

Reinforcing corporate sustainability in times of crisis: a legitimacy perspective of resilience

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Abstract

Purpose – Despite growing attention to sustainability, ambiguity remains regarding whether maintaining such initiatives during corporate financial crises may strain resources needed for recovery. Drawing on legitimacy theory and resilience perspectives, this study aims to examine how reinforcing corporate sustainability performance during a crisis influences recovery speed, the mediating role of investor commitment and the moderating influence of the economic environment.

Design/methodology/approach – Using secondary data from the LSEG Refinitiv database covering 190 firms across multiple industries over an eight-year period, this study applies regression, mediation and moderation analyses to assess how reinforcing corporate sustainability performance during a corporate financial crisis (i.e. a period in which a firm's Altman Z-score falls below 2.99) affects recovery speed.

Findings – Firms reinforcing sustainability performance during crises recover faster. Investor commitment acts as a key mediator by providing capital, confidence and strategic support. The economic environment moderates this relationship: in hostile contexts, sustainability helps retain investor commitment, while in munificent environments, investor support strongly boosts recovery.

Research limitations/implications – Future research should explore how other stakeholders mediate the sustainability–recovery relationship. The authors contribute to the legitimacy and sustainability literature by theoretically identifying and empirically analyzing the specific way in which sustainability may enhance recovery from a crisis through investor commitment.

Practical implications – The results provide solid evidence for managers to get sustainability-related tools to speed the recovery from a corporate financial crisis. Contrary to popular beliefs, this manuscript will encourage the executives in financially difficult situations to reinforce investors' commitment through internally demanding sustainability practices. The authors also expand implications to policymakers and investors to consider the impact of sustainability in times of crisis.

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Originality/value – To the best of the authors’ knowledge, this is the first study to investigate how reinforcing corporate sustainability performance during corporate financial crises accelerates recovery time.

Keywords Corporate sustainability performance, Resilience, Recovery time, Investor commitment, Legitimacy theory, Corporate financial crisis

Paper type Research paper

1. Introduction

Corporate financial crises are recurring challenges that threaten firms’ stability and long-term viability (Pearson and Clair, 1998; Williams and Shepherd, 2016). Even big companies such as Apple and Netflix experienced financial difficulties before making a remarkable turnaround. In this study, a corporate financial crisis is defined as a situation in which a firm faces a significant reduction in available financial resources (Williams and Shepherd, 2016; Xia *et al.*, 2023). Under such conditions, firms typically prioritize corporate financial performance, which reflects profitability, liquidity and solvency (Richard *et al.*, 2009; Venkatraman and Ramanujam, 1986), while neglecting corporate sustainability performance, which captures the organization’s capacity to create environmental, social and governance (ESG) value (Goyal *et al.*, 2013; Montiel and Delgado-Ceballos, 2014). Although some studies have examined how pre-crisis sustainability performance affects firms’ resilience to financial crises (e.g. Sajko *et al.*, 2021), no study has examined the potential effects of reinforcing ESG performance during financial crises. The importance of this analysis is reinforced by previous calls in the literature to analyze how firms may reinforce their resilience when they are dealing with a crisis (e.g. DesJardine *et al.*, 2019; Lu *et al.*, 2022; Morrow *et al.*, 2007). The renewed political cautions regarding how to integrate sustainable initiatives without eroding a firm’s financial stability also reinforce the interest of our work.

Sustainability has become central to organizational legitimacy literature (e.g. Bansal and Clelland, 2004; Lee and Raschke, 2023). Prior research shows that corporate sustainability performance enhances stakeholder commitment (Wagner and Svensson, 2014; Valero-Gil *et al.*, 2025), secure resources (Russo and Fouts, 1997) and reduce vulnerability to crises (Bansal and Clelland, 2004; Shafer and Szado, 2020) by following a “path” inside organizations, reflecting how firms deliberately position and plan sustainability initiatives according to internal logics, priorities and structural conditions (Rodriguez *et al.*, 2018). These outputs potentially promote organizational resilience, defined as a firm’s ability to adapt, withstand and recover from crises (Kahn *et al.*, 2018; Ortiz-de-Mandojana and Bansal, 2016; Williams and Shepherd, 2016). However, reinforcing corporate sustainability performance during crisis periods requires scarce resources, and firms often struggle to maintain such efforts when resources are constrained (Aragón-Correa and Sharma, 2003; Kim *et al.*, 2019). This can create tension between investments that promote organizational resilience and those required to meet urgent financial needs. Thus, although prior research has linked sustainability to enhanced legitimacy (Bansal and Clelland, 2004) and improved long-term performance (Ortiz-de-Mandojana and Bansal, 2016), existing studies have not clarified whether reinforcing sustainability during a financial crisis, when firms face high resource constraints, acts as a mechanism that restores legitimacy and accelerates recovery. Moreover, resilience research usually focuses on how firms adapt and reorganize their resources before or after a crisis (DesJardine *et al.*, 2019; Williams *et al.*, 2017), but we still know little about how investors react when reinforcing sustainability efforts may go against short-term survival priorities during a crisis.

Drawing on legitimacy theory (Dowling and Pfeffer, 1975; Meyer and Rowan, 1977; Scott, 1995; Suchman, 1995) and organizational resilience theory (DesJardine *et al.*, 2019; Kahn *et al.*, 2018; Linnenluecke, 2017; Sutcliffe and Vogus, 2003), this study addresses that gap by

theorizing how reinforcing ESG during a corporate crisis becomes a credible signal of legitimacy that shapes recovery speed. Further, we contribute by empirically showing that reinforcing corporate sustainability performance during crises enhances recovery speed through the mediating role of investors' commitment and the moderating influence of the economic environment. Employing secondary data from 190 firms over an eight-year period, we operationalize corporate financial crises through the Altman Z-score (Altman *et al.*, 2017). Although resilience and crises are multidimensional dimensions, literature has widely used this indicator as a proxy of organizations' financial viability (e.g. Boubakri and Saffar, 2019; Saona *et al.*, 2020; Tong *et al.*, 2020). Given that financial viability is a primary indicator of organizational recovery in crisis contexts, we use improvement in the Altman Z-score as an observable indicator of resilience.

Our findings confirm that continuous efforts to improve sustainability performance are effective during crises. Investor commitment emerges as a mediating mechanism linking sustainability-driven legitimacy to recovery, and the broader economic conditions moderate these relationships: in hostile contexts, sustainability is essential for retaining investor commitment, whereas in munificent contexts, investor support more strongly accelerates recovery.

Understanding whether maintaining or strengthening sustainability initiatives under adverse conditions contributes to recovery is essential for advancing both legitimacy and resilience theory. This study contributes to literature in several ways. First, it extends legitimacy theory (Dowling and Pfeffer, 1975; Meyer and Rowan, 1977; Scott, 1995; Suchman, 1995) and sustainability literature (Delmas *et al.*, 2015) by identifying an innovative and relevant link between reinforcing sustainability performance and investor commitment under financial distress. Second, it expands resilience research (Kahn *et al.*, 2018; DesJardine *et al.*, 2019; Linnenluecke, 2017; Sutcliffe and Vogus, 2003) by analyzing the role of investor commitment in a recovery time that has received very limited attention in the past. Third, this study addresses the call from previous studies (e.g. Carmeli *et al.*, 2020; Ortiz-de-Mandojana and Bansal, 2016; Sutcliffe and Vogus, 2003; Williams *et al.*, 2017) for researchers to integrate contextual environment and organizational resilience. Hence, the paper extends sustainability, legitimacy and resilience literature by clarifying a previously underexplored but relevant mechanism: how changes in ESG performance during periods of corporate financial crises help firms maintain legitimacy, attract investor support and, ultimately, strengthen their ability to recover.

2. Theoretical background

2.1 Corporate sustainability performance and legitimacy

Firms operate within institutionalized cultural and social norms that shape how they are created, managed and judged (Dowling and Pfeffer, 1975). Conformance to these norms generates legitimacy, understood as the perception that a firm's actions are desirable and appropriate within socially constructed systems of values and beliefs (Bansal and Clelland, 2004; Meyer and Rowan, 1977; Scott, 1995; Suchman, 1995). Legitimacy matters because it conditions access to critical resources (Iurkov *et al.*, 2024; Pfeffer and Salancik, 1978; Xia *et al.*, 2023), enhances stakeholder commitment (Deephouse and Carter, 2005; Ahmed *et al.*, 2021) and ultimately influences firm survival (Kostova and Zaheer, 1999).

In recent decades, firms are increasingly expected to demonstrate legitimacy across ESG domains (Delgado-Ceballos *et al.*, 2023; Valero-Gil *et al.*, 2025; Wagner and Svensson, 2014; Zheng *et al.*, 2015). Crossley *et al.* (2021) show that firms use sustainability practices to gain, maintain and defend legitimacy among their stakeholders, while Zheng *et al.* (2015) demonstrate that firms adopt and communicate sustainability initiatives to strengthen their legitimacy. Actions such as reducing emissions, improving energy efficiency, promoting

diversity and inclusion and embedding ethical decision-making not only meet societal expectations but also strengthen long-term stakeholder relationships (Crossley *et al.*, 2021; Lee and Raschke, 2023). By integrating these practices, firms signal alignment with broader ethical and institutional norms, thereby reinforcing their legitimacy (Bansal and Clelland, 2004; Kumar and Joseph, 2025).

Moreover, legitimacy derived from sustainability is not only symbolic but also instrumental. Research shows that robust corporate sustainability performance improves access to financial and social resources (Iurkov *et al.*, 2024; Pfeffer and Salancik, 1978; Xia *et al.*, 2023), enhances governance support for strategic initiatives (Aguilera *et al.*, 2021; Iurkov *et al.*, 2024) and increases firms' adaptability in uncertain contexts (Bansal and Clelland, 2004). Therefore, legitimacy provides firms with a license to operate, sustaining support from investors, regulators and partners, even during instability (Svensson *et al.*, 2010).

2.2 Organizational resilience and legitimacy

Organizational resilience reflects a firm's capacity to reconfigure resources, adapts its routines and sustain core operations while responding to environmental turbulence (Williams *et al.*, 2017). Within this construct, this adaptive capability is linked to how effectively organizations restore stability and maintain performance despite disruption (Linnenluecke, 2017; DesJardine *et al.*, 2019). Rather than focusing solely on performance outcomes, resilience emphasizes the processes through which organizations sustain functionality under pressure (Sutcliffe and Vogus, 2003; Van Der Vegt *et al.*, 2015).

Legitimacy plays a central role in this process (Kostova and Zaheer, 1999). In management research, firms perceived as legitimate benefit from greater credibility, easier access to resources and more cooperative relationships with externals (Deephouse and Carter, 2005; Suchman, 1995). According to Williams *et al.* (2017), these conditions directly support resilience by enabling faster mobilization of capital, knowledge, external resources and networks when crises arise, thereby enhancing a firm's ability to cope with and respond to destabilizing events.

Sustainability performance is relevant in this context because it generates legitimacy signals that reduce information asymmetry and provide positive cues about the firm's long-term viability and orientation (Crossley *et al.*, 2021; Zheng *et al.*, 2015). These legitimacy signals allow for more favorable evaluations from external audiences (Deephouse and Carter, 2005; Suchman, 1995). Therefore, legitimacy operates not only as a social evaluation (Bansal and Clelland, 2004) but also as a mechanism that links ESG performance to resilience. In this sense, legitimacy can be understood as a foundational capability that strengthens resilience (Sutcliffe and Vogus, 2003; Kahn *et al.*, 2018).

Although prior literature suggests that legitimacy can help build resilience as a process (e.g. Bansal and Clelland, 2004; Kostova and Zaheer, 1999), thereby preventing firms from falling into crisis (DesJardine *et al.*, 2019), less is known about what happens once a firm has entered a crisis and whether legitimacy also facilitates recovery. In such situations, tensions among the firm's resources become more pronounced. Thus, the dilemma remains: whether reinforcing sustainability during corporate financial crises accelerates recovery by enhancing legitimacy, or whether it might strain limited resources and slow down the recovery process. This tension underscores the importance of exploring how sustainability-driven legitimacy shapes recovery during financial crises.

3. Hypotheses

3.1 Reinforcing sustainability performance as a driver of faster recovery

During corporate financial crises, firms often prioritize short-term survival over sustainability efforts (Broadstock *et al.*, 2021). Although prior research shows that strong sustainability

performance before a crisis can help firms build resilience during turbulent periods (Sajko *et al.*, 2021), we propose that reinforcing corporate sustainability performance while the crisis is unfolding may also generate long-term benefits for the firm (Carmeli *et al.*, 2020; Kim *et al.*, 2019), including improved chances of survival.

Reinforcing corporate sustainability performance is particularly valuable in turbulent contexts because it enhances organizational legitimacy (Arvidsson and Dumay, 2021; Bansal and Clelland, 2004; Richards *et al.*, 2017; Zheng *et al.*, 2015). Legitimacy strengthens resilience by ensuring firms are seen as responsible and trustworthy actors, even under duress (Crossley *et al.*, 2021), and thus fostering cooperative networks that enable adaptive responses (Bansal and Clelland, 2004) and reduce reputational vulnerability during crises (Deephouse and Carter, 2005).

Firms that reinforce corporate sustainability performance are better positioned to mobilize capital, knowledge and stakeholder support when most needed (Williams *et al.*, 2017). Research further shows that strong sustainability efforts can buffer firms against the negative effects of crises, thereby contributing to organizational resilience (Sajko *et al.*, 2021). Apart from providing an external signal of legitimacy, ESG reinforcement is also an organizational positioning and planning choice (Rodriguez *et al.*, 2018). In this case, the aim is to achieve organizational resilience. In this context, reinforcing corporate sustainability performance during financial distress strengthens resilience by building legitimacy, which acts as a resource-activation mechanism that fosters recovery after a crisis and our hypothesis is as follows:

- H1.* Reinforcing corporate sustainability performance during a corporate financial crisis event reduces recovery time.

3.2 Mediating effect of investor commitment

Sajko *et al.* (2021) argue that sustainability efforts strengthen stakeholder commitment, which in turn enhances resilience during global financial crises. However, during corporate financial crises, not all stakeholders remain engaged (Rao and Greve, 2018; Yu *et al.*, 2008). In such contexts, investors play a key role because they provide not only financial resources but also strategic advice, credibility and access to valuable networks (Huang and Knight, 2017), which can significantly influence a firm's recovery from crises.

Investor commitment is particularly important for helping firms navigate organizational crises (Klöckner *et al.*, 2023; Mellado-Garcia *et al.*, 2024). Committed investors offer stability when other stakeholders may withdraw (Klöckner *et al.*, 2023). Their decisions are strongly influenced by legitimacy signals: when firms demonstrate responsibility through sustainability performance, they are more likely to maintain or even attract investor support (Crossley *et al.*, 2021; Delmas *et al.*, 2015; Iurkov *et al.*, 2024; Lee and Raschke, 2023; Rawhouser *et al.*, 2018). Historical evidence shows this dynamic: Southwest Airlines, for example, retained investor backing during the 9 / 11 crisis by upholding its social commitments, whereas competitors that prioritized cost-cutting struggled to maintain legitimacy and investors' support (Gittell *et al.*, 2006). Moreover, Crossley *et al.* (2021) demonstrate that firms that actively build legitimacy through sustainability initiatives strengthen stakeholder's positive perception, which includes greater commitment from investors during uncertain conditions, thereby securing access to essential resources (see also Iurkov *et al.*, 2024; Pfeffer and Salancik, 1978; Xia *et al.*, 2023).

Reinforcing corporate sustainability performance during financial crises thus communicates not only legitimacy but also managerial directionality and strategic intent under pressure (Rodriguez *et al.*, 2021), reassuring investors about long-term prospects (Rawhouser *et al.*, 2018). Recent evidence confirms that investor behavior plays a decisive role in shaping organizational resilience, as investors with stronger commitment and longer-term orientations

help firms navigate crisis conditions more effectively (Mellado-Garcia *et al.*, 2024). This legitimacy-driven investors' commitment (Delmas, *et al.*, 2015; Iurkov *et al.*, 2024) helps firms secure resources (Ahmed *et al.*, 2021; Bengtson *et al.*, 2013), align with executives on long-term strategy, reduce perceived risks (Iurkov *et al.*, 2024; Shafer and Szado, 2020) and leverage broader networks (Mellado-Garcia *et al.*, 2024). In this way, investor commitment operates as a critical mediating mechanism that translates corporate sustainability performance into faster recovery, and our hypothesis is as follows:

- H2. Investor commitment mediates the relationship between reinforcing corporate sustainability performance during a corporate financial crisis event and recovery time.

3.3 Moderating role of the economic environment

The broader economic environment shapes how firms secure and leverage stakeholder support during crises (Park and Mezas, 2005). Prior research shows that investors' reactions to firms are shaped by the munificence or hostility of the external environment. For instance, stock market responses to strategic actions differ across munificent and resource-scarce periods (Park and Mezas, 2005), the financial payoff to corporate social responsibility is stronger in munificent contexts (Goll and Rasheed, 2004), and investors adjust their support for climate-responsible firms in response to hostile versus munificent policy regimes (Ramelli *et al.*, 2021).

A munificent economic environment, characterized by resource abundance and stability (Aldrich, 1979), increases the likelihood that firms receive external financial and non-financial support (Morrow *et al.*, 2007). Goll and Rasheed (2004) indicate that responsible corporate actions tend to generate stronger benefits in munificent environments, where greater resource availability allows stakeholders to more readily support and reinforce firms' long-term strategic efforts. Thus, stakeholders in such contexts are more willing to share resources, collaborate and contribute to recovery efforts, thereby enhancing organizational resilience (DesJardine *et al.*, 2019; Van der Vegt *et al.*, 2015). By contrast, a hostile economic environment, marked by scarcity and uncertainty (Aldrich, 1979; Bradley *et al.*, 2011), constrains collaboration and challenges firms seeking external support.

These contrasting conditions influence how investors interpret corporate sustainability performance (Aragón-Correa and Sharma, 2003; Park and Mezas, 2005). Hostile environments often lead to investor disengagement, driven by feelings of insecurity and doubts about the firm's viability (Rao and Greve, 2018; Yu *et al.*, 2008). Scholars such as Ramelli *et al.* (2021) study that shifts toward more hostile policy or economic conditions intensify investors' reliance on legitimacy signals. They thus engage in sensemaking, i.e. a process of assigning meaning and seeking interpretations to guide their actions (Yu *et al.*, 2008). Therefore, they scrutinize whether firms demonstrate legitimacy and resilience.

Investor commitment may be especially sensitive to these signals and behaviors (Yu *et al.*, 2008) because of the recognition that reinforcing corporate sustainability performance in such challenging environments signals responsibility and foresight, enhancing legitimacy (Arvidsson and Dumay, 2021; Richards *et al.*, 2017). As a result, investors may increase their commitment precisely because sustainability efforts are more difficult and more valuable under adverse conditions (Zhang *et al.*, 2022):

- H3a. A hostile economic environment improves the relationship between reinforcing corporate sustainability performance during a corporate financial crises event and investor commitment.

Conversely, munificent environments with increased resource availability (Morrow *et al.*, 2007) encourage contributions from other economic agents. In these environments, investors are more inclined to collaborate with other stakeholders and partners, such as through increased purchases and higher payments, and combine their resources with those of external agents (Morrow *et al.*, 2007). Prior research also shows that when environment is munificent, stakeholders are better positioned to recognize and reward firms' long-term and responsible strategic actions, thereby amplifying the benefits of such efforts (Goll and Rasheed, 2004; Park and Mezas, 2005). This enhanced resource accessibility, fostered by a munificent economic environment, builds conditions to facilitate the effective implementation of recovery strategies, thereby accelerating recovery time:

H3b. A munificent economic environment reinforces the positive relationship between investor commitment and recovery time.

Figure 1 presents the hypotheses of this study. It illustrates the direct relationship between reinforcing corporate sustainability performance during a corporate financial crisis and recovery time (*H1*), the mediating role of investor commitment (*H2*) and the moderating effects of hostile and munificent economic environments (*H3a* and *H3b*).

4. Methodology

4.1 Sample and data collection

We identified firms experiencing a corporate financial crisis in 2015 after stable conditions in 2014 using the Altman Z-score index (Z-Scores below 2.99) (Altman *et al.*, 2017; Tong *et al.*, 2020). Our metric is consistent with prior studies that identify Z-score values below 2.99 as indicative of financial distress and increased bankruptcy risk (e.g. Boubakri and Saffar, 2019; Saona *et al.*, 2020; Tong *et al.*, 2020). Firms with Z-scores below 2.99 in 2015 were classified as being in crisis, while only those with stable financial conditions in 2014 were retained for our analysis to avoid including chronically distressed firms.

Data were obtained from LSEG Refinitiv database (formerly Thomson Reuters Eikon), a globally recognized source of standardized financial, ownership, market and ESG information widely used in academic (e.g. Cheng *et al.*, 2014; Delgado-Ceballos *et al.*, 2023; Lu *et al.*, 2022). We included firms with available ESG scores for 2015 and subsequent years up to 2021. Focusing on 2015 allowed us to capture post-crisis recovery dynamics (2016–2021) while avoiding distortions from the COVID-19 pandemic period. The final sample comprised 190 firms across multiple regions: the Americas (47.9%), Asia (16.3%), Europe (16.3%), Oceania (15.3%) and Africa (4.2%). It included industrials (19.6%), materials (16.4%), consumer

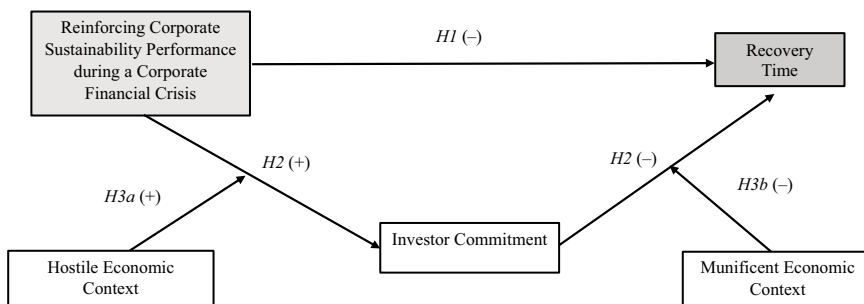


Figure 1. Diagram of study hypotheses

discretionary (14.8%), energy (12.2%), healthcare (10.1%), IT (7.9%), consumer staples (7.9%), communication services (7.4%), finance (1.6%), real estate (1.6%) and utilities (0.5%).

4.2 Variables

4.2.1 Recovery time. Recovery time is a proxy of organizational resilience (Linnenluecke, 2017; DesJardine et al., 2019). It is operationalized as the number of years required for the firm's Z-score to rise back above the 2.99 threshold, capturing the speed of recovery after the crisis. A code of 1 indicates recovery in the year immediately after the crisis (Z-score > 2.99 in 2016), 2 indicates recovery after two years, and so on, up to 6 (recovery in 2021). Firms that did not recover (Z-score < 2.99 throughout 2016–2021) were coded 7, while firms that disappeared (no Z-scores reported during 2016–2021) were coded 8. Altman Z-Score is a widely-used composite measure of a firm's financial health and viability (e.g. Boubakri and Saffar, 2019; Saona et al., 2020; Tong et al., 2020).

While resilience can entail multiple dimensions (Williams et al., 2017), recovery of financial viability represents a main demonstration of resilient capability in crises. Using recovery of the Altman Z-score as a proxy for organizational financial viability is consistent with prior research emphasizing observable financial restoration as an outcome of resilience (DesJardine et al., 2019; Carmeli et al., 2020; Van Der Vegt et al., 2015). The Z-score is suitable for international, multi-sector data sets because it integrates liquidity, solvency, profitability and leverage into a single standardized index, allowing for comparable assessment of firms' return to financial health.

4.2.2 Reinforcing corporate sustainability performance. The independent variable was measured by changes in ESG scores (e.g. Arvidsson and Dumay, 2021; Cheng et al., 2014) during the first year of a corporate crisis, using LSEG's standardized index (Refinitiv, 2022). The legitimacy literature highlights that early crisis responses shape stakeholder evaluations and future support (Deephouse and Carter, 2005; Suchman, 1995; Yu et al., 2008). Because of our specific interest in this paper, ESG improvements occurring after the crisis's first year might capture better the sustainability dynamics fully, but it would not reflect our interest on the implications of a firm's intentional effort under resource scarcity contexts of a crisis and its implications. Therefore, the one-year window captures the salience of ESG efforts at the moment investors reassess firm viability.

LSEG's ESG score relies on verifiable data from public sources (e.g. annual reports, CSR reports, websites and global media sources) (Refinitiv, 2022) and is standardized for comparability. A positive value indicates that the firm strengthened its ESG performance during the crisis year, a zero value reflects no change and a negative value shows a reduction in ESG efforts during the crisis year.

4.2.3 Investor commitment. The mediating variable was measured as changes in portfolio holdings of major investors (blockholders with $\geq 3\%$ ownership) (Idode et al., 2018; Kim, 2010; Kim and Cho, 2008) between 2014 and 2015. Positive values reflected increased commitment, 0 no change and negative values reduced commitment.

4.2.4 Firm's economic environment. The moderating variable was measured by the Organization for Economic Co-operation and Development's Consumer Confidence Index, which measures consumers' spending intentions and economic perceptions for the next year (OECD, 2022). Higher values of this index reflect a more munificent and less hostile external economic context, whereas lower values indicate a more hostile and less munificent environment (OECD, 2022).

4.2.5 Control variables. We controlled for multiple internal and external variables. To account for potential heterogeneity across sectors, we included a set of *industry dummy variables* (based on the GICS codes). The *stability of the firm's country* through an increase

in GDP per capita from 2014 to 2015. *Firm size* was quantified by total debt in 2015 because larger firms tend to garner more stakeholder attention (Suchman, 1995). *Investor concentration* by region, measured using a geographic diversification index created using the entropy method (Qian *et al.*, 2010), is advantageous during financial turmoil by reducing insolvency risk (Shafer and Szado, 2020) and increasing firm value through effective monitoring (De Miguel *et al.*, 2004). Resilience relies on the long-term outlook of internal decisions and external relationships (Van Der Vegt *et al.*, 2015). Therefore, we considered the *long-term orientation* of both the firm's and the major investor's countries based on the Hofstede dimension. We also factored in investors' comfort with uncertainty or ambiguity using Hofstede's *uncertainty avoidance* dimension (Hofstede, 2011). The *Environmental Performance Index (EPI)* of the major investor's country indicates investors' awareness of sustainability and legitimacy (Wendling *et al.*, 2018). Appendix shows the variables used in this study, their operational definitions, measurement procedures and corresponding data sources, providing a comprehensive overview of how each construct was empirically captured and analyzed.

5. Results

We test our hypotheses using regression, causal mediation and moderation analyses in STATA. Table 1 presents the descriptive statistics and displays the Pearson correlations between variables. To ensure the validity of our models, we calculate the variance inflation factors (VIFs) for all the models. The VIFs are below 4, indicating that multicollinearity is not an issue in our analyses (Hair *et al.*, 1995).

Table II Presents the results of the ordinary least squares regression and causal mediation analyses generated using STATA's mediation package (*medeff* command), following Hicks and Tingley (2011). Model 1 supports *H1*, showing that reinforcing corporate sustainability performance during a corporate financial crisis leads to a shorter recovery time [coef. = -0.02 | $p = 0.056$].

To test *H2*, we separate the total effect of reinforcing corporate sustainability performance on recovery time into its direct and indirect paths. Table 2 shows a positive and significant relation between reinforcing corporate sustainability performance and investor commitment (Coef. = 0.08 | $p = 0.072$, Model 2a). Furthermore, a negative and significant relationship exists between investor commitment and recovery time (Coef. = -0.03 | $p = 0.029$, Model 2b). After accounting for the indirect effects, the direct impact of reinforcing corporate sustainability performance on recovery time is not significant (Coef. = -0.02 | $p = 0.111$, Model 2b). These findings confirm the significance of the indirect effects, supporting *H2*.

To elucidate the causal mechanisms between reinforcing corporate sustainability performance and recovery time, we calculate the average causal mediation effect (ACME), following Hicks and Tingley's (2011) approach. Table 3 shows that the results from a bootstrapping test (500 samples) confirm the statistical significance of both the direct and the total effects, with the confidence intervals not including zero. The ACME is also statistically significant, supporting *H2* and emphasizing the mediating role of investor commitment in the association between reinforcing corporate sustainability performance and recovery time.

H3a examines the moderating effect of a hostile economic environment on the relationship between reinforcing corporate sustainability performance and investor commitment. Model 3a in Table 2 shows a negative and statistically significant interaction term [Coef. = -0.00 | $p = 0.001$]. Figure 2 illustrates that investor commitment increases as firms reinforce corporate sustainability performance despite a corporate financial crisis, with a steeper slope in hostile economic environments. These findings support *H3a*.

Table 1. Descriptive statistics and Pearson correlations^a

| Variable | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|--------|-------|--------|--------|--------|---------|--------|--------|--------|---------|---------|-------|--------|----------|---------|-------|--------|---------|---------|-------|
| 1. Recovery time | 4.57 | 2.71 | | | | | | | | | | | | | | | | | | |
| 2. Corporate sustainability performance | 40.39 | 20.50 | -0.08 | | | | | | | | | | | | | | | | | |
| 3. Investor commitment | 2.38 | 11.34 | -0.13† | 0.07 | | | | | | | | | | | | | | | | |
| 4. Firm's economic environment | 103.62 | 24.87 | 0.03 | 0.11 | 0.02 | | | | | | | | | | | | | | | |
| 5. Stability of the firm's country | 1.83 | 3.21 | 0.04 | 0.15* | -0.07 | -0.23** | | | | | | | | | | | | | | |
| 6. Firm size ^b | 0.70 | 5.69 | 0.10 | 0.02 | -0.06 | -0.02 | -0.00 | | | | | | | | | | | | | |
| 7. Investor concentration | 0.47 | 0.27 | 0.10 | 0.20** | 0.03 | -0.01 | -0.02 | 0.05 | | | | | | | | | | | | |
| 8. Long-term orientation of the firm | 40.02 | 22.80 | 0.08 | 0.09 | -0.11 | 0.01 | 0.01 | 0.19** | 0.16* | | | | | | | | | | | |
| 9. Long-term orientation of investors | 39.22 | 22.10 | 0.03 | -0.02 | 0.01 | -0.01 | 0.01 | 0.24** | 0.08 | 0.83*** | | | | | | | | | | |
| 10. Risk aversion of investors | 50.75 | 15.18 | -0.05 | 0.02 | -0.16* | 0.12† | -0.10 | -0.08 | -0.15* | 0.38*** | 0.44*** | | | | | | | | | |
| 11. EPI of the investor's country | 68.68 | 9.86 | -0.04 | -0.11 | -0.12 | -0.10 | -0.18* | 0.07 | -0.03 | 0.22** | 0.17* | 0.05 | | | | | | | | |
| 12. Consumer sector | 0.22 | 0.42 | 0.05 | -0.02 | 0.03 | 0.11 | 0.00 | 0.12† | 0.03 | 0.20** | 0.17* | 0.11 | -0.03 | | | | | | | |
| 13. Energy sector | 0.13 | 0.33 | -0.05 | 0.07 | 0.10 | -0.05 | -0.07 | -0.05 | -0.03 | -0.14† | -0.06 | -0.08 | 0.10 | -0.20** | | | | | | |
| 14. Financial sector | 0.02 | 0.12 | 0.00 | -0.05 | -0.02 | 0.24*** | -0.03 | -0.02 | 0.01 | -0.08 | -0.07 | -0.02 | 0.09 | -0.07 | -0.05 | | | | | |
| 15. Healthcare sector | 0.09 | 0.29 | 0.09 | 0.06 | -0.02 | -0.06 | 0.13† | -0.04 | 0.02 | -0.10 | -0.03 | -0.01 | 0.05 | -0.17* | -0.12† | -0.04 | | | | |
| 16. IT sector | 0.15 | 0.36 | -0.00 | -0.02 | -0.03 | 0.04 | -0.01 | -0.05 | -0.01 | 0.05 | -0.04 | 0.07 | -0.12† | -0.22** | -0.16* | -0.05 | -0.13† | | | |
| 17. Industrial sector | 0.19 | 0.40 | -0.02 | -0.04 | 0.07 | -0.08 | 0.10 | 0.05 | 0.01 | 0.06 | 0.08 | -0.07 | -0.04 | -0.26*** | -0.19** | -0.06 | -0.16* | -0.20** | | |
| 18. Materials sector | 0.16 | 0.37 | -0.14† | -0.05 | -0.11 | -0.06 | -0.12 | -0.05 | -0.06 | -0.13† | -0.10 | -0.02 | 0.01 | -0.24** | -0.17* | -0.06 | -0.14* | -0.18* | -0.22** | |
| 19. Real estate sector | 0.02 | 0.12 | -0.01 | 0.08 | -0.06 | -0.03 | -0.00 | -0.02 | 0.14† | 0.01 | -0.08 | -0.04 | -0.02 | -0.07 | -0.05 | -0.02 | -0.04 | -0.05 | -0.06 | -0.06 |

Note(s): ^a*N* = 190. The correlation involving variable 1 are polyserial correlation. All the other correlations are Pearson correlations. Significant at the †0.10; * 0.05; **0.01; ***0.001 levels; ^bexpressed in trillions

Table 2. Regression and casual mediation analyses^a

| | Recovery time Model 1 <i>b</i> (SE) | Investor commitment Model 2a <i>b</i> (SE) | Recovery time Model 2b <i>b</i> (SE) | Investor commitment Model 3a <i>b</i> (SE) | Recovery time Model 3b <i>b</i> (SE) |
|--|---|---|--|---|--|
| Controls | | | | | |
| Stability of the firm's country | 0.03 (0.07) | -0.51** (0.17) | 0.02 (0.07) | -0.57** (0.19) | 0.01 (0.06) |
| Firm size ^b | 0.05* (0.02) | -0.21*** (0.17) | 0.04* (0.02) | -0.20*** (0.05) | 0.04 (0.02) |
| Investor concentration | 1.02 (0.75) | 0.20 (3.69) | 1.02 (0.75) | -0.56 (3.75) | 0.83 (0.75) |
| Long-term orientation of the firm | 0.02 (0.02) | -0.24*** (0.07) | 0.02 (0.02) | -0.25*** (0.07) | 0.01 (0.02) |
| Long-term orientation of investors | -0.02 (0.02) | 0.25*** (0.07) | -0.01 (0.02) | 0.25*** (0.07) | -0.01 (0.02) |
| Risk aversion of investors | -0.00 (0.02) | -0.16*** (0.05) | -0.01 (0.02) | -0.14*** (0.05) | -0.02 (0.02) |
| EPI of the investor's country | -0.01 (0.02) | -0.15 (0.10) | -0.02 (0.02) | -0.17 (0.11) | -0.01 (0.02) |
| Sectors dummies | <i>Included</i> | <i>Included</i> | <i>Included</i> | <i>Included</i> | <i>Included</i> |
| Direct effects | | | | | |
| Corporate sustainability performance | -0.02† (0.01) | 0.08† (0.04) | -0.02 (0.01) | 0.47*** (0.14) | 0.01* (0.00) |
| National economic environment | | | | 0.21*** (0.05) | |
| Indirect effects | | | | | |
| Investor commitment | | | -0.03* (0.02) | | 0.15** (0.05) |
| Moderating effects | | | | | |
| Corporate sustainability performance × national economic environment | | | | -0.00*** (0.00) | |
| Investor commitment × national economic environment | | | | | |
| Constant | 6.24*** (1.78) | 19.13* (8.92) | 6.85*** (1.80) | -1.14 (8.39) | -0.00*** (0.00) |
| <i>F</i> (df) | 0.07† 1.54† (15, 174) | 0.15*** 2.95*** (15, 174) | 0.09* 1.75* (16, 173) | 0.17*** 4.13*** (17, 172) | 4.63* (1.95) 0.09*** 5.44*** (17, 172) |

Note(s): Unstandardized regression coefficients (b) are reported with SEs in parentheses; Significant at the †0.10; * 0.05; ** 0.01; *** 0.001 levels; ^aN = 190; ^bexpressed in trillions

Table 3. Bootstrapping analyses of the simple mediating effect^a

| Models 2a and 2b | Mean | [90% Conf. Interval] | |
|----------------------------|--------|----------------------|--------|
| ACME | -0.002 | -0.006 | -0.000 |
| direct effect | -0.018 | -0.034 | -0.000 |
| total effect | -0.020 | -0.036 | -0.003 |
| % of total effect mediated | 0.120 | 0.062 | 0.464 |

Note(s):^a*n* = 190. 90% confidence interval

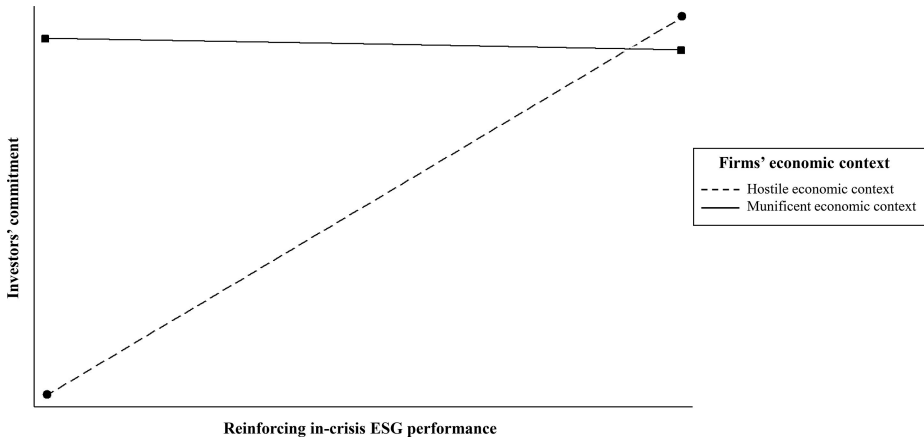


Figure 2. Moderating effect of firm's economic context on main investors' commitment

H3b proposes that a munificent economic environment further moderates the relation between investor commitment and recovery time. Model 3b in Table 2 shows a negative and statistically significant coefficient for the moderating model [Coef. = -0.00 | *p* = 0.000], supporting *H3*. As shown in Figure 3, firms with strongly committed investors recover faster in munificent economic environments. Conversely, in hostile economic environments, investor commitment slightly increases recovery time, as indicated by the slope of the line.

To ensure the robustness of our findings, we accounted for potential industry- and region-specific effects. The inclusion of these controls did not substantially affect the statistical significance or direction of our results, indicating that our findings are not contingent upon particular industrial or regional contexts. The multinational nature of our sample in multiple industries connected to this result suggests that the degree of munificence in the context is a more relevant influence on the analyzed relationships than the specific country or industry. Future research might want to examine country and industry similar patterns regarding munificence.

6. Discussion

6.1 Overview and contributions

Previous research has examined sustainability before or after crises rather than during them (e.g. Kumar and Joseph, 2025; Ramelli et al., 2021; Sajko et al., 2021; Wagner and Svensson, 2014). Sustainable efforts in times of crisis bring more benefits than disadvantages to a firm. These

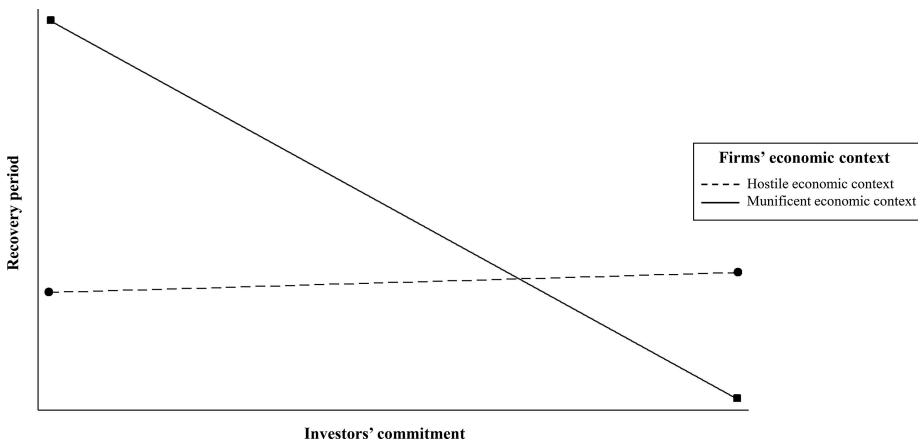


Figure 3. Moderating effect of firm's economic context on the recovery period

efforts imply active prioritization, that is, the firm is not just “signaling” but choosing what to protect or accelerate when resources are scarce (Rodriguez, Svensson and Wood, 2020). Drawing on legitimacy theory (Dowling and Pfeffer, 1975; Meyer and Rowan, 1977; Scott, 1995; Suchman, 1995) and organizational resilience theory (DesJardine *et al.*, 2019; Kahn *et al.*, 2018; Linnenluecke, 2017; Sutcliffe and Vogus, 2003), our results support the theoretical expectation that reinforcing corporate sustainability performance during corporate financial crises reduces recovery time. Concurring with prior research linking sustainability and legitimacy to lower internal risks (Bansal and Clelland, 2004; Sajko *et al.*, 2021; Shafer and Szado, 2020), well-managed firms (Busch *et al.*, 2022) and better access to external resources (Iurkov *et al.*, 2024; Pfeffer and Salancik, 1978; Xia *et al.*, 2023), the empirical evidence shows that enhanced sustainability efforts function as credible legitimacy signals (Sajko *et al.*, 2021) which reduce investor uncertainty and increase their willingness to sustain or intensify their commitment. The present study advances previous literature (e.g. Broadstock *et al.*, 2021; DesJardine *et al.*, 2019; Lu *et al.*, 2022; Russo and Fouts, 1997; Svensson and Wagner, 2011) by demonstrating that, during periods of corporate crisis (i.e. when resources are constrained), sustainability reinforcement mobilizes new external resources rather than depleting internal ones, thereby facilitating faster recovery. Thus, sustainability efforts serve as a strategic mechanism enhancing organizational resilience, also under corporate financial crises. We expand this literature by demonstrating that sustainability performance is not only a preexisting condition that buffers firms against crises, but also a strategic, crisis-time response whose reinforcement during periods of corporate financial crises actively shapes resilience trajectories. In this sense, sustainability performance also reflects an organization's chosen future direction, as firms display both common patterns and context-specific differences in how they orient and develop sustainability over time (Rodriguez, Svensson and Otero-Neira, 2020).

A key finding of this study is the mediating role of investor commitment in the relationship between reinforcing corporate sustainability during a crisis and reducing recovery time. These findings align with legitimacy theory's logic that stakeholders engage in intensive sensemaking during periods of instability (Deephouse and Carter, 2005; Suchman, 1995; Yu *et al.*, 2008), and that firms demonstrating responsible behavior are more likely to retain support. When firms sustain or strengthen their sustainability initiatives amid financial distress, they foster stronger commitment among investors who perceive such firms as more legitimate, stable and

strategically oriented. Therefore, the mediating role of investor commitment confirms the mechanism proposed in our theoretical framework: legitimacy gained through sustainability reinforcement mobilizes external resources that directly accelerate recovery. Empirically, we demonstrate that this heightened investor commitment, in turn, improves the firm's access to critical resources during vulnerable periods, thereby accelerating its recovery from crisis. Earlier research shows that pre-crisis sustainability efforts enhance resilience following a crisis (e.g. [Sajko et al., 2021](#)), and that investors' characteristics and commitment strongly shape resilience outcomes (e.g. [Mellado-Garcia et al., 2024](#)). Our findings show that changes in ESG performance during a corporate crisis period also serve as legitimacy signals that influence investor behavior under uncertainty. In doing so, we identify a previously underexplored mechanism through which sustainability operates in crisis contexts: legitimacy-driven investor commitment that enhances organizational resilience under resource scarcity. Although it might be expected that, during periods of crisis, investors would prefer a reduction in sustainability efforts to address urgent financial needs, our findings demonstrate that reinforcing ESG performance instead strengthens investor commitment. This heightened commitment improves firms' access to critical resources even during periods of vulnerability, thereby accelerating their recovery from crisis. The significant effect of ESG reinforcement on investor commitment illustrates how legitimacy operates as a stabilizing mechanism that shapes investors' interpretations and responses under conditions of uncertainty.

The results also reveal that economic conditions shape these dynamics. These findings expand prior research (e.g. [Aragón-Correa and Sharma, 2003](#); [Park and Mezas, 2005](#)) by showing that investors interpret firms' strategic signals differently depending on whether the external environment is munificent or hostile. Moderation results further reinforce legitimacy theory: in hostile economic environments where uncertainty is high ([Aldrich, 1979](#); [Bradley et al., 2011](#)), corporate sustainability efforts provide investors with stronger legitimacy signals, prompting greater commitment to the firm. Investor reactions become more cautious and selective when resources are scarce, with placing greater value on actions that convey credibility and reduce uncertainty. However, this commitment may only slightly impact recovery time, as external difficulties lead investors to make more conservative decisions, focused on self-protection rather than firm support.

While existing research in munificent economic environments finds positive effects of responsible corporate behavior in these environments ([Goll and Rasheed, 2004](#); [Ramelli et al., 2021](#)), our findings show that investor commitment more strongly accelerates recovery through collaboration with other economic agents and favorable market support.

This study contributes to both legitimacy and resilience research. First, this study advances legitimacy theory ([Dowling and Pfeffer, 1975](#); [Meyer and Rowan, 1977](#); [Scott, 1995](#); [Suchman, 1995](#)) by showing that corporate sustainability strengthens legitimacy even under financial distress. This fosters investor commitment and enables a quicker recovery.

Second, this study expands resilience theory. It offers new insights by prioritizing the relationship between recovery speed, sustainability and investor commitment over traditional recovery, focusing on using solely internal resource availability. This approach aligns with resilience theory's growing emphasis on adaptability and collaboration ([DesJardine et al., 2019](#); [Kahn et al., 2018](#); [Linnenluecke, 2017](#)). Our findings highlight investor commitment as a key mediator between sustainability and resilience. Thirdly, this study underscores that recovery speed is contingent on the economic environment. This enriches the resilience literature by highlighting the relevant role of economic environment as moderator in the relationships between internal and external corporate variables during corporate crises.

This study has limitations that offer opportunities for further research. Despite controlling for industry and country effects, firm-specific heterogeneity may still influence the results. Future research should validate these findings across broader samples and institutional contexts. Moreover, as this study focuses on investor commitment, the role of other stakeholders in shaping recovery remains unexplored. Building on prior work on stakeholder support and legitimacy (Bansal and Clelland, 2004; Shepherd and Williams, 2014; Suchman, 1995), future research could investigate how other stakeholders' commitment affects recovery. We also acknowledge that longer-term ESG dynamics could add more information about the sustainable behavior of firms. We discuss this as an avenue for future research. Future studies might also explore how financial crises generate psychological pressures among decision-makers (e.g. Wach *et al.*, 2025), and how leadership heterogeneity moderates recovery outcomes (e.g. Arias *et al.*, 2024). Finally, incorporating additional institutional dimensions, such as regulatory frameworks, could deepen understanding of how external environments shape corporate strategies during crises.

The findings of this study have significant implications for managers, regulators, policymakers and investors. First, managers might want to prioritize sustainability efforts to strengthen investor relationships. They should treat sustainability efforts not as a cost during crises but as a strategy that shapes investor perceptions and resource availability. In practical terms, firms can maintain transparent ESG reporting during crises, prioritize ESG issues most relevant to the business (e.g. safety in energy or ethical supply chain in consumer goods) and actively explain to investors how these efforts strengthen the firm's ability to recover and remain resilient. Moreover, managers must consider the broader economic environment when implementing sustainability strategies, tailoring their approaches to maximize the benefits of investor support.

Second, this study has significant implications for regulators and policymakers, highlighting the need for standardized sustainability reporting to enhance the global understanding and comparability of corporate sustainability performance. Currently, varying regulations across countries create inconsistencies, making it difficult for investors to compare sustainability performance across jurisdictions. Regulators could collaborate to standardize sustainability reporting frameworks, enabling investors to make more informed decisions. This standardization would ultimately promote more sustainable and resilient business practices worldwide. Requiring clear ESG reporting during crises could help stabilize financial markets by reducing uncertainty and making it easier for investors to direct their funds toward those firms that show credible and resilience-building sustainability practices.

Third, for investors, our findings suggest that increases in sustainability efforts during crises can be a useful signal of strong management and resilient capability. Instead of focusing only on a firm's ESG score level, investors can pay attention to whether the firm is actively improving its sustainability practices during crisis periods, as this may indicate proactive management and a long-term strategic approach.

7. Conclusion

This study demonstrates that sustainability reinforcement operates as a legitimacy mechanism during crises. When a corporate financial crisis arises, firms that intensify ESG efforts compensate by amplifying legitimacy, thereby reassuring investors about managerial intent and future resilience. The mediation analysis empirically validates this mechanism: reinforcing ESG performance influences recovery primarily through its impact on investor commitment, demonstrating that legitimacy does not directly restore financial performance but rather shapes the flow of external resources needed for recovery. The moderating effects highlight that legitimacy-based investor commitment is especially critical in hostile

environments, whereas in munificent contexts, investor commitment more easily translates into tangible recovery outcomes. Taken together, the results underline that sustainability is not a strategy to be abandoned in crises but a capability that strengthens resilience.

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Table A1. Variables, proxies and data source

| Variable | Type | Operational definition | Proxies and measurements | Data source |
|--|-------------|---|--|--|
| Recovery time | Dependent | Speed of post-crisis financial health recovery (a proxy for organizational resilience) | Number of years required for the firm's financial viability (measured by Altman Z-score) to rise above 2.99 after falling below that threshold in 2015. Values range from 1 (recovery in 2016) to 6 (recovery in 2021); 7 = non-recovery (Z-score < 2.99 in 2016–2021); 8 = discontinuation (no data after 2015) | LSEG Refinitiv (financial indicators) |
| Reinforcing corporate sustainability performance | Independent | Change in corporate ESG performance showing a firm's intentional effort during the crisis | Variation in ESG scores between 2014 (pre-crisis) and 2015 (in-crisis). Positive values = reinforcement; 0 = no change; negative values = decline | LSEG Refinitiv (ESG data set) |
| Investor commitment | Mediator | Change in commitment from major investors during the crisis | Variation in portfolio holdings by major investors (blockholders ≥3% ownership) between 2014 and 2015. Positive values = increased commitment; 0 = unchanged; negative values = reduced commitment | LSEG Refinitiv (ownership data) |
| Firm's economic environment | Moderator | National economic confidence context | Country-level OECD Consumer Confidence Index in 2015. Higher values = munificent environment; lower values = hostile environment | OECD (2022) |
| Country stability | Control | Macroeconomic stability of firm's country | Change in GDP per capita from 2014 to 2015 | World bank database |
| Firm size | Control | Magnitude of firm operations | Total debt in 2015 (in trillions of USD) | LSEG Refinitiv |
| Investor concentration by region | Control | Geographic diversification of major investors | Geographic diversification index using the entropy method (Qian et al., 2010) | LSEG Refinitiv |
| Long-term orientation | Control | Cultural dimension influencing future rewards and perseverance | Long-term orientation score of firm's and investors' countries | Hofstede (2011) |
| Uncertainty avoidance | Control | Cultural tolerance for ambiguity and uncertainty | Hofstede uncertainty avoidance dimension for firm's and investors' countries | Hofstede (2011) |
| Environmental awareness of investors | Control | Investors' sustainability and legitimacy orientation | EPI of the investors' home country | Yale Center for Environmental Law and Policy (Wendling et al., 2018) |