

Navigating Environmental Threats to New Ventures: A Regulatory Fit Approach to Bricolage

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ABSTRACT Bricolage is a critical strategy used by entrepreneurs to generate resources for new ventures in response to environmental threats that result in resource constraints. However, inconsistent findings exist. Whereas the predominant view in the bricolage literature suggests that resource-constrained or threatening environments motivate new ventures to bricolage to survive and thrive, some empirical evidence shows that some firms choose not to bricolage in such environments. This paper addresses the inconsistent findings by integrating regulatory fit theory with the bricolage literature, arguing that the effect of environmental threat on bricolage depends on entrepreneurs' dispositional regulatory focus. Data from a time-lagged survey of 396 Taiwanese entrepreneurs support our hypotheses. Our findings suggest that promotion (prevention) focus disposition is positively (negatively) related to bricolage. More importantly, both promotion and prevention foci weaken the effect of environmental threat on bricolage, serving as boundary conditions for this relationship. Finally, our additional analysis reveals gender differences in bricolage and the contingent effect of promotion focus disposition, enabling us to contribute to regulatory fit theory.

Keywords: bricolage, dispositional prevention focus, dispositional promotion focus, environmental threat, regulatory fit theory

INTRODUCTION

Due to liabilities of newness and smallness, new ventures are challenged in terms of accessing sufficient pools of resources compared to their established counterparts (Aldrich and Ruef, 2006). In particular, many new ventures nowadays face environmental threats,

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defined as a hostile environment with few economic opportunities and little economic promise (Voss et al., 2008), imposing serious resource constraints on new ventures (Desa and Basu, 2013; Kreiser et al., 2020). As a consequence, new ventures need to be resourceful and make creative use of the resources at hand to survive and flourish (Bojica et al., 2018; Williams et al., 2021). This behaviour of ‘making do by applying combinations of the resources at hand to new problems and opportunities’ is defined as bricolage (Baker and Nelson, 2005, p. 353).

The majority of existing research examines new venture bricolage as a response to resource-constrained or threatening environments caused by various factors (e.g., institutional voids, natural disasters, war and conflicts) (e.g., Busch and Barkema, 2021; Desa, 2012; Korsgaard et al., 2021; Kwong et al., 2019; Nelson and Lima, 2020). This literature thus suggests an implicit assumption that resource-constrained or threatening environments drive bricolage (Michaelis et al., 2020). However, it overlooks cases in which entrepreneurs in similarly threatening environments choose not to bricolage, as evident in Baker and Nelson’s (2005) study. These inconsistent findings suggest the necessity to examine the conditions under which environmental threats more or less drive bricolage.

In a broader scope, scholars have recognized that entrepreneurship outcomes are jointly influenced by entrepreneurs’ characteristics and the environment (Baron and Tang, 2011; Hmieleski and Baron, 2008, 2009; Wallace et al., 2010). This person–situation interaction perspective, widely applied in management research (Furr and Funder, *in press*; Webster, 2009), underlines the importance of considering entrepreneurs’ characteristics in conjunction with environmental factors for a better understanding of bricolage behaviour. Indeed, prior research has identified entrepreneurs’ frugality, passion, and social networks as antecedents of bricolage (Michaelis et al., 2020; Stenholm and Renko, 2016). Unfortunately, the effects of environment and individual characteristics on bricolage remain two separate streams of literature.

As the first step to integrating the two streams, this research examines the joint influence of environmental threat and, in particular, dispositional regulatory focus, an important dispositional factor, on bricolage. We focus on these two factors because bricolage is characterized by pursuing potential rewards, such as additional resources and firm innovation (Baker and Nelson, 2005; Senyard et al., 2014), and different regulatory focus dispositions among individuals lead to varying levels of responses to potential rewards.

Regulatory focus theory (Higgins et al., 2001) proposes two distinct motivational orientations: promotion focus, which centres on achieving potential rewards with eagerness, and prevention focus, which prioritizes security with vigilance (Avnet and Higgins, 2006; Crowe and Higgins, 1997). These orientations can be stable traits or dispositions that influence individuals’ behaviours across time and contexts (Higgins, 2000; Hmieleski and Baron, 2008). When individuals’ dispositional regulatory focus aligns with their goal pursuit behaviour, they experience regulatory fit – a sense of ‘feeling right’ – which increases their engagement in the behaviour. This is known as regulatory fit theory (Higgins, 2005). Bricolage, characterized by the pursuit of potential rewards with eagerness, aligns well with promotion focus but may disrupt prevention focus. Thus, entrepreneurs with a high dispositional promotion

(prevention) focus can increase (reduce) bricolage because performing bricolage can generate a sense of fit (non-fit) with their promotion (prevention) focus. We also argue that this regulatory fit or non-fit acts as a boundary condition for how environment affects bricolage.

In carrying out this research, we make two contributions. First, our systematic review of the literature identified 223 articles on bricolage and revealed inconsistent findings regarding the influence of resource-constrained environments on bricolage. Our research contributes to the theory of bricolage (Baker and Nelson, 2005) by reconciling the inconsistency and identifying entrepreneurs' regulatory focus as a boundary condition for the relationship between environmental threat – a resource-constrained environment – and bricolage. More importantly, we show that entrepreneurs' regulatory foci can override environmental influences. This critical insight highlights the importance of individual characteristics in the context of bricolage, laying a solid foundation for future research.

Second, our research advances regulatory fit theory (Higgins et al., 2010), which is an extension of regulatory focus theory (Higgins, 1997) and remains under-explored in entrepreneurship. Our study verifies the predictions of regulatory fit theory in the novel context of bricolage, thus marking a significant milestone in theory validation as suggested by Colquitt and Zapata-Phelan (2007). Moreover, our additional analysis goes beyond the initial scope of regulatory fit theory by shedding light on the previously overlooked gender differences in regulatory fit predictions. This revelation not only deepens our understanding of regulatory fit theory, but also highlights its nuanced implications for diverse demographic groups, thereby positioning our research at the forefront of theoretical and empirical discovery.

THEORETICAL BACKGROUND

Bricolage

Baker and Nelson (2005) built on Lévi-Strauss's (1967) work to introduce the concept of bricolage within the business context, defining it as making do by using and combining resources at hand in novel ways for new purposes (e.g., to solve problems or to exploit new opportunities). Bricolage can be considered a behaviour that involves three components: (a) 'making do' by actively engaging with problems or opportunities, trying out solutions, observing, and refusing to accept the limitations of the solutions; (b) using resources at hand, available very cheaply or for free (Baker and Nelson, 2005; Fisher, 2012); and (c) recombining and reusing those resources for new purposes (Fisher, 2012).

Since Baker and Nelson's (2005) seminal work, the concept of bricolage has received extensive traction. We conducted a systematic review of the management literature and identified no fewer than 223 articles published in management journals (indexed by SSCI) since 2005 that include the word 'bricolage' in either the title or the abstract. Based on this review, we found that bricolage not only enables firms to potentially overcome resource constraints (Desa, 2012; Hota et al., 2019), but also

could lead to outcomes such as identifying new opportunities (An et al., 2018), facilitating institutional transformation (Desa, 2012), increasing corporate entrepreneurial activities (An et al., 2018) and nascent entrepreneurs' activities (Senyard et al., 2009), enhancing innovation (Halme et al., 2012; Salunke et al., 2013; Senyard et al., 2014), and promoting new ventures' survival (Stenholm and Renko, 2016), growth (Bacq et al., 2015; Tasavori et al., 2018; Yu et al., 2020), strategic flexibility (Yu and Wang, 2021), competitiveness (Steffens et al., 2023), and performance (Senyard, 2015; Senyard et al., 2009).

These potential benefits of bricolage have motivated scholars to also examine the antecedents of bricolage. In Table I,^[1] we include papers that examine antecedents of bricolage and that have been published in the top management and entrepreneurship journals. These journals have published a total of 54 articles with bricolage in the title or abstract, and 17 articles focus on its antecedents. The antecedents can also be divided into two general categories: the environment and individual characteristics.

On the one hand, 12 of the 17 articles in our review deal with bricolage as a behavioural response to resource-constrained environments caused by, for example, institutional constraints (Desa, 2012), natural disasters (Nelson and Lima, 2020), war and conflicts (Kwong et al., 2019). This predominant focus, however, differs from Baker and Nelson's (2005) original observations that firms show different levels of bricolage despite being in similarly constrained environments. New insights have also emerged showing that entrepreneurs perform bricolage in munificent environments as an advantageous strategic option (Desa and Basu, 2013) or in an environment with undemanding stakeholders (Servantie and Rispal, 2018).

On the other hand, three of the 17 articles identify the characteristics of individuals/entrepreneurial teams facilitating bricolage, including entrepreneurial passion for inventing and developing (Stenholm and Renko, 2016), frugality (Michaelis et al., 2020), and top management team diversity (Bojica et al., 2018). These factors relate to entrepreneurs' cognitive-emotional state, preferences for making decisions and behaving in resource-conservative ways, and access to resources for bricolage, respectively.

Despite existing insights into the influence of environment and individual characteristics on bricolage, we still know little about why resource-constrained environments do not drive bricolage in all new ventures. This is primarily because existing studies regarding the effects of environment and individual characteristics on bricolage remain two separate streams of literature. Hence, as the first step to integrating the two streams, this research specifically focuses on the role of dispositional regulatory focus as a potential condition for the relationship between environmental conditions and bricolage. We do so because bricolage is characterized by pursuing potential rewards, such as additional resources and firm innovation (Baker and Nelson, 2005; Senyard et al., 2014), and different regulatory focus dispositions among individuals lead to varying levels of responses to potential rewards. In this paper, we draw on regulatory fit theory to offer an explanation for how resource-constrained environments, reflected by environmental threat, may affect bricolage.

Table I. Systematic literature review results

<i>Authors</i>	<i>Sample & Method</i>	<i>Dependent variable(s)</i>	<i>Independent variable(s)</i>	<i>Mediator(s)</i>	<i>Moderator(s)</i>	<i>Findings</i>
1 Stenholm and Renko (2016)	Survey of 2489 Finnish entrepreneurs	Firm survival	Entrepreneurial passion	Entrepreneurial bricolage	–	Entrepreneurs with high passion for inventing and developing are more likely to engage in bricolage than their low-passion counterparts. Entrepreneurial bricolage in turn is positively related to entrepreneurial survival.
2 Michaelis et al. (2020)	Survey of 178 active entrepreneurs	Bricolage, effectuation (including affordable loss, flexibility, experimentation), causation, and pre-commitments	Frugality and self-control	–	–	Frugality is positively related to bricolage behaviour.
3 Desa (2012)	Mixed methods including case study and survey of 202 technology social ventures	Bricolage at the venture level	Political constraints, technology support, business regulatory support, institutional support	–	–	Social ventures are more likely to engage in bricolage if institutional constraints exist, e.g., the institutional environment lacks technology support, business regulatory support, and institutional support. Bricolage is a mechanism of legitimization for social ventures.
4 Desa and Basu (2013)	A database of 202 technology social ventures	Bricolage, optimization	Environmental munificence, organizational prominence	–	–	Environmental munificence and organizational prominence have a U-shaped relationship with bricolage.

(Continues)

Table I. (Continued)

<i>Authors</i>	<i>Sample & Method</i>	<i>Dependent variable(s)</i>	<i>Independent variable(s)</i>	<i>Mediator(s)</i>	<i>Moderator(s)</i>	<i>Findings</i>
5 Bojica et al. (2018)	Fuzzy-set QCA on a sample of Mexican social entrepreneurial organizations	Organizational growth	Bricolage	–	Resources endowment, autonomy in using resources, TMT gender diversity, diversity of TMT organizational tenure, and diversity of previous experience in for-profit organizations	TMT diversity in tenure and past experience in for-profit organizations promote organizational growth of social ventures practicing bricolage. Bricolage can be supported by high levels of resource endowment and/or autonomy in resource use.
6 Servantie and Rispal (2018)	Longitudinal single case study	–	–	–	–	When stakeholders are not demanding, bricolage is more likely to be adopted. But when stakeholders are demanding, they push toward a more casual approach. Bricolage is also adopted at the beginning of the project.

(Continues)

Table I. (Continued)

<i>Authors</i>	<i>Sample & Method</i>	<i>Dependent variable(s)</i>	<i>Independent variable(s)</i>	<i>Mediator(s)</i>	<i>Moderator(s)</i>	<i>Findings</i>
7 Bechky and Okhuysen (2011)	Ethnographic research	–	–	–	–	This paper examines how organizations develop responses to unexpected events that enable their work to continue. Individuals engage in organizational bricolage, which depends on the social cognitive resources that group members develop: the collectively held knowledge about how a task is performed and how activities advance. They are shared task knowledge and common work flow expectations.
8 Baker and Nelson (2005)	Multiple case study of 25 independent local businesses	–	–	–	–	Bricolage is a response to resource-constrained environments. Firms engaging in selective bricolage are likely to grow, whereas firms engaging in parallel bricolage are unlikely to grow.
9 Nelson and Lima (2020)	Single longitudinal case study	–	–	–	–	People responded over time to a natural disaster using combinations of different varieties of effectuation, social bricolage, and gradually more causation, supporting grassroots recovery efforts.

(Continues)

Table I. (Continued)					
<i>Authors</i>	<i>Sample & Method</i>	<i>Dependent variable(s)</i>	<i>Independent variable(s)</i>	<i>Mediator(s)</i>	<i>Moderator(s)</i>
10 Mair and Marti (2009)	Single case study	–	–	–	–
11 Reypens et al. (2021)	Multiple case study of seven technology ventures	–	–	–	–
12 Korsgaard et al. (2021)	Multi-level case study of 28 ventures	–	–	–	–
Creating new institutions is a process of bricolage and is promoted by institutional voids characterized by resource constraints. In a relatively resource-scarce context, high-performing ventures increased resource seeking and dynamically alternated lower and higher levels of bricolage, opting back into bricolage upon substantial resource acquisition. This research explores entrepreneurial resource mobilization in resource-constrained peripheral locations. The authors identify three activities constituting an underlying logic of spatial bricolage, which considers both individual dispositions and the context. (Continues)					

Table I. (Continued)

<i>Authors</i>	<i>Sample & Method</i>	<i>Dependent variable(s)</i>	<i>Independent variable(s)</i>	<i>Mediator(s)</i>	<i>Moderator(s)</i>	<i>Findings</i>
13 Lengevang and Namatovu (2019)	Single longitudinal case study	—	—	—	—	In a volatile situation with extreme resource deprivation and a plethora of challenges arising in the aftermath of war, three practices of social bricolage are used to cope with resource scarcity and to create social change: securing resources and creating social value by mobilizing peers, pluriactivity, and rekindling pre-war cultural resources to reunite fragmented communities.
14 Wierenga (2020)	Grounded theory	—	—	—	—	This research examines the scaling process of low-income entrepreneurs in resource-scarce environments through grassroots bricolage.
15 Busch and Barkema (2021)	Case study with an organization in Sub-Saharan Africa	—	—	—	—	Bricolage can be used and scaled in low-resource contexts. Through the study of one social enterprise, the authors develop a model of scaling bricolage: a low-cost replication process of heuristics, enabling fit with local environments, combined with cross-unit learning

(Continues)

Table I. (Continued)

<i>Authors</i>	<i>Sample & Method</i>	<i>Dependent variable(s)</i>	<i>Independent variable(s)</i>	<i>Mediator(s)</i>	<i>Moderator(s)</i>	<i>Findings</i>
16 Papazu (2021)	Ethnographic research	–	–	–	–	Bricolage can be an organizational strategy under conditions of resource scarcity. Bricolage is a process involving the construction of resources to achieve change because it can enable the community to work toward a shared goal without accepting the constraints of the resource-scarce local environment.
17 Kwong et al. (2019)	Case study of six internally displaced entrepreneurs	–	–	–	–	Displaced entrepreneurs at times of war and conflict use both internal and external bricolage strategies to either reestablish their previous business or start a new effort in the host location.

Regulatory Fit Theory

People approach pleasure and avoid pain in different ways, which are manifested in two self-regulatory orientations: promotion focus and prevention focus (Higgins, 1997, 1998). These orientations differ in terms of individual needs, focused attention, and desired end-states. Specifically, individuals with a stronger promotion-focused orientation are motivated by growth, advancement, and accomplishment needs and strive to attain the ideal self (Crowe and Higgins, 1997; Higgins, 1997). High promotion focus inclines people to use eagerness means, which involves ensuring ‘hits’ (the presence of positive outcomes) and avoiding errors of omission (the absence of positive outcomes) (Bryant and Dunford, 2008; Crowe and Higgins, 1997; Higgins, 2000; Higgins et al., 2001). In contrast, individuals with a strong prevention-focused orientation are motivated by security and safety and seek to maintain the ought self (Crowe and Higgins, 1997; Higgins, 1997). High prevention focus inclines people to use vigilance means, which involves ensuring correct rejections and avoiding false alarms (Bryant and Dunford, 2008; Crowe and Higgins, 1997; Higgins, 2000; Higgins et al., 2001).

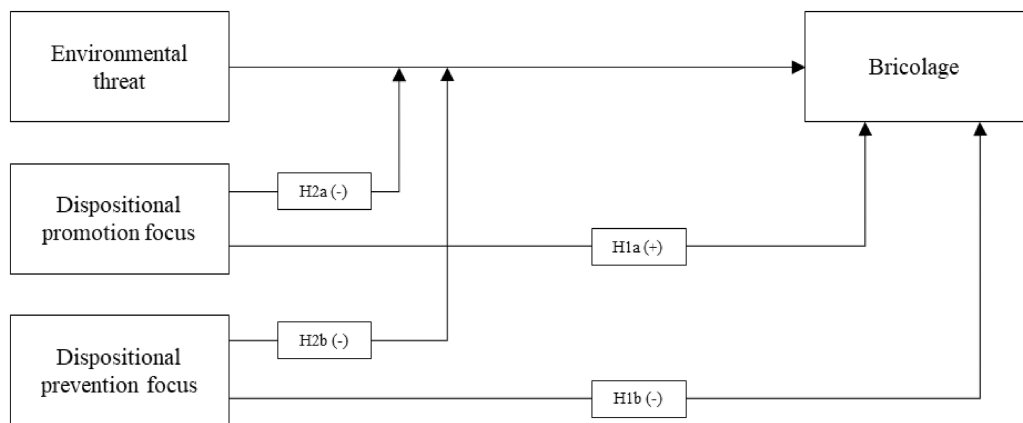
Promotion and prevention foci can be dispositional or situationally induced (Brockner and Higgins, 2001). In this paper, we focus on dispositional regulatory foci, as they are relatively stable (Hmielecki and Baron, 2008), mainly shaped by early childhood socialization experiences (Higgins, 1989), and exhibited consistently across time and contexts in adulthood (Higgins, 1989; Hmielecki and Baron, 2008).

When individuals’ promotion focus or prevention focus can be sustained by the means they use to pursue their goals, *regulatory fit* occurs and makes individuals ‘feel right’ about what they are doing (Cesario et al., 2004). This sense of ‘fit’ increases the value of what they are doing and, consequently, their engagement in goal pursuit will also be enhanced (Avnet and Higgins, 2006; Avnet et al., 2013; Cesario et al., 2004; Higgins, 2000, 2005). In contrast, when individuals’ regulatory orientation cannot be sustained by their goal pursuit means, they will ‘feel wrong’ about what they are doing. This sense of ‘non-fit’ disrupts the individual’s dominant regulatory orientation and creates dissonance (Festinger, 1957; Higgins et al., 2010), thereby reducing engagement in goal pursuit (Avnet and Higgins, 2021).

In the following section, we first point out that the previous literature would suggest environmental threat to be positively related to bricolage. We then draw on regulatory fit theory and hypothesize the direct effect of dispositional regulatory foci on bricolage and their moderating effect on the relationship between environmental threat and bricolage. Figure 1 displays our conceptual model.

Environmental Threat and Bricolage

We define environmental threat as a resource-constrained, hostile environment with few economic opportunities and little economic promise (Voss et al., 2008). These salient threats can arise from radical industry changes, intense regulatory burdens, fierce competition (Gonzalez and Winkler, 2019; Werner et al., 1996; Zahra and Garvis, 2000), and high uncertainty related to competition, products, and markets (Dess and Beard, 1984). In a highly threatening environment, it is often difficult to obtain necessary resources through standard market mechanisms, and strategic options



are limited (Voss et al., 2008). Firms thus may rely on resources at hand to generate new solutions to business problems (Baker and Nelson, 2005; Busch and Barkema, 2021; Korsgaard et al., 2021; Reypens et al., 2021). Moreover, obstacles and threats could stimulate or strengthen individuals' fear of failure (Kollmann et al., 2017) and motivate them to make changes by trying out new actions – the making-do component of bricolage – to avoid failure in threatening environments. For example, Greece experienced a debt crisis after the global financial crisis of 2007–8, and, together with Brexit, the consequences were dramatic, including economic recession, taxation increase, and increased unemployment rates and poverty. As a result, Greek small businesses had to confront the turbulence in the market and adjust their resource management and strategies (Tsilika et al., 2020). As reported in Tsilika et al.'s (2020) research, a small business made a new product – wooden-frame eyeglasses – by decomposing and reusing an abandoned family boat, transformed part of the owners' house to a laboratory for initial production, and used local natural materials, such as sand and shells, to make gifts for crowdfunders. The business owners used resources at hand, recombined existing resources for new purposes, and solved problems in novel ways in response to the debt crisis.

Conversely, low-threat environments provide favourable conditions. They are typically economically promising, with many opportunities for profit, abundant resources, low rivalries among competitors, and few industry- and market-related changes or regulatory burdens. In such favourable environments, firms may not feel the need to change the current way of organizing existing resources to maintain economic gains. Even though firms need resources to start new initiatives, they may use the relatively abundant external resources instead of making do with resources at hand. For example, a biotech venture may benefit more from seeking funding from venture capitalists than from creatively making do with financial resources at hand, because venture capital brings not only more money but also other resources (e.g., sales channels, connection to suppliers, and knowledge about marketing, operations, and management).

that may benefit the new venture (Quas et al., 2021). It appears that previous research may suggest a positive relationship between environmental threat and engagement in bricolage.

Contrary to previous research, our central argument is that this relationship suggested in previous research is not always true and can be contingent on individuals' unique dispositional traits that predetermine their preference for engaging in bricolage or not in certain circumstances.

HYPOTHESES DEVELOPMENT

Regulatory Fit and Bricolage

Bricolage is characterized by eagerness because it involves continued effort to reuse and recombine resources in creative ways to solve business problems or to act on an opportunity (Baker and Nelson, 2005). Since individuals with a strong promotion-focused orientation regulate themselves through pursuing the ideal self and eagerly ensure hits and avoid missed opportunities (Crowe and Higgins, 1997; Higgins et al., 2001), pursuing bricolage will enable promotion-focused entrepreneurs to experience regulatory fit and feel right about what they are doing. As a result, their engagement in bricolage can be enhanced. Steffens et al. (2023) suggest the concept of 'human capital bricolage', by which decision-makers reconstruct a team by assembling a novel combination of existing human capital, e.g., the *Moneyball* strategy (Baker et al., 2013). As this 'human capital bricolage' (Steffens et al., 2023) entails a great opportunity amid substantial risk of failure, such a choice can fit decision-makers with a strong promotion-focused disposition because the opportunity to achieve their ideal self makes them 'feel right'. Therefore, the regulatory fit would motivate the promotion-focused decision-makers to engage in a high level of bricolage.

In contrast, individuals with a strong prevention-focused orientation regulate themselves by attending to safety, security, and responsibility (Higgins, 1997) and by adopting vigilance-avoidance means that ensure correct rejections and avoidance of false alarms (Crowe and Higgins, 1997; Higgins et al., 2001). Therefore, prevention-focused entrepreneurs may choose to maintain the status quo as opposed to looking for solutions generated from bricolage. This is because the latter may be the second-best solutions with imperfections and incompleteness (Steffens et al., 2023) that disrupt the prevention-focused decision-makers' goal orientation toward safety and responsibility, making them experience regulatory non-fit and the sense of 'wrongness' (Cesario et al., 2004; Higgins et al., 2003; Levine et al., 2016). Accordingly, we propose that:

Hypothesis 1a: Dispositional promotion focus is positively related to bricolage.

Hypothesis 1b: Dispositional prevention focus is negatively related to bricolage.

Promotion focus and prevention focus are not mutually exclusive and do not necessarily sit on two ends of a continuum (Byron et al., 2018). A person can be high on one dimension, both, or neither (Higgins et al., 2001). While both orientations can lead to desired end-states, people typically show consistent preferences for one or the other across time and situations (Brockner and Higgins, 2001). However, for individuals with both a strong promotion-focused orientation and a strong prevention-focused orientation (Higgins et al., 2001), the bricolage behaviour can be affected by both orientations. According to regulatory fit theory, a strong promotion-focused disposition will motivate a person to engage in bricolage because this regulatory orientation favours bricolage. If the person also has a strong prevention-focused disposition, engaging in bricolage should also produce regulatory non-fit for this person. Then, whether the regulatory fit or non-fit dominates depends on which effect is stronger, a logic we will discuss next.

Interaction between Dispositional Regulatory Foci and Environmental Threat

As the majority of previous studies are concerned with the relationship between environmental conditions (a situational factor) and bricolage (a behaviour) and Hypotheses 1a and 1b pertain to the effect of entrepreneurs' dispositions on the behaviour, we now draw on the person–situation interaction perspective to hypothesize how dispositional regulatory foci may moderate the environmental threat–bricolage relationship. In the historical person–situation debate in psychology (see Kenrick and Funder, 1988; Stewart and Barrick, 2004), personality scholars argue that an individual's behaviour is largely determined by their internal trait dispositions, while situationists contend that a person's behaviour is determined primarily by external factors or situations. In this regard, our hypotheses regarding the effect of dispositional regulatory foci fall into the realm of personality scholars, and previous research regarding environmental conditions falls into the realm of situationists. Over decades of discussions on whether personality traits or situational factors have a stronger influence on an individual's behaviour, psychologists agree that there are approaches to reconcile the competing predictions of personality and environmental factors (Furr and Funder, *in press*; Webster, 2009). For example, if a situational factor is very strong, most people will behave in a similar way, regardless of their trait dispositions. This was reflected by behaviour during the COVID-19 outbreak: many small business owners closed their businesses because of large-scale lockdowns that prevented customer visits to offline stores. In contrast, if a person's personality disposition is strong, they may behave in accordance with their personality regardless of the environment. Yet, when a person with a strong personality trait is situated in a strong environment, how they may behave depends on which factor is stronger (Furr and Funder, *in press*). This perspective of person–situation interaction partly explains why some entrepreneurs persist in adverse environments where business exit is expected: some of their strong personality traits (e.g., trait resilience) suppress the environmental influence.

Drawing on the person–situation interaction perspective, we argue that, when entrepreneurs' dispositional regulatory focus (be it dispositional promotion focus or

prevention focus) is far from strong, their bricolage behaviour would be primarily determined by the level of environmental threat because their sense of fit or non-fit with bricolage is not salient. But, as entrepreneurs' dispositional regulatory foci become stronger, the influence of environmental threat on bricolage is *reduced* because this influence may also depend on entrepreneurs' sense of fit or non-fit generated by their dispositional regulatory orientation and the bricolage behaviour. Finally, for entrepreneurs who have very strong dispositional promotion and/or prevention foci, their bricolage behaviour will follow their dispositional regulatory orientation, and the environmental threat would have only a marginal impact on bricolage. In such a situation, the entrepreneurs' bricolage behaviour would follow our predictions based on regulatory fit theory (Cesario et al., 2004), as we discussed in Hypotheses 1a and 1b.

The person–situation interaction perspective above suggests that the environmental influence on the individual's behaviour can be weakened by the individual's strong dispositions, which are promotion focus and prevention focus dispositions, in our case. Conceptually, promotion- and prevention-focused dispositions weaken the relationship between environmental threat and bricolage, but in different manners. Specifically, a strong promotion-focused disposition may function mainly by increasing the bricolage behaviour of people in low-threat environments but not so much for people in high-threat environments because those facing high threats already bricolage strongly (Busch and Barkema, 2021; Korsgaard et al., 2021). In contrast, a strong prevention-focused disposition may function mainly by reducing the bricolage behaviour of people in high-threat environments but not so much for people in low-threat environments because those facing low threats may be able to obtain resources through standard market mechanisms (Bojica et al., 2018) and thus do not bricolage. Accordingly, we propose the following hypotheses:

Hypothesis 2a: The (positive) relationship between environmental threat and bricolage will be weaker when entrepreneurs' dispositional promotion focus is stronger.

Hypothesis 2b: The (positive) relationship between environmental threat and bricolage will be weaker when entrepreneurs' dispositional prevention focus is stronger.

METHODS

Study Context

In this study, we collected data from Taiwanese founders of privately owned for-profit new ventures with fewer than 100 employees and a maximum of 10 years of age, which enabled us to capture new ventures at different phases of development (Cardon and Kirk, 2015). Taiwan is a unique context to test our hypotheses for two reasons. Taiwan is known for its vibrant and highly competitive business environment (Wang et al., 2021),

particularly in industries such as technology, electronics, and manufacturing. This environment exposes firms to rapid technological advancements, evolving market conditions, and intense competition, thereby increasing the potential for environmental threats. Taiwan is also a major player in the global economy, with extensive international trade and investment connections (World Bank, 2020). Being part of an export-oriented economy, Taiwanese firms are exposed to global market fluctuations, trade tensions, and economic uncertainties (Contractor and Kundu, 2004; Corbo, 2019). These external environmental threats can affect the operations and strategies of firms in Taiwan. The number of small firms in Taiwan has also increased rapidly in the past decade due to government support (Crunchbase News, 2019) and these firms' innovation ability and craftsmanship enhance their competitiveness in the industry. Therefore, exploring how entrepreneurs employ bricolage to navigate and mitigate environmental threats can provide valuable insights into the adaptive capabilities of small and new Taiwanese ventures.

Sample and Data Collection Procedures

The entrepreneurs in our sample were contacted by students in six universities in Taiwan. Incentivized by course credits, students used their social networks to identify entrepreneurs with whom they were acquainted. This approach helps to increase response rate and accuracy. The survey was developed in English and translated into Chinese via back-to-back translation procedures (Brislin, 1970).

We conducted two waves of surveys to ensure temporal ordering. The Time 1 survey asked questions about the independent variables and moderators, and the Time 2 survey asked questions about the dependent variable. The surveys were either mailed by one of the researchers or delivered in person by a student. The Time 2 survey was sent out approximately three months after the Time 1 survey to attenuate the concerns of common method variance associated with single-source data (Adomako et al., 2018; Boso et al., 2013; Simsek et al., 2010). In the Time 1 survey, we contacted a total of 800 entrepreneurs to participate in the research and received 515 responses. One hundred and three cases were excluded due to missing values and incompleteness, leaving 412 usable responses in Wave 1. In the Time 2 survey, we re-contacted 412 entrepreneurs and received 396 useable responses. This represents over 96 per cent of those completing Wave 1, and an overall response rate of 49.5 per cent. Table II presents information on the characteristics of the final sample. Males constituted 52 per cent of the sample, and 42 per cent of respondents had never been employed by any organization other than themselves. The descriptive statistics of the sample are presented in Table III. The average firm size was 41 full-time employees, and the average firm age was five years. Finally, to test for non-response bias, we compared early respondents ($N = 232$) and late respondents (who returned the questionnaire after reminders were sent to them; $N = 164$) in terms of firm age, size, gender, and education, and found no significant differences between the two groups.

Measures of Focal Constructs

All the multi-item constructs were assessed on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The measuring items, reliability, and validity of

Table II. Demographic and venture characteristics of the sample

<i>Variables</i>	<i>Sub-category</i>	<i>Frequency</i>	<i>%</i>
Gender	Male	205	51.77%
	Female	191	48.23%
Employment experience	Yes	230	58.08%
	No	166	41.92%
Entrepreneurs' start-up experience	0–3	361	90.66%
	>3	35	9.34%
Education	High school	132	33.33%
	Higher national dip.	84	21.21%
	Bachelor's degree	133	33.59%
	Master's degree	47	11.87
Firm age	1–5 years	209	73.23%
	6–10 years	106	26.77%
Firm size	1–10 employees	10	2.53%
	11–20 employees	61	15.40%
	21–30 employees	47	11.87%
	>30 employees	278	70.20%
Industry	High tech	179	45.20%
	Non-high tech	217	54.80%

each construct are listed in Table IV. Dispositional regulatory focus was measured using the original scale developed by Higgins et al. (2001), which captured respondents' subjective histories of promotion (six items) and prevention (five items) success. Environmental threat was measured by using Voss et al.'s (2008) three-item scale inquiring about the current economic conditions in the business environment perceived by the respondent. Bricolage was measured by Senyard et al.'s (2014) scale, which was later validated by Davidsson et al. (2017).

We included several control variables in our models to avoid omitted variable bias (OVB). First, firm size, age, and industry were included, given these factors may relate to perception of environment (e.g., Lang et al., 1997) and bricolage (e.g., Guo et al., 2018). Firm size was measured by the new venture's number of full-time employees. Firm age was measured by the number of years the new venture had been in operation since its incorporation. Although we collected data from new ventures operating in the manufacturing industry, we further categorized new ventures into two types based on standardized R&D expenditure and the percentage of knowledge workers in each industry (Tang et al., 2012). Accordingly, the high-tech industry indicator is coded 1 for new ventures operating in high-technology industries (i.e., petroleum, chemical, polymer, etc.) and 0 for those operating in low-technology industries (i.e., food, beverage, and tobacco products; textile, etc.).

Table III. Descriptive statistics and correlations

<i>Nr.</i>	<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>
1	Entrepreneurial bricolage	4.67	1.07	1.00														
2	Dispositional promotion focus	0.00	0.93	0.25**	1.00													
3	Dispositional prevention focus	0.00	1.13	-0.21**	0.04	1.00												
4	Environmental threat	0.00	1.02	0.03	0.29**	0.27**	1.00											
5	Firm size	40.83	20.49	-0.11*	0.04	0.03	0.03	1.00										
6	Firm age	4.63	1.64	0.02	-0.03	0.04	0.02	-0.10*	1.00									
7	Entrepreneur's start-up experience	2.08	1.22	-0.04	-0.03	0.02	-0.08	0.03	0.10*	1.00								
8	Education	2.24	1.04	0.15**	0.09	0.02	0.06	-0.08	-0.02	0.06	1.00							
9	Self-employed only	0.42	0.49	-0.16**	-0.10	0.05	-0.05	0.22**	0.04	0.08	-0.07	1.00						
10	Female	0.48	0.50	0.19**	-0.02	-0.09	-0.12*	-0.04	0.09	-0.02	0.04	-0.14**	1.00					
11	Investment (log)	13.64	0.87	-0.08	0.01	0.15**	0.08	0.07	-0.04	-0.02	-0.05	-0.06	-0.04	1.00				
12	Hours invested (log)	3.49	0.33	-0.00	-0.03	-0.07	-0.06	0.11*	-0.09	0.03	-0.02	0.01	0.01	0.13**	1.00			
13	Environmental dynamism	4.61	1.08	0.03	0.33**	0.12*	0.31**	-0.00	0.01	-0.01	0.06	-0.01	-0.00	0.01	-0.04	1.00		
14	High-tech industry	0.45	0.50	0.04	-0.02	0.04	0.02	-0.01	-0.01	-0.00	0.00	-0.03	-0.05	0.02	0.02	0.11*	1.00	
15	Past performance	4.64	0.93	0.07	0.15**	0.16**	0.31**	0.07	-0.04	0.01	0.05	0.02	-0.02	-0.01	-0.03	0.05	0.02	1.00

Note: Significance levels: *p < 0.05, **p < 0.01.

Table IV. Measures and results of validity tests of multi-item constructs

<i>Measurement items</i>	<i>Standardized loadings (t-values)</i>
Environmental threat: $\alpha = 0.90$; CR = 0.90; AVE = 0.75	
The current operating environment is particularly hostile	0.89 (1.00)
The venture's economic environment is promising (r)	0.88 (17.22)
The current overall business environment is an opportunity (r)	0.84 (16.34)
Environmental dynamism: $\alpha = 0.84$; CR = 0.85; AVE = 0.65	
Competitors are constantly trying out new competitive strategies	0.78 (1.00)
Customer needs and demands are changing rapidly in our industry	0.80 (14.48)
New markets are emerging for products and services in our industry	0.85 (15.08)
Dispositional promotion focus: $\alpha = 0.90$; CR = 0.91; AVE = 0.64	
I often accomplish things that got me 'psyched' to work even harder	0.87 (1.00)
Compared to most people, I am typically unable to get what I want out of life (r)	0.89 (17.16)
I often do well at different things that I try	0.76 (11.18)
When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do (r)	0.80 (14.66)
I feel like I have made progress toward being successful in my life	0.77 (12.38)
I have found hobbies or activities in my life that capture my interest or motivate me to put effort into them	0.73 (10.19)
Dispositional prevention focus: $\alpha = 0.89$; CR = 0.91; AVE = 0.64	
Growing up, I would 'cross the line' by doing things that my parents would not tolerate (r)	0.75 (1.00)
I did get on my parents' nerves often when you were growing up (r)	0.80 (15.95)
I often obey rules and regulations that were established by my parents	0.86 (20.21)
Growing up, I did act in ways that my parents thought were objectionable (r)	0.83 (16.45)
Not being careful enough has gotten me into troubles at times (r)	0.77 (14.56)
Bricolage: $\alpha = 0.93$; CR = 0.94; AVE = 0.66	
I gladly take on a broader range of challenges than others with my resources would be able to.	0.77 (1.00)
I am confident of my ability to find workable solutions to new challenges by using my existing resources	0.78 (13.09)
I use any existing resource that seems useful to responding to a new problem or opportunity	0.81 (15.12)
I deal with new challenges by applying a combination of my existing resources and other resources inexpensively available to me	0.79 (13.67)
When dealing with new problems or opportunities I take action by assuming that I will find a workable solution	0.83 (16.47)
By combining my existing resources, I take on a surprising variety of new challenges	0.85 (17.39)

(Continues)

Table IV. (Continued)

Measurement items	Standardized loadings (t-values)
When I face new challenges, I put together workable solutions from my existing resources	0.80 (16.79)
I combine resources to accomplish new challenges that the resources weren't originally intended to accomplish	0.88 (19.45)
Past performance: $\alpha = 0.81$; CR = 0.82; AVE = 0.61	
Return on assets	0.78 (1.00)
Sales growth	0.80 (16.29)
Profitability	0.77 (14.90)

We also included entrepreneurs' start-up experience, education, gender, employment experience, and the time and funds invested in the new venture. These owner-specific factors can similarly induce OVB when not controlled for, given that they are expected to relate to our variables of interest and dependent variable (Senyard et al., 2014). Entrepreneurs' start-up experience was measured by asking respondents to state the number of businesses they had previously founded (Hmielecki et al., 2013). Education was coded as 1 ('high school'), 2 ('higher national diploma'), 3 ('bachelor's degree'), 4 ('master's degree'). Gender is an indicator that takes the value 1 if the entrepreneur is female. To control for the effect of employment experience, we included a dummy variable that takes the value 1 for entrepreneurs who had been self-employed only and 0 for those who had an employer before. The number of hours invested in the business per week by the entrepreneur(s) as well as the total funds (dollars) invested in the new venture are log transformed for normality and included in the models. We also included environmental dynamism measured by three items from Miller and Friesen (1982) to avoid OVB, given its relationship with cognitive factors and bricolage (Welter et al., 2016). We collected data on environmental dynamism in the second wave to account for changes in the business environment between the two waves of data collection. Finally, we also controlled for past performance, given that it could affect bricolage behaviour in the following periods. Accordingly, an indexed scale derived from the three items inquiring about firms' past performance in terms of sales growth, profitability, and return on assets is included in the regressions.

Common Method Bias, Validity, and Reliability

Our survey design with a time lag between collecting information about the independent and dependent variables overcomes some of the problems with potential reverse causality and common method bias (Podsakoff et al., 2003). Nevertheless, we tested for common method bias, utilizing the approach suggested by Carson (2007), and estimated a combined CFA model including all multi-item scales and a common method factor loading on all items. It involves establishing two competing models: Model 1 (trait-only) allowed each indicator to load on its respective latent factor. The model fit was adequate

($\chi^2/\text{df} = 2.19$; RMSEA = 0.06; NNFI = 0.95; CFI = 0.96; SRMSR = 0.06). In Model 2, we estimated a trait-method model that links a common factor to all the indicators. Results from Model 2 provide an adequate fit for the data ($\chi^2/\text{df} = 1.36$; RMSEA = 0.06; NNFI = 0.90; CFI = 0.90; SRMSR = 0.05). When models 1 and 2 are compared, the results show that Model 2 is not materially better than Model 1, thereby alleviating common method variance (CMV) concerns (Carson, 2007). Second, following Lindell and Whitney (2001), we chose ‘I like the color green’ as a marker variable. Small and non-significant correlations (ranging from -0.01 to 0.03) of this variable with our other variables further alleviate CMV issues.

To establish the reliability and validity, all multi-item constructs were examined in confirmatory factor analysis using LISREL 8.71. We tested various models and found that the full-factor model adequately fits the data ($\chi^2/\text{df} = 2.11$; RMSEA = 0.05; NNFI = 0.92; CFI = 0.93; SRMSR = 0.06) better than the one-factor model ($\chi^2/\text{df} = 2.66$; RMSEA = 0.09; NNFI = 0.59; CFI = 0.63; SRMSR = 0.13). Additionally, positive and significant factor loadings confirm convergent validity of our measures (Bagozzi and Yi, 2012). The alpha, composite reliability, and average variance extracted (AVE) values are above the suggested threshold values of 0.70, 0.60, and 0.50, respectively. Moreover, the AVE of each construct was larger than the square root of shared variances, indicating high discriminant validity (Fornell and Larcker, 1981). In sum, CMV concerns were alleviated, and the data showed good validity and reliability.

RESULTS

Hypotheses were tested using the hierarchical regression approach, which is well-established in estimating contextual and configurational models (Cohen et al., 2003). All the variables included in interactions were mean-centred. We also calculated the variance inflation factors (VIFs) and found 1.36 as the highest VIF, suggesting that multicollinearity is not an issue (Aiken et al., 1991).

Table V summarizes the regression results. Model 1 offers a base model for control variables only. In Model 2, the coefficient of environmental threat is insignificant ($\beta = 0.022$, $p = 0.729$). Hypothesis 1a proposes a positive effect of dispositional promotion focus on bricolage, whereas Hypothesis 1b proposes a negative effect of dispositional prevention focus on bricolage. As shown in Model 3, both hypotheses are supported ($\beta_{\text{dispositional promotion focus}} = 0.287$, $p < 0.001$; $\beta_{\text{dispositional prevention focus}} = -0.195$, $p < 0.001$). Hypothesis 2a (i.e., the relationship between environmental threat and bricolage is weaker when promotion focus is high) is supported, given the significant and negative coefficient of the interaction between promotion focus and environmental threat in Model 4 ($\beta = -0.192$, $p < 0.001$). This interaction is plotted in Figure 2. The slope of the line depicting the relationship between environmental threat and bricolage is significantly positive ($dy/dx = 0.122$, $p = 0.047$) for low promotion-focused entrepreneurs, but significantly negative for high promotion-focused entrepreneurs ($dy/dx = -0.235$, $p = 0.001$). This implies that a high environmental threat is associated with *more* bricolage for low promotion-focused entrepreneurs and a low environmental threat is associated with *more* bricolage for high promotion-focused entrepreneurs.

Table V. Regression analyses (*bricolage* as dependent variable)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Environmental threat		0.022 (0.062)	0.023 (0.058)	−0.057 (0.056)	−0.031 (0.071)	−0.152* (0.079)
Hypothesis 1a: Dispositional promotion focus			0.287*** (0.060)	0.292*** (0.059)	0.568*** (0.193)	0.778*** (0.260)
Hypothesis 1b: Dispositional prevention focus			−0.195*** (0.046)	−0.107** (0.045)	−0.151* (0.086)	−0.018 (0.085)
Hypothesis 2a: Disp. promotion focus × environmental threat				−0.192*** (0.038)		−0.147** (0.068)
Hypothesis 2b: Disp. prevention focus × environmental threat				−0.140*** (0.032)		−0.218*** (0.063)
Firm size	−0.003 (0.003)	−0.003 (0.003)	−0.004 (0.002)	−0.004* (0.002)	−0.005* (0.002)	−0.005** (0.002)
Firm age	0.009 (0.033)	0.008 (0.033)	0.018 (0.032)	0.012 (0.030)	0.020 (0.033)	0.013 (0.034)
Entrepreneur’s start-up experience	−0.031 (0.050)	−0.029 (0.050)	−0.022 (0.044)	−0.014 (0.043)	−0.023 (0.043)	−0.021 (0.043)
Education	0.133*** (0.051)	0.132** (0.051)	0.119** (0.048)	0.095** (0.047)	0.105** (0.050)	0.064 (0.052)
Self-employed only	−0.256** (0.108)	−0.253** (0.108)	−0.172 (0.107)	−0.182* (0.103)	−0.126 (0.114)	−0.107 (0.118)
Gender	0.343*** (0.106)	0.349*** (0.107)	0.335*** (0.103)	0.269*** (0.101)	0.348*** (0.106)	0.292*** (0.113)
Investment (log)	−0.090 (0.064)	−0.092 (0.064)	−0.051 (0.056)	−0.074 (0.056)	−0.055 (0.058)	−0.086 (0.059)
Hours invested (log)	0.065 (0.165)	0.068 (0.165)	0.028 (0.154)	−0.018 (0.153)	0.044 (0.160)	−0.006 (0.174)
Environmental dynamism	0.017 (0.049)	0.011 (0.053)	−0.048 (0.052)	−0.023 (0.051)	−0.116* (0.069)	−0.148* (0.085)
High-tech industry	0.088 (0.107)	0.090 (0.107)	0.132 (0.102)	0.116 (0.099)	0.158 (0.104)	0.173 (0.108)
Past performance	0.079 (0.053)	0.072 (0.055)	0.071 (0.054)	0.102* (0.052)	0.045 (0.060)	0.059 (0.066)

(Continues)

Table V. (Continued)

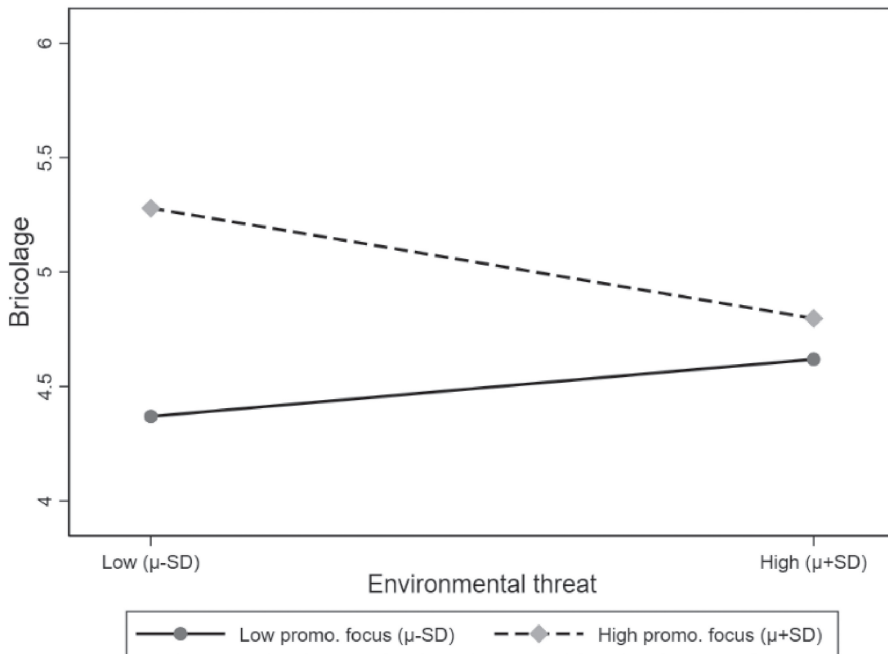
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Constant	4.983*** (1.029)	5.062*** (1.059)	4.875*** (1.003)	5.296*** (0.996)	5.313*** (1.049)	6.263*** (1.165)
Observations	396	396	396	396	396	396
R-squared	0.090	0.090	0.183	0.237	0.133	0.088
F test	3.503	3.207	6.370	10.012	4.459	5.773
Prob F	0.000	0.000	0.000	0.000	0.000	0.000
<i>2SLS Diagnostics</i>						
Step 1: Kleibergen-Paap stat. p-val. (rejection supports instrument relevance)					0.000	0.000
Step 2: Hansen J stat. p-val. (non-rejection supports instrument exogeneity)					0.290	0.456
Difference in Sargan (C) stat. (non-rejection supports instrument exogeneity)					0.265	0.456
Step 3: Durbin-Wu-Hausman test p-val. (non-rejection supports exogeneity of suspected variables)					0.324	0.274
GMM distance test p-val. (non-rejection supports exogeneity of suspected variables)					0.510	0.364

Note: Robust standard errors in parentheses. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Models 1–4 are estimated via OLS, whereas Models 5 and 6 are estimated via 2SLS. 2SLS diagnostics reflect the three-step procedure to 2SLS estimation offered by Papies et al. (2017).

Our Hypothesis 2b (i.e., the relationship between environmental threat and bricolage is weaker when prevention focus is higher) is also supported, given the significant and negative coefficient of the interaction between prevention focus and environmental threat ($\beta = -0.140$, $p < 0.001$). This interaction is plotted in Figure 3. The significantly negative slope ($dy/dx = -0.214$, $p = 0.004$) of the line plotting the relationship between environmental threat and bricolage of high prevention-focused entrepreneurs points out that these entrepreneurs engage *less* in bricolage as environmental threat increases. The line showing the relationship between environmental threat and bricolage for low prevention-focused entrepreneurs is positive but only marginally significant ($dy/dx = 0.101$, $p = 0.082$).

Dealing with Endogeneity

Potential reverse causality and OVB may compromise the reliability of our OLS inferences (Bascle, 2008). To alleviate these concerns, we first investigated the impact threshold of confounding variables (ITCV). ITCV helps us to investigate ‘the likelihood that the causal inference of any given relationship was biased from an omitted variable’ in a regression (Busenbark et al., 2022, p. 40). An impact threshold is calculated to determine the level of correlation an omitted variable must have with an independent variable of interest and the dependent variable to alter the statistical inference of the independent variable’s coefficient (Busenbark et al., 2022; Frank, 2000). The calculated impact threshold is compared with the partial impacts of other variables in the regression to assess the plausibility of OVB



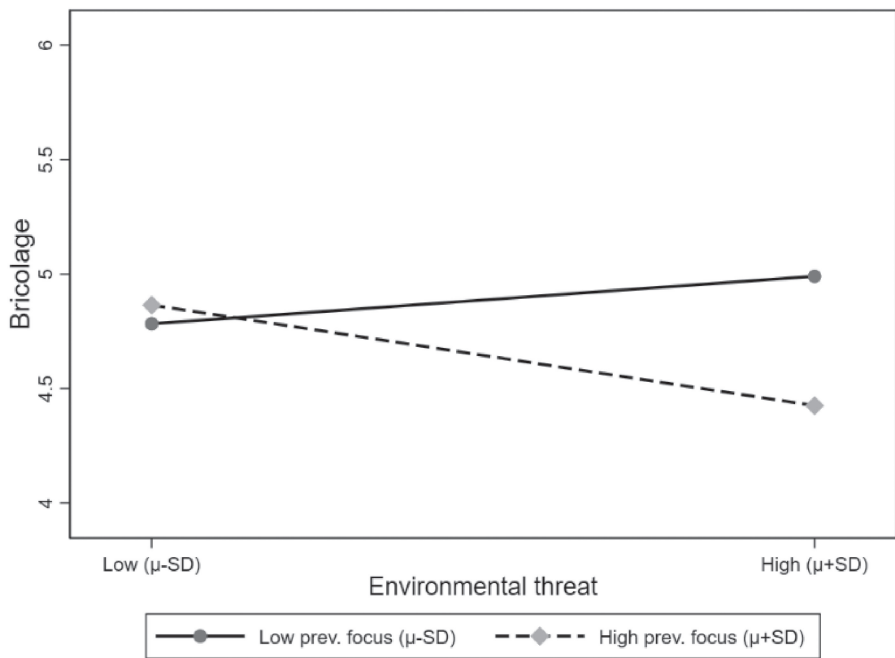
Simple slope tests

(at)	Slope	p-val.
Low promo. focus (μ -SD)	0.122	0.047
High promo. focus (μ +SD)	-0.235	0.001

Figure 2. Interaction of dispositional promotion focus and environmental threat on bricolage

(Frank, 2000). Partial impact is calculated for each variable v included in the regression as the product of its partial correlation ρ (i.e., when the vector z including all other covariates is controlled for) with the dependent variable y , and its partial correlation with the independent variable of interest x , i.e., as $\rho_{yv,z} \times \rho_{xv,z}$ (see Appendix 1).^[2] Our ITCV analysis shows that the partial impact of an omitted variable would need to be *higher* than 0.152 to invalidate our causal inference for promotion focus. Given that the *highest* partial impact across all controls in our models is 0.011 (that of the *self-employed only* variable), it is thus unlikely that OVB is a concern. Similarly, a threshold of -0.126 for prevention focus implies that an omitted variable must have a partial impact *lower* than this value to bias the negative coefficient of prevention focus (Larcker and Rusticus, 2010). Yet, the *lowest* observable partial impact of -0.011 (that of the *investment(log)* variable) across our controls suggests that it is relatively unlikely that there exists an omitted variable impactful enough to invalidate our causal inferences.

We also utilized two-stage-least-squares (2SLS) estimations to address potential concerns associated with reverse causality. Bricolage may result in second-best solutions and tinkering traps that decrease the performance of operational firms (Steffens et al., 2023). This



Simple slope tests

(at)	Slope	p-val.
Low prev. focus (μ -SD)	0.101	0.082
High prev. focus (μ +SD)	-0.214	0.004

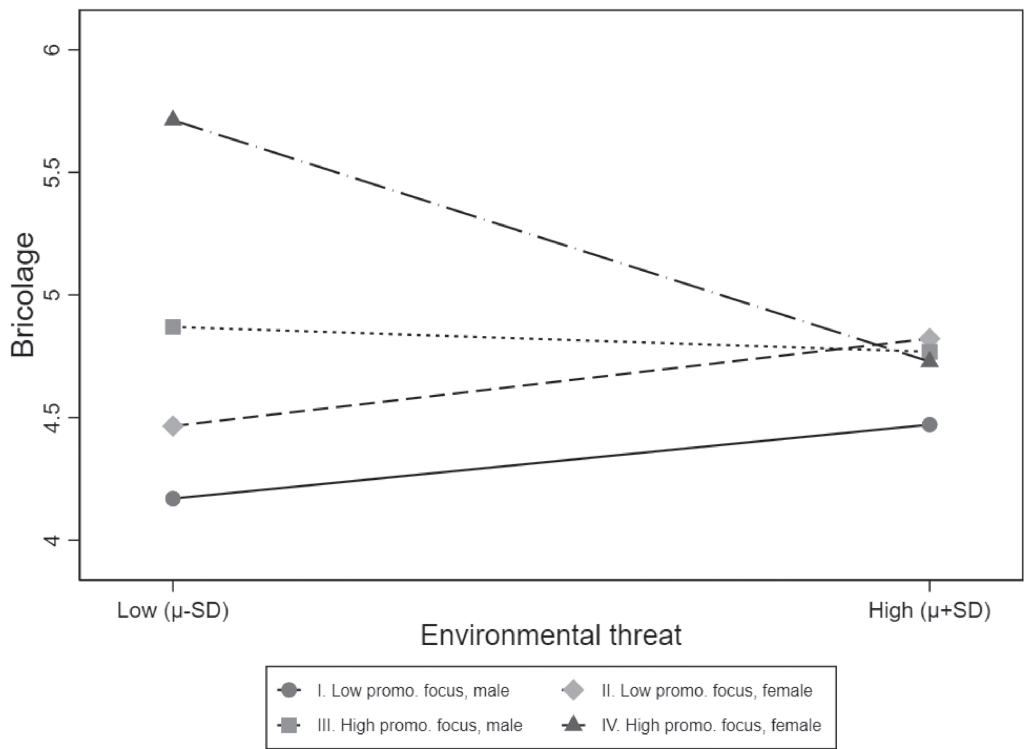
Figure 3. Interaction of dispositional prevention focus and environmental threat on bricolage

in turn may affect responses to our questions regarding regulatory foci, rendering them endogenous and OLS estimations biased. To alleviate these concerns, we needed a set of instrumental variables to address the suspected endogeneity. Therefore, we selected our instrumental variables among work–family conflict (Netemeyer et al., 1996) and entrepreneurial regret, along with their low-order polynomial (i.e., quadratic and cubic) functions (see Galvao et al., 2018), as well as interactions of these variables with our exogenous covariate environmental threat (Bun and Harrison, 2019). To ‘economize on the number of instruments’ (Bun and Harrison, 2019, p. 822) and optimize the F-statistics for all four endogenous variables, only certain low-order polynomials and interaction terms were selected for the first-stage regressions (Chevalier et al., 2013; Chung et al., 2023; Sharma et al., 2020) (see Appendix 3 for the list of instruments selected). Used in many studies (Añón Higón et al., 2011; Chevalier et al., 2013; Miguel et al., 2004; Sharma et al., 2020), these instruments are also ‘strong for instrumenting the interaction term[s]’ (Bun and Harrison, 2019, p. 816) where endogenous variables interact with exogenous variables (Ebbes et al., 2022; Wooldridge, 2015b), as in the case of our Hypotheses 2a and 2b.

In line with Papies et al. (2017), we followed a *three-step approach* for 2SLS estimations (see Table V for formal diagnostics used in each step). In all our models, we utilized the LIML method of estimation for more reliable inference (Staiger and Stock, 1997) in smaller samples (Blomquist and Dahlberg, 1999), although our results remained unchanged when we used plain 2SLS estimation. The *first step* involved ensuring that our instruments fulfilled the *relevance criterion* – i.e., they were strongly related to the suspected endogenous variables instrumented by them. In addition to the high first-stage F-statistics above the thresholds identified by Stock and Yogo (2005) (see Appendix 3), we offer theoretical arguments for instrument relevance in Appendix 4. Moreover, a rejection of Kleinbergen-Paap statistics ($p < 0.001$) also formally rules out concerns regarding under-identification (Anderson, 1951; Bascle, 2008; Hayashi, 2000).^[3]

The *second step* involved ensuring that our instruments fulfilled the *exogeneity criterion*, theoretically and empirically. Detailed theoretical arguments on instrument exogeneity are provided in Appendix 5 (Wooldridge, 2015b). Moreover, given that we had multiple instruments and provided theoretical arguments regarding their exogeneity, we also assessed instrument exogeneity empirically (Wooldridge, 2015b). Specifically, we report non-rejection of Hansen J statistics with a high p-value ($p = 0.456$), which offers empirical support for the exogeneity of our instruments. Further, we also report an insignificant ($p = 0.456$) difference in the Sargan statistic (also known as the C statistic) as support for instrument exogeneity because ‘if there are enough instruments, analysts should compute not only the Hansen J statistic [...], but also the difference-in-Sargan statistic’ (Bascle, 2008, p. 297).

Following the satisfaction of the instrument relevance and exogeneity requirements in the first two steps above, the *third step* involved formally testing if the endogeneity was a substantial concern for the suspected variables of interest (promotion and prevention focus as well as their interaction with environmental threat) and if OLS regressions could be used to estimate their coefficients. For this purpose, we first utilized a Durbin–Wu–Hausman test (Durbin, 1954; Hausman, 1978; Wu, 1973). A rejection of the null hypothesis ($p = 0.274$) increases the likelihood that endogeneity is not a significant concern for promotion and prevention focus as well as their interactions with environmental threat. Further, we also use the GMM distance test to obtain ‘test statistics that are robust to various violations of conditional homoskedasticity’ (Baum, 2008, p. 16; Baum et al., 2007). Non-rejection of this test ($p = 0.364$) offers further support for exogeneity, implying that OLS can be used. However, we still report our 2SLS estimations to test our hypotheses (Hypotheses 1a and 1b and Hypotheses 2a and 2b) involving both regulatory foci and their interactions with environmental threat (see Table V). In Model 5, we observe a significantly positive coefficient for promotion focus ($\beta = 0.568$, $p = 0.003$) and a significantly negative coefficient for prevention focus ($\beta = -0.151$, $p = 0.081$), i.e., support for our Hypotheses 1a and 1b. In Model 6, significantly negative coefficients of both the promotion focus and environmental threat interaction ($\beta = -0.147$, $p = 0.032$) as well as the prevention focus and environmental threat interaction ($\beta = -0.218$, $p = 0.001$) can be observed. These coefficients offer further support for our Hypotheses 2a and 2b, respectively.



Simple slope tests

Nr.	(at)	Slope	p-val.
I	Low promo. focus., male	0.147	0.056
II	Low promo. focus, female	0.174	0.101
III	High promo. focus., male	-0.050	0.600
IV	High promo. focus, female	-0.480	0.000

Slope difference Tests

Nr.	(at)	Slope difference	p-val.
I - II	(low promo. focus, male) - (low promo. focus, female)	-0.027	0.834
I - III	(low promo. focus, male) - (high promo. focus, male)	0.197	0.019
I - IV	(low promo. focus, male) - (high promo. focus, female)	0.627	0.000
II - III	(low promo. focus, female) - (high promo. focus, male)	0.224	0.109
II - IV	(low promo. focus, female) - (high promo. focus, female)	0.654	0.000
III - IV	(high promo. focus, male) - (high promo. focus, female)	0.431	0.002

Figure 4. Three-way interaction of dispositional promotion focus, environmental threat, and gender on bricolage

Additional Analyses

Given the emerging research on individual characteristics as the antecedents of bricolage (e.g., Michaelis et al., 2020; Stenholm and Renko, 2016) and on the benefits of bricolage for women-led entrepreneurial firms in general (Bojica et al., 2014) and women

entrepreneurs in particular (Digan et al., 2019), we also explored the role of gender in our model. We first found a statistically significant positive relationship between gender and bricolage ($\beta = 0.342$, $p < 0.01$), indicating that the female entrepreneurs in our sample bricolage more than their male counterparts.

We also found a negative regression coefficient of the three-way interaction among dispositional promotion focus, environmental threat, and gender ($\beta = -0.246$, $p = 0.004$). Slope difference tests and simple slope analyses (Dawson and Richter, 2006) were further conducted (see Figure 4). The negatively significant slope of the line ($dy/dx = -0.480$, $p < 0.001$) depicting the relationship between environmental threat and bricolage for females with high promotion focus implies that high promotion-focused females engage in *more* bricolage when environmental threat is low. On the other hand, the slope of the relationship between environmental threat and bricolage for male entrepreneurs is not significantly different from zero ($dy/dx = -0.050$, $p = 0.600$). Considering also the slope difference test, which shows that the slope for females is significantly more negative than it is for males ($\Delta(dy/dx) = 0.431$, $p = 0.002$), we can conclude that high promotion focus weakens the relationship between environmental threat and bricolage to a larger extent for female than for male entrepreneurs. In other words, different from *high* promotion-focused male entrepreneurs, *high* promotion-focused female entrepreneurs engage more in bricolage in low-threat environments but will reduce bricolage as environmental threat increases.

Finally, the two-way interaction between gender and promotion focus ($\beta = 0.041$, $p > 0.1$) and that between gender and prevention focus ($\beta = 0.103$, $p > 0.1$) are not significant.

DISCUSSION

Bricolage can be a useful strategy (Baker and Nelson, 2005; Michaelis et al., 2022) to deal with resource constraints, innovate, and to thrive (Senyard, 2015; Senyard et al., 2009; Stenholm and Renko, 2016). In this paper, we seek to extend the theory of bricolage (Baker and Nelson, 2005) and challenge the predominant view of bricolage as a behavioural response to resource-scarce environments (Desa, 2012; Hota et al., 2019; Kickul et al., 2018). We unveil the importance of dispositional regulatory foci in influencing entrepreneurs' bricolage behaviour and examine how the influence of environmental threat on bricolage can be contingent on entrepreneurs' dispositional regulatory foci. We found that dispositional regulatory foci not only directly influence bricolage but also moderate the environmental threat – bricolage relationship. Our additional analyses also show that dispositional promotion focus weakens the environmental threat – bricolage relationship to a larger extent for female than for male entrepreneurs. The theoretical and practical implications of this research are discussed below.

Unravelling Individuals' Bricolage in Response to Resource Constraints

Existing bricolage research shows mixed findings and observations: some entrepreneurs bricolage in resource-constrained environments (Baker and Nelson, 2005; Desa, 2012; Hota et al., 2019; Kickul et al., 2018), whereas others do not (Baker and Nelson, 2005). By focusing on threatening environment as one type of resource-constrained context,

our research offers one explanation for the inconsistent findings; that is, the relationship between environmental threat and bricolage depends on entrepreneurs' level of dispositional regulatory focus. We found that environmental threat promotes bricolage only for entrepreneurs with low dispositional promotion or prevention focus, but reduces bricolage for entrepreneurs with high such dispositions. Our explanations are as follows. Prevention-focused entrepreneurs feel 'wrong' about bricolage because it is conceived as an eagerness means that involves trying and experimenting with resources at hand and that goes against their security orientation, preference for correct rejections, and avoidance of 'false alarms' (Bryant and Dunford, 2008; Crowe and Higgins, 1997; Higgins et al., 2001). As illustrated by Baker and Nelson (2005), the owner of an auto tech shop refused to bricolage unless he and his workers were confident that they could repair the automobile 'the right way as defined by standard procedures documented in shop manuals' (p. 340) and the services carried out are carefully governed. Furthermore, high-threat environments increase the chance for the imperfect, inefficient (Lanzara, 1999, p. 347), and temporary solutions out of bricolage (Powell, 2011, cited in Senyard et al., 2014) to experience errors and failures. Taken together, high environmental threat and high prevention focus lead to the lowest level of bricolage (see Figure 3).

In contrast, low-threat environments are characterized by many opportunities for profiting, available market share, and few competitors and regulatory changes, which all increase access to free or cheaply available resources and provide entrepreneurs with time and opportunities to profit from the novel products or services developed out of bricolage. Therefore, a high dispositional promotion focus that emphasizes ensuring 'hits' and obtaining gains may drive entrepreneurs to attend to and utilize the resources and opportunities available in the low-threat environments to bricolage (see Figure 2).

Desa and Basu (2013) stressed the strategic importance of bricolage for firms to build superior competencies in munificent environments and labelled it 'ideational bricolage'. The example they used is 'highly skilled scientists in countries with munificent conditions may be *self-driven* to donate their time and knowledge to the venture' (p. 33). But their research does not explain the 'self-driven' aspect of the example, which can be well supported by our finding that low-threat environments result in the highest level of bricolage for promotion-focused entrepreneurs. Michaelis et al. (2020) conclude that we know little about why some individuals behave resourcefully in environments with abundant resources, and find frugality personality to be one explanation. Extending their research, we show that entrepreneurs' dispositional promotion focus can be another explanation. Indeed, accumulating evidence highlights the strategic value of bricolage especially in stable business environments, e.g., enhancing firm performance (Senyard, 2015) and organizational growth (Bojica et al., 2018). Baker and Nelson (2005) also contend that many opportunities are enacted in the process of reusing and recombining resources, and alertness to resources is as important as alertness to opportunities. Our results extend this view by showing entrepreneurs' dispositional promotion focus as one trait that drives entrepreneurs to be alert to the resources in favourable low-threat environments that enable high levels of bricolage.

Our research also extends the emerging yet limited research on the antecedents of bricolage (see Liu et al., 2020; Michaelis et al., 2020; Stenholm and Renko, 2016). Existing research has found that bricolage can be facilitated by entrepreneurs' personal network (Liu et al., 2020), trait of frugality (Michaelis et al., 2020), and entrepreneurial passion as a cognitive-emotional state (Stenholm and Renko, 2016). Our research extends this literature by highlighting dispositional regulatory focus as a pivotal motivational driver of bricolage. Our results are consistent with the regulatory fit prediction that individuals' motivation to act is strong (weak) when there is a fit (non-fit) between their regulatory orientation and the goal pursuit means (Higgins, 2005). Performing bricolage may make promotion-focused entrepreneurs 'feel right' and prevention-focused entrepreneurs 'feel wrong' about the behaviour. As a result, promotion (prevention) focus enhances (reduces) bricolage. Our research echoes the perspective offered by Rauch, Frese, and Gielnik (Frese and Gielnik, 2014; Rauch and Frese, 2007), underscoring the imperative for entrepreneurship theories to comprehensively incorporate the pivotal role of entrepreneurs' inherent traits when scrutinizing business success.

The Effect of Gender

Our additional analyses also reveal novel findings related to gender. We first show a statistically significant positive relationship between gender and bricolage, indicating that female entrepreneurs in our sample perform higher levels of bricolage than their male counterparts. There are two potential explanations. First, our data were collected in Taiwan, where entrepreneurship is still perceived as a masculine occupation, fitting better for men than women. As a result, female entrepreneurs still face significant challenges, including gender stereotypes (Standard Chartered, 2019) and inequality (Terjesen and Lloyd, 2015), in accessing entrepreneurial resources, and the number of female-owned businesses is significantly lower than that of male-owned businesses (Hu et al., 2021). Those challenges may not only result in fewer external standard resources available for female entrepreneurs, but also make female entrepreneurs discouraged and less willing to acquire standard resources from outside. As a result, the female entrepreneurs in our sample rely more on constructing resources internally by reusing and recombining existing resources at hand. Second, women's communal characteristics (Eagly and Karau, 2002; Eagly and Steffen, 1984), such as high interpersonal orientation (Heilman, 1997), may equip them with stronger social ability and skills than their male counterparts to mobilize resources from their immediate social network to bricolage (Liu et al., 2020).

In addition to the direct effect of gender on bricolage, we also found gender differences in how dispositional promotion focus moderates the environmental threat–bricolage relationship. Specifically, different from promotion-focused male entrepreneurs, for whom environmental threat becomes irrelevant to bricolage (a non-significant relationship between the two), promotion-focused female entrepreneurs perform the highest level of bricolage in low-threat environments and will reduce bricolage as environmental threat increases (see Figure 4). One potential explanation is as follows. The salient gender stereotypes (Standard Chartered, 2019) and inequality (Terjesen and Lloyd, 2015) for women to acquire

entrepreneurial resources in our research context (i.e., Taiwan) lead promotion-focused female entrepreneurs to be more likely to use bricolage than external channels to solve resource problems, thereby resulting in the pattern that environmental threat negatively relates to bricolage for promotion-focused female entrepreneurs. But gender inequality may not exist for male entrepreneurs in our research context because they are perceived as agentic, powerful, and high in status (Eagly and Wood, 1999), and thus may have more access to resources. As a result, female entrepreneurs are more likely than their male counterparts to view low-threat environments as favourable conditions for them to perform bricolage, leading to the highest level of bricolage in low-threat environments by promotion-focused female entrepreneurs. In contrast, promotion-focused male entrepreneurs are motivated to bricolage due to the 'right' feeling generated by regulatory fit despite the level of environmental threat because they may have higher confidence in performing bricolage. Our findings thus may add new insights into regulatory fit theory by showing how regulatory fit predictions can be different for men and women.

Practical Implications

Our research has practical implications for entrepreneurs, investors, and policymakers. First, entrepreneurs are encouraged to learn about their dispositional regulatory focus and be aware of how much disposition interacts with environmental threats to influence bricolage. Specifically, low-threat environments can be favourable conditions for promotion-focused entrepreneurs, especially for female entrepreneurs, to bricolage, and thus should be made good use of. Entrepreneurs should also be made aware that, when facing high environmental threats, their co-entrepreneur who is reluctant to bricolage may have a strong prevention focus disposition due to the potential risks associated with bricolage. Therefore, if they decide to bricolage in such environments, they may avoid involving the prevention-focused co-entrepreneur but assign them to tasks that fit their prevention focus and yield positive outcomes (e.g., business idea screening and careful preparation before approaching resource providers) (Brockner et al., 2004; Byron et al., 2018).

Second, our findings have implications for investors. We show that entrepreneurs with a strong promotion-focused disposition generally perform higher levels of bricolage than those with weak promotion-focused disposition in environments with various levels of threat. As bricolage enables entrepreneurs to create new business opportunities (Alvarez and Barney, 2007) rather than discovering existing opportunities (Baker and Nelson, 2005), investing in promotion-focused entrepreneurs, especially those operating in low-threat environments, may lead to the creation of new and innovative products or services.

Third, governments can design support programs for entrepreneurs to learn about bricolage as a strategic approach to generate resources and innovations, how it may be influenced by an entrepreneur's regulatory foci, and low-threat environments as enabling conditions for promotion-focused entrepreneurs to bricolage. Such programmes may benefit not only promotion-focused entrepreneurs by enhancing their bricolage abilities but also prevention-focused entrepreneurs, if they are willing to partner with promotion-focused co-entrepreneurs to take advantage of some enabling conditions and reap the benefits of bricolage.

Limitations and Future Research

Our research has several limitations that suggest opportunities for future research. First, due to the nature of surveys, this research cannot completely rule out alternative explanations (e.g., entrepreneurs' social networks) for the effect of dispositional regulatory focus on bricolage and the relationship between environmental threat and bricolage. The best way to empirically rule out alternative explanations and confounding effects is a randomized experiment (Hsu et al., 2017). Since dispositional regulatory focus is a trait that develops in childhood, it cannot be manipulated via experimental methods. Consequently, studies on dispositional regulatory focus often use established scales to measure regulatory focus (e.g., Hmieleski and Baron, 2008; Wu et al., 2008), and the existence of alternative explanations is always a limitation. Thus, future research can find ways to feasibly capture alternative explanations and control for their influences.

Second, regulatory focus can be both dispositional and situational (i.e., temporarily provoked by 'salient environmental stimuli which override relatively permanent predispositions such as chronic regulatory focus') (Wu et al., 2008, p. 589). In this paper, we only focus on dispositional regulatory focus but do not test the effect of situational regulatory focus, because previous studies demonstrate that these two types of regulatory focus can have the same effect on goal pursuit (Higgins, 2000). Future research can investigate whether negative environmental stimuli may trigger situational prevention focus in entrepreneurs and further influence their bricolage behaviour. If this relationship can be supported, entrepreneurs should be aware of the power of negative environmental stimuli and search for ways to offset their influence, so that they would bricolage more and benefit from it.

Third, we used ex ante design remedies and ex post techniques to mitigate common method bias concerns, which do not seem to be a major issue of our research. However, it is possible that individuals' dispositional regulatory focus may influence their perception of the environment (measured by a scale) in our research. Indeed, people's perception of the external environment may be shaped by their personality. Yet, this perception can also be affected by other factors, such as own ability (Bandura, 1989) and social network (Nowiński and Rialp, 2016). In fact, Table III in our research shows that (the perception of) environmental threat is positively related to both promotion and prevention focus dispositions. That is, entrepreneurs with a stronger promotion-focused disposition in our sample perceived stronger environmental threat. This intuitively seems to contradict regulatory focus theory and suggests that the mechanism for regulatory focus dispositions to affect people's perceived environmental threat may be more complicated than what can be predicted by regulatory focus or regulatory fit theory. Even for people with a strong prevention-focused disposition who perceive a strong environmental threat, how the perceived threat affects their bricolage behaviour still depends on the strength of their promotion and prevention dispositions, according to our theorizing and findings. Future research may use experiments to manipulate environmental conditions to mitigate the common method bias concern.

Fourth, although threatening environments are marked by resource constraints, we did not measure resource constraints in this research. Given the insignificant relationship between environmental threat and bricolage found in our results, future research can measure resource scarcity directly and examine if its effect on bricolage can be contingent on other factors.

Finally, though we vigorously increase our sample representativeness by obtaining data from businesses that operate in different regions in Taiwan, it is possible that the sample was not truly representative of all entrepreneurs in Taiwan. As the Taiwanese government levels up its support for entrepreneurs, entrepreneurs in Taiwan may perceive the economic threat as less severe compared to entrepreneurs in other countries with lower government support. This could be another reason for why the assumed positive relationship between adverse environments and bricolage in the majority of prior studies is not supported in our data. Our study context also limits the generalizability of our results. Thus, we encourage future studies to utilize data gathered in other geographic locations in and outside Taiwan to fully evaluate the extent to which our findings can be generalized to other groups of entrepreneurs.

CONCLUSION

Despite the prevailing notion that resource-constrained environments universally drive entrepreneurs to engage in bricolage, our study reveals a significant subset of entrepreneurs who intendedly choose not to employ bricolage tactics. This finding challenges the conventional understanding and underscores the need to explore the nuanced conditions under which bricolage emerges in resource-constrained environments. Moreover, our paper contributes novel and defensible evidence by delving into the intersection of regulatory fit theory and bricolage. By demonstrating how dispositional promotion and prevention foci displace the relationship between environmental threat and bricolage, we provide a fresh perspective on the underlying mechanisms driving entrepreneurs' bricolage behaviour. This nuanced understanding not only enriches scholarly discourse but also offers practical insights for entrepreneurs navigating resource-constrained environments.

NOTES

- [1] Journals used to screen articles for the systematic literature review. This basket of top journals is used in many reviews of the literature (Crossan and Apaydin, 2010; Hsu et al., 2017; Überbacher, 2014) and includes the following journals: *Academy of Management Journal*, *Academy of Management Review*, *American Journal of Sociology*, *American Sociological Review*, *Administrative Science Quarterly*, *Journal of Management*, *Journal of Management Studies*, *Organization Science*, *Organization Studies*, *Journal of Business Venturing*, *Entrepreneurship Theory and Practice*, *Entrepreneurship and Regional Development*, *Regional Studies*, *Strategic Entrepreneurship Journal*, *Strategic Management Journal*, *International Small Business Journal*, *Journal of Small Business Management*, *Small Business Economics*, *Research Policy*, and *Journal of Product Innovation Management*.
- [2] One should not ignore that this indication is contingent on the robustness of our theoretical arguments (Appendix 1) 'appealing to economic behavior or introspection' (Wooldridge, 2015, p. 514).
- [3] Although we estimate two models with 2SLS in Table V (Models 5 and 6), we report the 2SLS statistics based on the full model (Model 6) in the text. We take this step to ensure parsimony since we observe that statistics for both models provide identical implications. Please refer to Table V for the full set of 2SLS statistics, including the ones for Model 5.

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APPENDIX 1

Partial correlations and impacts used in ITCV analysis

Variable	Dispositional promotion focus ITCV = 0.152			Dispositional prevention focus ITCV = -0.126		
	$\rho_{xu,z}$	$\rho_{yv,z}$	Partial impact	$\rho_{xu,z}$	$\rho_{yv,z}$	Partial impact
Environmental dynamism	0.271	0.019	0.005	0.049	-0.058	-0.003
Education	0.062	0.137	0.009	0.012	0.121	0.001
Self-employed only	-0.100	-0.105	0.011	0.057	-0.093	-0.005
Entrepreneur's start-up experience	-0.003	-0.028	0.000	0.034	-0.034	-0.001
Firm age	-0.023	0.023	-0.001	0.043	0.020	0.001
Firm size	0.053	-0.064	-0.003	0.006	-0.079	-0.001
Gender	-0.017	0.157	-0.003	-0.050	0.172	-0.009
High-tech industry	-0.058	0.051	-0.003	0.030	0.060	0.002
Investment (log)	-0.010	-0.046	0.000	0.146	-0.075	-0.011
Hours invested (log)	-0.011	0.007	0.000	-0.071	0.024	-0.002
Past performance	0.082	0.082	0.007	0.090	0.043	0.004
Dispositional [prev./prom.] focus*	-0.046	-0.214	0.010	-0.046	0.248	-0.011
Environmental threat	0.169	0.062	0.010	0.200	-0.022	-0.005

Note: Row indicated with “*” shows values for dispositional prevention (promotion) focus when dispositional promotion (prevention) focus columns are considered. The *highest partial impact* (0.011) is chosen as the benchmark for the ITCV analysis of *dispositional promotion focus* given the hypothesized relationship of this variable with bricolage is *positive*, whereas the *lowest partial impact* (-0.011) is chosen for *dispositional prevention focus* given the hypothesized relationship of this variable with bricolage is *negative* (see Larcker and Rusticus, 2010). Given the usability of ITCV is established only for non-interaction terms, we utilize it for our Model 3, in Table V. Further, similar to ITCV, we also assessed the robustness of inference to replacement (RIR), indicating the number of observations of the variables of interest that would have to be set to 0 so that the inference of an effect would be under question. Results of our RIR analyses suggest that 59 per cent (i.e., 233) of all observations for dispositional promotion focus and 54 per cent (i.e., 213) of all observations for dispositional prevention focus had to be replaced to hurt our inferences. These high numbers of required replacements for invalidation also indicate that omitted variables would unlikely induce a significant bias in our regressions.

APPENDIX 2
External instruments used in 2SLS estimations

Measurement items	Standardized loadings (t-value)
Work family conflict: $\alpha = 0.91$; CR = 0.91; AVE = 0.68	
The demands of running this business interfere with my home and family life	0.80 (1.00)
The amount of time for running this business makes it difficult to fulfil family responsibilities	0.88 (18.11)
Things I want to do at home do not get done because of the demands of running this business	0.89 (18.69)
Running this business produces a strain that makes it difficult to fulfil family duties	0.77 (15.22)
Due to work-related duties of running this business, I have to make changes to my plans for family activities	0.78 (14.89)
Entrepreneurial regret: $\alpha = 0.95$; CR = 0.95; AVE = 0.79	
I have regretted setting up this venture	0.84 (1.00)
I am upset for starting this venture	0.86 (17.09)
I should have chosen a different job than to start this venture	0.89 (18.25)
I did not make a good choice in choosing this venture's opportunity.	0.93 (19.70)
I wish I could find a job rather than working on this venture	0.91 (18.73)
It was not a good decision for founding this venture	0.90 (17.99)

Note: Work–family conflict scale is adapted from Netemeyer et al. (1996), whereas entrepreneurial regret scale was developed for this study in line with Hsu et al. (2019).

APPENDIX 3
First-stage regression results for 2SLS estimations

	(1)	(2)	(3)	(4)
Variable	Dispositional promotion focus	Dispositional prevention focus	Disp. promotion foc. $\times$ env. threat	Disp. prevention foc. $\times$ env. threat
Work–family conflict	0.144 (0.169)	1.405*** (0.260)	−0.103 (0.213)	0.631 (0.476)
Work-family conflict ²	−0.024 (0.020)	−0.141*** (0.026)	0.010 (0.023)	−0.069⁺ (0.047)
Entrepreneurial regret	−0.389⁺ (0.237)	−1.071*** (0.260)	−0.072 (0.191)	−1.034*** (0.308)

(Continues)

APPENDIX 3 (Continued)

	(1)	(2)	(3)	(4)
Variable	Dispositional promo- tion focus	Dispositional prevention focus	Disp. promotion foc. × env. threat	Disp. prevention foc. × env. threat
Entrepreneurial regret ²	0.036 (0.037)	0.164*** (0.035)	0.006 (0.026)	0.116*** (0.036)
Environmental threat ²	0.211 (0.249)	−0.992** (0.501)	0.442 (0.425)	−2.196*** (0.757)
Ent. regret × Env. threat ²	−0.345⁺ (0.218)	0.742* (0.386)	0.140 (0.391)	1.777*** (0.611)
Ent. regret ² × Env. threat ²	0.115** (0.053)	−0.150* (0.088)	−0.140⁺ (0.096)	−0.365** (0.144)
Ent. regret ³ × Env. Threat	0.001* (0.001)	−0.002* (0.001)	0.001 (0.001)	0.004** (0.002)
Ent. regret ³ × Env. threat ²	−0.010*** (0.004)	0.009 (0.006)	0.019*** (0.007)	0.021** (0.011)
Environmental threat	−0.037 (0.084)	0.413** (0.181)	−0.162 (0.117)	−0.287 (0.294)
Firm size	0.001 (0.002)	−0.002 (0.002)	0.002 (0.002)	−0.003 (0.003)
Firm age	0.002 (0.028)	0.022 (0.026)	−0.030 (0.027)	−0.026 (0.036)
Entrepreneur’s start-up experience	0.016 (0.035)	0.024 (0.032)	0.031 (0.033)	0.072 (0.052)
Education	0.039 (0.039)	−0.001 (0.048)	−0.029 (0.036)	−0.074 (0.063)
Self-employed only	−0.158* (0.085)	0.124 (0.095)	−0.002 (0.079)	−0.012 (0.131)
Gender	−0.031 (0.091)	−0.141 ⁺ (0.093)	−0.075 (0.084)	−0.161 (0.125)
Investment (log)	−0.032 (0.055)	0.150** (0.058)	0.065 (0.052)	−0.067 (0.075)
Hours invested (log)	−0.006 (0.154)	−0.182 (0.155)	−0.269** (0.110)	−0.210 (0.184)
Environmental dynamism	0.240*** (0.048)	0.044 (0.042)	0.086** (0.041)	0.053 (0.062)
High-tech industry	−0.097 (0.084)	0.046 (0.093)	−0.001 (0.078)	0.081 (0.116)

(Continues)

APPENDIX 3 (Continued)

	(1)	(2)	(3)	(4)
Variable	<i>Dispositional promotion focus</i>	<i>Dispositional prevention focus</i>	<i>Disp. promotion foc. × env. threat</i>	<i>Disp. prevention foc. × env. threat</i>
Past performance	0.061 (0.058)	0.127** (0.055)	0.013 (0.051)	0.095 (0.069)
Constant	−0.125 (0.996)	−4.242*** (1.314)	0.162 (0.927)	2.238 (1.622)
Observations	396	396	396	396
R-squared	0.240	0.394	0.582	0.386
F-stat.	12.473	12.110	213.410	34.714
Prob F	0.000	0.000	0.000	0.000

Note: Robust standard errors in parentheses. Significance levels: + $p < 0.15$, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. First-stage regressions and heteroskedasticity-robust F-statistics are provided for excluded instruments (see Table V, Model 6). The critical value suggested by Stock and Yogo (2005) for the first-stage F-statistic is 4.18 for a 10 per cent bias in LIML estimation size. In line with Bun and Harrison (2019), functional forms of endogenous regressors (*dispositional promotion focus*, *dispositional prevention focus*, *dispositional promotion foc. × env. threat*, and *dispositional prevention foc. × env. threat*) are approximated using interactions among polynomial functions of excluded instruments (i.e., *work–family conflict* and *entrepreneurial regret*) and an included instrument (i.e., *environmental threat*). Also ‘to economize on the number of instruments’ (Bun and Harrison, 2019, p. 822) and optimize the F-statistics for all four endogenous variables, only certain low-order polynomials and interaction terms are included in first-stage regressions (e.g., Chevalier et al., 2013; Chung et al., 2023; Sharma et al., 2020). Polynomials and interaction terms are also used when instrumenting only *dispositional promotion focus* and *dispositional prevention focus* (see Table V, Model 6) since their inclusion alleviates identification issues which can arise from instrumentation of two endogenous variables simultaneously with two moderately correlated variables (i.e., *work–family conflict* and *entrepreneurial regret*, $r = 0.214$), in a relatively small sample (see Angrist and Krueger, 2001; Fisher, 1965).

APPENDIX 4

Detailed arguments concerning the relevance of instruments used for 2SLS

The relevance criterion requires that the instruments chosen for 2SLS estimation are strongly related to the variables that are suspected to be endogenous. In addition to the strong first stage F-statistics in Appendix 3, we hereby provide theoretical arguments on why and how our instruments would be related to prevention and promotion focus variables, which are suspected to be endogenous in our analyses (Papies et al., 2017).

We argue that our work–family conflict (WFC) variable capturing the three dimensions (i.e., time-, strain-, and behavioural-based) of WFC is negatively related to promotion focus and positively related to prevention focus. A recent meta-analysis shows that dispositions such as promotion focus, which are positively related to risk tolerance, may increase inspiration, imagination, and participation of individuals, thereby alleviating job-related social and well-being problems (Gonzalez et al., 2022). On the other hand, negative trait-related dispositions, such as prevention focus, are found to aggravate all WFC dimensions (Allen et al., 2012). Furthermore, people with high promotion focus are more likely to accomplish productivity-related tasks faster (Wallace and Chen, 2006), have more time for their family, and experience less *time-based WFC*. On the other hand, individuals with high prevention focus are shown to sacrifice speed to avoid any negative outcomes such as accidents and mistakes, draining their time to result in higher *time-*

based WFC (Wallace and Chen, 2006).

Highly promotion-focused individuals also cope better with stress from challenging and engaging work (Byron et al., 2018), decreasing the likelihood of *strain-based WFC*. Since such stress leads to emotional exhaustion in the highly prevention-focused individuals (Delegach and Katz-Navon, 2021), chances of observing a *strain-based WFC* for these individuals are higher. Moreover, research shows that individuals with a high promotion focus are more likely to find harmony and synergies between their work and family roles when work engagement is high, making a work-family-life-overlap inevitable (as in case of entrepreneurs) (Chen and Powell, 2012). However, individuals with high prevention focus rather consider such an overlap as an avoidable loss of psychological and material resources and thus experience higher *behavioural-based WFC* (Chen and Powell, 2012).

We argue that our second instrumental variable, i.e., entrepreneurial regret (ER), is also a relevant instrument since it will be related to promotion and prevention focus. ER can be 'defined as regret for entering entrepreneurship' and 'can result from the very nature of entrepreneurial activities, which are often characterized by long hours, heavy workload, financial risk, irregular income and challenges in balancing work and family' (Hsu et al., 2019, pp. 217–18). Entrepreneurs with a high promotion focus would be more comfortable with taking risks and entering entrepreneurship, and feel less regret for doing so even if they face unmet expectations. This is because, in a counterfactual scenario where they had not acted entrepreneurially, they would have faced higher chances of missing opportunities, leading to ER (Hatak and Snellman, 2017). Furthermore, studies also argue that the way entrepreneurs handle stress may relate to ER (Hsu et al., 2019). Given that entrepreneurs with a high prevention focus will be worse at handling stress arising from intense workload associated with entrepreneurship (Byron et al., 2018; Delegach and Katz-Navon, 2021), they will experience higher levels of regret after entering entrepreneurship, regardless of the outcomes. Finally, entrepreneurs with high prevention focus will put high emphasis on negative outcome prevention and would be more likely to experience ER. This is the case since entrepreneurial activities involve highly volatile outcomes with both upside and downside risks, but the materialization of the downside risks would *ceteris paribus* result in more regret for entrepreneurs who treasure *avoiding pain*. On the other hand, entrepreneurs with high promotion focus would feel less regret when downside risks materialize as negative outcomes, since their focus is rather on *approaching pleasure* by achieving positive outcomes.

In addition to the above theoretical arguments, we further investigated the argued relationships empirically. In fact, when we regressed WFC on promotion and prevention focus along with our controls, we observed a significant negative and positive coefficient, respectively ($\beta = -0.091$, $p < 0.05$ and $\beta = 0.238$, $p < 0.001$; unreported models) in line with our arguments. Similarly, we also found significant coefficients of ER in the argued direction when it was regressed on promotion and prevention focus ($\beta = -0.092$, $p < 0.01$ and $\beta = 0.215$, $p < 0.001$; unreported models), supporting our theoretical reasoning.

APPENDIX 5

Detailed arguments concerning the exogeneity of instruments used for 2SLS

For our instruments to be valid instruments, they must also fulfil the instrument exogeneity criterion in addition to the relevance criterion (Wooldridge, 2015a). In other words, the work-family conflict (WFC) and entrepreneurial regret (ER) scales we utilize as instruments should not suffer from the same reverse causality problem between bricolage and dispositional regulatory focus variables explained in the manuscript. Upholding this exogeneity criterion is, however, less straightforward than the relevance criterion, especially when there is only a single instrument. When there is more than one instrument (as in this study), empirical tests can be used to affirm the fulfilment of exogeneity criterion; however, the reliability of these tests is still contingent on *at least one* instrument being *theoretically* exogenous (Bascle, 2008; Wooldridge, 2015a).

We argue that failure or success in bricolage would not affect the WFC of entrepreneurs. Although successful entrepreneurs may find the resources granting them flexibility as well as autonomy to reduce their workload to increase their work-family balance (Parasuraman and Simmers, 2001), their intrinsic motivation, high job involvement, and continuously increasing aspirations rarely allow them to do so (Begley and Boyd, 1987). Thus, entrepreneurs prioritize their work at the expense of their family relations regardless of the success, as one entrepreneur puts it: 'I take credit for my success, and I accept the blame

for my success. For these reasons, I really do not have boundaries between my work and nonwork activities' (Adisa et al., 2019, p. 1642). Research also offers empirical insignificance of the relationship between job performance and WFC in contexts characterized by high job involvement and intrinsic motivation, such as health work (Odle-Dusseau et al., 2012).

We also argue that there would not be a clear relationship between failure or success in bricolage and ER, making ER an exogenous instrument. Since bricolage is solely a behaviour about creating resources, it is less likely that entrepreneurs failing in bricolage regret their decisions to engage in entrepreneurship. Further, the relationship between feeling regret and bricolage can be ambiguous given that bricolage focuses on making do with what is at hand and may result in second-best solutions (Steffens et al., 2023). Although it is possible to think that entrepreneurs may feel regret if they fail in bricolage, they may also feel regret even if they succeed in bricolage and realize that they could have achieved even more had they tried to utilize more external resources to exploit the opportunity (Arora et al., 2013).

Thus, we argue that WFC and ER fulfil the instrumental exogeneity criterion given that they are unlikely to be correlated with the success or failure of bricolage activities. Accordingly, we use our instruments as well as their polynomial forms (see Bun and Harrison, 2019) to tackle the endogeneity concerns as reported in the results section.