnerships in promoting equity, diversity and inclusion at the community level (Jin et al., 2023). When firms collaborate with universities to advance inclusion programs, they benefit local communities while simultaneously stimulating positive cultural shifts within the firm (Jin et al., 2023). Participating in these initiatives often exposes employees to diversity-focused initiatives, prompting them to reflect on inclusive practices in the workplace. This awareness frequently leads to the strengthening of internal policies related to gender equity, diversity and inclusion (Haque et al., 2024). By investing in external gender-focused initiatives, firms often apply the lessons learnt to their internal operations,

resulting in improved hiring practices, a narrowing of the gender pay gap, and an increase in the representation of women in leadership roles (Cook & Glass, 2018). These outcomes further the firm's sustainability objectives and bolster stakeholder trust by showcasing a holistic approach to social responsibility.
The synergy between collective benefits and effective sustainability management underscores the crucial role of gender CSR external initiatives in strengthening a firm's reputation and community relations.
Despite growing interest in both collaborative CSR and gender-inclusive practices, limited research has examined how these two dimensions intersect, particularly within specific socio-economic and cultural contexts (Bhattacharyya & Verma 2020; Nonet et al. 2022). The dynamics of partnership-building, stakeholder engagement, and gender empowerment may vary significantly depending on local institutional conditions, norms, and resource availability. Understanding how to effectively adapt and scale collaborative and gender-focused CSR initiatives across different settings requires addressing this gap.

6.3 Theoretical foundations and hypothesis development

Three interconnected theoretical frameworks can help us better understand the impact of gender CSR external initiatives through the application of collaborative CSR models in partnership with external resources in local communities: value creation theory (Eccles et al., 2011), stakeholder theory (Freeman, 1994) and resource dependence theory (Hillman et al., 2000) (Figure 18).

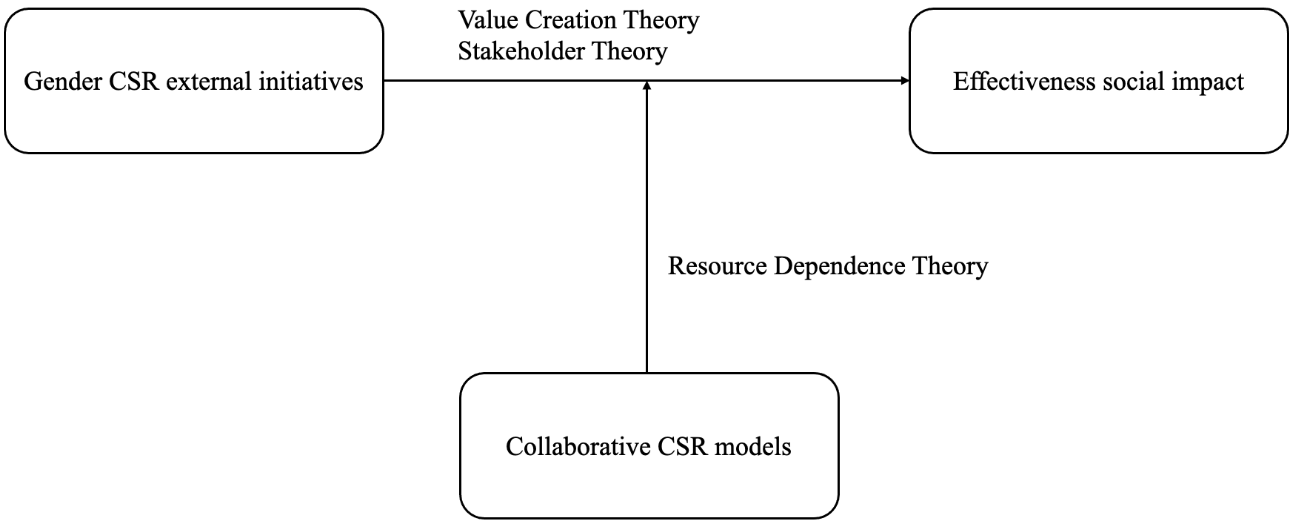

Figure 18-Theoretical frameworks

Drawing first on a value-orientated perspective, value creation theory provides the foundation for understanding how CSR external initiatives can simultaneously deliver benefits to firms and the communities they serve. In particular, value creation theory posits that CSR external initiatives can generate mutual benefits for the firm and the communities it serves, particularly when initiatives focus on long-term capacity building and sustainable development (Windsor, 2017). CSR external initiatives create shared value by addressing societal challenges while enhancing the firm's long-term performance (Eccles et al., 2011). In particular, community-focused gender CSR external initiatives such as women's education programs or women's entrepreneurship initiatives can contribute to local development while expanding the firm's talent pipeline and market reach (Zizka et al., 2021).

Building on this value-orientated perspective, stakeholder theory introduces the importance of inclusivity in the decision-making process of CSR external initiatives (Dmytriyev et al., 2021; Mukhtar & Bahormoz, 2022). For example, initiatives that involve local schools, community leaders, and advocacy groups in the co-creation process can ensure that CSR external initiatives align with community needs and cultural contexts (Boadi et al., 2018; Zizka et al., 2021). Furthermore, collaborations with external partners, such as universities or associations, can strengthen stakeholder engagement by leveraging specialist knowledge and promoting participatory decision-making processes. Within this framework, trust emerges as a key relational mechanism that enables cooperation and long-term commitment among stakeholders, fostering legitimacy and enhancing the credibility of CSR actions (Ghassab, Tilt, & Rao, 2024). In the context of gender equity, stakeholder theory reinforces the importance of including women as key actors both internally (in leadership and decision-making roles) and externally (as beneficiaries and contributors in community initiatives) (Grosser, 2009; Nair, 2020). Therefore, building and maintaining trust becomes essential to sustain inclusive collaboration and ensure that gender CSR external initiatives translate into tangible and lasting social outcomes. Furthermore, gender CSR external initiatives that engage local communities are more likely to generate sustainable outcomes (Rao & Tilt, 2021).

Finally, building on this engagement-orientated perspective, resource dependence theory introduces the idea that firms need resources to survive, prompting them to establish ties with external entities from which they can obtain them (Hillman et al., 2009). Firms often depend on external resources that are limited and owned by other entities (Hillman et al., 2009). As a result, firms must participate in exchanges and establish partnerships with other entities to obtain the resources essential for survival and prosperity (Oliveira-Duarte et al., 2021). Resource dependence theory posits that their relative dependence on each other for resource acquisition dictates power dynamics in organisational relationships (Ozturk, 2021). Therefore, firms that need competent and qualified resources and personnel can source them internally or externally (Oliveira-Duarte et al., 2021; Ozturk, 2021). In the context of gender CSR external initiatives, this theory emphasises the importance of partnerships to access specialised knowledge and networks that promote gender equity. Collaborative CSR models in collaboration with external resources not only provide access to essential resources but also help firms overcome the social and cultural challenges of promoting gender equity (Oliveira-Duarte et al., 2021; Ozturk, 2021). Collaborative CSR models in partnership with external resources amplify shared value creation as diverse stakeholders bring complementary external resources, expertise, and perspectives (Bhattacharyya & Verma, 2020). Moreover, mutual trust plays a crucial role in facilitating resource exchange and coordination, reducing uncertainty, and enabling partners to share knowledge and capabilities effectively (Ghassab et al., 2024). This collaboration can lead to solutions that would be difficult for a single firm to achieve independently, such as cross-sector initiatives targeting systemic issues like gender inequality in education and employment (Eweje et al., 2021; Nonet et al., 2022). Therefore, CSR external initiatives that promote gender equity can enhance firm legitimacy by visibly contributing to societal progress, especially when implemented in collaboration with credible external partners (Zizka et al., 2021). For instance, partnerships with universities for educational programs for women's leadership training create a positive social impact and demonstrate the firm's commitment to broader social values (Eweje et al., 2021; Nonet et al., 2022).

Together, these theories highlight the necessity of creating value (value creation theory), engaging stakeholders (stakeholder theory), and leveraging external expertise and resources (resource dependence theory) for effective gender CSR. By integrating these perspectives, the study offers a unique lens that bridges value creation, inclusive stakeholder participation, and strategic resource acquisition in the context of gender-focused partnerships. This synthesis not only enriches the CSR literature but also deepens understanding of how collaborative, cross-sector approaches can address systemic gender inequalities more effectively. Building on these theoretical foundations, this study examines how gender CSR external initiatives, particularly in the form of a collaborative CSR model in partnership with external resources, impact community development and firms. The study poses the following hypothesis:

Hypothesis: *Gender CSR external initiatives are more effective when conducted through collaborative CSR models in partnership with external stakeholders*

6.4 Empirical analysis

This study adopts an explanatory case study design to investigate the relationship between collaborative CSR models and the social impact of gender CSR external initiatives (Suryawati et al., 2023; Mook et al., 2015). This approach is particularly appropriate, as it enables a deep understanding of complex, real-world phenomena while also allowing us to test theoretical relationships, as outlined in resource dependence theory, stakeholder theory, and value creation theory, and to uncover the causal mechanisms through which collaboration enhances social value creation (Mook et al., 2015).

Explanatory case studies are beneficial for: identifying dynamics and processes that drive social outcomes, such as resource sharing and stakeholder engagement; clarifying ambiguous phenomena, like the intangible social value generated by CSR initiatives; generating both theoretical and practical insights, including new constructs, frameworks, and metrics for impact evaluation; demonstrating social impact across time and stakeholders; and addressing socially complex issues where multiple actors interact in a specific contextual setting (Suryawati et al., 2023, Mook et al., 2015).

We focus on the single case of *Comunità Pratica* and its collaboration with *Stem in Genere*, as it provides an information-rich and revelatory example of a multi-stakeholder initiative aimed at promoting gender equity in STEM (Science, Technology, Engineering and Mathematics) disciplines. The case presents four distinct implementation scenarios, each reflecting different degrees of inter-firm and external collaboration.

Studying multiple configurations within a single organisational context offers two key advantages. First, it allows for a controlled, comparative analysis that isolates the role of collaboration as the primary explanatory variable. Second, by keeping institutional, cultural, and territorial conditions constant, it strengthens internal validity and makes outcome differences more meaningfully attributable to variation in collaborative design. This within-case design thus offers a robust empirical basis for explaining how and why collaborative CSR models generate different levels of social return, delivering important lessons for both research and practice.

6.4.1 Case study description: *Stem in GENERE* and *Comunità Pratica*

Comunità Pratica[24] is a network of Italian firms that have formed the backbone of the local economic industry and collaborate to create a positive impact on the communities in which they live by implementing projects and initiatives focused on sustainable development at environmental, social, and cultural levels.

[24] https://www.comunitapratica.it/

Since 2024, *Comunità Pratica* has collaborated with *Stem in Genere*, a project developed by the University of Brescia. *Stem in Genere* is an education and awareness initiative that addresses gender stereotypes in STEM disciplines (Giovanni, A et al., 2024). The project, which has been active since 2022, is now in its third edition. In 2024, it involved 8,873 students. This partnership ensured that the project achieved its educational goals and strengthened its impact through professional and well-coordinated interventions.

Through the gender CSR external initiative *A ciascuno la sua scienza e il suo mestiere!*, *Comunità Pratica*, in collaboration with *Stem in Genere*, has developed a collaborative CSR model in partnership with external resources: 13 firms share resources to promote gender CSR external initiatives that enhance local communities and address gender inequalities, contributing to overcoming stereotypes in STEM pathways with the participation of external partners, such as the university and *Stem in Genere*, that ensure the integration of specific expertise and innovative methodologies, improving the design and implementation of activities.

In particular, the initiative *A ciascuno la sua scienza e il suo mestiere!*, designed for local primary schools, has clear and strategic objectives that include valorising traditional local professions, linking them to the scientific disciplines on which they are based, breaking down gender stereotypes, encouraging greater participation of girls in STEM fields, providing innovative and inclusive educational tools to stimulate curiosity, interest, and awareness in both boys and girls, and developing a positive dialogue between schools, families, and firms to create an integrated and sustainable educational ecosystem. This gender CSR external initiative, run by qualified educational operators, takes place during school hours and is designed to suit different age groups. The initiative aims to demonstrate how scientific disciplines and related crafts can be accessible and stimulating for everyone, regardless of gender. The aim is to break down the prejudices that still hinder women's participation in scientific and technical careers, promoting a fair and inclusive view of the world of work.

The case of *Comunità Pratica* exemplifies our theoretical frameworks. First, it aligns with value creation theory, as the initiative *A ciascuno la sua scienza e il suo mestiere!* generates mutual benefits for both firms and communities by fostering local development, educational inclusion, and reputational advantages. Second, the initiative's emphasis on community engagement and the co-creation of an educational ecosystem directly reflects the principles of stakeholder theory, which emphasises the importance of involving all relevant actors in shaping and delivering social initiatives. By engaging schools, families, universities, and local organisations, *Comunità Pratica* ensures that the initiative is rooted in shared values and addresses the specific needs of the local context, thereby increasing its legitimacy and longer-term impact. Finally, in line with resource dependence theory, the initiative demonstrates how firms engage in collaborative CSR models to access external knowledge, expertise, and legitimacy, which are essential to achieving greater social impact.

This case also strongly supports the study's hypothesis: that gender CSR external initiatives are more effective when implemented through collaborative CSR models in partnership with external stakeholders. In particular, *Comunità Pratica* demonstrates how the involvement of the University and professional educational staff from the *Stem in Genere* project serves as a critical external resource. These actors contribute methodological expertise, scientific credibility, and operational support, which single firms may lack. Their involvement enhances the initiative's design, implementation, and scalability, ultimately leading to a stronger and more measurable social impact. This collaborative configuration exemplifies how external partnerships are instrumental in overcoming individual resource constraints and maximising social returns, as theorised in our framework.

6.4.2 Methodology: social return on investment

This study used a structured methodology based on the Social Return on Investment (SROI) to address the challenges of measuring the social impact of gender CSR external initiatives and to demonstrate the superior effectiveness of collaborative CSR models in partnership with external resources.

The SROI methodology quantifies social value typically absent from standard financial accounts. It assesses the tangible (economic) and intangible (social) value created by gender CSR external initiatives, representing an effort to achieve comprehensiveness in evaluating the value of a firm's activity (Human Foundation, 2012; Nicholls et al., 2012; Scelles et al., 2024). Moreover, the SROI results enable the firm to effectively convey the connection between inputs (resources invested, such as time, money or skills), outputs (tangible and measurable results of the activities, such as the number of workshops held or the number of participants involved), and outcomes (more profound and long-term changes generated by the initiative, such as improving participants' transversal skills) to various stakeholders, thereby enhancing transparency and accountability (Walk et al., 2015). The SROI methodology relies on traditional cost-benefit analysis (Hopkins et al., 2023) by attributing monetary values to additional returns, including social and environmental impacts, thereby providing a comprehensive perspective on the value generated (Walk et al., 2015). The SROI methodology is particularly suited to capture the nuanced benefits of collaborative approaches described in resource dependence theory, as it enables the measurement of both tangible and intangible value generated through partnerships and the pooling of external resources.

The SROI methodology has been increasingly adopted in both academic and practitioner-orientated research to quantify the social value generated by programs in areas such as social enterprise, education, health, and CSR (Scelles et al., 2024; Suryawati et al., 2023; Mook et al., 2015). Prior studies have utilised SROI to assess the societal impact of initiatives, often to translate intangible social outcomes into monetary terms for greater stakeholder accountability and communication (Scelles et al., 2024; Suryawati et al., 2023; Mook et al., 2015). These applications typically focus on either a single organisation or a specific intervention, aiming to demonstrate value rather than compare different implementation models (Scelles et al., 2024; Suryawati et al., 2023; Mook et al., 2015). This study differs in two important ways. First, it applies SROI within a comparative within-case design, examining a single initiative implemented through four distinct governance and resource configurations. This allows us to use SROI not just as a valuation tool but to test a theoretical hypothesis about how collaboration and resource sharing affect social impact. Second, while previous research often emphasises measurement for reporting purposes, our use of SROI is explicitly theory-informed and aimed at explaining causal mechanisms, in line with an explanatory case study design. In this sense, our contribution lies in bridging theory and measurement by showing how SROI can support hypothesis testing and theoretical development in the field of collaborative CSR and gender equity.

The implementation of SROI involves six steps (Ashton et al., 2024; Corvo et al., 2022; Human Foundation, 2012): defining the scope of the analysis and identifying the stakeholders; mapping the results; quantifying the results and assigning the value; determining the impact; calculating the SROI ratio; and finally returning, using and integrating the results.

Scope of the analysis and identifying the stakeholders. Defining the scope of the initiative involves describing the firm involved, its activities, values, and the specific initiative under analysis. We also identify the location and key beneficiaries. An explanation of the SROI is provided, stating whether it is a forecasted analysis (predicting future outcomes) or an evaluative analysis (assessing past outcomes). Next, the stakeholders are identified and categorised by type and number. It's vital to explain how stakeholders were involved in the process and to what extent, as this ensures the analysis reflects their views and priorities. We focused on the initiative implemented by *Comunità Pratica* in 2024. Stakeholders identified included firms, primary school students, families, teachers, schools, local communities, the university, and educational operators from *Stem in Genere*.

Mapping the results. This step involves describing for each stakeholder how specific inputs lead to outputs and, ultimately, outcomes. This mapping is presented in both narrative and tabular form to highlight the pathway linking the inputs to the final impacts. For instance, students participated in in-class STEM workshops (inputs), received learning materials and attended guided sessions (outputs), and developed greater interest in STEM careers and reduced gender stereotypes (outcomes).

Quantifying the results and assigning the value. Indicators are defined to measure the outcomes, and the data sources for the indicators are described. Inputs, outputs, and achieved outcomes are quantified for each stakeholder. An investment analysis follows, estimating the financial and resource inputs required for the activity. Finally, financial proxies are chosen for each outcome to translate qualitative outcomes into measurable monetary values, and their selection is justified with appropriate evidence or reasoning. We measured, for example, the number of students involved (394) and the value of improved teaching practices (€600/teacher) and used proxies such as the cost parents would pay for soft skills or STEM orientation.

Defining the impact. The analysis estimates the deadweight, which is the portion of outcomes that would have occurred even without the intervention. Next, the attribution is assessed to determine how many outcomes can be credited to the specific activity versus contributions from other factors. If relevant, we consider any displacement effects (*i.e.*, the extent to which the activity replaces or reduces existing positive outcomes elsewhere). We estimated the deadweight, attribution (distinguishing the role of external partners, such as the university), and displacement (none observed).

Calculating the SROI ratio. The social return is calculated using the following formula:

SROI = (Value of outcomes) / (Value of input).

This ratio expresses the social value created for every monetary unit invested. By comparing the total value of outcomes generated to the total investment across different scenarios, we found the best scenario.

Returning, using, and integrating the results. The final step is ensuring that the analysis findings are effectively communicated and applied in decision-making processes. This step promotes transparency and accountability by documenting all decisions made throughout the analysis. It includes identifying how stakeholders can benefit from the results, integrating the outcomes into future planning, and ensuring continuous improvement.

The analysis focuses on assessing the social impact of gender CSR external initiatives. The study is based on the hypothesis that collaborative CSR models in partnership with external resources, involving collaborations between firms and external stakeholders, generate higher social returns than isolated efforts. To test this hypothesis, four distinct scenarios were analysed, each reflecting different combinations of resources and collaborations.

The selection of the four scenarios was theory-driven and based on the need to operationalise different levels of collaboration and resource dependency, as outlined in resource dependence theory and stakeholder theory. Rather than comparing entirely different initiatives, we chose to examine a single CSR initiative implemented under four different configurations. This strategy enables us to systematically assess how variations in organisational structure, specifically whether a firm acts alone or in collaboration and whether it utilises internal or external resources, influence social impact outcomes. The four scenarios represent a comprehensive typology of plausible implementation models in the field of gender-external CSR initiatives. Each configuration reflects a meaningful variation in: (1) the number of firms involved, (2) the presence or absence of external partners, and (3) the degree of stakeholder engagement. This typological variation was purposefully designed to enable a comparative within-case analysis, allowing for the isolation of the roles of collaboration and external resource use as explanatory factors for differences in impact.
So, we examine four distinct scenarios, each characterised by a specific configuration of resources (*i.e.*, internal resources or external partners) and collaborations (*i.e.*, single firms or groups of firms) (Table 10). The table illustrates how each scenario aligns with resource dependence theory (in terms of external resource usage) and stakeholder theory (based on the scope and depth of stakeholder involvement).

Table 10-Scenarios

	Internal resources	**External resources**
Single firm	**First scenario** No collaboration Low dependence on resources Low stakeholder involvement	**Third scenario** (collaborative CSR model with external resources) No collaboration Medium resource dependency Moderate stakeholder involvement
Group of firms	**Second scenario** Collaboration between firms Low resource dependency Moderate stakeholder involvement	**Fourth scenario** (collaborative CSR model with external resources) Collaboration between firms High resource dependency High stakeholder involvement

The **first scenario** sees a single firm independently engaging in the initiative *'A ciascuno la sua scienza e il suo mestiere!*'. In this case, the firm relies solely on its internal resources to design, implement and monitor the initiative. This scenario requires significant internal resources but allows the firm to maintain complete strategic and operational control over the initiative.
The **second scenario** involves a group of collaborating firms working on a joint initiative. When multiple firms collaborate, they can share resources and expertise, resulting in synergies that can enhance the initiative's social impact. This approach is beneficial for tackling complex challenges that require a diverse set of knowledge and skills.
In the **third scenario**, a single firm enlists the support of an external partner who has experience managing and organising this initiative. This type of collaboration enables the integration of specialised resources and skills, which enhances the effectiveness of the intervention. The firm

remains the initiator of the initiative but benefits from the know-how and methodology of the external partner, which helps optimise the results.

Finally, the **fourth scenario** involves collaboration among multiple firms and the involvement of an external partner. In this configuration, the firms work together but entrust an external partner to facilitate, coordinate, and enrich the initiative with specific expertise. This model maximises both the synergies between the firms and the value the external partner adds, resulting in a potentially more extensive and sustainable social impact. Among the four configurations, the fourth scenario represents the ideal type of collaborative CSR model, as hypothesised. It combines inter-firm cooperation with the involvement of external partners, thus maximising both stakeholder engagement and access to critical resources. This scenario best embodies the principles of resource dependence theory and stakeholder theory, serving as the most effective configuration for generating significant social impact through gender CSR external initiatives.

6.5 Results - SROI gender-based methodology application

6.5.1 Scope of the analysis and identifying the stakeholders

The stakeholders involved in the four scenarios vary mainly in terms of the internal or external resources (Table 11).

The relative importance of each stakeholder was assessed through a combination of project documentation review, stakeholder consultations (including meetings and semi-structured interviews), perception surveys, and an analysis of the resources mobilised by each actor (Scelles et al., 2024; Suryawati et al., 2023; Mook et al., 2015). Specifically, a series of semi-structured interviews was conducted at the end of the project with representatives of the main stakeholder involved in the initiative. The interviews aimed to capture stakeholders' perceptions of their engagement, the value generated by the initiative, and the effectiveness of the collaborative model adopted. Each interview lasted approximately 45–60 minutes and was conducted either online or in person, depending on participants' availability. Insights from the interviews were triangulated with project documents and survey data to ensure data consistency and to strengthen the internal validity of the findings. This multi-source, participatory approach ensured that the mapping of outcomes reflected both the empirical contribution and perceived relevance of each stakeholder within the initiative.

In line with established SROI practices, the identification and prioritisation of stakeholders was not limited to listing all actors involved but also included an assessment of their relative importance in the value creation process (Scelles et al., 2024). This assessment was based on three key criteria: the level of engagement of the stakeholder in the initiative (*e.g.,* active co-design vs. passive beneficiary); the extent and significance of expected outcomes (*e.g.,* direct learning gains for students vs. indirect reputational benefits for firms); and the strategic role of the stakeholder in enabling or sustaining the initiative (*e.g.,* logistical coordination, resource provision, institutional support).

Firms are involved in all four scenarios. They contribute with financial resources, expertise, and experience, actively participating in the co-design of the initiative. Consultation with these firms occurs through planning meetings and mutual benefit analysis to ensure that the initiative aligns with their strategic needs.

Elementary school students are the central stakeholders in all scenarios. They actively participate in experiential and educational initiatives and learning. Their involvement is direct through hands-on classroom activities and is supplemented with post-initiative feedback moments to gather their impressions and evaluate the effectiveness of the initiative.

In all scenarios, the families of students play an indirect yet crucial role, supporting their children's participation and keeping them informed about the initiative's goals. They are primarily consulted through perception questionnaires, which help measure the initiative's impact on children's attitudes and interests.

Teachers and schools are present in all scenarios, facilitating the initiative and providing an educational context in which to integrate the initiative. Their consultation is continuous, allowing initiative to be adapted to the specific needs of schools.

The local community indirectly benefits from the initiative in all scenarios. Consultation with the community occurs through dissemination events and the sharing of initiative results.

The university, educational operators, and the external association are stakeholders that collaborate synergistically to ensure the initiative's success. The university plays a crucial role in the scientific and operational coordination of the initiative. The university actively participates by setting strategic goals and overseeing initiatives, ensuring alignment with principles of sustainable development and inclusion. Educational operators, who are part of the external association, are responsible for designing and implementing the initiative. With their educational experience, they translate the initiative content into accessible and engaging activities for students, ensuring that the approach is adapted to different age groups. Their participation is constant and direct, with regular feedback moments to optimise initiative and respond to the participants' needs. These stakeholders, acting in synergy, bring complementary expertise that ensures the quality and consistency of initiatives, contributing significantly to achieving educational and social goals.

Table 11-Stakeholders

Stakeholder	Role and Involvement	Consultation Measures	First scenario	Second scenario	Third scenario	Fourth scenario
Firms	Contribute with financial resources and expertise, and actively participate in initiative co-design.	Active consultation through design meetings and reciprocal benefit analyses.	x	x	x	x
Elementary school students	Actively participate in experiential and educational initiatives, learning.	Direct involvement through practical classroom activities and post-initiative feedback moments.	x	x	x	x
Families of students	Support their children's participation and are informed about the initiative's objectives and results.	Indirect consultation via perception questionnaires assessing the initiative's impact on their children.	x	x	x	x
Teachers and schools	Facilitate initiative organization and provide an educational context for the initiative's content.	Continuous consultation to adapt the initiative to the specific needs and contexts of schools.	x	x	x	x
Local community	Indirectly benefit from increased awareness and interest.	Indirect consultation through dissemination events and sharing results with the public.	x	x	x	x
University	Coordinates the external initiative and evaluates its social and cultural impact.	Active consultation for defining objectives and assessing results.			x	x
External association	Defines the methodology and coordinates the intervention in collaboration.	Active consultation through planning meetings.			x	x
Educational operators	Design and deliver initiatives, making the content accessible and engaging for students.	Direct and ongoing involvement, with periodic feedback to enhance the initiative experience.			x	x

6.5.2 Mapping the results

The results map illustrates the specific activities (outputs), the significant short- and long-term changes (outcomes) for all stakeholders, and the scenario in which they occur (Table 12). The scale and intensity of the activities, as well as the number of people involved, depend directly on the configuration adopted. Funding firms gain significant benefits in terms of visibility and reputation. Participating in initiatives positions them as recognized educational partners in the local community, improving their image in the short term and consolidating their reputation as socially responsible entities in the medium to long term. Additionally, their involvement increases their attractiveness to young talent, who see a socially committed work environment as a key benefit in these firms.

In all four scenarios, elementary school students are among the primary beneficiaries. The proposed activities increase their interest in STEM disciplines, help them overcome gender stereotypes, and develop soft skills such as teamwork and problem-solving. Students and families also build confidence in pursuing STEM careers and become more aware of local opportunities.

Teachers and schools also benefit significantly from this initiative. The initiative enables teachers to strengthen their teaching skills by adopting innovative methodologies to engage students. They also acquire tools to promote gender equity and support students in their educational choices, helping to create a more inclusive and caring educational environment.

The local community benefits indirectly but significantly. The initiative strengthens a sense of belonging to the local area by enhancing connections between young people and local professionals. They also create opportunities for intergenerational dialogue, reducing gender stereotypes and increasing collective awareness of the importance of inclusion and diversity.

Specific outcomes emerge in scenarios that include an external partner (scenarios 3 and 4). The university strengthens its role as a central player in the sustainable development of the area, consolidating its image as a promoter of innovative and inclusive initiatives. The external association gains recognition as an educational partner of excellence, demonstrating its ability to contribute to innovative and replicable initiatives. Ultimately, educational operators enhance their practical skills in managing educational initiatives, thereby strengthening their professional profile.

Table 12-Output for all stakeholders

Scenario	Stakeholder	Output	Outcome
Scenario 1-2-3-4	Firms	Total hours dedicated to coordination of the initiatives	● Greater visibility in local schools as educational partners ● Positive image return (in the short term) ● Improved firm reputation (consolidated in the medium to long term) ● Increased attractiveness for talent
Scenario 1-2-3-4	Firms	Educational materials developed and provided	
Scenario 1-2-3-4	Elementary school students	Number of students involved	● Increased interest in STEM ● Reduction of gender stereotypes ● Soft skills acquired by the student ● Student believes they can pursue a STEM career ● Greater awareness of local opportunities
Scenario 1-2-3-4	Elementary school students	Number of classes involved	
Scenario 1-2-3-4	Elementary school students	Total hours of educational activities provided	
Scenario 1-2-3-4	Elementary school students	Educational materials distributed to students	
Scenario 1-2-3-4	Families of students	Number of households reached	● Student believes they can pursue a STEM career ● Greater awareness of local opportunities
Scenario 1-2-3-4	Families of students	Number of completed perception questionnaires	
Scenario 1-2-3-4	Teachers and schools	Number of teachers involved in planning and implementation	● Improved innovative teaching skills ● Enhanced competencies in gender equity ● Ability to support students in educational choices
Scenario 1-2-3-4	Teachers and schools	Number of schools involved	
Scenario 1-2-3-4	Teachers and schools	Total hours dedicated to coordination of the initiatives	
Scenario 1-2-3-4	Local community	Number of municipalities involved	● Strengthened sense of belonging to the territory ● Better integration between young people and local professionals ● Reduction of gender stereotypes in the community and increased awareness of the issue
Scenario 3-4	University	Number of people involved	● Promotion of the university's image as a key player in sustainable territorial development
Scenario 3-4	University	Reports produced	
Scenario 3-4	University	Total hours dedicated to coordination of the initiatives	
Scenario 3-4	External association	Number of people involved	● Recognition as an excellent educational partner in innovative initiatives
Scenario 3-4	External association	Reports produced	

Scenario 3-4	External association	Total hours dedicated to coordination of the initiatives	
Scenario 3-4	Educational operators	Number of educational operators trained and engaged	• Increased practical skills in managing educational initiatives

6.5.3 Quantifying the results and assigning the value

The financial proxies used in the initiative represent an economic estimate of the value associated with input and social outcomes (Ashton et al., 2024; Corvo et al., 2022; Human Foundation, 2012). The estimation and allocation of costs across the four implementation scenarios were carried out to ensure both methodological transparency and comparability (Ashton et al., 2024; Corvo et al., 2022; Human Foundation, 2012). The process was grounded in a triangulation of multiple data sources, combining actual expenditure data from the initiative, market benchmarks, and qualitative insights gathered through interviews with key project stakeholders. All cost assumptions were cross-validated with project coordinators from *Comunità Pratica* and *Stem in Genere*, and were further supported by market analysis and references to similar SROI studies (*e.g.,* Bellucci et al., 2023; Scelles et al., 2024; Suryawati et al., 2023; Mook et al., 2015). This process ensures that the cost breakdown is not only realistic and context-specific but also methodologically robust for comparative analysis.

In the four scenarios, the costs incurred by the firms vary according to the configuration of resources (*i.e.*, internal resources or external partners) and collaborations (*i.e.*, single firms or groups of firms), directly affecting the overall design and efficiency of the initiative (Table 13).

In the first scenario, the firm takes full financial and operational responsibility. The firm fully covers the expenses of the initiative, including the production of educational materials and logistics (*e.g.,* transport, delivery, classroom setup). In addition, the firm must take care of initiative design, a process that requires significant resources to define objectives, plan activities, and prepare content. This initiative's high costs result in limited resources, hindering the expansion of its scope.

In the second scenario, firms collaborate to share costs and responsibilities with other firms. This approach enables financial contributions (*e.g.,* costs related to initiatives, teaching materials, and logistics) to be divided equally among the participating firms, thereby reducing each firm's economic burden. The cost of design is also shared, allowing each firm to benefit from the resources and expertise of the others. Collaboration improves operational efficiency, enabling firms to achieve larger and more significant results than they could on their own, and maximising the initiative's impact.

In the third scenario, a firm contributes financially to the initiative's core activities. Still, it relies on the external partner for design and implementation, thereby reducing the internal initiative load, as the external partner already has the necessary expertise, resources, and materials. The costs associated with finding and hiring a partner are lower than those of an in-house design, making this scenario a more efficient option for achieving high-quality results.

Finally, the fourth scenario combines the benefits of sharing costs and expertise. The participating firms share costs, accumulating a larger collective budget. In addition, the external partner handles the design entirely, eliminating the need for in-house investment at this stage. Thanks to the synergy between the firms and the partner's support, maximum efficiency in using resources is achieved, allowing the scope and quality of the initiative to be significantly expanded.

Table 13-Cost associated with the different scenario

Scenario	Stakeholder	Costs
Scenario 1	Firms	- Internal design cost of the intervention (full responsibility) - Costs related to initiative, teaching materials and logistics (*e.g.,* transport, delivery, classroom setup) (full responsibility)
Scenario 2	Firms	- Internal design cost of the intervention (shared responsibility) - Costs related to initiative, teaching materials and logistics (*e.g.,* transport, delivery, classroom setup) (shared responsibility)
Scenario 3	Firms	- Cost of external search for partner(s) with knowledge and expertise for the requested initiative (full responsibility) - Costs related to initiative, teaching materials and logistics (*e.g.,* transport, delivery, classroom setup) (full responsibility)
Scenario 4	Firms	- Cost of external search for partner(s) with knowledge and expertise for the requested initiative (shared responsibility) - Costs related to initiative, teaching materials and logistics (*e.g.,* transport, delivery, classroom setup) (shared responsibility)

This analysis of costs demonstrates how the collaborative CSR model, utilising external resources (scenario 4), reduces design costs and amplifies results, making initiatives more sustainable and effective than the individual approach. Moreover, the collaborative CSR model with external resources offers a significant benefit to all stakeholders compared to those conducted by a single firm, and it allows greater financial resources to be available while keeping individual investment unchanged.

Table 14 shows the financial proxies and the quantification of relative cost for all social outcomes. The financial proxies enable the translation of intangible social benefits into tangible economic metrics, facilitating a transparent and uniform assessment of the initiative's social impact (Bellucci et al., 2023; Scelles et al., 2024). The financial proxies and associated costs remain the same in all scenarios.

Table 14-Financial proxies and cost for all outcomes

Scenario	Stakeholder	Social outcomes	Financial proxy	Cost	Source
Scenario 1-2-3-4	Firm	Greater visibility in local schools as educational partners	Cost of a public event	€15,000/community	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 1-2-3-4	Firm	Positive image return (in the short term)	Cost of an event	€5,000/firm	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 1-2-3-4	Firm	Improved firm reputation (consolidated in the medium to long term)	Cost of a sponsorship	€5,000/community	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 1-2-3-4	Firm	Increased attractiveness for talent	Cost of a sponsorship	€8,000/firm	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 1-2-3-4	Elementary school students	Increased interest in STEM	STEM initiative cost per student	€100/student	Personal elaboration from Cabrera & Carrion, (2022)
Scenario 1-2-3-4	Elementary school students	Reduction of gender stereotypes	Gender initiative cost per student	€50/student	Average cost calculated by comparing the estimated annual course fees (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 1-2-3-4	Elementary school students	Soft skills acquired by the student	Cost that parents would be willing to pay for their children to learn soft skills	€60/student	Personal elaboration from Cabrera & Carrion, (2022)
Scenario 1-2-3-4	Elementary school students and families	The student believes they can pursue a STEM career	Cost that parents would be willing to pay for their children to be interested in a STEM career	€40/student	Personal elaboration from Cabrera & Carrion, (2022)
Scenario 1-2-3-4	Elementary school students and families	Greater awareness of local opportunities	Local opportunity initiative cost per student	€100/student	Average cost calculated by comparing the estimated annual course fees (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 1-2-3-4	Teachers and schools	Improved innovative teaching skills	Cost that teachers would be willing to pay to acquire these skills	€600/teacher	Personal elaboration from Cabrera & Carrion, (2022)
Scenario 1-2-3-4	Teachers and schools	Enhanced competencies in gender equity	Gender initiative cost per teachers	€120/teacher	Average cost calculated by comparing the estimated annual course fees (Bellucci et al., 2023; Scelles et al., 2024)

Scenario 1-2-3-4	Teachers and schools	Ability to support students in educational choices	Cost that teachers would be willing to pay to acquire these skills	€400/teacher	Personal elaboration from Cabrera & Carrion, (2022)
Scenario 1-2-3-4	Local community	Strengthened sense of belonging to the territory	Cost of a sponsorship	€10,000/firm	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 1-2-3-4	Local community	Better integration between young people and local professionals	Cost of a sponsorship	€3,000/firm	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 1-2-3-4	Local community	Reduction of gender stereotypes in the community and increased awareness of the issue	Cost of an initiative to the community	€10,000/firm	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 3-4	University	Promotion of the university's image as a key player in sustainable territorial development	Cost of a sponsorship	€12,000/university	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 3-4	External association	Recognition as an excellent educational partner in innovative initiatives	Cost of a sponsorship	€5,000/Association	Market analysis and interview (Bellucci et al., 2023; Scelles et al., 2024)
Scenario 3-4	Educational Operators	Increased practical skills in managing educational initiatives	Cost of a course	€500/operator	Interviews with educational operators (Bellucci et al., 2023; Scelles et al., 2024)

6.5.4 Defining the impact

By the SROI methodology, the impact was defined by assessing deadweight, attribution, and displacement, which are key to estimating the net value generated by the initiative.
In this case, all three elements were considered equal to zero, based on the following considerations:
Deadweight. No similar initiatives focused on gender equity in STEM were present in the participating schools or communities before the intervention. Stakeholder interviews confirmed that the initiative was the primary cause of the observed outcomes, including increased interest in STEM disciplines and improved teaching practices.
Attribution. The outcomes were directly and uniquely linked to the initiative, which was identifiable by all stakeholders as the primary cause of change. There were no concurrent interventions or overlapping programs contributing to the same goals during the implementation period.
Displacement. The initiative did not replace or interfere with other positive activities.
For these reasons, we assumed deadweight, attribution, and displacement to be zero in the SROI calculation. This choice is consistent with the evaluative nature of the study and reflects the clear causal link between the initiative and the observed outcomes.

6.5.5 Calculating the SROI ratio

The distribution of stakeholders between the scenarios (Table 15) reveals a clear advantage in terms of reach and involvement, as collaborative CSR models have a higher participation from classes, students, teachers, municipalities, and operators. This indicates that collaborative CSR models enhance the ability to reach and involve more stakeholders.

Table 15-Numbers of stakeholder involved

Stakeholders	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Number of Firm	1	13	1	13
Number of Elementary school students	30	394	30	394
Number of Families of students	30	380	30	380
Number of Teachers	18	233	18	233
Number of Local communities	2	21	2	21
Number of Universities	0	0	1	1
Number of External associations	0	0	1	1
Number of operators	1	12	1	12

Table 16 illustrates the differences in financial inputs among the four scenarios, reflecting the degree of complexity and the level of collaboration among the parties involved. In scenario 1, where a single firm operates exclusively with internal resources, total costs remain relatively low, limited to internal design costs (€5,000) and material and logistics costs (€1,000). This reflects a simple structure with no additional organisational complexity or partnerships. In scenario 2, where the collaborative CSR model emerges, design costs double (€10,000) due to the need to coordinate multiple actors. Initiative and logistics costs also increase significantly (€13,000), reflecting the larger scale of the initiative and the involvement of more firms as funders. In scenario 3, a single firm involves external resources (*i.e.* partner), generating costs for the partner search (€560). In this case, the overall costs remain low compared to the collaborative scenarios, but the reliance on a single firm limits the impact. Finally, in scenario 4, the collaborative CSR model with external resources yields a total cost of €14,120. Here the cost of finding the external partner double (€1,120) reflects greater organisational complexity.

Table 16-Financial inputs

Stakeholder	Financial Inputs	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Note			Design costs double due to coordination between several firms	Cost of external partner search is estimated as one person working 8 hours for two days at a cost of 35€/hour	Design costs double due to coordination between several firms
Firms	Internal design cost of the intervention	€ 5,000	€ 10,000		
Firms	Costs related to initiative, teaching materials and logistics	€ 1,000	€ 13,000	€ 1,000	€ 13,000
Firms	Cost of external search for partner(s) with knowledge and expertise for the requested initiative			€ 560	€ 1,120
TOTAL INPUT COST		€ 6,000	€ 23,000	€ 1,560	€ 14,120

Table 17 shows the percentage change in total input costs, social outcomes and SROI compared to Scenario 1, which serves as the baseline. The analysis highlights some key dynamics related to the evolution of the scenarios. Scenario 2 shows a significant increase in total input costs (+283.33%), reflecting the complexity and additional costs associated with the collaborative CSR model. In contrast, Scenario 3 drastically reduces costs (-74%) due to the targeted involvement of an external partner, keeping internal costs low. Scenario 4, which combines collaboration between firms and external partners, shows a moderate increase (+135.33%), indicating a balance between costs and complexity. Social outcomes show an increase in scenario 2 (+1.200%) and scenario 4 (+1,211.83%), demonstrating the effectiveness of the collaborative CSR model in generating large-scale social benefits. However, in Scenario 3, the increase is modest (+8.98%), suggesting that the involvement of a single external partner, while limiting costs, fails to produce the same impact as more collaborative configurations.

Scenario 3, despite reducing costs, generates a significant increase in SROI (+319.15%) due to the effective utilisation of external resources. SROI highlights the greater efficiency of the collaborative CSR model with external resources; in fact, scenario 4 shows the highest value (+457.43%), underscoring how the combination of collaboration and external resources maximises social return. Scenario 2, despite having a lower SROI (+239.13%), shows that partnership between firms alone is also effective in improving social benefits.

Table 17-Percentage change of value of input, value of outcome and SROI compared to scenario 1

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
DELTA Value of input	0	+283.33%	-74.00%	+135.33%
DELTA Value of outcome	0	+1,200.00%	+8.98%	+1,211.83%
DELTA SROI	0	+239.13%	+ 319.15%	+457.43%

6.5.6 Returning, using and integrating the results

The results of the SROI analysis were actively utilised to strengthen the impact of gender CSR external initiative with external resources and to refine strategic planning processes among the involved stakeholders. A comprehensive report summarising both quantitative and qualitative findings was shared with all key stakeholders, highlighting the tangible outcomes achieved and guiding evidence-based decision-making.

Firms and educational operators organised debriefing initiatives with students, teachers, and families to gather feedback and ensure that future initiatives better address community needs. These participatory sessions contributed to refining the intervention model and institutionalising a more impact-orientated approach to CSR planning.

Based on the SROI findings, firms were able to prioritise more effective collaborative configurations, especially Scenario 4, and reallocate funding toward initiatives involving external expertise, which demonstrated higher social returns. The comparative analysis across scenarios also supported strategic partner selection, favouring actors such as educational operators and universities that have a proven capacity to deliver meaningful outcomes.

Furthermore, several participating firms reported that they integrated the SROI outcomes into their sustainability or ESG reporting, particularly under sections related to social impact and community engagement. Stakeholder feedback perceived this integration as a useful tool to enhance transparency and improve communication with both internal and external audiences.

The results served as a benchmark for future planning, enabling firms and partners to define impact indicators and set measurable targets aligned with their goals for gender equity and community engagement.

6.6 Discussion

According to our hypothesis, the results suggest that the collaborative CSR model utilising external resources yields significantly greater social benefits than individual initiatives. These results support the literature's emphasis on the significance of both the collaborative CSR model with external resources and a systems approach in gender-focused CSR initiatives (Bhattacharyya & Verma, 2020; Nonet et al., 2022).

The results confirm that integrating gender equity into external CSR initiatives generates tangible social impacts in local communities. Reducing gender stereotypes and increasing interest in STEM among students are two crucial outcomes. The findings align with evidence in the literature; in fact, gender CSR external initiatives have a positive impact on both the internal performance of firms and the development of local communities (Cook & Glass, 2018; Setó-Pamies, 2015). In particular, the collaborative CSR model, which utilises external resources and involves universities and external associations, is the most effective. This finding emphasises the transformative role of partnerships in promoting inclusiveness and gender equity (Walters, 2022).

Beyond empirical results, this study contributes to the theoretical advancement of resource dependence theory, stakeholder theory, and value creation theory by uncovering new mechanisms through which collaborative CSR models with external resources enhance social impact. From a resource dependence theory perspective, our findings suggest a shift from the traditional view of firms mitigating external dependencies (Hillman et al., 2009) toward a model of strategic resource interdependence. In Scenario 4, for instance, firms intentionally enter high-dependency relationships with external actors (*e.g.,* universities and educational operators) not to minimise uncertainty, but to access complementary competencies and legitimacy (Ozturk, 2021; Oliveira-Duarte et al., 2021).

This reframes dependency as a deliberate strategy for maximising collective effectiveness, extending resource dependence theory by highlighting that dependency can be a source of advantage when embedded in purpose-driven, trust-based collaborations (Bhattacharyya & Verma, 2020). According to resource dependence theory, firms depend on resources, which are often limited and held by other actors. Therefore, a collaborative CSR model with external resources provides access to the specialised expertise and networks needed to promote gender diversity and inclusion (Hillman et al., 2009; Ozturk, 2021). When gender CSR external initiatives are co-designed with local actors, they can increase community participation and have a deeper social impact (S. Y. Lee et al., 2020).
For stakeholder theory, our study demonstrates that stakeholder engagement is most effective when it transitions from transactional inclusion to structurally embedded co-governance (Freeman, 1994; Dmytriyev et al., 2021). We conclude that the *configuration* of stakeholder relationships (*e.g.,* co-design of activities with schools, continuous feedback loops with families) affects not only legitimacy but also the sustainability and depth of outcomes (Zizka et al., 2021; Boadi et al., 2018). This extends stakeholder theory by emphasising that stakeholder value is co-produced through governance mechanisms, not merely through representation or dialogue. Stakeholder theory (Freeman, 1994) emphasises that firms must consider and balance the needs and expectations of all relevant stakeholders to create sustainable value. This research demonstrates how well-designed external gender CSR initiatives, notably a collaborative CSR model with external resources, can generate significant benefits for different stakeholders, strengthening the bond between the firm and the local community. Reducing gender stereotypes and increasing awareness about STEM careers among the younger generation shows a significant impact on individuals and families. This result indicates that gender-orientated educational initiatives produce long-term economic and social benefits (Bannò et al. 2023; Duflo 2012). Increased visibility in schools and improved reputations as socially responsible actors highlight the potential of gender CSR initiatives, supported by external resources, to enhance the attractiveness of firms. These findings align with studies on the importance of transparent, stakeholder-orientated strategies (Cook & Glass, 2018; García-Sánchez, 2020). In addition, the initiatives helped to strengthen a sense of territorial ownership, demonstrating that gender CSR external initiatives can be a catalyst for social change (Carrera, 2022; Rhee et al., 2021).
Regarding value creation theory, our comparative within-case design demonstrates that value is not created simply through bilateral firm-community interactions but through multi-actor ecosystems with aligned goals and differentiated roles (Eccles et al., 2011; Windsor, 2017). By showing that higher social returns emerge from the combination of internal resources, external expertise, and distributed coordination, our findings support an ecosystem-based understanding of value creation (Nonet et al., 2022; Zizka et al., 2021). This contribution extends value creation theory by incorporating governance structure and stakeholder configuration as key enablers of shared value, particularly in complex domains like gender equity and educational inclusion.

The findings of this study also contribute to the broader global agenda on sustainable development, particularly about Sustainable Development Goal 5 (Achieve gender equality and empower all women and girls). By demonstrating that collaborative CSR models, especially those involving educational institutions and community actors, can measurably reduce gender stereotypes and foster interest in STEM careers among young girls, this study offers a concrete pathway for firms to align their social strategies with SDG 5 targets.

The use of the SROI methodology allowed for the quantification of both tangible and intangible outcomes. This approach provided greater transparency and enhanced the legitimacy of the firms involved (Bebbington & Unerman, 2018). Furthermore, the results of the SROI ratio calculation show that the collaborative CSR model with external resources generates much higher social returns than isolated ones, confirming the hypotheses on shared value creation (Eccles et al., 2011).

6.7 Conclusion: implication, limitation and future developments

This study provides robust empirical evidence that collaborative CSR models involving external resources, such as universities and educational operators, generate significantly higher social returns compared to isolated, firm-led initiatives. Among the four implementation scenarios examined, the most effective configuration (Scenario 4) combined inter-firm cooperation with the involvement of qualified external partners, resulting in measurable improvements in stakeholder outcomes. These results highlight the tangible value of designing gender CSR external initiatives as co-governed, multi-stakeholder processes, rather than firm-centric interventions. By systematically comparing different collaborative configurations, our study offers both theoretical insights and practical guidance for aligning CSR practices with broader sustainability strategies and sustainable development goals.

Our study has several management and policy implications.

First, the results suggest that firms should consider gender CSR external initiatives a central component of their strategy. Incorporating goals related to gender equity and social impact into firm strategies can enhance a firm's reputation, strengthen stakeholder relationships, and increase the attractiveness of young talent, particularly in STEM fields.

Second, managers can use SROI results to demonstrate to investors and stakeholders the added value of gender CSR external initiatives. Gender CSR external initiatives have proven to be the most effective in generating significant social impacts and ensuring a high return on investment. This result underscores the importance for managers to adopt a strategic approach that enhances partnerships with key players such as universities, associations, and other local stakeholders. Gender CSR external initiatives with these entities make it possible to expand the pool of expertise and resources available, thereby fostering shared value creation. Co-creation of value is central to gender CSR external initiatives, as involving multiple stakeholders enables the development of innovative and sustainable solutions that better respond to local needs. Sharing resources and expertise amplifies social impact and optimises costs, demonstrating that collaborating is essential to successfully addressing complex challenges and generating lasting benefits for firms and local communities.

Third, introducing reporting requirements for firms is important in improving transparency and accountability. Incorporating specific gender equity and social impact metrics into sustainability reports would enable more accurate tracking of progress toward these goals. In addition, requiring tools such as SROI would allow firms to concretely demonstrate the effectiveness of their initiatives, making the connection between investments and social benefits generated more straightforward and transparent.

Fourth, local governments and institutions can play a crucial role in promoting educational initiatives through dialogue among firms, schools, and universities, thereby creating synergies that foster shared initiatives.

This study has some limitations that deserve attention. First, the specific context of application may limit the generalisability of the results. Second, the application of the SROI methodology, while offering a structured method to assess social impact, relies on financial estimates and proxies that may not fully capture the complexity and intangibility of some social benefits. In addition, some factors may affect the reliability of the calculated SROI ratios, such as variability in cost estimates (*e.g.,* labour or logistics expenses across different contexts) and differences in stakeholder engagement levels, which can influence the intensity and quality of the outcomes. Although proxies and assumptions were validated through triangulation and expert input, these elements introduce a degree of approximation. Finally, the analysis focuses primarily on short- and medium-term benefits, allowing future studies to investigate the long-term effects of gender CSR external initiatives and collaborative configurations.

Despite these limitations, the study offers several strengths that enhance its relevance and originality. First, it applies the SROI methodology not only as a measurement tool but also as a comparative and theory-informed framework, which is still rare in academic research. Second, it provides a novel contribution to the literature on CSR by focusing specifically on gender-orientated external initiatives, an area often overlooked in traditional CSR analyses. Third, the within-case comparative design enables stronger causal inferences about how different collaborative configurations impact social outcomes, providing practical and theoretical insights for both firms and policymakers.

Building on the findings and limitations of this study, several avenues for future research emerge. First, we could test the collaborative CSR model with external resources in sectors and geographical contexts beyond the education and STEM domains. Comparative studies across industries (*e.g.,* health, energy, and manufacturing) and institutional environments help assess the generalisability of the findings and reveal how local context shapes the dynamics of collaboration and stakeholder engagement. Second, future research should focus on improving the measurement of intangible social outcomes, such as empowerment, attitudinal change, and long-term social mobility. Developing validated indicators and financial proxies for these outcomes would strengthen the methodological robustness of SROI and other impact assessment tools. Third, there is room to explore more complex multi-stakeholder governance models that involve public authorities, civil society organisations, and transnational networks. Investigating how coordination mechanisms, power asymmetries, and trust dynamics affect the effectiveness and legitimacy of CSR collaborations could provide new theoretical insights. Fourth, future work could examine how collaborative CSR models are institutionalised within firms' ESG and sustainability reporting practices. Longitudinal studies may reveal whether and how the adoption of impact-orientated tools such as SROI influences organisational learning, reporting quality, and stakeholder perceptions over time.

Finally, research could investigate how different forms of active stakeholder engagement, such as participatory design, co-monitoring, and shared decision-making, affect both process legitimacy and social outcomes, especially in contexts where trust in institutions or firms is low. Together, these directions can help consolidate the collaborative CSR model as a strategic and measurable approach for promoting gender equity and broader social sustainability goals.

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CONCLUSION

Overall, the dissertation offers an integrated interpretation of corporate social responsibility (CSR) processes through the lens of the ADO (Antecedent, Decision, Outcome) model. The four studies that comprise it demonstrate how corporate responsible action is not an isolated event, but a dynamic process that develops over time and on multiple levels: structural, decisional, and impact.

In the Antecedents phase, the analyses show how diversity and family nature are two key determinants of CSR. Diversity (at the micro, meso, and macro scales) broadens decision-making perspectives and fosters a more inclusive approach to CSR. At the same time, family firms are oriented toward value-based and locally rooted social media communications, driven by the need for legitimacy and the protection of socioemotional wealth. Both dimensions outline the cognitive and identity-based prerequisites that predispose firms to adopt responsible strategies.

The Decision phase translates these conditions into operational choices: CSR communication on social media emerges as an intermediate mechanism connecting structures and outcomes. Social media are no longer mere reporting tools, but deliberative spaces where companies build legitimacy, engage with stakeholders, and renegotiate the meaning of responsibility in real time. Communication thus becomes a strategic decision, capable of mediating between organizational antecedents and outcomes of trust, reputation, and credibility.

Finally, the Outcome phase shows how these decisions translate into shared value and measurable social impact. Through the application of the Social Return on Investment (SROI) methodology, the dissertation demonstrates that inclusive CSR initiatives produce economic, relational, and social benefits in terms of empowerment, well-being, and cohesion, making the creation of value for the community tangible.

The ADO framework allows us to view CSR as a dynamic and cyclical learning process in which antecedents predispose firms to certain responsible orientations, decisions translate these orientations into communicative and relational actions, and outcomes validate their transformative impact. By linking structural and contextual drivers, strategic choices, and the tangible and intangible results they generate, the framework integrates perspectives that are often treated separately (such as governance, legitimacy, and social impact) and advances a vision of corporate responsibility as a process of continuous value creation capable of fostering learning, trust, and shared well-being. This cyclical logic also highlights how outcomes feed back into the system by reinforcing legitimacy and shaping future CSR engagement (Figure 19).

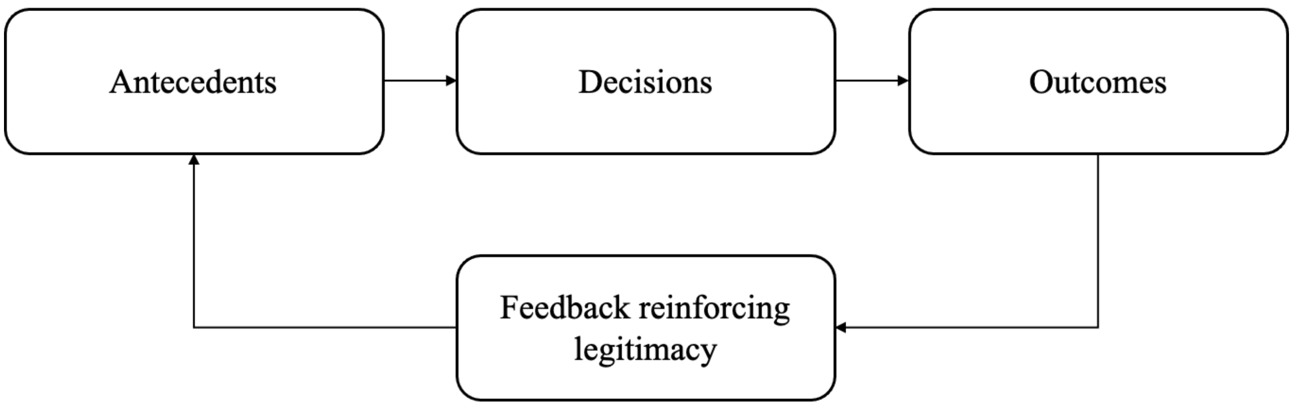

Figure 19-The ADO Framework for CSR Research

Taken together, the dissertation shows that CSR is not merely a firm choice but a foundational mechanism through which firms interpret their role in society. In a context marked by increasing social expectations, digital transparency, and demands for inclusiveness, the capacity of firms to act responsibly becomes a key driver of long-term legitimacy and sustainable value creation. The findings affirm that diversity, family identity, communication practices, and social impact measurement are not separate domains, but interconnected levers of a broader transformation in how firms relate to stakeholders. Ultimately, the dissertation underscores that responsible firms are those able to integrate antecedents, decisions, and outcomes into a coherent trajectory of purpose-driven action. In this sense, CSR emerges not only as a strategic orientation, but as a pathway through which firm contribute to collective well-being and shape more equitable and resilient socio-economic systems.

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