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**WHEN DO RESILIENCE  
CAPABILITIES WORK? PERCEIVED  
THREAT SEVERITY AND SME  
RECOVERY IN A PERMACRISIS**

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# When Do Resilience Capabilities Work?

## Perceived Threat Severity and SME Recovery in a Permacrisis\*

Enrico Carlet<sup>†</sup> Simona Leonelli<sup>‡</sup> Martina Gianecchini<sup>§</sup> Diego Campagnolo<sup>§</sup>

### ABSTRACT

Organizations increasingly operate in the permacrisis, characterized by persistent and overlapping systemic threats such as geopolitical tensions and health emergencies. Small and medium-sized enterprises (SMEs) are particularly vulnerable to these threats due to limited resources. Prior research identifies several organizational capabilities associated with SME resilience, yet typically treats threat contexts as homogeneous and assumes that the effects of such capabilities are stable across levels of perceived threat severity. Integrating capability-based and process-based perspectives, we frame perceived threat severity as an initial condition shaping both time to recovery and the extent to which organizational resilience capabilities translate into effective responses. We examine whether the influence of resilience capabilities varies as threats are perceived to become more severe. Using survey data collected in early 2024 from 252 Italian SMEs exposed to systemic threats during the ongoing permacrisis, we analyze the direct effects of perceived threat severity and four organizational capabilities—slack resources, anticipation, proactiveness, and coping—on recovery outcomes, as well as their interaction effects. The findings show that higher perceived threat severity is associated with longer recovery times. Organizational capabilities are generally linked to faster recovery; however, the effects of slack resources, proactiveness, and coping capabilities weaken as perceived threat severity increases. In contrast, anticipation capabilities based on external connectedness do not exhibit attenuation under higher threat severity. These results advance a contingent view of organizational resilience, highlighting that organizational capabilities differ in how they operate across levels of perceived threat severity.

**Keywords:** SMEs; capabilities and competencies; resilience.

**JEL classification:** L25, L26, M10

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## Introduction

Organizations increasingly operate under conditions of a *permacrisis*, a context characterized by persistent and overlapping disruptions such as geopolitical tensions, health emergencies, and climate-related shocks (Lawrence et al., 2024; Anisimova et al., 2025). In such environments, crises are no longer rare or exceptional events, but recurrent conditions that organizations must repeatedly confront. Despite their vital role in employment and economic activity, small and medium-sized enterprises (SMEs) are particularly vulnerable to these systemic threats (Hadjielias et al., 2022). SMEs typically possess fewer buffers and lower resource endowments (Branicki et al., 2017; Smallbone et al., 2012), making it difficult to absorb prolonged adversity. As a result, the ability to recover quickly after disruptions becomes a central dimension of SME resilience, understood as the capacity to withstand adversity and restore functioning in the face of threats (Duchek, 2020).

Research on organizational resilience has increasingly converged on a capability-based view, according to which organizations effectively confront crises by developing capabilities that enable anticipation, coping, and adaptation (Williams et al., 2017; Duchek, 2020; Hillmann and Guenther, 2021). Implicit in much of this literature is the assumption that resilience-related capabilities generate positive recovery effects regardless of how severe the crisis becomes (Duchek, 2020). Consequently, resilience capabilities are often treated as resilience enablers whose contribution to recovery is presumed to hold across different crisis conditions.

Yet crises are not homogeneous. They vary substantially in severity, and such variation has important implications for how organizational capabilities operate (Su and Junge, 2023). As adversity escalates, organizations may face constraints so severe that capabilities designed to foster flexibility and adaptation no longer function as theorized (Su and Junge, 2023). However, empirical evidence on this issue remains limited and inconsistent. Under conditions of high perceived threat severity, certain capabilities may even become particularly effective

(Graf et al., 2024). Other studies, by contrast, report no significant relationship between threat severity and the effectiveness of resilience-related capabilities (Parker and Ameen, 2018).

Despite these insights, empirical research on organizational resilience has predominantly examined crises as homogeneous contexts, focusing on organizational responses to a given shock rather than on how variation in crisis severity reshapes the effectiveness of resilience capabilities (e.g., Tognazzo et al., 2016; Hadjielias et al., 2022; Pedauga et al., 2022; Verreynne et al., 2023). As a consequence, it remains unclear whether organizational capabilities that support recovery operate uniformly across different levels of threat severity.

Theoretically, the absence of explicit boundary conditions encourages universalistic claims about resilience capabilities. This tendency is reinforced by research designs that operationalize resilience primarily as a perceived capability rather than as a process leading to observable outcomes (e.g., Kyrdoda et al., 2023). When resilience capabilities are assumed to always work and resilience itself is treated as a capability, resilience risks collapsing into tautology unless linked to measurable recovery outcomes.

Responding to calls to move beyond universalistic accounts of organizational resilience, and in particular to Su and Junge's (2023: 1096) invitation to examine "the contradictions, interactions, and potential moderators of the antecedents [of resilience, such as threats and capabilities]", this study empirically investigates how perceived threat severity conditions SME recovery and shapes the effectiveness of key organizational resilience capabilities as threat intensity increases.

Accordingly, we formulate the following research question (RQ): How do organizational capabilities shape the relationship between perceived systemic threat severity and recovery outcomes in SMEs, and how does their influence vary across different levels of perceived threat severity?

Theoretically, we draw on process-based and capability-based models of organizational resilience (Duchek, 2020; Williams et al., 2017; Su and Junge, 2023) and on SME-specific resilience frameworks (Verreynne et al., 2023). We conceptualize resilience as a process activated by perceived threat severity (Burnard and Bhamra, 2011), unfolding through organizational capabilities, and demonstrated by an observable recovery outcome (Su and Junge, 2023). Notably, we focus on time to recovery, explicitly incorporating the temporal dimension of resilience (Raetze et al., 2022).

Empirically, by using survey data collected in 2024 from 252 Italian SMEs exposed to systemic disruptions during the 2022–2023 period, we examine the direct effects of perceived threat severity and key organizational resilience capabilities—slack resources, anticipation, proactiveness, and coping capabilities—on recovery outcomes, as well as their interaction effects.

This study makes three contributions to the literature on organizational resilience and SMEs. First, we advance a contingent view of resilience by showing that the recovery-enhancing effects of several organizational capabilities diminish as perceived threat severity increases, challenging assumptions of monotonic benefits across threat severity levels. Second, by clearly separating resilience capabilities from resilience outcomes and focusing on time to recovery, we avoid tautological reasoning and provide a process-based, fine-grained account of SME resilience. In doing so, the analysis responds to calls for quantitative, interaction-based examinations of resilience processes (Raetze et al., 2022). Third, by disaggregating resilience capabilities, we show that they do not respond uniformly to increasing threat severity: while internally oriented capabilities such as slack, proactiveness, and coping exhibit diminishing effectiveness, anticipation capabilities based on external connectedness remain effective even under high perceived threat severity.

The remainder of the paper is organized as follows. We first review the relevant literature and develop the hypotheses. We then describe data, methods, and the empirical results. The paper concludes with a discussion of the theoretical and practical implications of our findings.

## **Theoretical Background and Hypotheses Development**

### ***SME resilience in the permacrisis***

In the context of the ongoing permacrisis, it has become increasingly necessary for small and medium-sized enterprises (SMEs) to develop resilience in order to withstand persistent and overlapping disruptions. The permacrisis has been defined as an extended period of instability resulting from the overlapping of systemic shocks—such as pandemics, geopolitical tensions, and economic disruptions—whose frequency and scale exceed business-as-usual conditions (WHO, 2022; Collins Dictionary, 2022; Lawrence et al., 2024; Anisimova et al., 2025). Operating in such a threatening environment, organizations are repeatedly exposed to adverse conditions that challenge their ability to sustain functioning. SMEs are particularly exposed to the negative effects of the permacrisis given their limited resources and size-related constraints (Storey and Greene, 2010; Smallbone et al., 2012).

Organizational resilience refers to how firms respond to threats and disruptions: resilience is demonstrated when responses allow them to restore functioning without experiencing prolonged decline or failure (Burnard and Bhamra, 2011; Hillmann and Guenther, 2021). In SMEs, resilience exhibits distinctive characteristics: SMEs rely on centralized decision-making, informal coordination, and limited slack, and are therefore disproportionately affected by crises such as economic shocks and extreme weather events (Herbane, 2019; Branicki et al., 2017; Linnenluecke et al., 2012). The role of the entrepreneur and of the surrounding context is particularly salient in shaping crisis responses, as resilience is often

closely tied to individual judgment and experience (Korber and McNaughton, 2018; Branicki et al., 2017). At the same time, organizational-level capabilities can complement entrepreneur-centric explanations by enabling SMEs to respond effectively to disruptions through anticipation, proactive actions, and adaptation (Duchek, 2020; Williams et al., 2017).

Importantly, developing such organizational capabilities is costly for SMEs, as it requires financial investments, training, and the allocation of scarce resources (Verreynne et al., 2023). For this reason, it is critical to understand whether these capabilities are empirically effective in supporting resilience outcomes, rather than assuming their benefits *a priori*. Addressing this issue requires moving beyond a purely capability-based view and adopting a process-oriented perspective that conceptualizes resilience as unfolding from an initial threat, through organizational responses, toward an observable resilience outcome (Williams et al., 2017; Duchek, 2020; Su and Junge, 2023). This integrated perspective allows for a richer understanding of the “resilience recipe,” as it explicitly accounts for variation in threat intensity, the direct effects of different organizational capabilities—some oriented toward anticipation and others toward reaction (Duchek, 2020)—and their influence on a specific recovery outcome, such as time to recovery (DesJardine et al., 2019).

While prior research has shown that organizational capabilities are generally associated with effective resilience outcomes (Verreynne et al., 2023), it remains unclear whether their effectiveness is stable across different levels of perceived threat severity. Much empirical work treats crises as homogeneous events and overlooks the possibility that increasing threat intensity may condition how capabilities translate into recovery outcomes, as exemplified by studies assuming uniform exposure to shocks such as the global financial crisis (e.g., Iborra et al., 2022; Tognazzo et al., 2016). When threat severity is explicitly modelled in the limited empirical literature, no clear consensus emerges. A study, in the public sector, suggests that certain capabilities (staff experiences) become effective under high intensity threats, whereas

other capabilities do not interact with crisis intensity (Graf et al., 2024). Other studies, by contrast, report no significant relationship between threat severity and the effectiveness of resilience-related capabilities (Parker and Ameen, 2018). This mixed evidence reflects the limited empirical examination of the boundary conditions for capability effectiveness conceptualized by Su and Junge (2023).

By conceiving resilience as a capability-based process and explicitly incorporating perceived threat intensity, it becomes possible to develop more fine-grained models that test both direct effects and interactions among adversity, capabilities, and recovery outcomes. Building on this theoretical framework, we develop a set of hypotheses that examine how perceived threat severity and organizational capabilities jointly shape SME recovery under conditions of permacrisis.

### ***Resilience as a process: from perceived threat to recovery***

From a process-based perspective, resilience entails two fundamental elements: exposure to some form of adversity and evidence of functioning in its aftermath (Raetze et al., 2022). Importantly, however, organizational responses to adversity do not necessarily lead to uniform outcomes (Burnard and Bhamra, 2011). Rather, the extent to which organizations are able to withstand threat and restore functioning may vary considerably (Smallbone et al., 2012).

In particular, the impact of adversity on organizational functioning—often manifested as interrupted operations and performance decline—may differ in duration (Ayyub, 2014; DesJardine et al., 2019). To account for this heterogeneity in resilience outcomes, it is necessary to consider the severity of the threat faced by the organization (Su and Junge, 2023).

Threat severity shapes the extent to which disruption strains organizational resources and routines. Relatively mild threats can often be absorbed without major reconfiguration, resulting in limited performance decline and short recovery periods (Williams et al., 2017).

More severe threats, by contrast, may necessitate more extensive responses, such as coordinated action across organizational units or even fundamental transformations, including business model reconfiguration (Pal et al., 2014). In such cases—particularly when threats are perceived as existential or life-threatening—recovery is likely to require more time and effort (Su and Junge, 2023), thereby prolonging the duration of performance decline.

An additional element that is critical in understanding resilience outcomes is perception. The resilience process does not begin with objective conditions alone, but with how adversity is detected and interpreted. Sensemaking represents the starting point of the resilience process, as the perception of threat severity triggers the activation of organizational responses (Burnard and Bhamra, 2011). This perceptual dimension is especially salient in SMEs, where decision-making is highly centralized and responses are closely tied to key decision-makers' interpretations of environmental conditions (Storey and Greene, 2010). As a result, crises cannot be treated as homogeneous events affecting all firms in the same way; rather, variation in perceived threat severity is likely to influence different recovery trajectories and duration.

These arguments suggest that resilience outcomes depend not only on how organizations respond to adversity, but also on how severe the threat is perceived to be. Higher levels of perceived threat severity are expected to impose greater strain on organizational functioning and to prolong recovery, whereas lower perceived severity should allow firms to stabilize functionality more rapidly. Accordingly, we propose the following hypothesis:

**H 1)** *Perceived threat severity is associated with SME resilience outcomes, such that higher perceived threat severity is associated with longer time to recovery.*

### ***Organizational capabilities and resilience outcomes***

Once the resilience process is activated by the perception of a disruption, recovery outcomes depend on the extent to which firms are able to mobilize specific organizational capabilities. From a process-based perspective, resilience unfolds through capability-based mechanisms

that shape how organizations respond to adversity and, ultimately, how quickly they are able to restore functioning (Duchek, 2020; Su and Junge, 2023). Prior research emphasizes that organizational responses to disruption vary substantially in their effectiveness, leading to different recovery trajectories and outcomes (Williams et al., 2017). For SMEs, where prolonged downturns can rapidly erode financial viability, a particularly salient outcome of this process is *time to recovery*, which captures the speed with which firms restore “normal” functioning and stop performance decline following a disruption (DesJardine et al., 2019; Su and Junge, 2023).

Building on the process-based view on resilience (Duchek, 2020) and on SME-specific framework proposed by Verreynne et al. (2023), organizational capabilities represent the core mechanisms through which firms face adversity and respond via effective action that leads to recovery. In particular, *slack resources*, *anticipation*, *proactiveness* and *coping capabilities* allow SMEs to detect disruptions, mobilize resources accumulated before the threat, and adapt operations in ways that may accelerate performance recovery. These capabilities shape how firms generate and activate responses (Duchek, 2020).

Specifically, *slack resources* provide buffers that allow SMEs to absorb shocks without immediate resource depletion, sustaining liquidity and operational continuity during periods of disruption (Verreynne et al., 2023; Tognazzo et al., 2016). By easing short-term financial and operational pressures, slack can reduce the urgency of survival-oriented decisions and enable more effective responses, thereby accelerating recovery.

*Anticipation capabilities* derive from engaging in forward-looking activities such as environmental scanning, risk planning, and early signal detection (Burnard and Bhamra, 2011; Verreynne et al., 2023). Through anticipation, firms can reduce uncertainty and shorten the delay between threat recognition and response. Risk planning, in particular, has been shown to prevent or shorten business interruption and to limit negative consequences for small firms

(Herbane, 2019). By developing anticipation capabilities prior to the onset of a crisis, firms build resilience potential *ex ante*, which can be translated into observable resilience outcomes once disruption occurs, including faster response generation and activation (Duchek, 2020; Williams et al., 2017; Burnard and Bhamra, 2011).

*Proactiveness* reflects the ability of SMEs to act early in the face of disruption rather than reacting defensively or passively. This capability reflects an organization's propensity to anticipate, initiate, and shape responses to environmental change through early action, competitive initiative, and prompt renewal (Verreynne et al., 2023). Hence, proactiveness can help contain disruption and accelerate stabilization (Raetze et al., 2022). Evidence from research on SMEs suggests that such proactive and flexible coping behaviors support faster restoration of operations (Hadjielias et al., 2022).

*Coping capability* refers to the capacity to rapidly reconfigure operations and mobilize available resources in response to external shocks. It encompasses flexibility, adaptiveness, problem-solving, bricolage abilities that enable firms to find workable solutions and effectively manage ambiguous situations (Verreynne et al., 2023). By facilitating timely reallocation of resources and responses under uncertainty, coping capabilities help organizations contain disruption and restore functioning, and thus shorten the time required to stop performance declines.

Overall, these capabilities constitute the levers through which SMEs enact the response process and exert a direct influence on recovery time. Firms that possess higher levels of slack resources, anticipation, proactiveness and coping capabilities, are therefore better positioned to cope with adversity and restore functioning more rapidly following a threat. Accordingly, we advance the following hypothesis:

**H2)** *SMEs' organizational resilience capabilities—specifically anticipation, slack resources, proactiveness, coping capability—are negatively associated with time to recovery following the threat.*

### *The effectiveness of organizational capabilities under varying threat severity*

Although organizational capabilities such as slack, proactiveness, and flexibility generally enhance SMEs' ability to navigate adversity (Duchek, 2020), their effectiveness in supporting recovery may not be uniform across contexts. Prior research suggests that resilience mechanisms are context-dependent (Williams et al., 2017). In particular, the nature of the threat may vary in terms of its intensity, temporal dynamics, and degree of novelty, ranging from minor and cumulative disturbances to sudden, acute, and escalating crises (Williams et al., 2017; Su and Junge, 2023). Crises may also differ in whether they unfold in familiar contexts with established solutions or in unprecedented situations lacking ready-made responses, as well as in the type of threat they pose (Su and Junge, 2023). These dimensions shape how crises are experienced and how organizational capabilities translate into resilience outcomes. Hence, the effectiveness of organizational capabilities for recovery depends not only on their availability, but also on the conditions under which they are enacted.

Much empirical research, however, adopts an implicit assumption of uniformity of effectiveness. For example, Iborra et al. (2022) examine SME resilience during the Global Financial Crisis by conceptualizing the disruption as a uniform, exogenous shock affecting all firms with similar severity. Focused on organizational capabilities such as ambidexterity, the study does not account for differences in how firms' face different intensity of the disruption. As a result, organizational capabilities are generally tested as operating uniformly across firms, overlooking the possibility that variation in perceived threat severity conditions their effectiveness.

Nonetheless, although empirically understudied, the severity of the threat is often conceptualized as a relevant condition shaping the effectiveness of resilience capabilities (Su and Junge, 2023). Building on an SME-specific perspective, Verreynne et al. (2023) underline that organizational resilience capabilities as particularly relevant for managing moderate

disruptions, not just rare and extreme events. Similarly, Su and Junge (2023) suggest that resilience mechanisms operate within boundary conditions, such that their influence on recovery varies depending on the severity of the adversity encountered. These arguments suggest that organizational capabilities do not exert a constant effect on recovery, but rather that their effectiveness varies along a continuum of threat severity.

Empirical evidence indicates that as the severity of adverse events increases, organizations may face growing constraints in mobilizing and effectively deploying their resources and capabilities. For instance, organizational resilience literature highlights flexibility as a core capability enabling organizations to absorb shocks and adapt to changing conditions (Hillmann and Guenther, 2021). However, when shocks become extreme or highly disruptive, flexibility alone may be insufficient to support effective recovery, as severe adversity can challenge sensemaking and increase coordination costs (Williams and Shepherd, 2016).

At the same time, other studies indicate that severe disruptions can occasionally trigger heightened urgency and activate unconventional responses. Novel or intense crises may catalyze unconventional solutions or enhance the detection of the threat and accelerate responses (Su and Junge, 2023; Burnard and Bhamra, 2011), thereby enhancing the effectiveness of specific capabilities (Graf et al. 2024).

Hence, these contrasting insights indicate that perceived threat severity influences how organizational capabilities are enacted. While heightened perceived threat severity may sometimes amplify urgency-driven action, it more often constrains coordination, sensemaking, and the effective deployment of capabilities in SMEs. We contend that, as perceived threat severity increases, the effectiveness of organizational capabilities in supporting rapid recovery is attenuated. Heightened time pressure and cognitive strain are more likely to limit the extent to which capabilities can support coordinated and effective responses. Accordingly, perceived

threat severity conditions the relationship between organizational capabilities and time to recovery. Therefore, we formulate the following hypothesis:

**H 3)** *Organizational resilience capabilities moderate the relationship between perceived threat severity and time to recovery, such that their recovery-enhancing effects weaken as perceived threat severity increases.*

Figure 1 presents the research design tested in the subsequent section.

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## **Empirical analysis**

### ***Data***

The data used in this study were drawn from a survey conducted between January and February 2024, designed to investigate how Italian firms respond to disruptions and build organizational resilience. The survey targeted firms operating across various industries. It was administered by a market research institute employing a mixed-method approach, combining computer-assisted telephone interviews (CATI) and computer-assisted web interviews (CAWI). Entrepreneurs and key decision-makers took part in the study, thereby ensuring the reliability and depth of information collected on crisis management practices (Storey and Greene, 2010).

Each interview had an average duration of around 30 minutes. The initial sampling process followed a proportional criterion to achieve balanced representation across regions, sectors, and respondent categories. In a subsequent phase, a slight oversampling adjustment was introduced to ensure the representativeness of firms in the manufacturing and construction sectors, thus mitigating the relative predominance of the service sector.

Our analysis focused specifically on a subsample of 252 SMEs that have been exposed to major systemic shocks (such as the COVID-19 pandemic and geopolitical crises) and

consequently exhibited tangible signs of being affected by the ongoing “permacrisis” (Collins Dictionary, 2022) during the years 2022–2023.

Table 1 reports descriptive statistics for the sample.

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### ***Measures***

The dependent variable, *time to recovery*, captures the length of time during which a firm experienced a decline in performance following the crisis. We operationalize time to recovery as the duration of this negative performance impact (DesJardine et al., 2019). In this perspective, recovery is achieved when the firm is able to stop the performance decline and restore stable functioning. Accordingly, longer *time to recovery* indicates slower recovery, whereas shorter *time to recovery* reflects faster recovery. Respondents were asked the question: “*how long did the company experience a decline in performance due to the crisis?*” They could select one of the following response options: 1 to 3 months; up to 6 months; between 6 months and 1 year; between 1 and 2 years; or the performance is still negative.

The independent variable, *perceived threat severity*, captures the perceived severity of systemic-level threats characterizing the permacrisis. Specifically, this variable measures the extent to which the respondent perceives that the firm has been affected by disruptive events such as health emergencies, geopolitical tensions, and other systemic shocks. Respondents were asked the question: “*Focusing on the last two years, how much would you say your firm has been threatened by systemic crises (i.e., health emergencies, wars, geopolitical tensions)?*” Responses were recorded on a five-point Likert scale, ranging from 1= not at all to 5 = very much.

The model includes four moderator variables capturing organizational resilience-related capabilities. We label these constructs as *anticipation capability*, *slack*, *proactiveness*, and *coping capability*. These constructs build on prior research on organizational resilience (Duchek, 2020; Williams et al., 2017; Bhamra et al., 2011) and validated scales of organizational resilience antecedents (Verreynne et al., 2023). In total, thirty-nine items were used to measure these dimensions. Respondents rated their agreement on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

*Anticipation capability* reflects the extent to which firms engage in monitoring activities and develop contingency plans in collaboration with external partners. We operationalized this construct using the *connectedness* dimension from Verreynne et al. (2023) (five items). A sample item is: “*We actively plan with our suppliers how to manage disruptions*”. Higher values denote a stronger organizational tendency to adopt anticipatory strategies to mitigate potential crises.

*Slack* captures the availability of generic resources, such as human, financial and material capital, that support the organization in managing threats and minimizing crisis impact. We operationalized this construct using the *slack* dimension from Verreynne et al. (2023) (four items). A sample item is: “*We maintain spare equipment, facilities or production capacity that we can use in times of need.*”

*Proactiveness* refers to the organization’s tendency to anticipate and act upon environmental changes. Following Verreynne et al. (2023), this construct was measured using the *readiness* and *proactiveness* dimensions (five and nine items, respectively). A sample item is: “*When dealing with competitors, our company is typically the first to take action.*” Higher scores denote a stronger inclination to implement proactive activities.

*Coping capability* captures the organization’s ability to reconfigure operations and resources rapidly in response to external shocks. This construct was measured through three

dimensions, i.e., *flexibility*, *adaptiveness*, and *problem solving*, based on Verreyne et al. (2023), each including five, five, and six items, respectively. *Flexibility* reflects the capacity to reallocate resources and expertise to adjust to environmental changes and a sample item is: “*Our organization is able to easily quickly address new vulnerabilities when they are recognized*”. *Adaptiveness* concerns the firm’s confidence in finding feasible solutions using existing resources and a sample item is: “*We trust our ability to identify workable solutions using the resources we already have.*” Finally, *problem solving* denotes the ability to handle ambiguous or unprecedented tasks and a sample item is “*Employees in our organization often face tasks for which no established procedures exist.*”

We measured and included several control variables at the environmental, organizational, and individual levels. At the environmental level, we controlled for *industry and geographical area*. *Industry* was included as a categorical variable and operationalized using dummy variables for “manufacturing and construction”, “trade and logistics”, and “services”, with “manufacturing and construction” as the reference category. *Geographic area* was also included as a categorical variable and operationalized using dummy variables for “North-West”, “North-East”, “Centre”, and “South/Islands”, with “North-West” as the reference category. In fact, resilience processes are context-specific and may depend on external contingencies, such as the availability of support from local communities and institutional systems, as well as industry-related factors, including firms’ position within supply chains (Williams et al., 2017).

At the organizational level, we controlled for *firm size*, based on the number of employees. Firm size was coded as a categorical variable, operationalized through a dummy variable distinguishing firms with 50–249 employees from firms with 10–49 employees. Larger firms generally possess greater experience, accumulated resources, and institutionalised routines, which can enhance their capacity to respond to and recover from adverse events

(Grewal and Tansuhaj, 2001; DesJardine et al., 2019). Moreover, larger firms tend to exhibit superior ability to detect and interpret early warning signals of environmental turbulence due to more formalized structures, specialized roles, and access to a broader informational network (Weick and Sutcliffe, 2011).

At the individual level, we controlled for *entrepreneur tenure* and *entrepreneur education*. Entrepreneur tenure was measured on a three-point ordinal scale (1 = less than four years; 2 = between five and ten years; 3 = more than eleven years; reference year 2024). *Entrepreneur education* was measured on a four-point ordinal scale (1 = less than high school; 2 = high school diploma; 3 = bachelor's and master's degree; 4 = Ph.D.). Entrepreneurs' personal characteristics, particularly in SMEs, can strongly influence their perceptions (Brandstätter, 2011), behaviors (Leonelli et al., 2022), firm performance (Leonelli and Jalal, 2024), and the speed of recovery following a crisis (Cowling et al., 2018). *Entrepreneur education* and *entrepreneur tenure* were included in the regression models as sets of dummy variables, with the lowest category serving as the reference group.

All constructs were measured using previously validated multi-item scales drawn from Verreyne et al. (2023). Internal consistency was assessed using Cronbach's alpha, which exceeded commonly accepted thresholds. Descriptive statistics and correlations are reported in Table 2.

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### ***Analytical approach***

To test the hypotheses, we estimated hierarchical regression models with *time to recovery* as the dependent variable. Models were estimated incrementally. Model 1 includes control

variables only. Model 2 adds the independent variable *perceived threat severity*. Models 3 to 6 then introduce organizational resilience capabilities (i.e., *anticipation capability*, *slack*, *proactiveness*, and *coping capability*) and their interaction with *perceived threat severity*, considering one capability at a time. This strategy allows us to assess the contingent effectiveness of each capability while limiting multicollinearity concerns arising from their high correlations.

We assessed multicollinearity by examining variance inflation factors (VIFs). In all estimated models, VIF values were below critical thresholds. All variables capturing organizational resilience capabilities were standardized prior to estimation. Categorical variables (industry, geographic area, firm size, and entrepreneur characteristics) were included in the models using dummy variables.

Given the ordinal nature of the dependent variable, we acknowledge that alternative estimators may be appropriate. We therefore re-estimated all models using ordered logistic regression as a robustness check. The pattern and significance of the results remain unchanged. For brevity, these results are omitted.

All statistical analyses were conducted using Stata 16, and figures were generated using R.

## **Results**

Table 3 reports the results of the regression analyses predicting *time to recovery*. Higher values of the dependent variable indicate longer recovery periods.

Model 2 shows that *perceived threat severity* is positively and significantly associated with *time to recovery* ( $\beta = 0.21$ ,  $p < .01$ ), indicating that firms experiencing higher levels of perceived threat require more time to recover. This result supports Hypothesis 1.

Models 3 to 6 examine the direct effects of organizational resilience capabilities on recovery. Across models, *anticipation capability*, *slack*, *proactiveness*, and *coping capability* are all negatively associated with time to recovery, indicating faster recovery for firms with higher levels of these capabilities. The effect of *anticipation capability* is statistically significant at the 10% level, whereas *slack*, *proactiveness*, and *coping capability* exhibit statistically significant effects at the 5% level.

In addition, Models 3 to 6 examine the moderating role of organizational resilience capabilities on the relationship between *perceived threat severity* and the outcome. The interaction between *perceived threat severity* and *anticipation capability* is not statistically significant. In contrast, the interaction coefficients between *perceived threat severity* and *slack* ( $p < .05$ ), *proactiveness* ( $p < .10$ ), and *coping capability* ( $p < .10$ ) are positive and statistically significant. Given that higher values of the dependent variable indicate longer time to recovery, these positive interaction effects suggest that the recovery-enhancing effects of these capabilities attenuate as *perceived threat severity* increases (see Fig. 2). Overall, these results provide partial support for Hypothesis 3.

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## **Discussion**

This study advances understanding of organizational resilience in the context of the permacrisis by linking perceived threat severity, organizational capabilities, and time to recovery within a

process-based framework examined in the context of SMEs. By conceptualizing resilience as unfolding from perceived threat to recovery, the findings show that recovery outcomes depend both on how severe threats are perceived to be and on the availability of organizational capabilities. This study contributes to research on organizational resilience, organizational capabilities, and SMEs.

First, the results empirically confirm that organizational capabilities are associated with faster recovery in SMEs, supporting their relevance for resilience (Duchek, 2020; Verreynne et al, 2023). Our analysis shows that four organizational capabilities—the ability to anticipate and prepare for disruptions, the availability of slack resources, proactiveness, and the ability to cope with threats by flexibly reconfiguring—are positively associated with shorter recovery times. In doing so, this study contributes to capability-based understandings of organizational resilience by providing empirical evidence consistent with existing theoretical propositions (Duchek, 2020; Hillmann and Guenther, 2021). Focusing on the intersection between capability-based perspectives and the SME context, the analysis shows how organizational-level capabilities support recovery and complement individual-level entrepreneurial traits and contextual factors in shaping resilience outcomes in small firms (e.g., Korber and McNaughton, 2018; Branicki et al., 2017).

Second, importantly, the study moves beyond demonstrating that capabilities matter by showing that their effectiveness is *contingent* on the severity of threats. As perceived threat severity increases, the recovery-enhancing effects of slack resources, proactiveness, and coping capabilities attenuate. This finding qualifies assumptions in the resilience literature that capabilities operate uniformly across crisis contexts and responds directly to calls to examine boundary conditions and moderators of resilience antecedents (Su and Junge, 2023). Under conditions of high threat severity of the permacrisis, several factors such as cumulative strain

and coordination challenges appear to limit the extent to which internal resource-based capabilities can lead to faster recovery.

However, anticipation capabilities (which involve external actors) do not exhibit diminishing effectiveness at higher levels of perceived threat. This heterogeneity among resilience mechanisms is theoretically relevant. Whereas slack, proactiveness, and coping rely primarily on internal resources that may be eroded under severe adversity, anticipation capabilities—based on planning, monitoring, and engagement with suppliers and customers—remain effective even as threat severity increases. This finding reinforces prior research emphasizing the importance of anticipation for SME resilience (Herbane, 2019). Hence, these results support the need to consider “capability recipes” in a fine-grained way, identifying those mechanisms which remain effective even when adversity intensifies.

Third, this study contributes by demonstrating a direct relationship between perceived threat severity and time to recovery, underscoring the role of how adversity is perceived in shaping resilience outcomes. Consistent with process-oriented perspectives (Burnard and Bhamra, 2011; Duchek, 2020), crisis severity does not operate merely as an objective condition but represents the starting point of the resilience process, orienting sensemaking, subsequent responses and observable resilience outcomes. This perceptual dimension is particularly salient in SMEs, where the activation of resilience depends on how threats are detected and interpreted by the entrepreneur or a small group of key decision-makers. Given the close involvement of owner-managers in daily operations (Storey and Greene, 2010), the perception of adversity plays a relevant role in shaping recovery trajectories and duration. In line with Su and Junge (2023), the findings show that higher perceived threat severity is associated with significantly longer recovery times.

Fourth, this study contributes by empirically testing an integrated, process-oriented model of SME resilience that jointly accounts for variation in perceived threat severity,

different organizational capabilities, and recovery outcomes. The model explicitly distinguishes between resilience capabilities and resilience outcomes while linking both to the severity with which adversity is perceived. In doing so, the study responds to calls for more fine-grained and contingent accounts of resilience that capture how recovery unfolds over time (Verreynne et al., 2023; Raetze et al., 2022).

Notably, our findings add to the limited empirical research examining the contingent nature of organizational capabilities. In contrast to studies reporting either no moderating effects of threat severity (Parker and Ameen, 2018) or capability activation under high intensity threats (Graf et al., 2024), our results indicate that capabilities attenuation effects as perceived threat severity increases, except for anticipation capability.

Overall, our findings invite a reconsideration of resilience “recipes” for SMEs. While organizational capabilities support faster recovery under moderate adversity, their benefits diminish as perceived threat severity increases. Rather than advocating the accumulation of more capabilities, this study shifts attention toward understanding under what conditions specific mechanisms retain their effectiveness. As perceived threat severity is intended as a boundary condition, the study reframes SME resilience as a process-based as well as a contingent phenomenon.

### ***Practical implications***

This study suggests that investing in organizational resilience capabilities pays off for SMEs, despite the associated costs. Capabilities such as flexibility and slack require training, financial resources, and entail opportunity costs. However, our findings indicate that SMEs endowed with these capabilities experience shorter recovery times following systemic threats, making such investments particularly relevant in the context of the permacrisis.

At the same time, the results highlight limits to resilience strategies based exclusively on internally developed capabilities. As perceived threat severity increases, the recovery-enhancing effects of slack resources, proactiveness, and coping capabilities weaken. This suggests that SMEs should be cautious in relying solely on internally-developed or reaction-based responses when facing highly severe systemic threats.

In contrast, anticipation capabilities remain effective even under high levels of threat severity. This underscores the importance of *ex ante* risk planning and coordination with external actors, such as suppliers and customers. In contexts characterized by intense and overlapping systemic disruptions, prioritizing anticipation over purely reactive responses (Cowling et al., 2020) may help SMEs reduce recovery times.

Practically, prescriptions urging organizations—particularly resource-constrained SMEs—to continuously invest in resilience capabilities become problematic if such mechanisms are effective mainly under moderate stress but lose efficacy in the face of highly severe disruptions. This concern is especially salient in the context of the permacrisis, where firms increasingly face persistent and high-intensity threats rather than isolated shocks.

## **Conclusion**

This study examines SME resilience in the context of the permacrisis by empirically testing how perceived threat severity and organizational capabilities jointly influence resilience outcomes. Using survey data from a sample of 252 Italian small and medium-sized enterprises, the analysis shows that the time to recovery is not only a function of the level of organizational capabilities, but also depends on the severity of threats.

Our findings suggest that organizational capabilities—such as slack, coping and anticipation capabilities, proactiveness—are associated with faster recovery following systemic shocks. However, and more importantly, we show that their effectiveness is

contingent upon threat severity. As this latter increases, the recovery-enhancing effects of internally developed capabilities weaken, whereas anticipation-oriented mechanisms based on external connectedness do not show evidence of attenuation even under highly severe perceived adversity. By identifying perceived threat severity as a boundary condition, this study contributes to the resilience literature by specifying under what conditions such capabilities support faster recovery.

In doing so, the study advances a process-oriented view of SME resilience that links perceived adversity, organizational capabilities, and observable resilience outcomes. By focusing on *time to recovery*, the analysis provides a more fine-grained and empirically testable measure of resilience that captures meaningful variation in trajectories among firms navigating the permacrisis.

Overall, our study suggests that resilience unfolds over time through the interaction between organizational capabilities and the conditions under which they are activated. While prior research has emphasized the development of resilience capabilities as beneficial regardless threat features, this study shows that their effectiveness depends on the perceived intensity of the threat. By emphasizing this “capability–threat severity” match, the study advances a contingent view of SME resilience: what enables recovery under moderate adversity may yield diminishing recovery benefits as perceived threat intensity increases.

We acknowledge several limitations that point to future research developments. First, although the sample is balanced across sectors, it includes firms operating in a single national context (Italy). SMEs in different institutional or regulatory environments may respond to systemic threats differently. Future studies could therefore extend this analysis in other settings. Second, the time window considered in this study spans two years. Longer observation periods could shed further light on recovery dynamics following prolonged or recurrent disruptions. Third, the data are cross-sectional and rely on respondents’ retrospective assessments of both

threat intensity and recovery duration. While this design is consistent with a process-oriented perspective and a focus on perceived adversity, longitudinal data and multi-source triangulation would allow future research to refine the analysis.

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## Tables and figures

Table 1. Sample characteristics (n = 252)

<b>Respondent characteristics</b>	<b>n</b>	<b>%</b>	<b>Firm characteristics</b>	<b>n</b>	<b>%</b>
<b>Tenure</b>			<b>Firm size</b>		
≤ 4 years	26	10.32	10 - 49 employees	185	73.41
5 - 10 years	103	40.87	50 – 249 employees	67	26.59
≥ 11 years	123	48.81			
<b>Educational level</b>			<b>Geographical area</b>		
Less than high school	18	7.14	North-West	68	26.98
High school diploma	122	48.42	North-East	65	25.80
Bachelor's & master's degree	94	37.30	Centre	59	23.41
Ph.D.	18	7.14	South and Islands	60	23.81
			<b>Industry</b>		
			Manufacturing and Construction	129	51.19
			Trade and Logistic Services	40	15.87
				83	32.94

Table 2. Descriptive statistics and Spearman's correlation

	Mean	Std Dev	Min	Max	1	2	3	4	5	6	7	8	9	10	11
1 Time to recovery	3.202	0.942	1	5	1										
2 Perceived threat severity	3.206	0.909	2	5	0.215***	1									
3 Anticipation capability	0.000	0.582	-1.412	1.445	-0.248***	0.043	1								
4 Slack	0.000	0.611	-1.493	1.401	-0.215***	-0.034	0.437***	1							
5 Proactiveness	0.000	1	-2.762	3.146	-0.186**	-0.040	0.404***	0.504***	1						
6 Coping capability	0.000	1	-3.220	3.398	-0.186**	-0.011	0.417***	0.519***	0.832***	1					
7 Industry	1.818	0.901	1	3	-0.001	0.308***	0.115	0.255***	0.230***	0.218***	1				
8 Geographic area	2.441	1.128	1	4	-0.068	0.050	0.092	0.138*	0.041	0.052	0.062	1			
9 SMEs size	1.266	0.443	1	2	-0.079	-0.153*	0.002	-0.139*	0.013	-0.034	-0.202**	-0.118	1		
10 Entr education	2.444	0.731	1	4	-0.208***	0.000	0.159**	0.084	0.086	0.146*	-0.049	-0.175**	0.271***	1	
11 Entr tenure	2.385	0.667	1	3	0.190**	0.083	-0.145*	-0.084	-0.031	-0.070	0.015	-0.014	-0.113	-0.356***	1

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

n = 252

Table 3. Estimated coefficients.

Time to recovery	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	3.629*** (0.324)	3.023*** (0.370)	2.761*** (0.370)	2.732*** (0.379)	2.940*** (0.365)	2.928*** (0.366)
<i>Control variables</i>						
<i>Industry</i>						
Manufacturing	-	-	-	-	-	-
Service	-0.213 (0.167)	-0.253 (0.165)	-0.182 (0.162)	-0.173 (0.165)	-0.136 (0.167)	-0.143 (0.168)
Trade and logistics	-0.021 (0.130)	-0.145 (0.134)	-0.094 (0.131)	-0.059 (0.135)	-0.063 (0.135)	-0.083 (0.134)
<i>Geographic area</i>						
North-West	-	-	-	-	-	-
North-East	-0.472** (0.159)	-0.427** (0.157)	-0.361* (0.154)	-0.335* (0.157)	-0.391* (0.155)	-0.388* (0.155)
Centre	-0.496** (0.162)	-0.553*** (0.160)	-0.511** (0.157)	-0.440** (0.160)	-0.499** (0.158)	-0.494** (0.159)
South and Islands	-0.167 (0.164)	-0.159 (0.161)	-0.080 (0.159)	-0.058 (0.160)	-0.130 (0.159)	-0.124 (0.159)
SMEs size	-0.091 (0.138)	-0.044 (0.136)	-0.049 (0.133)	-0.092 (0.134)	-0.019 (0.134)	-0.058 (0.134)
<i>Entr_ edu</i>						
Less than high school	-	-	-	-	-	-
High school diploma	-0.441+ (0.231)	-0.424+ (0.227)	-0.352 (0.222)	-0.368 (0.223)	-0.356 (0.224)	-0.350 (0.225)
Bachelor's/master's degree	-0.642** (0.245)	-0.648** (0.241)	-0.532* (0.237)	-0.548* (0.237)	-0.519* (0.240)	-0.497* (0.242)
PhD	-0.501 (0.320)	-0.561+ (0.314)	-0.440 (0.309)	-0.441 (0.309)	-0.500 (0.310)	-0.452 (0.312)
<i>Entr_ tenure</i>						
Less than 4 years	-	-	-	-	-	-
5-10 years	0.400* (0.200)	0.368+ (0.197)	0.339+ (0.193)	0.315 (0.193)	0.324+ (0.194)	0.334+ (0.195)
More than 11 years	0.495* (0.202)	0.426* (0.200)	0.373+ (0.196)	0.380* (0.196)	0.400* (0.196)	0.403* (0.197)
<i>Main variables</i>						
Perceived threat severity		0.214** (0.067)	0.221*** (0.065)	0.211** (0.067)	0.198** (0.066)	0.202** (0.066)
Anticipation capability			-0.503+ (0.295)			
Slack				-0.887** (0.296)		
Proactiveness					-0.495** (0.186)	
Coping capability						-0.467** (0.053)
<i>Moderations</i>						
PTS x anticipation capability			0.044 (0.081)			
PTS x slack				0.190* (0.086)		
PTS x proactiveness					0.101+ (0.052)	
PTS x coping capability						0.094+ (0.053)
R-squared	0.127***	0.163***	0.208***	0.205***	0.199***	0.194***
Adj R-squared	0.087	0.121	0.161	0.158	0.151	0.146
RMSE	0.900	0.883	0.863	0.864	0.868	0.870

n = 252

Standard errors in parentheses

- Baseline model

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

PCT = Perceived threat severity

Figure 1. Research design

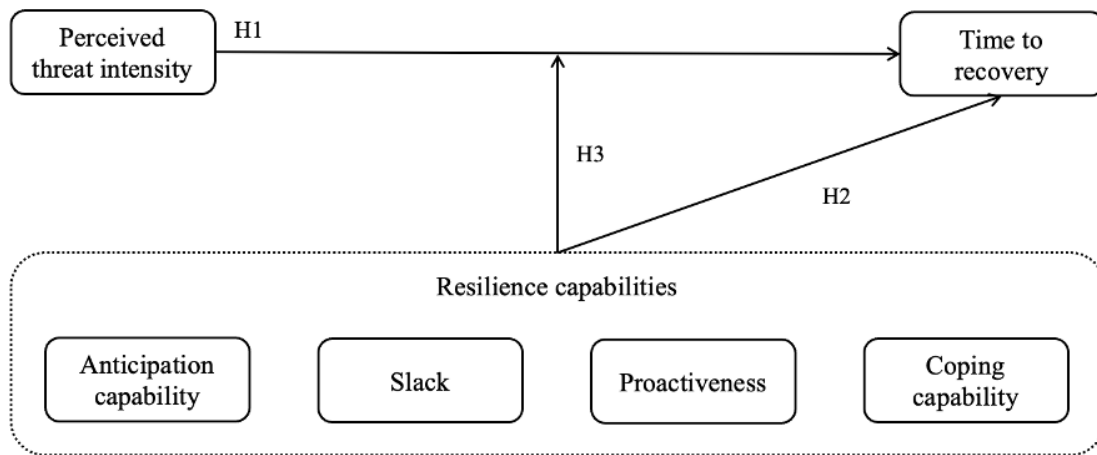


Figure 2. The moderating effect of slack, proactiveness, and coping capability.

