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Time to get your hands dirty: Bricolage or pro-organizational unethical response to entrepreneurial adversity

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Abstract

As the business landscape escalates the level of uncertainty and thus profoundly disrupts entrepreneurship, it is crucial to understand risk-taking as a coping strategy for entrepreneurs with limited resources. Past studies have been fragmented: Some researchers have focused on creative risk-taking, whereas others have looked at unethical risk-taking. Little is known about how and when entrepreneurs respond to adversity in either a creative or an expedient manner. We posit that entrepreneurs respond to adversity by using either entrepreneurial bricolage behavior (EBB) or unethical pro-organizational behavior (UPB). Drawing from the emotivational account, we develop each theoretical model of bricolage and UPB to better understand how entrepreneurs' emotional states play a critical role in their reactions to adversity. We theorize that, and test whether, entrepreneurial adversity is positively related to EBB and increase in EBB over time through increased interest when trait resilience is high. Also, we conceptualize and examine whether entrepreneurial adversity is positively related to UPB and increase in UPB over time through increased anger when trait resilience is low. We conducted a five-month longitudinal study of 100 entrepreneurs (482 observations). Our findings largely corroborated the hypotheses. Our study advances our understanding of entrepreneurs' risk-taking by showing when and how they respond creatively or unethically.

Keywords Anger · Entrepreneurial adversity · Entrepreneurial bricolage behavior · Interest · Unethical pro-organizational behavior

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In their business operations, entrepreneurs inevitably face adversity, “an unfortunate event or circumstance or the state of serious and continued difficulty” (Tian & Fan, 2014, p. 252). Practically, over 40% of small businesses in the U.S. have temporarily ceased operation because of COVID-19 (Bartik et al., 2020). As a result, scholars have increasingly sought to understand how entrepreneurs respond to adversity effectively (Shepherd & Williams, 2020; Shepherd et al., 2022; Williams & Shepherd, 2016). They have increasingly paid attention to the differences between entrepreneurs as the key factors for understanding value creation during periods of disturbance (Scuotto et al., 2022a, 2022b). While organizational theorists have largely focused on how organizations control core functions in the face of adversity (Cardinal et al., 2010; Carver & Scheier, 1982; Giglioni & Bedeian, 1974), entrepreneurship scholars pay more attention to how entrepreneurs take risks to confront adversity (Dushnitsky et al., 2020). Perhaps, it is not surprising that entrepreneurs tend to take risks (Brockhaus, 1980; Palich & Bagby, 1995), but entrepreneurial adversity – a high-impact, exigent event that significantly obstructs ongoing entrepreneurial activities (Shepherd, 2020; Williams et al., 2017) – can especially trigger risk-taking behaviors that afford a reasonable chance for entrepreneurs to survive and even thrive (Cyert & March, 1963; Hoskisson et al., 2017; Kahneman & Tversky, 1979).

To date, however, the literature has not developed a comprehensive picture of entrepreneurs’ risk-taking approach to adversity. To be specific, although risk-taking behaviors include not only positive but also negative forms (Hoskisson et al., 2017; Steele & Lovelace, 2023), the literature is fragmented in that one research stream has focused on entrepreneurs’ creative risk-taking approach (Alvarez & Barney, 2020; Rindova & Courtney, 2020; Williams et al., 2021), whereas the other has centered on unethical risk-taking (Baron et al., 2018; Shepherd et al., 2013; Tacke et al., 2022). The extant research on risk-taking as a potential response to adversity is relatively limited in terms of its comprehensiveness. Without a comprehensive picture, our understanding of risk-taking under adversity will remain limited. Researchers consider entrepreneurs’ risk-taking as a reasonable action in response to adversity (Li & Ahlstrom, 2020). However, entrepreneurs’ risk-taking may violate social norms (Baron et al., 2015) and damage long-term performance (Zhu & Chang, 2013). Even though risk-taking can be either technically sound or socially unacceptable, there is a possibility that entrepreneurs consider every act of risk-taking as an appropriate means to confront adversity (Baron et al., 2018; Xu et al., 2019). Consequently, it is imperative to develop theories that differentiate between distinctive forms of risk-taking and empirically examine how differently adversity affects entrepreneurs’ behaviors.

Our goal is to bridge this gap by developing an integrative framework that comprehensively examines the risk-taking response to adversity, considering both its normative and nonnormative manifestations (Steele & Lovelace, 2023). We define normative risk-taking as the pursuit of innovative solutions that align with social norms despite their inherent risks (Wright et al., 1990). Nonnormative risk-taking involves intentionally violating social norms to seek immediate gains at the expense of long-term benefits (Wright et al., 1990). Regarding normative risk-taking, we focus on entrepreneurial bricolage behavior (hereinafter EBB), that is, “making do by applying combinations of the resources at hand to new problems and

opportunities” (Baker & Nelson, 2005, p. 333). Indeed, pursuing new and useful solutions such as bricolage is technically sound and socially expected of entrepreneurs. By applying and expanding the process model of bricolage (Baker & Nelson, 2005), we conceptualize and examine how entrepreneurs engage in EBB as a creative response in the business-renewal process under adverse situations. Additionally, to capture nonnormative risk-taking, we spotlight unethical pro-organizational behavior (hereinafter UPB), that is, actions intended to advance the benefit of the business by violating moral imperatives in a society (Umphress & Bingham, 2011). Through developing a theoretical model of UPB, we theorize and test how entrepreneurs attempt to bend moral reality in response to entrepreneurial adversity.

We propose that adversity elicits emotivational states (i.e., interest and anger) which in turn prompt EBB and UPB. To be specific, interest and anger mediate the relationship between adversity and EBB and UPB, respectively. Interest sets a self-developmental goal (Harackiewicz et al., 2008), such as cultivating knowledge and promoting diversified skills and experience (Hidi & Renninger, 2006), and motivates a broad-minded coping that produces new ways of solving problems beyond the well-learned responses (Silvia, 2005, 2017). Particularly, interest facilitates risk-taking behaviors in attempts to achieve a creative goal (Silvia, 2017). In contrast to interest, anger sets a self-enhancing goal that prioritizes a specific threat to be immediately eliminated (Berkowitz & Harmon-Jones, 2004; Harmon-Jones et al., 2013) and evokes self-defense behaviors with little consideration of moral constraint (Mitchell et al., 2018). Anger prompts unethical risk-taking by downplaying the moral concerns to regain the lost ground (Harmon-Jones, 2003; Harmon-Jones et al., 2013). Additionally, we propose that trait resilience moderates the effects of entrepreneurial adversity on emotional experiences of interest and anger, leading to either EBB or UPB. Because risk-taking response has a double-edged nature, we seek to account for how, based on the emotivational perspective, and when, based on the trait resilience literature, entrepreneurs take the normative (i.e., EBB) or non-normative (i.e., UPB) risk-taking route in response to adversity. High-resilience entrepreneurs react to adversity creatively due to their tendency to view it as an intellectually stimulating experience, whereas low-resilience entrepreneurs react to adversity unethically due to their tendency to interpret it as a threatening experience (Vaughn et al., 2008).

First, in the Theoretical Background section, we introduce the emotivational perspective (Roseman, 2001, 2008) to expound on the role of interest (Silvia, 2017) and anger (Harmon-Jones et al., 2013) in the context of adversity. This perspective conceptualizes discrete emotions as motivating sources that set certain goals (e.g., epistemological motivation or self-protection) and prompt goal-directed behaviors (e.g., creativity or immorality) (Roseman, 2001, 2008). We then present the theories on EBB (Baker & Nelson, 2005) and UPB (Umphress & Bingham, 2011) and frame them as risk-taking approaches to adversity (Hoskisson et al., 2017). Second, in the Hypothesis Development section, we hypothesize how entrepreneurial adversity triggers EBB and UPB and elaborate on a boundary condition to explain when and how entrepreneurs may take different risk-taking approaches (i.e., EBB or UPB). We reason that entrepreneurs’ trait resilience, the capability to cope with significant challenges, influences their reaction to adversity (Ahmed et al., 2022; Kobasa et al.,

1982; Kossek & Perrigino, 2016). In the Methods section, we test our hypotheses with a five-month longitudinal study of 100 entrepreneurs with 482 observations and report the results of a multilevel path model and a latent score change model (LSCM). We discuss the theoretical implications and practical insights in the Discussion section.

We attempt to make three contributions. First, by theorizing not only EBB but also UPB, we seek to better understand the double-edged nature of entrepreneurs' risk-taking approach to adversity. In response to adversity, entrepreneurs can creatively enact new structures, but they can also engage in unethical actions to prevent losses. Our research integrates EBB and UPB into one model to provide a more nuanced picture of when and how entrepreneurs respond creatively or unethically. Second, we develop the integration and reconciliation of opposing risk-taking approaches (i.e., EBB and UPB) from the emotivational perspective of interest and anger. Even though emotion serves as the motivational engine of an active problem-solving or anomalous process in the face of adversity, the entrepreneurship literature has paid more attention to cognition and avoidance-related emotions (e.g., anxiety or trepidation). We focus on interest and anger as approach emotions and examine how they prompt entrepreneurs to actively engage in different risk-taking responses to adversity. Finally, entrepreneurship scholars have paid increasing attention to resilience (Williams & Shepherd, 2016). We view trait resilience as an a priori psychological condition and test it as a boundary condition to account for when adversity is more (less) likely to lead to constructive or destructive risk-taking. In a nutshell, juxtaposing EBB and UPB as normative and nonnormative risk-taking behavior, respectively, we unravel the emotional mechanisms linking entrepreneurial adversity to positive and negative risk-taking and trait resilience as a boundary condition. As a result, we advance the knowledge regarding when and why entrepreneurs adopt a specific positive or negative risk-taking approach to adversity.

Theoretical background

Emotivational perspective of interest and anger in adversity

Entrepreneurs are increasingly confronted with an unpredictable environment and the challenges accompanying it. One important dimension of the environment is the advent of Industry 4.0, to which firms must adapt. With resource constraints, entrepreneurship becomes increasingly uncertain and riskier amid technology transition (Scuotto et al., 2022b). Entrepreneurs are thus required to enhance their capability for problem-solving in a new-normal digitalized environment (Scuotto et al., 2022a). Essentially, emotion plays a critical role in entrepreneurs' sense-making and problem-solving capability (Bartunek et al., 2006; Myers, 2007; Sayegh et al., 2004). Scuotto et al. (2020c) posited that entrepreneurs' epistemological motivation and moral values are essential for knowledge acquisition and usage and that organizations rely largely on knowledge to deal with challenges in a creative or moral manner. Relatedly, the intensively positive emotions of entrepreneurs, such as passion, can be a source of creativity in times of disruption (Li et al., 2022). In keeping with

this insight, the emotivational approach provides insight into how entrepreneurs can be motivated to acquire knowledge under the positive emotion of interest (Roseman, 2001, 2008). Entrepreneurs are more likely to be approach oriented than average population (Baum et al., 2007), and their approach-oriented emotions, such as interest and anger, encourage them to engage in gain-focused behavior, such as creativity (Fredrickson et al., 2003) and self-enhancing immorality (Berkowitz & Harmon-Jones, 2004). Importantly, the roles of interest and anger in entrepreneurs' reaction to adversity are different in that interest promotes knowledge adoption and use.

On the one hand, interest can play a unique motivational force to fuel the process of knowledge creation that is useful for adversity (e.g., EBB). Interest is marked by an experiential feeling of attention, alertness, and curiosity (Izard, 1977; Silvia, 2005, 2017). From the emotivational perspective, it sets a self-developmental goal (Harackiewicz et al., 2008) and energizes an entrepreneur to cognitively challenge the previous way of using given resources and find new solutions (Silvia, 2001). Importantly, the interest emotion offsets pessimistic expectations in attempts at creativity as well as complacency towards learning (Silvia, 2017). In the face of entrepreneurial adversity, interest explains where entrepreneurs can obtain epistemological motivation to actively engage in creativity such as EBB. On the other hand, anger arises from a goal-blocked, exigent situation (Berkowitz, 1962; Berkowitz & Harmon-Jones, 2004; Carver & Harmon-Jones, 2009). From the emotivational process perspective, anger can be regarded as a goal-setting and provoking source of motivation to make entrepreneurs expediently deal with their business at stake despite the backlash. Anger is characterized by a visceral sense of irritation, annoyance, and hostility (Averill, 1982). It sets a self-enhancing goal (Berkowitz, 1962; Berkowitz & Harmon-Jones, 2004) and increases the exertion of efforts to regain lost ground (Harmon-Jones, 2003; Harmon-Jones et al., 2013). In essence, anger leads people to be myopic (Finucane, 2011; Gable et al., 2015) and downplay moral concerns (Mitchell et al., 2018). Thus, angry entrepreneurs find it more difficult to accumulate relevant knowledge about challenges. In the face of turbulence, anger is expected to instigate a self-enhancing measure, such as UPB, or breed a mental condition to pursue it.

EBB and UPB: Risk-taking approach to entrepreneurial adversity

Adversity refers to an event that imposes a constraint on formulating effective responses and jeopardizes high-priority values (Shepherd & Williams, 2020; Williams et al., 2017). When an adversity event disrupts business, a discrepancy between the preexisting state and the desired state emerges (Billings et al., 1980). An entrepreneurial adversity causes Knightian uncertainty (Alvarez & Barney, 2020; Rindova & Courtney, 2020), which refers to the lack of knowledge about the possible decision outcomes and their associated probabilities (Knight, 1921). For instance, Scuotto et al. (2022c) highlighted the impact of the gig economy challenges which creates knowledge uncertainty. The gig economy potentially promotes flexibility of income and working hours but also increases the number of insecure jobs and the amount of low-quality business. Scuotto et al. (2022c) posited that

entrepreneurs' efforts to accumulate and leverage the relevant knowledge will make them more creative (e.g., relying more on EBB) and ethical (e.g., pursuing social benefit) in fighting gig economy issues. Hoskisson and colleagues (2017) considered managerial risk-taking to explore how managers can take risks in the face of adversity to achieve better outcomes. Li and Ahlstrom (2020) identified the opportunity-discovery nature of entrepreneurs' risk-taking decisions. Through risk-taking, entrepreneurs turn adversity into a business-renewal opportunity (Alvarez & Barney, 2020) and bring new "structures into existence and set them in motion" (Weick, 1988, p. 306). Steele & Lovelace (2023) have recently explored the different types of entrepreneurial actions drawing from social identity theory, suggesting that actions can be either *normative* or *nonnormative*. Normative risk-taking behavior is seeking breakthrough solutions in conformity with the norms of a social system, while nonnormative risk-taking behavior is the intentional violation of social norms to improve short-sighted benefits at the expense of long-term ones.

Given the constraints of limited resources, engaging in EBB can emerge as the most feasible course of action for entrepreneurs to undertake risks in pursuit of opportunities. The process model of bricolage (Baker & Nelson, 2005) details the process of how entrepreneurs come to reconfigure their business structure to embrace challenges. Entrepreneurs can construct resource environments by experimenting with resources to generate potential business ideas (Bechky & Okhuysen, 2011). The model assumes that entrepreneurs can construct resource environments (Penrose, 1959). Through flexibility in the cognitive process, they break down the resources into components (e.g., material inputs, practices, definitions, and standards) and recombine them for new purposes (Bechky & Okhuysen, 2011). In the face of disruption, particularly, a unique resource structure may appear as a testable opportunity for entrepreneurs to derive a new business model (Alvarez & Barney, 2020; Rindova & Courtney, 2020). EBB can serve as a catalyzing activity that reaches for creative ideas to capture the opportunity and reconstruct the business continuously (Busch & Barkema, 2021). Nevertheless, there is inherent risk involved as entrepreneurs dismantle resources into components and construct new resource structures. The viability of these resources in the face of adversity has yet to be tested; thus, engaging in EBB remains risky and uncertain. EBB is therefore conceptualized as a form of normative risk-taking which is akin to R&D investments, innovation, or experimental strategic change (Hoskisson et al., 2017).

However, it is noteworthy that the approach to reshape a situation opens up the possibility of bending the moral structure to one's own needs (Wolfe, 1989). Scholars (Aldrich & Ruef, 2006; Campbell, 1960; Weick, 1979) have pointed out that the creation approach leads to "an action that emerges without any self-conscious planning or foresight" (Alvarez & Barney, 2007, p. 15). The process of creation often allows change to occur in unwanted and undesired ways (Campbell, 1960). Specifically, the theoretical model of UPB (Umpress & Bingham, 2011) delineates how individuals construct moral reality and take unethical actions for the benefit of their organization. Individuals consider moral codes as relativistic to serve situationally adaptable decisions and a practical purpose (Forsyth, 1992). They can justify unethical actions for the goal of survival (Bandura, 1999) and thus can be free from guilt about violating universal values and freely seek their interests (Baron et al., 2015;

Shepherd et al., 2013). Particularly, in a “live or die” situation, the justification of an immoral decision (e.g., “it’s for the greater good” or “everybody does it”; Jensen et al., 2021) sounds reasonable and compelling to act upon. In this sense, an unethical approach becomes a viable agentic strategy for entrepreneurs in times of turmoil (Baron et al., 2018; Xu et al., 2019). UPB has been characterized as a type of non-normative risk-taking which is similar to engaging in misconduct or illegal actions for the protection of organizational benefit (Hoskisson et al., 2017).

Hypotheses development

Creative risk-taking: Interest and EBB

Entrepreneurs’ active engagement with problems (Baker & Nelson, 2005) and experiential learning (An et al., 2018) lead to EBB. Creative solutions are attained through transferring ideas across different domains, arranging distant ideas for a wide range of uses, and kindling new thought patterns and workable solutions (De Dreu et al., 2011; Nijstad et al., 2010). Interest can energize the flexible cognitive process that underpins EBB. It is the emotion of being fascinated by and deeply immersed in a problem (Izard, 1977; O’Keefe et al., 2017). It can lead entrepreneurs to respond energetically to new demands (Durik et al., 2017); thus, they would be involved in unknown situations through “making do with whatever is at hand” (Baker & Nelson, 2005, p. 330). Interest enables entrepreneurs to be more attentive to each component of their resources and to have the curiosity to generate alternatives to intractable problems (O’Keefe et al., 2017; Silvia, 2017). Accordingly, entrepreneurs with a high level of interest are likely to engage in EBB.

In addition, interest creates forward momentum for exploration and learning over time (Fredrickson, 1998, 2001; Silvia, 2006). It builds and broadens a spectrum of cognitive resources needed for the problem-solving process (Fredrickson & Joiner, 2002; Fredrickson et al., 2003). As a result, entrepreneurs with interest construct a munificent intellectual architecture that can underpin the discovery and creation of idiosyncratic resource settings. They will be more skillful in overhauling the structure of resource elements and recombining them (Byrne & Shepherd, 2015). Thus, they are more likely to develop a tendency toward EBB over time. To sum up, we hypothesize as follows:

Hypothesis 1: Interest is positively related to (a) entrepreneurial bricolage behavior and (b) an increase in entrepreneurial bricolage behavior over time.

An adversity presents a knowledge problem (Rindova & Courtney, 2020; Townsend et al., 2018; Weick, 1988) which requires entrepreneurs to update their thinking space with new information (Feduzi et al., 2020). In this situation, entrepreneurs can experience the interest emotion. Psychologists posit that interest arises when individuals notice the incongruity of information (Nunnally, 1981) or gaps in current knowledge (Loewenstein, 1994). Previous research has found that events marked by novelty, complexity, uncertainty, and conflict tend to kindle interest

(Berlyne, 1978; McCall & Kennedy, 1980; McCall & McGhee, 1977; Walker, 1981). An entrepreneurial adversity poses uncertain, ambiguous, or equivocal situations that are not captured well by the existing knowledge (Townsend et al., 2018); thus, it evinces a knowledge deficit that ignites interest (e.g., “I don’t know this. Interesting! Let’s find out more”; Rotgans & Schmidt, 2017, p. 77).

However, an entrepreneurial adversity is an emotion-laden event (Maitlis & Sonenshein, 2010), and whether entrepreneurs experience it with interest or anger depends on their subjective framing (Lazarus, 1991; Roseman & Smith, 2001; Silvia, 2005). Adversity can be seen as the discovery of new business opportunities when entrepreneurs frame it as such (Li & Ahlstrom, 2020). Trait resilience makes entrepreneurs experience adversity as an opportunity and as intellectually challenging (Ahmed et al., 2022). Empirical findings show that individuals with trait resilience experience fewer depressive feelings and show an increase in positive emotions and a sanguine attitude; it augments the cognitive capacity of attending to external stimuli and processing a range of novel information (Fredrickson et al., 2003; Tugade & Fredrickson, 2004). In keeping with those findings, we expect the positive relationship between entrepreneurial adversity and interest to be more pronounced when entrepreneurs have high, rather than low, trait resilience. Even though an entrepreneurial adversity appears demanding, entrepreneurs with trait resilience will pay more attention to the problem, feel interested, and persist more in identifying its cause and effects. Thus, among entrepreneurs with high trait resilience, adversity would draw their attention and amplify their curiosity. To sum up, we posit the following:

Hypothesis 2: Entrepreneurial adversity has a stronger positive relationship with interest when trait resilience is higher rather than lower.

Even though adversity causes knowledge uncertainty and ambiguity, resilient entrepreneurs would experience curiosity and gain the motivation to reconstruct their business environment. During times of adversity, entrepreneurs’ traits play a critical role in turning adversity into creativity. For example, Scuotto and colleagues (2022a) found that in enterprises facing digital transformation, chief managers’ dynamic capabilities facilitate the generation of creativity in response to digitalization. In the face of adversity, entrepreneurs would not naturally respond creatively because it is an inherently risky solution that may cause further confusion and failure (Staw et al., 1981). How entrepreneurs react would depend on their individual differences. In this study, we posit that trait resilience, which provides the capability to cope with adversity, moderates entrepreneurs’ reactions to adversity. Adversity fundamentally requires a psychological state for entrepreneurs to accept potential losses (Alvarez & Barney, 2007). To be specific, Li and colleagues (2022) found that an entrepreneurs’ intense and positive emotion leads to innovation when entrepreneurs face novel events because the events lead them to think outside of the box and modify routines. We argue that interest directs attention to the positive aspects of EBB (e.g., enjoyment associated with exploration, learning, and self-development) (Silvia, 2017). Interested entrepreneurs filter out information that is potentially damaging (Florian et al., 1995; Rhodewalt & Zone, 1989). Through cognitive activation, they transcend their habitual repertoire

of thoughts and actions to discern problems and discover solutions by drawing on distant ideas, out-of-the-box thinking, and new discoveries and insights (Silvia, 2017). Thus, resilient entrepreneurs can improvise with and recombine the resources at their disposal via kindling interest to respond to adversities.

Additionally, interest supports intellectual resource building and broadening over time (Fredrickson, 1998, 2001). For example, given the ongoing proliferation of disruptive technologies such as artificial intelligence, acquiring and developing new knowledge serves as a key factor in sustainable value creation (Scuotto et al., 2022b). Entrepreneurs with interest will be more resourceful in problem-solving (Prenzel, 1992) and persistently reconstruct resources that underpin creative work and the effective use of resources (Silvia, 2006). Taken together, we predict that for entrepreneurs with strong resilience, an entrepreneurial adversity has a positive effect on EBB and its increasing tendency over time through stimulating interest. To sum up, we hypothesize the following:

Hypothesis 3: Entrepreneurial adversity has a stronger indirect positive relationship with (a) entrepreneurial bricolage behavior and (b) an increase in entrepreneurial bricolage behavior over time through interest when trait resilience is higher rather than lower.

Unethical risk-taking: Anger and UPB

Anger can incite an expedient moral justification that undergirds UPB. Anger is an approach-oriented emotion (Carver & Harmon-Jones, 2009) with a self-enhancing purpose (Berkowitz, 1962; Berkowitz & Harmon-Jones, 2004). It centralizes individuals' attention to their interests at stake and their self-defense (Harmon-Jones, 2003) and blinds people from generally acceptable moral reasoning (Mitchell et al., 2018). Even though the self-sanctioning process hinders the choice of UPB (Bandura, 1999), anger can offset its potential negative impacts, such as self-blame or guilt (Harmon-Jones et al., 2013). Irate entrepreneurs can advance UPB in a way that prioritizes their business at stake ahead of universal ethical imperatives.

Additionally, we predict that anger is associated with an increase in UPB over time. Anger reduces self-control (Denson et al., 2011) and drives local and exploitative short-sighted search (Morris, 2012). It thus hampers the building and broadening of intellectual resources (Baas et al., 2011). Enraged entrepreneurs are less likely to accumulate and organize cognitive resources (Baas et al., 2011); the resulting lack of resources hinders them from making morally sound judgments (Gino et al., 2011). Anger leads entrepreneurs to develop the tendency to engage in unethical activities over time in order to prevent losses. To summarize, we posit the following:

Hypothesis 4: Anger is positively related to (a) unethical pro-organizational behavior and (b) an increase in unethical pro-organizational behavior over time.

An entrepreneurial adversity significantly obstructs goal achievement due to the knowledge problem (Alvarez & Barney, 2020; Rindova & Courtney, 2020), and thus entrepreneurs experience negative and visceral emotions intensively (Berkowitz, 1962; Berkowitz & Harmon-Jones, 2004; Carver & Harmon-Jones, 2009). Entrepreneurs underestimate their business success as adversity makes it even riskier (Li & Ahlstrom, 2020). Entrepreneurs have been found to vent their anger when their goals are largely blocked under adversity (Foo, 2011; Lebel, 2017). We add a condition that potentially reinforces the effect of an entrepreneurial adversity on anger. It is possible that such anger may be more salient depending on the individual's capability to cope with challenges (Lazarus, 1991; Roseman & Smith, 2001). For entrepreneurs who are less able to handle adversity, it is considered as a far more daunting and loss-relevant episode as it can involve revenue diminution, loss of personal fortune, or damage to self-esteem (Kollmann et al., 2017). An unfavorable situation that involves assigning blame others provokes feelings of anger (Harmon-Jones et al., 2008). Indeed, during the COVID-19 pandemic, people who held their government policymakers culpable showed intensified anger (Erhardt et al., 2021). Less resilient individuals tend to reproach others (Baghjari et al., 2017). Less resilient entrepreneurs are more likely to ruminate on the negative impacts of their experienced adversity and blame it on stakeholders, thereby venting considerable anger. Thus, we propose the following hypothesis:

Hypothesis 5: Entrepreneurial adversity has a stronger positive relationship with anger when trait resilience is lower rather than higher.

Anger offers an emotivational ground for the process of UPB in the face of adversity. In an entrepreneurial adversity, anger is experienced as a self-protective emotion that potentially sets in motion unethical behaviors (Averill, 1982; Berkowitz & Harmon-Jones, 2004). Anger leads to an anomalous reaction to a threat without deliberately considering its result (e.g., self-blaming). Prior research has shown that annoyed individuals are likely to deceive (Schweitzer & Gibson, 2008) and exploit others (Welppe et al., 2012) to protect their own immediate benefit when in danger (Mitchell et al., 2018). Indeed, Xu and colleagues (2019) found that low performing firms would employ negative deviance (i.e., bribery) as an immediate solution despite moral constraints. For entrepreneurs with weak trait resilience, loss-related information is more salient. The loss-relevant interpretation of an entrepreneurial adversity will magnify the irritation, annoyance, and hostility (Lazarus, 1991; Roseman & Smith, 2001) that deadens the sense of universal moral values and imperatives (Mitchell et al., 2018). In an adversity, entrepreneurs with low resilience feel great anger and thus easily justify immoral actions to protect their business.

Additionally, a lack of mental resources can lead people to defend their status quo in an ethically questionable and impatient manner over time (Gaspar & Schweitzer, 2013; Wang & Murnighan, 2011). The more an event is viewed as loss relevant, the angrier and the more emotionally overwhelmed with pessimistic thinking less resilient entrepreneurs will be, which in turn will lead them to lean on their primitive instincts (Denson et al., 2011). Anger thwarts the resource building and broadening process that possibly supports morally sound and reasonable decisions in times of

challenges (Baas et al., 2011). For entrepreneurs with weak rather than strong trait resilience, an entrepreneurial adversity has a positive effect on increase in UPB over time via stimulating anger. Thus, we hypothesize the following:

Hypothesis 6: Entrepreneurial adversity has a stronger positive indirect relationship with (a) unethical pro-organizational behavior and (b) an increase in unethical pro-organizational behavior over time via anger when trait resilience is lower rather than higher.

Methods

Research setting and participants

We conducted a longitudinal study of Korean start-up venture entrepreneurs. The committee of research ethics and safety at the first author's university approved the study (Ref. # EC012/1920). We contacted a venture cluster which has been established as one of the 19 government-supporting venture clusters in South Korea. With the help of the cluster chief manager, our research agency contacted venture entrepreneurs. Initially, 124 venture entrepreneurs expressed interest in the study, 102 of whom ultimately participated in the first monthly survey. Our sample covered a range of venture business models, from developing new high-technology hardware (e.g., robot-prototype with 3D printer, wearable smart-ring, healthcare smartwatch, etc.) to targeting niche markets with online software platforms (e.g., virtual/augmented reality solutions, customer-oriented childcare service, YouTube video creation lecture, etc.). Generally, they were early-stage ventures which were resource constrained with survival concerns (Dewald et al., 2007) but also flexible in terms of repositioning their business strategy (Shepherd & DeTienne, 2005).

The monthly surveys were conducted in the last week of each month (the first was on 25 May 2020 and the last on 29 September 2020) and included repeated measurements of entrepreneurial adversity, interest, anger, EBB, and UPB. We collected entrepreneurs' between-level variables (e.g., trait resilience) and demographics in the initial survey prior to collecting the monthly within-person data. Participants were informed that survey participation was voluntary, that they could withdraw at any time, and that their responses would be confidential and used only for research purposes. They were asked to respond to the items on the basis of their experience in the month of the survey.

We retained the participants who completed at least two of the five monthly surveys. Two entrepreneurs who completed only the first monthly survey were removed, resulting in a total sample of 100 entrepreneurs, with 482 month-level observations out of a possible 510 (a response rate of 94.3%). The average age of the participants was 34.7 years, and they had been entrepreneurs for an average of 64.6 months. Among the participants, 28% had experience of running another business prior to their current one, 27.3% were female, and 58.6% had a college degree. The average venture size (number of employees) was 3.2 (minimum = 1, maximum = 15), and 13% of the entrepreneurs' businesses were financed by venture capital or

angel investment, 9% by crowdfunding, and 45% by the Small and Medium Business Administration, a South Korean government agency.

Measures

All measurement items were adapted from extant scales (subsequently discussed). Participants' responses to these items were based on a seven-point scale (1 = strongly disagree, 7 = strongly agree). The questionnaire was administered in Korean. One of the study's authors and an assistant (both with Korean as their native language but fluent in English) translated the English scales into Korean independently and agreed the final version of the questionnaire. The scales were then translated back into English by an English native assistant (fluent in Korean) to confirm translation equivalence (Brislin, 1986). We assessed entrepreneurial adversity, interest, anger, EBB, and UPB monthly (five months from May to September 2020).

Entrepreneurial adversity Borrowing from past literature (Billings et al., 1980; Hermann, 1963), we operationalized and assessed entrepreneurial adversity. Entrepreneurs' perception of adversity begins with their sensing a problem from a disrupted event. The adverse episodes lead to a discrepancy between existing state and desired state that exceeds a threshold (Billings et al., 1980). Entrepreneurs must seek new knowledge to identify the cause-effect links (Townsend et al., 2018; Weick, 1988). Our operationalization of adversity as an event is appropriate for capturing and measuring the various events in entrepreneurial activities that can possibly take place in a certain domain (e.g., customer or supplier) and period (e.g., monthly).

Hence, we identified adverse events through intensive interviews. From late April to early May 2020, we interviewed 35 entrepreneurs in South Korea via phone. We asked them to describe the events that had significantly impeded a main goal for them and disrupted their business operation. Interviewees described various events that had caused a knowledge problem (Townsend et al., 2018): that is, they described how they were not able to identify the causes or estimate the effects of these events or immediately devise action plans to address them (Alvarez & Barney, 2020; Knight, 1921; Rindova & Courtney, 2020). Our interviews revealed a variety of potential adverse events. We categorized these events according to six domains of business: administration/operating, customer/marketing, partnership/networking, competition/strategy, investment/finance, and environmental trends (Appendix A).

The degree of adversity depends on how much the adverse event reflects the characteristics of criticality (Williams et al., 2017). Hermann (1963) articulated three key characteristics. The first is that the event makes it uncertain whether high-priority values, goals, or missions can be achieved; the second is that it occurs abruptly; and the last is that it demands a response be made within a limited amount of time. Following the concepts, we generated three items to reflect each of those attributes respectively (Choi et al., 2010): "the event endangered the high-priority values of my business," "the event happened unexpectedly," and "the event allowed a limited amount of time in which a response could be formulated." We used the items in the main monthly study. To measure entrepreneurial adversity, we provided a list of

potential exigent events to the participants (Appendix A) and asked them to choose an event that had resulted in a knowledge problem during that month. Next, participants were asked to rate the extent to which the event captured the three key characteristics of adversity using the three items. In this measurement, the more the events reflected the characteristics, the more likely they were to be perceived as adversities that significantly obstructed entrepreneurial activities.

Interest and anger We assessed entrepreneurs' emotional responses to monthly entrepreneurial adversity using an adaptation of Fredrickson et al.'s (2003) scales. For entrepreneurial adverse events in each month (i.e., ticked from the list or recalled), the respondents indicated the extent to which they agreed with items describing their emotional responses using a three-item scale on interest (interested, alert, and curious). A sample item is "I felt interested in the event" ($\alpha = .88$). Likewise, respondents indicated their emotional responses using a three-item scale on anger (angry, irritated, and annoyed). A sample item is "I felt angry at the event" ($\alpha = .96$).

Entrepreneurial bricolage behavior (EBB) Participants were asked to rate their bricolage behavior in each month using a nine-item scale adapted from Davidsson et al. (2017). We instructed participants to assess their monthly behaviors. A sample item is "I have used any existing resource that seems useful to respond to a new problem or opportunity" ($\alpha = .94$).

Unethical pro-organizational behavior (UPB) Participants rated UPB each month using a six-item scale adapted from Umphress et al. (2010). Participants were instructed to assess their monthly behaviors. A sample item is "I misrepresented the truth to make my business look good" ($\alpha = .92$).

Trait resilience We used Smith et al.'s (2008) three-item scale to assess the trait resilience of entrepreneurs prior to the beginning of our longitudinal study. A sample item is "I tend to bounce back quickly after hard times" ($\alpha = .84$).

Control variables To tease out the effect of emotions (interest and anger) on EBB and UPB respectively, we controlled the other variables that facilitate the cognitive process of EBB and UPB. We controlled for basic demographic information, such as entrepreneurs' age, venture tenure, venture size, and prior venture experience, that possibly impacts the cognitive mechanisms behind the process model of bricolage (Baker & Nelson, 2005) and the theoretical model of UPB (Umphress & Bingham, 2011). We controlled entrepreneurs' age as it affects the prospect of their entrepreneurial activity in relation to opportunity exploitation and thus influences their response to adversity (Gielnik et al., 2018). We controlled venture tenure (Simsek, 2007) as it is positively related to knowledge and skills for running ventures as well as to commitment to such ventures and hence provides intellectual and mental resources for driving EBB and UPB. We controlled venture size as it captures the investment and effort put into a venture. We controlled for prior venture experience as it provides cognitive resources that help entrepreneurs to cope with adversity and thus it can impact the process of EBB and UPB (Gielnik et al., 2018).

In addition, we precluded the alternative theoretical account, that is, the identity-based process in the adversity context. The identity theory can explain the link among an adversity, an emotional state, and agentic behaviors (Kovoor-Misra, 2009). For instance, those with a creative identity are more likely to engage in creativity-relevant activities (Farmer et al., 2003). An individual's moral identity should influence unethical behaviors (Detert et al., 2008) via relevant emotional mechanisms. To clarify our findings on the basis of the process model of bricolage (Baker & Nelson, 2005) and the theoretical model of UPB (Umphress & Bingham, 2011), we controlled creativity and moral identity. We assessed creative identity using Farmer and colleagues' (2003) three-item measure ($\alpha = .89$) and moral identity with Aquino and Reed's (2002) five-item scale ($\alpha = .89$).

Discriminant validity and measurement invariance

Having measured several constructs and variables, we needed to present the discriminant validity between variables, and so we conducted a multilevel confirmatory factor analysis (MCFA). We tested an 11-factor model (entrepreneurial adversity, interest, anger, EBB, and UPB at both the within-person level and the between-person level; trait reliance at the between-person level), and the results demonstrated an acceptable fit (CFI = .94, TLI = .92, RMSEA = .05, SRMR *within* = .07; SRMR *between* = .08, $\chi^2 = 464.44$, $df = 200$) (Hu & Bentler, 1999).

In addition, we tested measurement invariance for repeated measurements (entrepreneurial adversity, interest, anger, EBB, and UPB) because (a) respondents may not use the same frame of reference and (b) scale values may not hold the same meaning over time (Matusik et al., 2021). Thus, we examined measurement invariance within the constructs over the five time periods. The results demonstrated the differences among the models, specifying that the configural (CFI = .956, TLI = .941, SRMR = .079, RMSEA = .086, $\chi^2 = 685.67$, $df = 400$), metric (CFI = .957, TLI = .949, RMSEA = .080, SRMR = .083, $\chi^2 = 713.13$, $df = 440$), and scalar (CFI = .955, TLI = .951, RMSEA = .078, SRMR = .084, $\chi^2 = 762.99$, $df = 480$) invariances were less than the cutoff values ($\Delta CFI \leq .01$) recommended by Cheung and Rensvold (2002).

Analytical strategy

First, our data structure included within-person repeated measures (entrepreneurial adversity, interest, anger, EEB, and UPB) and a between-person moderator (trait resilience). Using Mplus 8.3 (Muthén & Muthén, 1998-2017), for hypotheses 1(a), 2, 3(a), and 4, we tested our model following procedures for multilevel path analysis with robust full maximum likelihood estimation, which is robust to the nonnormality and nonindependence of observations (Preacher et al., 2010). We grand-mean centered the between-person variables and group-mean centered the within-person predictor (i.e., entrepreneurial adversity; Hofmann & Gavin, 1998). The analysis required sufficient within-person variance, so we calculated the amount

of within-person (σ^2) and between-person (τ_{00}) variance in each of the monthly variables. The monthly measures demonstrated a proper proportion of the variance (LeBreton & Senter, 2008) at the within-person level (entrepreneurial adversity = 63%; interest = 54%; anger = 55%; EBB = 35%; UPB = 35%).

Second, for hypotheses 1(b) and 3(b), we modeled the description of change patterns in the outcome variables (i.e., EBB and UPB) and the estimation of their associations with the variables (i.e., interest and anger). We used an LSCM that explicitly offers a score change of a focal variable between two adjacent measurements as a latent construct (for a review, see Matusik et al., 2021; McArdle, 2009). The latent change scores capture the change that occurs in a focal variable between consecutive time points without measurement error (Grimm, 2007). As we were interested in how interest and anger affect changes (i.e., increase) in outcome variables over time, we regressed each latent change score (i.e., change segment) of EBB and UPB on interest and anger (Matusik et al., 2021).

Finally, for hypotheses 4(a) and 6(a), we tested the conditional indirect effects for the multilevel path analysis and LSCM. We estimated the indirect relationship between the predictor (i.e., entrepreneurial adversity) and the outcome variables (EBB and UPB) from the multilevel path analysis model via the mediators (i.e., interest and anger) at conditional levels of the between-level moderator (i.e., trait resilience). For hypotheses 4(b) and 6(b), we estimated the indirect relationship between the predictor (i.e., entrepreneurial adversity) and the score change of the outcome variables (i.e., increase or decrease in EBB and UPB) via the mediators (i.e., interest and anger), which varies across between-person levels and at conditional levels of the moderator (i.e., trait resilience). We computed confidence intervals around each conditional indirect estimate by using Monte Carlo bootstrapping with R (Taylor et al., 2017). Figure 1 illustrates our analytical strategy. Table 1 provides the means, standard deviations, and correlations among our variables.

Results

Hypothesis testing

Hypothesis(a) posited a positive relationship between interest and EBB. As shown in Table 2 (column 4), for the multilevel path analysis model, the effect of interest on EBB was significant ($\gamma = .07$, S.E. = .03, $p = .01$). Thus, Hypothesis 1(a) was supported. Hypothesis 1(b) posited a positive dynamic relationship between interest and an increase in EBB. The effect of interest on the latent change scores of bricolage was significant ($\gamma = .07$, S.E. = .03, $p = .02$), as reflected in Table 3 (column 4). Thus, Hypothesis 1(b) was also supported.

Hypothesis 2 posited that the relationship between entrepreneurial adversity and interest would be positive when trait resilience is higher rather than lower. As shown in Table 2 (column 2), the moderation effect of trait resilience was significant ($\gamma = .14$, S.E. = .06, $p = .03$). In Table 3 (column 2), the moderation effect was also significant ($\gamma = .14$, S.E. = .05, $p = .02$).

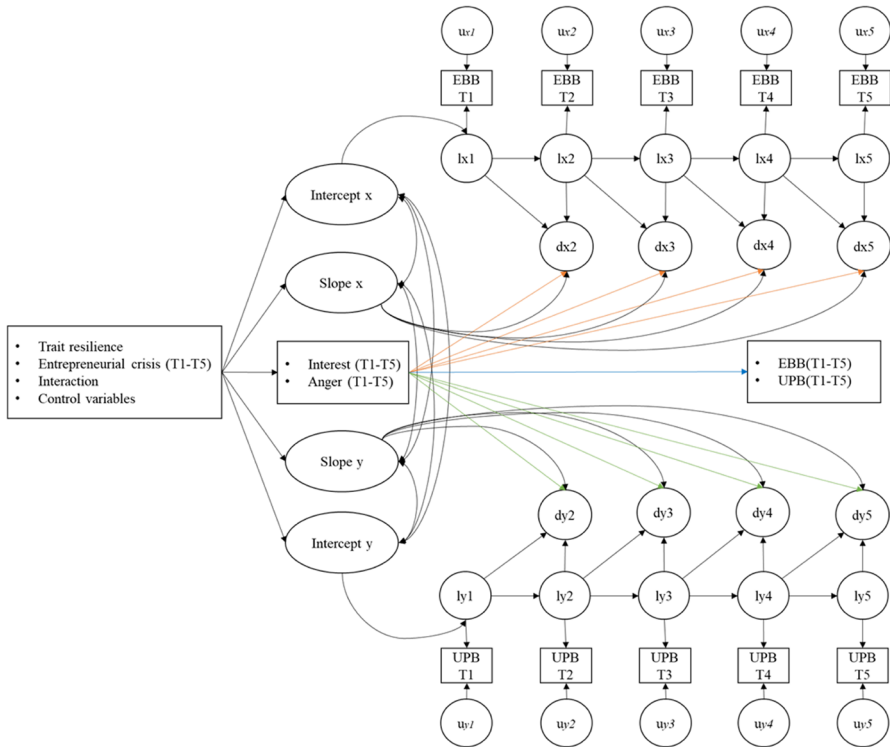


Fig. 1 Research Model

Figure 2 shows the plot of the interaction. On the basis of the results of the path analysis model in Table 2, we conducted a simple slope test for the interaction effect. It demonstrated that the relationship between entrepreneurial adversity and interest was significant when trait resilience was high (1 SD above mean; $\gamma = .38$, S.E. = .10, $p = .00$) and nonsignificant when trait resilience was low (1 SD above mean; $\gamma = -.10$, S.E. = .13, $p = .49$). Therefore, Hypothesis 2 was supported.

Hypothesis 3(a) posited an indirect relationship between entrepreneurial adversity and an increase in EBB via interest when trait resilience is higher rather than lower. Our results showed that the indirect effect was significant when trait resilience was higher ($\rho = .025$, 95% CI [.005 to .053], not containing zero) but nonsignificant when trait resilience was lower ($\rho = -.007$, 95% CI [-.029 to .013], containing zero). The difference was significant ($\Delta\rho = .032$, 95% CI [.002 to .076], not containing zero). Therefore, Hypothesis 3a was supported.

Hypothesis 3(b) posited an indirect dynamic relationship between entrepreneurial adversity and an increase in EBB via interest when trait resilience is higher rather than lower. As predicted, regarding the increase in EBB, our results showed that the indirect effect was significant when trait resilience was higher ($\rho = .027$, 95% CI [.003 to .062],

Table 1 Descriptive Statistics and Correlations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Entrepreneurial adversity	4.11	1.68		.21	.50	-.02	.10							
2. Interest	3.69	1.60	.38		-.01	.12	.10							
3. Anger	3.93	1.82	.65	.16		-.04	.05							
4. EBB	5.00	1.09	.20	.32	.10		-.01							
5. UPB	2.79	1.40	.26	.14	.29	.16								
6. Age	34.5	5.33	.10	.21	.05	-.03	.04							
7. Tenure	39.2	34.1	.14	.16	.11	-.03	.02	.28						
8. Size	3.16	3.39	.05	.04	-.01	.27	-.02	.10	.16					
9. Experience	.29	.45	.07	.03	.05	-.02	.01	-.10	.15	.14				
10. Creative identity	5.23	1.37	.15	.16	.09	.21	.10	.00	.13	-.05	.08			
11. Moral identity	5.67	1.38	-.02	.12	-.07	.16	-.06	.17	.02	-.01	.16	.56		
12. Trait resilience	4.89	1.15	-.11	.10	-.16	.16	.04	.11	-.10	-.00	.00	.19	.25	

Within-person level, N = 482 monthly observations; between-person level, N = 100 entrepreneurs. Correlations above the diagonal are group-mean-centered relationships among the monthly within-level variables; correlations under the diagonal are between-level correlation coefficients. For the correlation coefficients, values above |.09| are significant at $p < .05$ and values above |.12| are significant at $p < .01$

Abbreviations: EBB, entrepreneurial bricolage behavior; UPB, unethical pro-organizational behavior

Table 2 Results of Multilevel Path Analysis Model

	Interest	Anger	EBB	UPB
Constant	3.79(.16) [.00]	3.80(.15) [.00]	5.01(.11) [.00]	2.83(.14) [.00]
Within-level variables				
Wave	-.05(.04) [.28]	.04(.04) [.31]	-.01(.03) [.70]	-.02(.03) [.56]
Entrepreneurial adversity	.14(.06) [.02]	.57(.06) [.00]	-.02(.03) [.62]	.04(.04) [.33]
Interest			.07(.03) [.01]	.06(.04) [.15]
Anger			-.01(.02) [.59]	.01(.03) [.77]
Between-level variables				
Age	.05(.02) [.02]	.03(.03) [.24]	-.02(.02) [.21]	.02(.03) [.39]
Tenure	.01(.00) [.12]	.00(.00) [.56]	.00(.00) [.64]	.00(.00) [.83]
Size	.00(.03) [.98]	-.01(.04) [.76]	.10(.03) [.00]	-.01(.04) [.85]
Experience	.11(.23) [.65]	.30(.28) [.29]	-.21(.18) [.23]	.16(.30) [.58]
Creative identity	.16(.10) [.09]	.27(.11) [.01]	.12(.08) [.11]	.20(.10) [.06]
Moral identity	.03(.11) [.79]	-.26(.14) [.06]	.13(.11) [.22]	-.23(.12) [.06]
Trait resilience	.09(.10) [.37]	-.26(.10) [.01]	.12(.06) [.06]	.06(.12) [.61]
Interaction				
Entrepreneurial adversity × Trait resilience	.14(.06) [.03]	-.11(.04) [.01]		
Correlations				
Interest		.48(.16) [.00] ^b	.45(.14) [.01] ^b	.17(.15) [.24] ^b
Anger	-.14(.10) [.15] ^w		.32(.14) [.02] ^b	.65(.17) [.00] ^b
EBB				.26(.12) [.03] ^b
UPB			.01(.04) [.82] ^w	

Within-person level, N = 482 monthly observations; between-person level, N = 100 entrepreneurs. At level 1, entrepreneurial adversity was group-mean centered; at level 2, trait resilience, age, tenure, size, experience, creative identity, and moral identity were grand-mean centered. Standard errors are presented in parentheses (); two-tailed P-values are presented in square brackets []. For within-level variables, wave means the specific data point, coded from 1 to 5; it is included as a control because the within-level variables (entrepreneurial adversity, interest, anger, EBB, and UPB) vary across different waves. For correlations, ^w refers to within-person level correlations and ^b refers to between-person level correlations. Fit statistics: df = 64, loglikelihood = -2928.04, Akaike information criterion (AIC) = 5984.07, Bayesian information criterion (BIC) = 6251.33, adjusted BIC = 6048.20

Abbreviations: EBB, entrepreneurial bricolage behavior; UPB, unethical pro-organizational behavior

not containing zero) but nonsignificant when trait resilience was lower ($\rho = -.007$, 95% CI [-.034 to .012], containing zero). The difference was significant ($\Delta\rho = .034$, 95% CI [.001 to .090], not containing zero). Therefore, Hypothesis 3b was supported.

Hypothesis 4(a) proposed a positive relationship between anger and UPB. As demonstrated in Table 2 (column 5), for the multilevel path analysis model, the effect of anger on UPB was nonsignificant ($\gamma = .01$, S.E. = .03, $p = .77$). Thus, Hypothesis 4(a) was not supported. Hypothesis 4(b) proposed a dynamic relationship between anger and an increase in UPB. Our results showed that the effect of anger on the latent change scores of UPB was significant ($\gamma = .11$, S.E. = .04, $p = .01$), as reflected in Table 3 (column 5). Accordingly, Hypothesis 4(b) was supported.

Table 3 Results of Extended Latent Score Change Model

	Interest	Anger	EBB	UPB
Mean				
Intercept	3.66(.11) [.00]	3.91(.12) [.00]	5.00(.09) [.00]	2.82(.12) [.00]
Slope			-.24(.19) [.21]	-.44(.20) [.03]
Between-level controls				
Age → intercept	.05(.02) [.02]	.03(.03) [.24]	-.01(.02) [.59]	.02(.03) [.49]
Tenure → intercept	.01(.00) [.13]	.00(.00) [.58]	.00(.00) [.98]	.00(.00) [.88]
Size → intercept	.00(.03) [.99]	-.01(.04) [.77]	.08(.03) [.00]	-.01(.03) [.69]
Experience → intercept	.10(.23) [.66]	.30(.28) [.29]	-.22(.19) [.25]	.14(.30) [.65]
Creative identity → intercept	.17(.10) [.09]	.28(.11) [.01]	.08(.09) [.39]	.28(.10) [.00]
Moral identity → intercept	.01(.11) [.91]	-.27(.14) [.05]	.19(.13) [.15]	-.32(.12) [.01]
Age → slope			-.01(.01) [.20]	.00(.01) [.71]
Tenure → slope			.00(.00) [.31]	.00(.00) [.28]
Size → slope			.01(.01) [.12]	.01(.01) [.46]
Experience → slope			-.01(.06) [.91]	-.02(.07) [.80]
Creative identity → slope			.02(.02) [.44]	-.07(.03) [.02]
Moral identity → slope			-.03(.07) [.33]	.08(.04) [.07]
Between-level moderator				
Trait resilience → intercept	.08(.10) [.42]	-.26(.10) [.01]	.10(.08) [.20]	.06(.13) [.65]
Trait resilience → slope			.00(.03) [.91]	.03(.04) [.42]
Within-level variable				
Entrepreneurial adversity	.14(.06) [.02]	.57(.06) [.00]		
Interaction				
Entrepreneurial adversity × Trait resilience	.14(.05) [.02]	-.11(.04) [.01]		
Dynamic parameter				
Interest → change segment			.07(.03) [.02]	.00(.04) [.98]
Anger → change segment			-.01(.03) [.72]	.11(.04) [.01]
Correlations				
Interest		.12(.10) [.24] ^w		
Anger	.12(.10) [.24] ^w			
Intercept EBB → intercept				.20(.15) [.19] ^b
Slope EBB → intercept				.03(.04) [.43] ^b
Intercept EBB → slope			-.04(.13) [.20] ^b	-.03(.03) [.44] ^b
Slope EBB → slope				.00(.10) [.91] ^b
Intercept UPB → slope				-.08(.05) [.14] ^b

Within-person level, N = 482 monthly observations; between-person level, N = 100 entrepreneurs. At level 1, entrepreneurial adversity was group-mean centered; at level 2, trait resilience, age, tenure, size, experience, creative identity, and moral identity were grand-mean centered. Standard errors are presented in parentheses (); two-tailed P-values are presented in square brackets []. For the correlations, ^w refers to within-person level correlations and ^b refers to between-person level correlations. Fit statistics: df = 75, loglikelihood = -2938.86, Akaike information criterion (AIC) = 6027.72, Bayesian information criterion (BIC) = 6340.91, adjusted BIC = 6102.86

Abbreviations: EBB, entrepreneurial bricolage behavior; UPB, unethical pro-organizational behavior

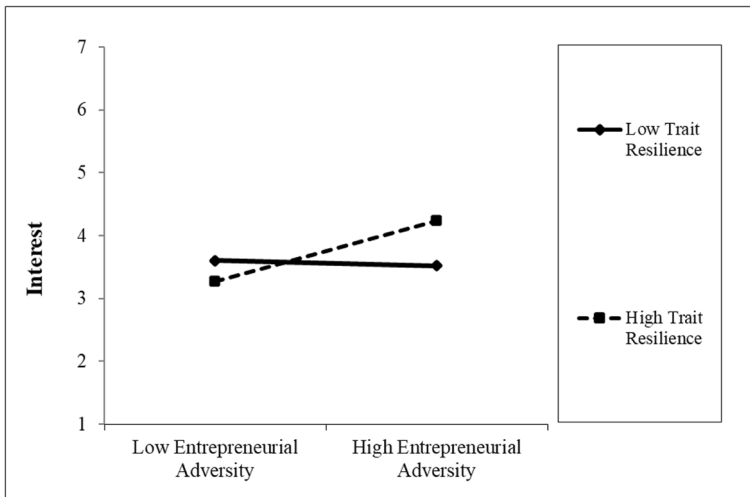


Fig. 2 Interaction between Entrepreneurial Adversity and Trait Resilience on Interest

Hypothesis 5 predicted that the within-person relationship between entrepreneurial adversity and anger would be stronger and positive when trait resilience is lower rather than higher. As shown in Table 2 (column 3) and Table 3 (column 3), the cross-level moderation effect of trait resilience was significant ($\gamma = -.11$, S.E. = .04, $p = .01$).

The plot of the interaction is presented in Fig. 3. On the basis of the results of the path analysis model in Table 2, we conducted a simple slope test for the interaction effect. The results showed that the relationship between entrepreneurial adversity and anger was significant and stronger when trait resilience was lower (1 SD below mean; $\gamma = .76$, S.E. = .10, $p = .00$) than when it was higher (1 SD above mean; $\gamma = .38$, S.E. = .10, $p = .00$). Therefore, Hypothesis 5 was supported.

Hypothesis 6(a) proposed an indirect relationship between entrepreneurial adversity and UPB via anger when trait resilience is lower rather than higher. Our results showed that the indirect effect was nonsignificant when trait resilience was lower ($p = .006$, 95% CI [-.021 to .025], not containing zero) and also when it was higher ($p = .003$, 95% CI [-.038 to .053], not containing zero). The difference was significant ($\Delta\rho = .003$, 95% CI [-.031 to .019], not containing zero). Hence, Hypothesis 6(a) was not supported.

Hypothesis 6(b) proposed an indirect dynamic relationship between entrepreneurial adversity and an increase in UPB via anger when trait resilience is lower rather than higher. As predicted, regarding the increase in UPB, our results showed that the indirect effect was significant and stronger when trait resilience was lower ($\rho = .080$, 95% CI [.023 to .145], not containing zero) than when it was higher ($\rho = .040$, 95% CI [.011 to .077], not containing zero). The difference was significant ($\Delta\rho = .040$, 95% CI [.092 to .091], not containing zero). Hence, Hypothesis 6(b) was supported.

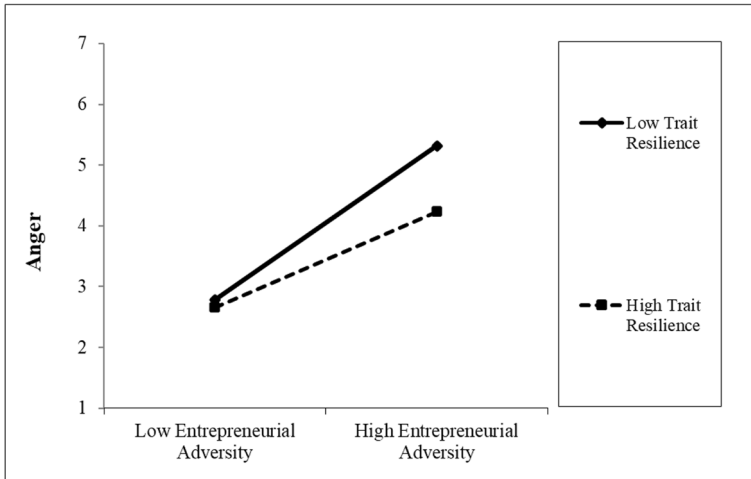


Fig. 3 Interaction between Entrepreneurial Adversity and Trait Resilience on Anger

Supplementary analysis

To check the robustness of the results, we conducted an analysis excluding all control variables. The significant patterns and coefficients remained largely unchanged, and our hypotheses were still supported. The results are available upon request.

Discussion

Our objective was to unravel when and how entrepreneurs would respond differently to an entrepreneurial adversity. We found that an entrepreneurial adversity has an indirect positive relationship with EBB and an increase in EBB over time through augmented interest when trait resilience is high rather than low. However, an entrepreneurial adversity has an indirect positive relationship with an increase in UPB over time via provoked anger when trait resilience is low rather than high. However, we did not find a positive direct relationship between anger and UPB. Below, we elaborate on the implications of these findings.

Implications for theory and research

Risk-taking in adversity For entrepreneurs with the entrepreneurial spirit of “creative destruction” (Agarwal et al., 2007; Schumpeter, 1934), a challenge is a creation opportunity for them to shift the equilibrium state through generating innovative ideas, processes, and products. Because of the uncertainty in adversity, entrepreneurs would not know what kinds of planned actions are appropriate “until they take some action and see what happens” (Weick, 1988,

p. 306). The constructive risk-taking approach poses a creative engagement with an unknown situation while raising new questions and discovering new answers (Alvarez & Barney, 2020). Entrepreneurs try not only to interpret the situation but also to play an active role in constructing the very situation (Weick, 1995; Weick et al., 2005). In the entrepreneurship literature, researchers surmise that entrepreneurs can use simultaneous experiments (Andries et al., 2020), forward-looking actions through recombining resources (Klein, 2020), or new entrepreneurial actions with existing knowledge (Agarwal & Audretsch, 2020) as a constructive risk-taking strategy that turns an entrepreneurial adversity into a creation opportunity (Alvarez & Barney, 2020). Our theorization seeks to understand the role of risk-taking approaches in addressing adversity. In doing so, this theoretical insight speaks to the core of entrepreneurship, the creation and capitalization of opportunity through responding to inevitable uncertainty in entrepreneurial activities (Shepherd, 2020; Shepherd et al., 2015). We advance the extant knowledge of creativity as a way of redressing adversity while researchers have focused increasingly on flexibility, spontaneity, and improvisation in enabling recovery and realignment during environmental turmoil (Baron & Tang, 2011; Brockner & James, 2008; Christianson et al., 2009; Cope, 2011).

We also considered the UPB concept to capture potential adversity responses along with EBB. To answer an integrative question, such as why some entrepreneurs survive and others do not (Van Der Vegt et al., 2015), it is imperative to have a more balanced focus on both positive and negative responses to an adversity. However, prior entrepreneurship research has developed adversity response in a fragmented way. One research stream has focused on the extemporal (e.g., “make it up as they go along,” Baron, 2008, p. 329) and creative strategy (Bechky & Okhuysen, 2011; Stenholm & Renko, 2016); the other stream has focused on expedient or immoral measures to cope with the exigent matter (Shepherd et al., 2013; Tacke et al., 2022). Indeed, organizational behavior researchers have developed a more integrative view with the concept of organization deviance (Vadera et al., 2013; Warren, 2003). Researchers have proposed that employees engage in deviant behaviors in positive (e.g., citizenship or helping behavior) as well as negative (e.g., unethical pro-teammates behavior) ways to deal with intractable problems (Spreitzer & Sonenshein, 2004). An adversity is deviant in nature (James et al., 2011), and thus it requires deviant solutions that often digress from socially acceptable actions. In this sense, it is plausible that an adversity can motivate entrepreneurs to use positive (i.e., EBB) as well as negative (i.e., UPB) risk-taking responses. In the present research, we juxtaposed EBB and UPB to theorize the duality of risk-taking approaches and provide a unifying view of how entrepreneurs end up with success or failure in adversity (Van Der Vegt et al., 2015).

Emotion as mechanism Furthermore, we developed an understanding of how specific emotions incite entrepreneurial activities. We unraveled how emotions can be a motivational source to prompt entrepreneurs’ spontaneous problem-solving

activities in adversity. Emotions are considered as an important predictor of business failure or survival (Cardon et al., 2012) to account for “why some entrepreneurs choose to give up performing firms despite the availability of resources and others choose to persist with underperforming firms despite the lack of resources” (Khelil et al., 2016, p. 75). However, previous research has focused largely on avoidance-related negative emotions (e.g., fear, panic, or grief) that forestall flexibility and problem-solving (Jenkins et al., 2014; Kollmann et al., 2017; Shepherd & Cardon, 2009); there is little research investigating action-readiness emotions that prompt an active response to challenges and disturbances. Adversity is a salient emotion-eliciting incident; thus, the influence of emotion in cognition and behaviors becomes essential (Maitlis & Sonenshein, 2010; Weick, 1993).

The process model of bricolage (Baker & Nelson, 2005) and the theoretical model of UPB (Umphress & Bingham, 2011) suggest that entrepreneurs may engage in risk-taking when facing adversity. However, both models are limited in their ability to explain when and why entrepreneurs engage in each type of risk-taking (i.e., EBB or UPB) in response to adversity even though they cause other problems: for example, EBB may trigger resource waste and UPB provokes guilt. Furthermore, these models focus more on the cognitive process and less on how the external event creates an emotional state that engenders or stimulates the cognitive process and drives the risk-taking approach. Thus, they are limited in their ability to explain how adversity drives risk-taking behaviors through evoking or eliciting an emotional experience.

On the one hand, interest fuels EBB in the context of adversity. Although the process model of bricolage (Baker & Nelson, 2005) implies that EBB is a potential viable response to adversity, it is a risky strategy for entrepreneurs since it is uncertain whether it will work or whether it may amplify adversity and bring even greater failure (Staw et al., 1981). Entrepreneurs’ interest can be incorporated into the model to account for why they still want to take chances with EBB. Also, although the theoretical model of UPB (Umphress & Bingham, 2011) suggests that UPB can be a potential response to adversity (Chen et al., 2016) despite its expected aftereffect (e.g., self-blaming or guilty). From the motivational perspective, anger can be regarded as an approach motivation to make entrepreneurs expediently deal with their business.

To better understand the theoretical models of EBB and UPB, which mainly focus on the cognitive process, we theoretically incorporated the motivational mechanism into the model to better understand how discrete emotions (interest and anger) can serve the process towards adversity response (i.e., EBB and UPB). Each model of EBB and UPB is limited in its ability to explain why entrepreneurs engage in such risk-taking approaches in responding to an adversity even though they cause other problems (e.g., failure, guilt). The process model of bricolage (Baker & Nelson, 2005) and the theoretical model of UPB (Umphress & Bingham, 2011) imply that entrepreneurs take the risk-taking approach to adversity coping. However, these models focus more on the cognitive process and less on how the external event creates an emotional state

of readiness that energizes such a cognitive process and drives the risk-taking approach. Thus, they are limited in their ability to clarify how entrepreneurs emotionally experience disturbances and come to urge the cognitive process to engage in risk-taking behaviors.

We theorized how interest and anger can serve as a mechanism to trigger EBB and UPB, respectively, as a way of redressing entrepreneurial adversity. In doing so, we extended each theoretical model of EBB and UPB to account for how entrepreneurs emotionally experience adversity and dynamically engage in the risk-taking approach. On the one hand, interest fuels the process of EBB in the context of adversity. Although the process model of bricolage (Baker & Nelson, 2005) implies that EBB is a potential viable response to adversity, it would be a precarious strategy for entrepreneurs since it may amplify a small deviance into other crises and bring huge failures (Staw et al., 1981). Thus, entrepreneurs' interest can be incorporated into the model to account for why they still want to take chances with EBB. Also, although the theoretical model of UPB (Umphress & Bingham, 2011) implies that UPB can be a potential response to adversity (Chen et al., 2016), its expected aftereffect (e.g., self-blaming or guilty) hampers the violation of universal moral values. From the emotivational process perspective, in the theoretical model of UPB, anger can be regarded as a goal-setting and provoking motivation to make entrepreneurs expediently deal with their business at stake despite the backlash.

It is particularly noteworthy that we identified the positive effects of interest. Even though adversity is normally characterized by negative avoidance-based emotions (Kayes, 2004; Weick, 1993), our research shows that positive emotions can work in the problem-solving process (Isen, 1987, 2001; Isen & Baron, 1991). We focused on the motivating role of interest in the risk-taking approach to cope with disruption in a way that facilitates survival, learning, and self-development (Silvia, 2001). Among the positive emotions studied in the entrepreneurship context (e.g., optimism, Hmieleski & Baron, 2009; passion, Cardon et al., 2013), interest has a unique effect on entrepreneurial activity (Silvia, 2017). In entrepreneurship environments that "are often highly unpredictable and filled with rapid change" (Baron, 2008, p. 329), entrepreneurs are required to move beyond well-learned scripts. Interest is the emotion deeply involved in the cognitive process (e.g., idea search, data collection, and problem-solving) which is essential for entrepreneurship (O'Keefe et al., 2017). We identified the role of interest in the dynamic entrepreneurship context and found that entrepreneurs with interest drive their business in a creative way during times of adversity. While the constructive role of interest has been largely neglected in the adversity and entrepreneurial research, we introduced interest to explain entrepreneurs' active and creative engagement with uncertainty and their creative outputs.

Also, anger has been found to be an emotion that provokes deviance (i.e., cheating) in response to high performance pressure (Mitchell et al., 2018). In our findings, anger was not directly associated with the level of UPB (Hypothesis 4a), but it did lead to an increasing tendency toward UPB over time (Hypothesis 4b). Even though anger has the potential to prompt immediate resolutions, our data do not support that it sparks UPB in the short term. Instead,

our data uphold that anger breeds a psychological state favorable to UPB over time. Indeed, UPB violates universal moral values and causes emotional backlash (e.g., self-blaming) (Umphress & Bingham, 2011). In our findings, anger fostered a moral rationalization that UPB seems justifiable and acceptable over time. We extended our understanding of how anger influences unethical behaviors by adopting a longitudinal approach.

In addition, along with emotion as a mechanism, we theorized and tested the boundary condition of trait resilience as the psychological ground for responding differently to adversity. Trait resilience provides a practical lens by which entrepreneurs interpret an entrepreneurial adversity, paying attention to either its stimulating or threatening features. Previous entrepreneurship literature focuses on resilience as a managerial process that can be developed over time with repeated exposure to adversity (Williams & Shepherd, 2016). However, we provided the psychological foundation of resilience that serves as a capability for entrepreneurs to cope with repeated adversity in a positive manner. Thus, we ascertained when entrepreneurs make creative (via interest) or unethical behavioral responses (via anger) to adversity. As such, we stressed trait resilience as a critical individual difference in explaining variance in emotional experience and prompting active responses to adversity (Shepherd, 2011). Also, our findings support the theoretical perspective that an adversity can be both an opportunity and a threat (Brockner & James, 2008; Dutton & Jackson, 1987).

Limitations and future research directions

Our research has several limitations which lead to future research directions. Our design is prone to common method bias (CMB; Podsakoff et al., 2012), including self-report of UPB. However, a meta-analysis has shown the focal person to be more accurate when individuals exposit personal private statements (Carpenter et al., 2017). Moreover, the literature on unethical behavior has widely used self-reports of such behavior as such a demeanor is often covert and difficult for others to observe and report (Chen et al., 2016). Empirically, we conducted an MCFA, and the results showed that our measurement model was acceptable with no significant common method issues. We also focused on the moderating effect of trait resilience on the relationship of entrepreneurial adversity with the emotions of interest and anger. Scholars have shown that the moderation effect is not subject to, and in fact can be deflated by, CMB (Podsakoff et al., 2014; Siemsen et al., 2010). Even with the deflation effect, we still found a significant cross-level moderating effect of trait resilience.

In the entrepreneurship and organization literature, there is increasing scholarly interest in anger (Foo et al., 2014; Lebel, 2017), mainly because anger is an approach-oriented emotion that enthusiastic entrepreneurs may frequently experience in dynamic situations. Future research should focus more on the long-term effects of anger on entrepreneurial behaviors and decisions. Importantly, anger

forestalls learning from failures: for example, attending to new information, discovering insights and ideas, and gaining a positive attitude (Baas et al., 2011). However, the entrepreneurship literature has revealed little about how anger develops our behavioral tendencies over time. In the current research, we introduced the role of anger in unethical behaviors; future research should pay more attention to the long-lasting impact of anger on decision-making processes and behavioral strategies.

Lastly, future research could examine another social context that may militate the risk-taking approach. For example, it would be possible to look at how the network of entrepreneurs influences their adversity responses and outcomes (Williams & Shepherd, 2016). Entrepreneurs may try to make sense of their given situation via the views of other entrepreneurs within their network. This would influence not only their interpretation but also their decision-making and response strategies in obtaining required resources. Also, we conducted the study in South Korea, a high uncertainty avoiding culture (hofstede-insights.com/country/south-korea/). Although our theory and the research model based on it are general, we nevertheless suggest that future research should examine the model in other national and cultural contexts.

Practical implications

Our study also offers germane implications for entrepreneurs. First, the accomplishment of a venture heavily relies on the productivity of its entrepreneurs. Our findings demonstrate that adversity can yield both constructive and destructive outcomes. On the one hand, entrepreneurs may experience adversity as a source of curiosity, enhancing their creative capacities within resource constraints. On the other hand, they may experience adversity as an unacceptable occurrence, and this may lead to them becoming desensitized to moral decisions, leading to engagement in unethical behaviors. As a result, it becomes imperative for entrepreneurs to be mindful of their attitudes towards adversity, discerning whether they view it with curiosity or anger. Fostering mindfulness in this regard will serve to diminish the likelihood of negative interpretations and the manifestation of unethical conduct.

Another key finding in our research is the importance of the trait resilience exhibited by entrepreneurs in times of adversity. Entrepreneurs with high levels of trait resilience direct their attention towards the intriguing aspects of adversity, thereby fostering creativity. Conversely, those with low levels of trait resilience are prone to perceiving adversity as inciting anger, potentially leading to unethical conduct. In the context of decision-making processes, entrepreneurs can derive advantages from being mindful of their own trait resilience, potentially via the use of psychometrically sound measures. Utilizing such measures can offer invaluable insights, especially regarding where entrepreneurs are likely to encounter adversity.

In addition, our study provides timely pragmatic implications for policymakers. First, unethical behavior has the potential to undermine not only individual entrepreneurship and society but also the ecosystem of entrepreneurship during and after a pandemic (or other major crises). Entrepreneurs using unethical behavior as a response may survive the adversity in the short term and thus acquire illusory views about themselves as being capable, adroit, and ingenious. Entrepreneurs who lie about their business (e.g., misrepresenting information about the business) are likely to unfairly disadvantage ethical entrepreneurs. Policymakers need to recognize that entrepreneurial adversity can lead to unethical decisions, especially for entrepreneurs with low trait resilience. With this awareness, policymakers should take a proactive approach (e.g., policymaking or training sessions) toward reducing unethical behavior.

Second, policymakers should help entrepreneurs identify and capitalize on new business opportunities during a disruption. In essence, entrepreneurial adversity presents not only a threat but also an opportunity (Brockner & James, 2008; Christianson et al., 2009; Dutton & Jackson, 1987). For example, Dewald and Bowen (2010) found that entrepreneurs focusing on an opportunity in the face of a new disruptive business model showed the intention to adopt it, whereas those who focused on loss resisted it. Thus, policymakers could establish a platform through which entrepreneurs can access new business opportunities and also support entrepreneurs to shift their business to capitalize on these fresh prospects. Also, they should provide a range of programs to buttress the psychological health of entrepreneurs, foster their psychological resilience (Aldrich, 2012), and hence help them focus on the opportunity side of adversity (Boin & McConnell, 2007).

Conclusion

This study incorporates the distinction between normative (positive) risk-taking (i.e., EBB) and non-normative (negative) risk-taking (i.e., UPB) to achieve a more nuanced understanding of the double-edged nature of entrepreneurial risk-taking approaches to adversity. Additionally, we aim to advance the synthesis of different risk-taking approaches (i.e., EBB and UPB) by borrowing from motivational perspectives. Empirically, we found that when an entrepreneur's trait resilience was high, entrepreneurial adversity was positively linked to EBB and an increase in EBB over time through enhancing interest. Conversely, when trait resilience was low, entrepreneurial adversity was positively linked to an increase in UPB over time via increasing anger. These findings extend the current understanding of risk-taking responses to entrepreneurial adversity by demonstrating when (i.e., trait resilience as the moderator) and how (i.e., emotions as the mechanisms) each type of risk-taking response may occur. In conclusion, this study enhances comprehension of the psychological conditions and mechanisms that drive entrepreneurs to embrace specific positive or negative risk-taking approaches when faced with adversity.

Appendix A

Potential Adverse Events to Entrepreneurs

Administration/operating

- A_#1 Disruption in using existing manpower
 - A_#2 Increased cost of using existing manpower
 - A_#3 Difficulty in expanding manpower quickly
 - A_#4 Disruption to the operation of key personnel due to accidents
 - A_#5 Disruption to the next business projects that were being prepared
 - A_#6 Disruption due to domestic and overseas business trips being impossible
 - A_#7 Intractable conflicts in managing business projects
 - A_#8 Missing milestones or mid-term deadlines in major projects
 - A_#9 Upsurge in material and facility operating costs
 - A_#10 Upsurge in product/service development costs
 - A_#11 Failure in achieving product/service quality goals
 - A_#12 Failure in achieving design efficiency goals
 - A_#13 Failure in achieving this month's performance goals
-

Customer/marketing

- C_#1 Rapid shrinkage in sales
- C_#2 Cancellation/shrinkage of promotion events
- C_#3 Cancellation/shrinkage of sales events
- C_#4 Delay/cancellation of service contract
- C_#5 Delay in product/service shipping/delivery schedule
- C_#6 Delay in customer payment
- C_#7 Difficulty in finding alternative sales contacts
- C_#8 Difficulty in establishing alternative sales channels
- C_#9 Rapidly changing customer needs for existing products/services
- C_#10 Unforeseen specific need/requirement from customers
- C_#11 Excessive customer complaints and claims
- C_#12 Excessive demand from the ordering company for service products/services
- C_#13 Legal dispute with customers

Partnership/networking

- P_#1 Disruption to general supply chain flows
- P_#2 Disruption to overseas/domestic process schedule
- P_#3 Difficulty in finding alternative supply points
- P_#4 Diminished opportunities to build alternative supply chains
- P_#5 Delays in shipping/delivery of materials
- P_#6 Delays in balancing accounts
- P_#7 Problems with the quality of the supplied product
- P_#8 Defects/malfunctions in the supplied product
- P_#9 Extra cost required for shipping/delivery
- P_#10 Partners' nonfulfillment of contractual obligations
- P_#11 Legal dispute with partners

Competition/strategy

- S#1 Large-scale competitors enter the market
 - S#2 Copycatting by large competitors
 - S#3 Competitors' low-priced and large-volume strategy
 - S#4 Decrease in product/service value due to increase in number of competitors
 - S#5 Competitor's product/service level exceeds your main product/service
 - S#6 Competitor's skill level equals or exceeds your main technology
 - S#7 Discovery that the technology being developed is already patented
-

Administration/operating

- A_#1 Disruption in using existing manpower
 - A_#2 Increased cost of using existing manpower
 - A_#3 Difficulty in expanding manpower quickly
 - A_#4 Disruption to the operation of key personnel due to accidents
 - A_#5 Disruption to the next business projects that were being prepared
 - A_#6 Disruption due to domestic and overseas business trips being impossible
 - A_#7 Intractable conflicts in managing business projects
 - A_#8 Missing milestones or mid-term deadlines in major projects
 - A_#9 Upsurge in material and facility operating costs
 - A_#10 Upsurge in product/service development costs
 - A_#11 Failure in achieving product/service quality goals
 - A_#12 Failure in achieving design efficiency goals
 - A_#13 Failure in achieving this month's performance goals
-

Investment/finance

- I#1 Cancellation of investment promotion events
- I#2 Reduced opportunities for gaining new investment
- I#3 Unreasonable demands from incumbent investors
- I#4 Credit issues with investors
- I#5 Abrupt conflict with investors over financial issues
- I#6 Escalating conflict with investors over cost handling issues
- I#7 Escalating tension with investors about the progress of the business projects
- I#8 Conflict in business direction with investors
- I#9 Legal dispute with investors

Environmental trend

- E#1 New business projects delayed/cancelled due to global political issues
 - E#2 New business projects delayed/cancelled due to pandemic (Covid-19)
 - E#3 Rapid shrinkage in target market demand due to economic downturn
 - E#4 Decrease in the value of technology due to rapid changes in the technology
 - E#5 Immaturity of new market formation
 - E#6 Deterioration of existing business value due to increase in online/non-face-to-face channels
 - E#7 Increase in new business demands due to increase in online/non-face-to-face channels
 - E#8 Pressure to adjust/change management due to increase in market value of new products/services
 - E#9 Insufficient government support and legislation required for business
 - E#10 Enactment of regulations and restrictions unfavorable to business
 - E#11 Noncooperative response of government agencies
-

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Data availability Upon receipt of a formal request delineating the required data, its intended application, and pertinent details, our data is available for access.

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