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The dualistic regulatory effect of passion on the relationship between fear of failure and negative affect: Insights from facial expression analysis[☆]

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ABSTRACT

Across two studies, we theorize and empirically investigate passion as a moderator of the negative affective consequences of fear of failure in early-stage entrepreneurship. We test our hypotheses in two field studies of naturally occurring affective events—namely, pitching competitions—and we complement self-reported measures of negative affect with physio-psychological measures obtained from analyzing entrepreneurs' facial expressions. The results confirm that in failure-relevant situations, dispositional fear of failure may lead to higher negative affect depending on the dualistic regulatory effect of passion—harmonious passion dampens the influence of fear of failure on negative affect (Studies 1 and 2), while obsessive passion magnifies this effect in Study 1 but dampens it in Study 2, thus showing mixed evidence. Our work is one of the first to investigate how early-stage entrepreneurs experience negative affect during typical entrepreneurial events as a result of their dispositional traits and their type and level of passion.

Executive summary

When entrepreneurs experience negative affect in the early stages of venturing, they face a host of detrimental consequences, such as reduced opportunity exploitation, obstructed learning, narrower goals, and thus possibly a reduced likelihood of venture success and survival. Moreover, since negative affect is contagious, it is likely to have negative consequences beyond the entrepreneur and impact those with whom the entrepreneur interacts: the founding team; new venture employees; and external stakeholders, such as investors and customers. Despite negative affect's important harmful effects on entrepreneurs' thinking, behavior, and interactions and on venture success, there is very little empirical research on the antecedents of entrepreneurs' negative affect as they perform entrepreneurial tasks. Our study aims to fill this important gap in the literature by responding to calls for more research on the antecedents of negative affect in entrepreneurship.

In the current study, we build on the tenets of affective events theory (AET) and examine the degree to which early-stage

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entrepreneurs experience negative affect during events typical of their profession. Building on the identity literature and the dualistic model of passion, we differentiate between harmonious and obsessive passion, acknowledge that there are different identity mechanisms behind their functioning, and investigate their differential moderating effect on the positive relationship between dispositional fear of failure and negative affect in the entrepreneurial context. We test our hypotheses in two field studies of pitching competitions, which are naturally occurring affective events in which fear of failure likely generates negative affect, and we complement self-reported measures of negative affect with physio-psychological measures obtained from a facial expression analysis of entrepreneurs. The results indicate that entrepreneurs high in fear of failure experience more negative affect and that passion moderates this relationship between fear of failure and negative affect in different ways depending on its type: harmonious passion dampens the positive influence of fear of failure on negative affect (Studies 1 and 2), while obsessive passion magnifies this “fear of failure” effect in Study 1 but dampens the effect in Study 2, indicating that the relationship is more complex.

Our findings offer several important contributions. First, this paper is one of the first to investigate negative affect's antecedents in entrepreneurship beyond business failure. Building on AET and the identity literature, our study provides a rationale for why and how entrepreneurs' stable dispositional traits and the processes underlying their entrepreneurial identity relate to situational outcomes, such as negative affect. Shedding light on the antecedents of negative affect in the entrepreneurial process might help entrepreneurs understand their affective experiences better and thus make them more equipped to deal with negative affect and its detrimental consequences.

Second, we contribute to the growing literature on fear of failure in entrepreneurship. Unlike existing research, which is dominated by a static focus on fear of failure, the current study considers fear of failure as a latent potential residing in the individual, a dispositional propensity responsive to events in the entrepreneurial process. Therefore, our study provides new insights into the conditions under which beliefs and cognitive schema stemming from fear of failure are activated, which is critical for understanding fear of failure and its impact on affective experiences.

Finally, the current study is unique in that it theoretically and empirically examines a different function of passion in the entrepreneurial process—specifically, passion's role in governing the generation of entrepreneurs' negative affective experiences. While many studies have connected entrepreneurs' passion to positive affect, in this study, we find that passion also plays an important role in the experience of negative affect. In particular, our results offer empirical evidence that harmonious passion dampens the development of negative affect stemming from fear of failure. Since experiencing negative affect is generally detrimental for early-stage entrepreneurs, entrepreneurs should try to nurture harmonious passion.

1. Introduction

In the earliest stages of venturing, uncertainty is high, missteps are numerous, and pressures are great. Under such conditions, it is not surprising that entrepreneurs experience negative affect, such as fear, anxiety, and worry (Patzelt and Shepherd, 2011). These negative affective experiences can be detrimental because negative affect has been found to reduce opportunity recognition (Perry-Smith and Coff, 2011; Tang et al., 2012), evaluation, and exploitation (Foo, 2011; Grichnik et al., 2010; Welpe et al., 2012). Moreover, negative affect has been shown to be detrimental to learning (Shepherd, 2003; Shepherd et al., 2013) and to lead to a narrow set of goals (Delgado-García et al., 2012), withdrawal intentions (Pollack et al., 2012b), and less motivation to try again after business failure (Shepherd et al., 2009). Furthermore, the literature from neighboring fields suggests that negative affect could also lead to reduced creativity (Isen, 2000) and the use of less effective stress-coping strategies (Carver and Scheier, 2001) and could inhibit the formation of strong relationships (Brundin et al., 2008), all of which could be detrimental to new venture success (Baron and Tang, 2011; Davidsson and Honig, 2003). Moreover, unrelenting negative affect can take a toll on entrepreneurs' mental health, leading to negative well-being or burnout (Watson and Pennebaker, 1989).

Since negative affect can be contagious (Barsade, 2002), it is likely to have negative consequences not only for the entrepreneur but also for others with whom the entrepreneur interacts: the founding team; new venture employees; as well as external stakeholders, such as investors or customers. For instance, negative affect tends to increase conflict between individuals who work together (Barsade, 2002), such as cofounders of a new venture, and to diminish the chances of attaining optimal outcomes in negotiations (Forgas, 1998). Moreover, negative affect transferred to investors during pitch presentations might lead investors to negatively interpret pitching entrepreneurs' motives and pay more attention to negative information in the pitches (Forgas, 1995), leading to less favorable evaluations of new ventures (Burger and Caldwell, 2000).

Despite negative affect's important detrimental effects on entrepreneurs' thinking, behavior, and interactions (Baron, 2008; Foo, 2011; Foo et al., 2009; Grichnik et al., 2010) and on venture success and survival (Baron, 2008; Hayton and Cholakova, 2012), there is very little research on the antecedents of negative affect in entrepreneurship. The few studies that have explored the antecedents of negative affect in entrepreneurship have focused on business failure as an antecedent of the negative affective experience of grief (Jenkins et al., 2014; Shepherd, 2003). The theoretical and empirical focus on the *consequences* of negative affect in entrepreneurship calls for new research to analyze the *antecedents* of entrepreneurs' negative affect beyond business failure and explain how entrepreneurial tasks might influence the development of negative affective states. Our study aims to fill this gap in the literature by responding to calls for research on the antecedents of negative affect in entrepreneurship (Cardon et al., 2012; Delgado García et al., 2015). The purpose of this research is to investigate how early-stage entrepreneurs experience negative affect during events typical of their profession as a result of fear of failure and how entrepreneurs' passion moderates this relationship. The novelty of our approach to investigating the determinants of negative affect in entrepreneurship stems from (1) our field study setting—pitching competition events, at which we collected entrepreneurs' negative affect as it naturally happened as a consequence of activated fear of failure (i.e., in real time)—and (2) the introduction of the harmonious and obsessive passion moderators, which we hypothesize have differential

moderating effects on the relationship between fear of failure and negative affect.

The findings from this study make several contributions. First, we contribute to the literature on affect in entrepreneurship by investigating negative affect's antecedents in the entrepreneurial context. So far, the literature on affect in entrepreneurship has mainly focused on the consequences of negative affect or on the antecedents of aggregated affective constructs, such as job satisfaction or burnout. Responding to calls for research on the antecedents of negative affect in entrepreneurship beyond business failure (Cardon et al., 2012; Delgado García et al., 2015), our work explores what causes active early-stage entrepreneurs to experience negative affective states. We do so by combining two different positions on the predictability and consistency of affective expressions across situations: dispositionism and situationism. Entrepreneurship is especially abundant in affective events, such as pitching competitions, but these events are still under-investigated as contexts in which individuals experience negative affect (Morris et al., 2012) despite AET informing us that state affect is elicited by events (Weiss and Cropanzano, 1996). Against this background, we highlight the intersection between entrepreneurs' inner and outer environments and contribute to the literature on affect in entrepreneurship by theorizing and empirically demonstrating how negative affect is determined by the interaction of entrepreneurs' dispositional traits and environmental events.

Second, we contribute to the literature on fear of failure in entrepreneurship. With some notable exceptions (Cacciotti et al., 2016; Kollmann et al., 2017), existing research has not explained much about fear of failure as it relates to the interaction between the person and the entrepreneurial context. Rather, the literature is dominated by a static focus on fear of failure as an impeding factor for entry into entrepreneurship (Arenius and Minniti, 2005). Such an approach leads to a limited understanding of the processes underlying how entrepreneurs experience fear of failure *during* the entrepreneurial process.

Third, our results contribute to the literature on passion in entrepreneurship. The current study is unique in that it theoretically and empirically examines a different function of passion in the entrepreneurial process—specifically, passion's role in modulating entrepreneurs' negative affective experiences. While many studies have connected entrepreneurs' passion to positive affect (e.g., Cardon, 2008; Cardon et al., 2009), our theorizing and empirical findings indicate that passion also plays an important role in how entrepreneurs' fear of failure impacts their experience of negative affect while they are engaged in typical entrepreneurial activities. In particular, we report interesting differences between harmonious and obsessive passion, which have important implications for research.

2. An integrative view on the antecedents of entrepreneurs' negative affect

Whereas we do not know much about why entrepreneurs experience negative affect in their profession, researchers in the neighboring fields of social psychology and organizational behavior investigated the antecedents of state negative affect in samples of students and employees. First, these studies uncovered individuals' dispositional traits (Gray, 1994), such as neuroticism (Eysenck, 1990), narcissism (Stucke and Sporer, 2002), dispositional negative affectivity (Fisher, 2002), and fear of failure (Elliot, 1997; Martin and Marsh, 2003), as antecedents of state negative affect. Second, they looked into self-activity nexus constructs,¹ such as self-efficacy (Jerusalem and Schwarzer, 1992), work autonomy (Sheldon et al., 1996), role conflict (Fisher, 2002), and passion (Vallerand et al., 2003). Third, they investigated situational variables, such as the work environment (Kiefer, 2005; Peters et al., 1980), organizational and strategy change (Huy et al., 2014; Kiefer, 2005), social interactions (McIntyre et al., 1990), and stressful life events in general (Cohen et al., 1993).

While the findings of these previous works provide valuable insights into the broader category of antecedents of negative affect in general life domains and in work settings, the great majority of this research was conducted in universities or in large established organizations and with students or employees rather than new venture founders. This raises the question of whether such effects would ever occur in new ventures and among early-stage entrepreneurs. Although very little empirical evidence on this issue is currently available, there appear to be reasons for suggesting that the process of new venture creation is very likely to stimulate negative affective experiences. Specifically, because of the extreme uncertainty and unpredictability of entrepreneurship, the high personal risk to entrepreneurs, the close bond between entrepreneurs and their ventures, and the varied and ever-changing tasks entrepreneurs face (Baron, 2008), entrepreneurship is a particularly interesting setting for studying negative affective experiences that can provide important unique insights above and beyond what has previously been uncovered regarding the antecedents of general or work-related negative affect. Therefore, we seek to extend previous research by shedding light on some of the antecedents of negative affect in the entrepreneurial context. Building on the social psychology and organizational behavior lead outlined above, in the current study, we theorize about how dispositional and self-activity nexus factors interact to determine the level of negative affect experienced within the entrepreneurial context. Specifically, building on the tenets of AET (Weiss and Cropanzano, 1996), which explains how negative affective responses to work events vary based on individuals' dispositional traits and the importance of events for individuals' self-concept, we examine the effect of entrepreneurs' dispositional fear of failure and passion on their experience of negative affect during typical events within the entrepreneurial context. Moreover, building on work on identity relevance (Burke, 1991; Thoits, 1991) and the dualistic model of passion (Vallerand et al., 2003), we differentiate between harmonious and obsessive passion, acknowledge that there are different identity mechanisms underlying each type of passion, and theorize and empirically investigate their differential moderating effect on the positive relationship between dispositional fear of failure and

¹ Self-activity nexus constructs are not attributes of the individual (*a la* trait) nor a quality of the activity that the individual engages in (*a la* situational) (c.f. Cardon et al., 2005) but refer to self-concepts or attitudes that refer to a specific domain and reflect the standing of the self in that particular activity or task (Bandura, 1997).

negative affect.

We chose to embed our theorizing in the context of early-stage entrepreneurship because early-stage entrepreneurs² are more likely to experience negative affect than entrepreneurs in later stages. In early-stage venturing, entrepreneurs are more likely to experience high psychological ownership over the success or failure of their new ventures. Indeed, at this stage, it is almost exclusively entrepreneurs' efforts and decisions that move early-stage ventures forward (Davidsson and Honig, 2003). The chances of new venture success overall depend on success in this vital stage. During early-stage venturing, numerous start-up activities occur, and many risky decisions are made, including decisions related to purchasing equipment and facilities, securing financial support, developing prototypes, organizing the team, hiring employees, and deciding whether and when to work full time in the venture (Carter et al., 1996). Early-stage entrepreneurs have heavy workloads and numerous commitments, face high personal and business risks as well as high-pressure evaluative situations (Harris et al., 1999; Stroe et al., 2018), and are thus highly likely to experience negative affect.

3. Fear of failure, affective events, and negative affect

In the earliest stages of venturing, entrepreneurs frequently face pressure-inducing situations. Some entrepreneurs enjoy the excitement of such events, while others respond with increased negative affect to such circumstances. AET (Weiss and Cropanzano, 1996) provides a framework for predicting the causes of individuals' affective reactions in the work context, modeling individual affective variability in response to experiencing a single affective event. Specifically, AET builds on an interactionist perspective, integrates two relatively opposing positions regarding the antecedents of affective experiences (i.e., dispositionism and situationism), and looks at affect as a function of individual determinants and contextual aspects. In particular, AET acknowledges that situational affective states are jointly influenced by individuals' affective dispositional traits and by affective events in situational contexts that interfere with individuals' predisposed patterns. Dispositional traits thus act as latent predispositions and manifest themselves only under particular environmental conditions; they predispose individuals to respond with greater or lesser intensity to either positive or negative events (Weiss and Cropanzano, 1996). In the following sections, we build on AET to investigate how entrepreneurs' dispositional fear of failure leads them to experience of negative affect.

Fear of failure is an avoidance-based motive disposition in the achievement domain (Atkinson, 1957; Elliot and Thrash, 2004). As a domain-general dispositional trait (Elliot and Church, 1997), fear of failure serves an orienting function in achievement situations. Entrepreneurs with dispositional fear of failure have learned that failure is associated with aversive consequences, such as shame, guilt, and unworthiness, and have internalized such aversive consequences of failing into beliefs and cognitive schemas (Conroy and Elliot, 2004; Elliot and Thrash, 2004). For an entrepreneur with high fear of failure, failure indicates global incompetence and carries the message that one is unworthy of appreciation. Thus, fear of failure establishes a framework for how an entrepreneur defines and experiences failure and, consequently, feels, thinks, and acts in competence-relevant settings (Heckhausen, 1975). Previous research on fear of failure in entrepreneurship has suggested that the cognitive and behavioral consequences of dispositional fear of failure can be both detrimental and beneficial. For example, fear of failure can have a negative impact on entrepreneurial intentions (Arenius and Minniti, 2005), opportunity recognition, and exploitation decisions (Mitchell and Shepherd, 2010) as well as on subsequent re-engagement in an entrepreneurial career (Hessels et al., 2011). Fear of failure can also be beneficial to entrepreneurs in that it might lead individuals to search for novel possible solutions (McGrath, 2001), focus attention for learning (Shepherd et al., 2011), stimulate greater effort and striving (Mitchell and Shepherd, 2010), and motivate increased engagement in entrepreneurial tasks (Cacciotti and Hayton, 2014).

However, regarding the affective consequences of fear of failure, there are no findings regarding its beneficial outcomes: researchers agree that the impact of fear of failure is detrimental (Elliot, 1997; Martin and Marsh, 2003). For example, in the domain of sports, fear of failure has been found to stimulate negative affect, such as worry, stress, and anxiety (Conroy and Metzler, 2004), which in turn adversely impacts both psychological well-being and relationship quality (Lavalley et al., 2009). In the work context, fear of failure has been found to be negatively associated with job satisfaction (Roberson, 1990) and positively associated with depression (Coats et al., 1996). Recent research has similarly proposed that in the entrepreneurial context, fear of failure is likely to trigger negative affective reactions (Cacciotti et al., 2016), which is important given that a substantial body of research has highlighted negative affect's detrimental outcomes (Baron, 2008; Hayton and Cholakova, 2012).

AET argues that dispositions like fear of failure are latent propensities that reside within individuals and manifest during affective events, particularly those in achievement situations (McClelland, 1985). Achievement situations are generally characterized by competition and social comparison and often include emotionally meaningful evaluations of personal competence (Reeve, 2001). Such environmental events represent a threat for individuals with dispositional fear of failure because they can lead to failures that reveal personal incompetence (to the self and important others). Individuals with dispositional fear of failure have learned that failure is associated with aversive consequences and have internalized these aversive consequences into their self-schemas (Elliot and Thrash, 2004). Therefore, achievement and competence-relevant situations in which failure is possible represent affective events that activate entrepreneurs' beliefs regarding the aversive consequences of failure, predisposing them to make appraisals of threat.

Once such beliefs stemming from dispositional fear of failure become activated, entrepreneurs' attention will shift toward

² Following the Global Entrepreneurship Monitor (Reynolds et al., 2005; Reynolds and Curtin, 2008), we conceptualize early-stage entrepreneurial activity as the phase that starts with the conception of a new venture, which includes the early stage of business development. This stage entails all the efforts individuals put into starting up a new venture before it is legally registered and ends 3.5 years after the legal registration of the new firm.

threatening environmental stimuli present in achievement situations (Conroy and Elliot, 2004; McClelland, 1985). Thus, dispositional fear of failure will orient and direct attention such that entrepreneurs will attend to failure-relevant information in the environment. Not only do entrepreneurs with high fear of failure detect threat stimuli quickly, but they also have difficulty disengaging their attention from threats (Fox et al., 2002) to attend to other stimuli, such as those that signal opportunity (see Shepherd et al., 2017).

During an affective event in which the possibility of failure is high—such as during a pitching competition in which an entrepreneur's presentation of his or her venture is being evaluated by a panel of judges and by the public—the self-schema about the adverse consequences associated with failure inherent in an entrepreneur with dispositional fear of failure will be activated (Conroy and Elliot, 2004; McClelland, 1985), prompting the entrepreneur to perceptually and cognitively focus on the possibility of failure. Thus, when exposed to evaluative competence-relevant events, entrepreneurs with dispositional fear of failure will focus their attention on and attend to external threat stimuli perceived as personally dangerous (e.g., failing in the competition, failing at portraying the venture in the best light, failing to deliver a persuasive presentation), the potential consequences of failure (e.g., global personal incompetence, being unworthy of appreciation), and their own negative internal states (e.g., heightened negative cognition). Based on the above reasoning, we contend that fear of failure will lead entrepreneurs to experience increased negative affect during competence-relevant evaluative events. Thus, we offer the following baseline hypothesis:

Hypothesis 1. In early-stage venturing, entrepreneurs' dispositional fear of failure is positively related to their experience of negative affect.

4. Passion and appraisal of identity threats

In addition to individuals' affective traits, AET proposes that examining appraisal processes is important for gaining a full understanding of how individuals' affective responses to work events vary. According to AET, experiencing affect is intricately tied to individuals' assessments of the importance and relevance of events and their consequences for the self (Roseman, 1984; Weiss and Cropanzano, 1996). Thus, the extent to which an individual experiences negative affect from fear of failure depends on the importance he or she places on the affective event in which failure is possible and, more generally, on the activity domain to which the affective event belongs (Burke, 1996; Thoits, 1991; Weiss and Cropanzano, 1996). Some activity domains (e.g., entrepreneurship, sports), and thus the affective events that belong to them (e.g., venture pitching competition, championship match), can correspond to roles that are highly relevant for peoples' identities (e.g., entrepreneur, competitive athlete) (Philippe et al., 2010; Vallerand et al., 2003). The concept of identity, with its origins in social psychology, refers to roles and self-views as the basis of an individual's self-concept, which develops from childhood over the lifespan and provides a sense of individuality, meaning, and orientation in life (Stets and Burke, 2000). The core of an identity is the internalization of external social expectations associated with a role into one's self-concept (Stets and Burke, 2000; Thoits, 1986). The strength of an emotional response to an affective event depends on how important the role identity (related to the activity domain to which the event belongs) is to one's overall self-concept (Burke, 1991; Thoits, 1991). From a stress-exacerbation perspective, an event in one's work environment that threatens a highly important identity generates a more negative affective reaction than threats to an identity that is less important to one's self-concept (Burke, 1996; Thoits, 1991). Conversely, from a stress-buffering perspective, identity offers individual coping resources that reduce stress by preventing the stressor from affecting his or her self-concept (Martire et al., 2000; Wheaton, 1985).

The identity relevance of an activity for an individual is reflected in that individual's passion for that activity and the related role (Cardon et al., 2009; Murnieks et al., 2014; Vallerand et al., 2003). In line with passion's function of perpetuating and protecting an individual's highly regarded internalized identity as an entrepreneur, passion likely plays a crucial role in how entrepreneurs react to identity threats in the entrepreneurial domain. *Passion* refers to a strong inclination toward a self-defining activity that one loves, finds important, and invests a significant amount of time and energy into (Vallerand et al., 2003). Passionate activities can become so self-defining that they represent central features of an individual's identity and serve to define the person (e.g., "I am an entrepreneur," "I am a musician," "I am a father"; Philippe et al., 2010; Vallerand, 2010). Based on the dualistic model of passion (Vallerand et al., 2003), we distinguish between harmonious and obsessive passion and investigate how the different identity internalization processes (autonomous and controlled, respectively) influence entrepreneurs' capacity to cope with identity-threatening stressors.³

Harmonious passion results from an autonomous internalization of an activity into a person's identity, meaning that the person freely (volitionally) accepts the activity as important to him or her without any contingencies attached to it (Vallerand et al., 2003); the person feels pleasure from engaging in this activity and pursues it because of the characteristics of the activity itself (e.g., challenging, enjoyable). That is, harmoniously passionate individuals are not driven by external demands or rewards (e.g., self-worth,

³ Cardon and colleagues define entrepreneurial passion as "consciously available, intense positive feelings experienced by engaging in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur" (2009, p. 517) and highlight entrepreneurs' passion for three distinct entrepreneurial identities: inventor, founder, and developer. This conceptualization overlaps with ours in that it recognizes that entrepreneurial activities become self-defining and part of the entrepreneur's self-identity such that he or she experiences strong identification with them (Murnieks et al., 2014). However, there are some differences between Cardon et al.'s (2009) and this study's conceptualizations of passion. First, we study and measure entrepreneurial passion in regard to the entrepreneurial role as a whole (see also Ho and Pollack, 2014; Murnieks et al., 2014). Second, while both perspectives include the notion of identification, the dualistic model of passion (Vallerand et al., 2003) highlights two ways in which entrepreneurial activities can be internalized into one's identity—one that is within an entrepreneur's control (i.e., harmonious passion) and another that is not (i.e., obsessive passion).

recognition) but by an intrinsic motivation to engage in an activity (Lafrenière et al., 2011). Engaging in the activity (e.g., early-stage venturing) does not overwhelm other aspects of these individuals' lives (Vallerand et al., 2003) but becomes well integrated with their other life domains (e.g., spouse, parent, community member).

Accordingly, when entrepreneurs are harmoniously passionate about an entrepreneurial activity, the activity occupies a significant but not overpowering role in their identity, and they remain in control of the activity when engaging in it, which can help entrepreneurs cope with identity threats. First, as a result of the integrative identity processes at play, harmonious passion likely provides entrepreneurs with more coping resources needed to deal with the negative emotional reactions that accompany identity-threatening situations, such as the evaluation of a pitch to potential investors. As such, despite their dispositional fear of failure, harmoniously passionate entrepreneurs will likely be less vulnerable to the emotional distress commonly felt in failure-related threatening situations and more resilient to failure threats thanks to the secure sense of self-worth underlying this type of passion (LeRouge et al., 2006).

Second, harmoniously passionate entrepreneurs will be less likely to feel that their self-worth is threatened by the failure-relevant stimuli from evaluative situations and thus less likely to experience negative affect from fear of failure. Moreover, since harmoniously passionate entrepreneurs remain fully in control of venture activities (Vallerand et al., 2003), they can flexibly adapt to failure-related threatening situations without losing control of their emotions and can move on without dwelling mentally on eventual mistakes they might have committed.

Finally, harmoniously passionate entrepreneurs are more likely to experience mindful attention, concentration, absorption, and flow (i.e., the feeling that one is immersed in an activity; see Csikszentmihalyi, 1997) while performing venture-related activities like pitching (Vallerand et al., 2003). Such full investment in the activity at hand will likely reduce entrepreneurs' perceptions and processing of situational failure-relevant information, thereby dampening negative affective reactions from fear of failure. Based on the above reasoning, we contend that harmonious passion will provide protective psychological resources, act as a stress buffer, and alter the link between dispositional fear of failure and negative affect. Thus, we offer the following hypothesis:

Hypothesis 2. In early-stage venturing, the positive relationship between fear of failure and negative affect is less positive when entrepreneurs have high harmonious passion than when entrepreneurs have low harmonious passion.

In contrast, *obsessive passion* stems from a controlled or pressured internalization of an activity into a person's identity, meaning that the individual engages in the activity and views it as important because of outcomes or contingencies associated with the activity, such as social acceptance, self-worth, and superiority (Vallerand et al., 2003). In turn, pressures and outcomes control the individual and compel him or her to pursue the activity to achieve and sustain these outcomes. Therefore, with this type of passion, the activity is not under the person's control as it comes to occupy an overwhelming space in the person's identity, which likely exacerbates identity threats. First, as a result of the internally controlling rather than integrative identity processes at play (Vallerand et al., 2003), obsessive passion will likely fail to provide sufficient coping resources for entrepreneurs to manage the negative emotional reactions that accompany identity-threatening situations, such as evaluations from a judge panel. With obsessive passion, an entrepreneur's identity is attached contingently to the activity such that his or her self-worth depends on doing well in the entrepreneurial activity (Lafrenière et al., 2011). Since protecting one's self worth and avoiding loss of face are primary concerns for obsessively passionate entrepreneurs, obsessive passion will likely increase the negative pressure associated with the possibility of failure. Consequently, facing the risk of failing in evaluative situations likely becomes highly self-threatening for these entrepreneurs since failure would be considered evidence of their low ability and competence. Indeed, because so much depends on them doing well in front of a judge panel (e.g., maintaining their role identity and their sense of self-worth) (Vallerand et al., 2007), obsessively passionate entrepreneurs will likely be highly aware of and sensitive to failure threats and therefore more likely to experience negative affect in such a context. Since obsessively passionate entrepreneurs are not in control of the activity they are passionate about (Vallerand et al., 2003), they will lack the flexibility needed to adapt to failure-related threatening situations without losing control of their emotions.

Second, obsessively passionate entrepreneurs are likely to dwell mentally on eventual mistakes they might have made while pitching their venture to a panel of judges and engage in additional efforts to repair those mistakes (Philippe et al., 2009). Because obsessively passionate entrepreneurs feel pressured to engage in the activity they are passionate about, they will likely be unable to focus on the task at hand and will likely find it difficult to fully disengage from performance thoughts related to pitching. Obsessive passion causes a sense of insecurity, which will promote obstructive in-task cognition (e.g., rumination, catastrophizing, worry) (Curran et al., 2015).

Finally, obsessively passionate entrepreneurs are more likely to experience low levels of attention, absorption, and flow while performing entrepreneurial activities. Because of their high sensitivity to information related to their own and to their competitors' performance (Mageau et al., 2011; Vallerand et al., 2007) and their low task focus, obsessively passionate entrepreneurs will likely have increased perceptions and processing of situational failure-relevant information, thereby increasing their negative affective reactions from fear of failure. Unlike harmonious passion, which remains in balance with other activities and aspects of an entrepreneur's life, obsessive passion takes a more central role in an entrepreneur's identity and is more likely to lead to an exacerbated emotional response to identity threats. Based on the above reasoning, we offer the following:

Hypothesis 3. In early-stage venturing, the positive relationship between fear of failure and negative affect is more positive when entrepreneurs have high obsessive passion than when entrepreneurs have low obsessive passion.

5. Study 1: methods

5.1. Empirical context and sample

AET, as well as the literature on fear of failure, informs us that latent dispositional traits, such as fear of failure, manifest themselves during affective events involving evaluative situations with the potential for failure (Atkinson, 1957; McClelland, 1985). In such situations, beliefs and cognitive schema stemming from fear of failure and associated with the aversive consequences of failing are activated and generate specific affective responses (Conroy and Elliot, 2004). Therefore, we tested our hypotheses in the naturally occurring setting of an early-stage venture competition because this setting represents an affective event likely to stimulate entrepreneurs' fear of failure.

A major entrepreneurship foundation in Germany organizes an annual start-up competition in which entrepreneurs present their early-stage ventures to a jury of experts and a general-public audience. To qualify for the competition, companies need to be early stage, which the organizer checks in the pre-screening phase. The selected early-stage entrepreneurs create an online profile page on the competition's official website, in which they described their new ventures using different materials, such as videos, pictures of their prototypes, PowerPoint presentations, and/or written descriptions. After the materials are posted, a 10-day evaluation phase starts. In this phase, both the expert jury and the general-public audience allocate points to the participating ventures based on certain criteria, such as product feasibility, market potential, gained traction, team competence, and investment readiness. We used this 10-day evaluation phase of the 2014 competition as our research setting because the high possibility of failure inherent in such a situation is likely to activate cognitive schema about the adverse consequences of failure and produce state negative affect.

Past analyses of negative affect's antecedents (Shepherd et al., 2009, 2011; Wolfe and Shepherd, 2015) have been based on retrospective interviews or surveys, which depend on entrepreneurs' memory. Similarly, the majority of research on affect in organizational settings has used retrospective measures of affect, such as affect at work over the past week, month, or even six months (e.g., Jokisaari and Nurmi, 2005; Kafetsios and Zampetakis, 2008). Because state affect is variable and transient, it may be difficult to recall and report accurately long after it has occurred. Indeed, a large number of studies have shown that individuals systematically and often grossly overestimate the frequency and intensity with which they have experienced negative affect when reporting retrospectively compared to real-time reports during the same time period (Thomas and Diener, 1990). Thus, it was important for us to measure negative affect as it naturally happened during a real event (i.e., a competition) rather than measuring it retrospectively. Real-time affect lies at the heart of Weiss and Cropanzano's AET, and this study provides the opportunity to test a number of relationships built from the theory.

We contacted the entrepreneurs of the 815 participating ventures through the event organizer's weekly newsletter and invited them to complete our survey online. We incentivized survey participation by offering the chance to win two tickets to the most popular entrepreneurship practitioner conference in Germany. Before administering the survey, we pilot tested it with three doctoral researchers, the event organizers, and two entrepreneurs. The pre-test of the instrument revealed that the respondents had no difficulty answering any of the survey items, so we proceeded with administering the questionnaire.

We received responses from 110 entrepreneurs, representing a 13.5% response rate. Out of these responses, 22 were incomplete, and one had unacceptably low reliability (indicating that the person had not taken the survey seriously). After excluding these responses, the final sample size was 88 entrepreneurs (effective response rate of 10.8%).⁴ Of these respondents, 47% were 30 years old or younger, 80% were under 45 years old, and 70% were male. The surveyed entrepreneurs were highly educated, with 69% having earned a college degree, and they had an average of 2.5 years of previous founding experience. Our sample does not deviate notably in terms of the key demographic variables (age and gender) from the 2014 German Global Entrepreneurship Monitor (GEM) sample, indicating the representativeness of our sample.

5.2. Measures

5.2.1. Negative affect (dependent variable)

To measure negative affect, we had participants indicate the extent to which they were experiencing negative affect at the moment (during the evaluation period in which the judges and the general-public audience were assessing their pitches and before participants found out the competition results). Negative affect was captured using 10 items from the Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988). The items were assessed on a five-point scale ranging from 1 (very slightly or not at all) to 5 (extremely). Studies have shown that the PANAS has good psychometric properties (see Miller et al., 2005; Watson et al., 1988). In the present study, the negative affect measure has a Cronbach's alpha of 0.89.

5.2.2. Fear of failure (independent variable)

We measured fear of failure with a nine-item scale by Houston and Kelly (1987), as used in McGregor and Elliot (2005). Participants' responses ranged from 1 (I completely disagree) to 5 (I completely agree). A sample item is "I often avoid a task because I am afraid that I will make mistakes." This scale also has good reliability with a Cronbach's alpha of 0.88.

⁴ It is difficult to ascertain the exact response rate for the study since the email invitation was sent to participants through the event organizer; thus, we do not have data on how many of the invitations were sent to inactive email addresses.

5.2.3. Harmonious passion (moderator)

We assessed harmonious passion using the six-item Passion Scale (Vallerand et al., 2003), which has demonstrated high levels of validity and reliability across different activities and languages (e.g., Marsh et al., 2013; Vallerand et al., 2007). The five-point Likert scale ranged from 1 (I completely disagree) to 5 (I completely agree). This scale was adapted to gauge entrepreneurs' passion for running a business by replacing the words "this activity" in the original with the phrase "entrepreneurial activity" (e.g., Ho and Pollack, 2014, who modified the scale to refer to work activities associated with entrepreneurial business) (see Appendix A). The Cronbach's alpha for the six harmonious passion items is 0.89.

5.2.4. Obsessive passion (moderator)

Obsessive passion was also assessed using six items from the Passion Scale (Vallerand et al., 2003). Participants' responses ranged from 1 (I completely disagree) to 5 (I completely agree). We changed item wording in the same way as for the harmonious passion items (see Appendix A). The Cronbach's alpha for this measure is 0.84.

5.2.5. Control variables

The tendency to experience negative affect from venture activities might differ depending on different personal characteristics, such as age (Mroczek and Kolarz, 1998), gender (Fujita et al., 1991), educational background (Meeks and Murrell, 2001), and founding experience (Podoyntsyna et al., 2012). Therefore, we controlled for these possible effects. We captured the entrepreneurs' age by asking them how old they were in years at the time of data collection. We also asked them to indicate their gender (which we coded 0 for male and 1 for female), their highest level of education (measured from 1 [middle school] to 6 [PhD]), and their founding experience (the number of years they were involved in new venture activities overall). We also controlled for the positive affect the entrepreneurs experienced since research has shown that positive and negative affect could be related, especially during emotional times, such as those experienced in a failure-relevant setting (Diener and Emmons, 1984). For this, we used 10 items of the PANAS (Watson et al., 1988). The scale has a Cronbach's alpha of 0.90.

5.3. Analytical approach

We tested the hypotheses using robust regression (Cook, 1977; Hamilton, 1991), *rreg* in Stata 14, as it resists the pull of outliers and generates robust standard errors. As recommended by Aiken and West (1991), we standardized the independent variables before calculating the interaction terms. New ventures are often initiated with one or a few founders, and these founders are often the only sources of venture information. Therefore, like many other researchers, we were not able to use multiple informants in data collection. Since Study 1 relied on a cross-sectional survey and a single respondent from each firm, the results might be contaminated by common method bias. We analyzed the relationship between fear of failure and negative affect by controlling for the effects of an unmeasured latent method factor in a structural equation model (Podsakoff et al., 2003). Applying the unmeasured latent method factor did not significantly affect the relationship between fear of failure and negative affect (fear of failure → negative affect without the marker variable: coefficient = 0.591, $p \leq .001$ and fear of failure → negative affect with the method factor: coefficient = 0.571, $p \leq .001$). These tests indicate that common method bias is unlikely to unduly influence the results of Study 1.

6. Study 1: results

In Table 1, we provide descriptive statistics and bivariate correlations. To ensure that multicollinearity is not an issue, we computed variance inflation factor (VIF) scores. We found that all VIFs are substantially below the conservative cutoff value of 5.0 (Studenmund, 1992); the highest VIF is 2.06, indicating that multicollinearity is unlikely to unduly influence the results of the analyses.

We report the results of the hierarchical regression analysis in Table 2. Model 1 reports the baseline model with only control variables included, Model 2 includes the main effect from fear of failure on negative affect, Model 3 adds the direct effects from harmonious and obsessive passion, and Model 4 reports the full model with interactions. A Wald linear restriction test showed that

Table 1
Study 1—means, standard deviations, and inter-correlation matrix.

Variables	Mean	SD	Min	Max	1	2	3	4	5	6	7	8
1 Negative affect	1.99	0.76	1	4								
2 Age (in years)	34.51	10.60	17	64	-0.16							
3 Gender	0.30	0.46	0	1	-0.22	-0.05						
4 Education	4.11	1.27	1	6	0.05	0.24	-0.08					
5 Founding experience	2.48	5.46	0	30	-0.16	0.52	-0.08	-0.02				
6 Positive affect	3.84	0.74	1	5	-0.16	0.03	0.09	-0.08	0.16			
7 Fear of failure	2.00	0.79	1	4.11	0.50	0.00	-0.17	-0.02	-0.05	-0.27		
8 Harmonious passion	3.95	0.85	1	5	-0.12	-0.14	0.09	-0.13	0.01	0.65	-0.30	
9 Obsessive passion	3.06	0.94	1	5	0.15	-0.02	-0.14	-0.11	0.03	0.47	-0.17	0.44

Notes. N = 88. All correlations $|\geq .22|$ and above are significant at 0.05 or below (two-tailed).

Table 2

Study 1—hierarchical regression analysis for fear of failure, passion, and negative affect.

Dependent variable: negative affect	Model 1	Model 2	Model 3	Model 4
Controls				
Age (in years)	−0.11 (0.10)	−.15 [†] (.08)	−.15 [†] (.08)	−.16* (.07)
Gender	−0.25 (0.18)	−0.12 (0.15)	−0.02 (0.15)	0.02 (0.14)
Education	0.07 (0.09)	0.08 (0.07)	0.09 (0.07)	0.07 (0.07)
Founding experience	−0.06 (0.10)	−0.04 (0.08)	−0.02 (0.08)	−0.05 (0.07)
Positive affect	−0.06 (0.08)	0.06 (0.07)	0.00 (0.09)	0.03 (0.08)
Direct effects				
Fear of failure		.43*** (.07)	.41*** (.07)	.37*** (.07)
Harmonious passion			−0.10 (0.09)	−0.13 (0.08)
Obsessive passion			.25** (.08)	.26*** (.07)
Moderation effects				
Fear of failure × Harmonious passion				−.16* (.08)
Fear of failure × Obsessive passion				.17* (.07)
<i>R</i> ² <i>adj</i>	0.02	0.32	0.36	0.45
<i>F</i> -statistics	1.32	7.91***	7.21***	8.13***
<i>F</i> change		37.03***	5.45**	3.87*

Notes. *N* = 88 in all models. Robust standard errors are in parentheses. Significances after *F* change are from a Wald linear restriction test.

[†] $p \leq .10$.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$ (two-tailed tests).

Model 2 explains a significant amount of variance over and above the baseline model (*F* change = 37.03, $p \leq .001$). The coefficient for fear of failure is positive and significant ($\beta = 0.43$, $p \leq .001$), indicating that in early-stage venturing, entrepreneurs with higher fear of failure will experience more negative affect than entrepreneurs with lower fear of failure. Because we standardized the variables, the beta coefficient means that an increase of 1 standard deviation in fear of failure would yield an increase of 0.43 standard deviation in predicted negative affect. This finding provides support for [Hypothesis 1](#).

In Model 3, we introduced harmonious and obsessive passion to examine their direct effect on negative affect before introducing them as moderators. In Model 3, the coefficient for obsessive passion is significant and positive ($\beta = 0.25$, $p \leq .01$), indicating that the higher the obsessive passion, the greater the negative affect. The coefficient for harmonious passion is not significant ($\beta = -0.10$, *ns*).

A Wald linear restriction test showed that Model 4 (the full model) explains a significant amount of variance over and above Model 3 (the main effects-only model) (*F* change = 3.87, $p \leq .05$). The coefficient for the interaction of fear of failure and harmonious passion is significant and negative ($\beta = -0.16$, $p \leq .05$), and the coefficient for the interaction of fear of failure and obsessive passion is significant and positive ($\beta = 0.17$, $p \leq .05$). To illustrate the nature of these relationships, we plotted them on a y-axis of negative affect and an x-axis of fear of failure for high (1 standard deviation above the mean [+1 SD]) and low (1 standard deviation below the mean [−1 SD]) levels of the different types of passion.

In [Figs. 1 and 2](#), the grey area around the lines represents the 90% confidence intervals. The interaction is significant if the confidence intervals for the +1 SD and −1 SD lines do not overlap ([Brambor et al., 2006](#)). [Fig. 1](#) illustrates the moderation of harmonious passion. The moderation is significant only at the highest levels of fear of failure (fear of failure > 0.3). After that point, the positive relationship between increasing fear of failure and negative affect is less negative when harmonious passion is high than when it is low. This finding provides support for [Hypothesis 2](#).

As illustrated in [Fig. 2](#), in early-stage venturing, the positive relationship between fear of failure and negative affect is more positive when the entrepreneur has high obsessive passion (simple slope coefficient = 0.54, $p \leq .001$) than when the entrepreneur has low obsessive passion (simple slope coefficient = 0.20, $p \leq .05$). This finding provides support for [Hypothesis 3](#).

7. Study 2: methods

Despite the fact that the PANAS is a reliable and widely used scale to measure state negative affect ([Crawford and Henry, 2004](#); [Watson et al., 1988](#)), it has received some criticism mainly because it relies on individuals' self-reports of affect ([Cardon et al., 2012](#);

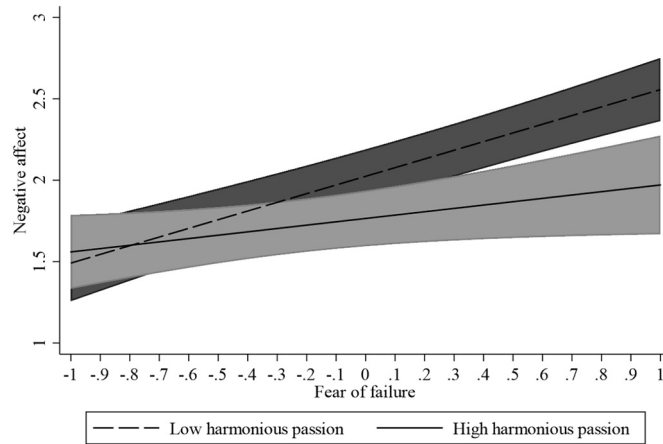


Fig. 1. Study 1—interaction effect of fear of failure and harmonious passion on negative affect.

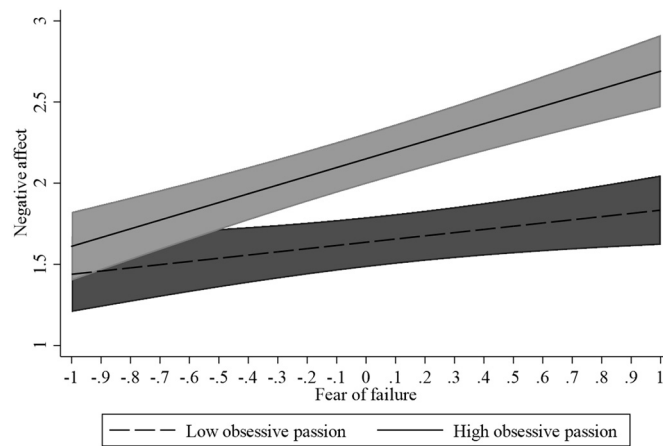


Fig. 2. Study 1—interaction effect of fear of failure and obsessive passion on negative affect.

Mauss and Robinson, 2009). It might be limiting to ask people how they feel because they do not always know, and even if they do know, individuals can overstate or understate their affective experience because of social desirability issues. For example, entrepreneurs might be reluctant to admit certain negative emotional experiences (Cardon et al., 2012). To overcome the potential limitations of self-reported data (Gasper and Clore, 2000), we conducted Study 2, in which we measured the negative affect variable using psychophysiological measures obtained from analyzing entrepreneurs' facial expressions. Psychophysiological measurement is relatively new to entrepreneurship research (see Jiang et al., 2019 as a recent example) and offers a novel way to examine variables that cannot be reliably reported or observed. It is a creative non-survey approach to capturing negative affect (in real time in a natural setting). We expected the results of Study 2 to corroborate the results of Study 1.

7.1. Empirical context and sample

The empirical context of the second study was similar to the one in Study 1: early-stage entrepreneurs participating in a pitch competition. The pitch competition took place in Finland in 2017 as part of a large start-up conference. However, unlike in Study 1, in Study 2, we gathered the independent and dependent variables at different points in time. We gathered data about fear of failure, harmonious passion, obsessive passion, and the control variables using a survey administered before the pitch competition. We collected data on the entrepreneurs' negative affect by videoing each entrepreneur's pitch and analyzing the videos using a facial expression algorithm.

The organizers of the pitch conference announced the 100 pre-selected entrepreneur participants before the competition. We sent an email with a link to the online survey to all 100 pre-selected entrepreneurs one week before the event, with two reminders five and three days before the pitch event. We received 83 surveys back. However, we were unable to video 11 pitches, leaving us with a sample of 72. In an additional data-gathering effort aimed at increasing the sample size, we contacted 54 of the pre-selected entrepreneurs from the 2018 edition of the same competition for whom we were able to find contact details and for whom recorded videos were available. Of these entrepreneurs, 13 filled out the survey in full, increasing our sample size to 85 (overall effective

response rate 55.2%). The average age of the respondents was 34, and 75% were male. The respondents were highly educated—72% of them had a bachelor's or master's degree and 22% had a PhD. The respondents had an average of four years of previous founding experience.

7.2. Measures

7.2.1. Negative affect (dependent variable)

To assess negative affect, we analyzed the recorded pitch videos using the facial expression algorithm Affectiva Affdex (www.imotions.com), which detects facial landmarks and applies a set of rules based on psychological theories and statistical procedures to classify discrete emotions (Ekman and Friesen, 1978, Facial Action Coding System). Trained by distinct statistical procedures, facial databases, and facial landmarks, the algorithm identifies a multitude of points on the face and measures how those points change as the person's face moves (for detailed information regarding the software, see iMotions, 2016; for a validation study, see Stöckli et al., 2018). Facial expression analysis has been used in a variety of fields, including marketing (Teixeira et al., 2014), psychological (Leppanen et al., 2017), and psychiatric research (Broch-Due et al., 2018), but it is new to the management field (see Håkansson et al., 2017, for a call for studies to apply this method in the management field).

We extracted facial expression data for anger, sadness, fear, and disgust from the pitch videos. We computed raw data corresponding to these negative emotions with a threshold of 95, meaning that we accepted only facial expressions that had at least a 95% probability of a human assessor rating the emotion equally to the Affdex algorithm. The threshold data is binary such that the value 1 means that the probability that the pitcher expressed the emotion is 95% or higher, and 0 means that the probability that the pitcher expressed the emotion is < 95%. We treated a rating of 0 as a lack of evidence of negative affect. Based on the binary threshold data, the Affdex algorithm calculates the relative percentage of time that each emotion is displayed by dividing the sum of those frames that scored 1 by the total number of frames. This scoring procedure means that the data represents the percentage of time the participant displayed the particular facial expression. Negative affect is calculated as the sum of time percentage the participant displayed anger, sadness, fear, and disgust. In section 8, we report a sensitivity analysis using 90% and 80% thresholds.

7.2.2. Fear of failure (independent variable)

We used the same scale as in Study 1 to capture fear of failure. The scale has a Cronbach's alpha of 0.83.

7.2.3. Harmonious and obsessive passion (moderator)

Just as in Study 1, we used the Passion Scale (Vallerand et al., 2003) to measure harmonious and obsessive passion. In the present study (i.e., Study 2), the Cronbach's alphas are 0.79 and 0.75, respectively.

7.2.4. Control variables

Similar to Study 1, we controlled for the entrepreneurs' age, gender, educational background, founding experience, and positive affect (Cronbach's alpha of 0.63). Because prior studies have discussed the possibility that entrepreneurs are always very passionate about their ventures (Bird, 1989; Smilor, 1997), we controlled for the prevalence of general passion (Carbonneau et al., 2008; Vallerand et al., 2003) to ensure that a moderating effect is only due to the difference in the type of passion—harmonious versus obsessive—and not to the intensity of general passion. We measured general passion with four items from Vallerand et al.'s (2003) seminal work on passion and changed item wording in the same way as we did for the harmonious and obsessive passion items. The scale has a Cronbach's alpha of 0.76.

8. Study 2: results

Similar to Study 1, we tested the hypotheses using robust regression, and we standardized the variables before creating the interaction terms. In Table 3, we present the means, standard deviations, and correlations for Study 2. Similar to Study 1, we checked for multicollinearity among the variables. The highest VIF is 2.12, indicating that multicollinearity is unlikely to unduly influence the

Table 3
Study 2—descriptive statistics and correlations.

Variables	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9
1 Negative affect	0.50	1.25	0	7.64									
2 Age (in years)	34.09	8.02	21	59	0.03								
3 Gender	0.25	0.43	0	1	-0.13	0.07							
4 Education	4.78	0.93	1	6	-0.03	0.33	0.11						
5 Founding experience	4.43	4.99	0	30	0.14	0.41	-0.07	0.09					
6 Positive affect	3.25	0.41	2.38	4.38	0.08	0.14	0.03	-0.07	0.01				
7 Prevalence of passion	4.58	0.53	2.5	5	0.06	0.04	0.15	-0.23	0.26	0.15			
8 Fear of failure	1.72	0.55	1	4	-0.02	-0.27	-0.03	-0.29	-0.16	-0.01	-0.28		
9 Harmonious passion	4.01	0.64	2.17	5	0.08	0.00	0.21	-0.20	0.22	0.29	0.58	-0.19	
10 Obsessive passion	2.79	0.81	1	4.83	-0.08	-0.02	-0.07	-0.18	0.17	0.15	0.23	0.01	-0.05

Notes. N = 85. All correlations $|\geq .22|$ and above are significant at 0.05 or below (two-tailed).

Table 4
Study 2—results of hierarchical regression analyses.

Dependent variable: negative affect	Model 1	Model 2	Model 3	Model 4
Controls				
Age (in years)	0.00 (0.01)	0.01 (0.02)	-0.01 (0.03)	-0.02 (0.02)
Gender	0.02 (0.02)	-0.01 (0.04)	0.01 (0.05)	0.02 (0.04)
Education	0.01 (0.01)	0.01 (0.02)	-0.01 (0.02)	0.00 (0.02)
Founding experience	-0.01 (0.01)	-0.01 (0.02)	0.01 (0.03)	-0.02 (0.02)
Positive affect	-0.01 (0.01)	-0.01 (0.02)	0.03 (0.02)	0.03 (0.02)
Prevalence of passion	0.01 (0.01)	-0.00 (0.02)	0.03 (0.03)	0.04 (0.02)
Direct effects				
Fear of failure		.04 [†] (.02)	.04 [†] (.02)	0.03 (0.02)
Harmonious passion			-.06 [†] (.03)	-.06* (.02)
Obsessive passion			-.07** (.02)	-.08*** (.02)
Moderation effects				
Fear of failure × Harmonious passion				-.03* (.02)
Fear of failure × Obsessive passion				-.08** (.03)
<i>R</i> ² adj	0.00	0.02	0.10	0.21
<i>F</i> -statistics	0.50	1.21	2.05*	3.05**
<i>F</i> change		6.83*	5.32**	5.04**

Notes. N = 85 in all models. Robust standard errors are in parentheses. Significances after F change are from a Wald linear restriction test.

[†] ≤ .10.

* p ≤ .05.

** p ≤ .01.

*** p < .001 (two-tailed tests).

results. In Table 4, we present the results of the hypothesis testing. As a baseline model, Model 1 contains only the control variables. Model 2 evaluates Hypothesis 1, which proposes that fear of failure has a positive relationship with negative affect. The results of Model 2 indicate that fear of failure has a positive relationship with negative affect ($\beta = 0.04$, $p \leq .05$). A Wald linear restriction test indicated that the inclusion of fear of failure significantly improves the model vis-à-vis the baseline model (F change = 6.83, $p \leq .05$). These findings provide support for Hypothesis 1.

Similar to Study 1, in Model 3, we investigated the potential direct effects of harmonious and obsessive passion. While obsessive passion has a significant negative relationship with negative affect ($\beta = -0.07$, $p \leq .01$), the relationship between harmonious passion and negative affect is only marginally significant ($\beta = -0.06$, $p \leq .1$). Hypothesis 2 proposes that in early-stage venturing, the positive relationship between fear of failure and negative affect is less positive when the entrepreneur has high harmonious passion than when the entrepreneur has low harmonious passion. A Wald linear restriction test indicated that the inclusion of the interaction terms significantly improves the model vis-à-vis Model 3 (F change = 5.04, $p \leq .01$). The results of Model 4 show that harmonious passion weakens (negatively moderates) the positive relationship between fear of failure and negative affect ($\beta = -0.03$, $p \leq .05$). In Fig. 3, we plot the nature of this relationship. For low harmonious passion, increasing fear of failure has a positive effect on negative affect (simple slope coefficient = 0.06, $p \leq .01$). This finding provides support for Hypothesis 2.

Hypothesis 3 proposes that in early-stage venturing, the positive relationship between fear of failure and negative affect is more positive when the entrepreneur has high obsessive passion than when the entrepreneur has low obsessive passion. Contrary to our expectations, the results of Model 4 show that obsessive passion weakens (negatively moderates) the positive relationship between fear of failure and negative affect ($\beta = -0.08$, $p \leq .01$). This finding does not provide support for Hypothesis 3. In Fig. 4, we illustrate the unexpected findings regarding Hypothesis 3. When obsessive passion is low, increasing fear of failure has a positive effect on negative affect (simple slope coefficient = 0.11, $p \leq .001$), whereas when obsessive passion is high, increasing fear of failure has a negative effect on negative affect, but the coefficient is not significant (simple slope coefficient = -0.05 , $p = .11$).

Since facial expression analysis is new to the management field and there are only a few guidelines for setting threshold values, we performed sensitivity analyses and tested Model 4 (in Table 4) using 90% and 80% thresholds. The results and their significance levels remain substantially the same (as those reported above) with the 90% threshold (fear of failure × harmonious passion: $\beta = -0.07$, $p \leq .05$; fear of failure × obsessive passion: $\beta = -0.16$, $p \leq .001$) and with the 80% threshold (fear of failure × harmonious passion: $\beta = -0.09$, $p \leq .05$; fear of failure × obsessive passion: $\beta = -0.20$, $p \leq .01$).

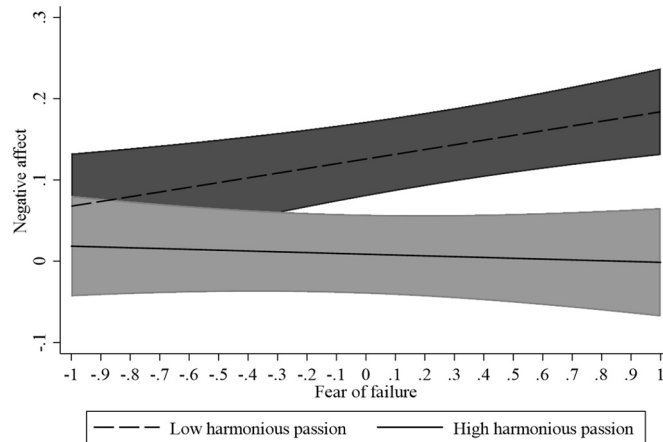


Fig. 3. Study 2—interaction effect of fear of failure and harmonious passion on negative affect.

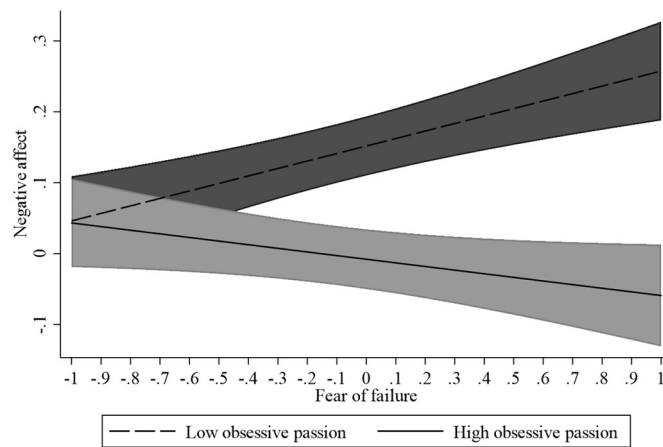


Fig. 4. Study 2—interaction effect of fear of failure and obsessive passion on negative affect.

9. Post hoc analyses

We conducted several post hoc analyses. First, we used survey data collected in Study 2 to replicate the empirical models in Study 1 one to one. Instead of measuring negative affect with facial expression analysis, like in the main analyses of Study 2, we used a measure of negative affect collected in the survey with the short PANAS scale as an outcome variable. Similar to the results from the main analyses of Study 2, the relationship between fear of failure and negative affect is positive and significant ($\beta = 0.05$, $p \leq .01$) when the survey measure of negative affect was used. Furthermore, harmonious passion negatively moderates this relationship but only with marginal significance ($\beta = -0.03$, $p \leq .1$). The moderation coefficient of obsessive passion is not significant when the self-reported measure of negative affect was used.

Second, research has shown that entrepreneurial passion is related to entrepreneurial self-efficacy as they both highlight the importance of engaging in activities that are meaningful for one's self-identity (Cardon and Kirk, 2015). As such, we tested the models reported in Study 1 while controlling for entrepreneurial self-efficacy. We measured entrepreneurial self-efficacy using the 15-item scale originally developed by Chen et al. (1998) and later modified by Forbes (2005). Our investigation of correlations shows that self-efficacy has a modest positive correlation with harmonious ($r = 0.41$, $p \leq .001$) and obsessive passion ($r = 0.35$, $p \leq .01$). The results of the regression analysis after controlling for entrepreneurial self-efficacy mainly confirm the findings of the main analysis: fear of failure is positively associated with negative affect ($\beta = 0.40$, $p \leq .001$), and obsessive passion ($\beta = 0.16$, $p \leq .05$) moderates the positive relationship between fear of failure and negative affect in the manner hypothesized. However, the interaction between fear of failure and harmonious passion is only weakly significant ($\beta = -0.15$, $p \leq .1$), but the coefficient is in the expected direction. The coefficient for self-efficacy is significant only in the control model ($\beta = -0.22$, $p \leq .05$).

Third, we collected data on firm age in Study 2 from secondary sources, including Orbis, Crunchbase, and company websites. We found this information for all the companies except one, resulting in a sub-sample of 84 firms. The average firm age at the year the pitching event took place was 0.86 year. We included firm age as a control variable to test whether it affects the results of the main analysis. The results largely confirm the findings of the main analysis: fear of failure has a positive, although only marginally

significant, relationship with negative affect ($\beta = 0.03$, $p \leq .1$), and both harmonious passion ($\beta = -0.06$, $p \leq .05$) and obsessive passion ($\beta = -0.11$, $p \leq .01$) negatively moderate the positive relationship between fear of failure and negative affect. The coefficient for firm age is not significant in the models.

10. Discussion

The aim of this paper is to uncover the negative affective experiences stemming from entrepreneurs' fear of failure and to understand how different types of passion influence these affective reactions. We situate our study in a particularly relevant setting—namely, the naturally occurring context of early-stage entrepreneurs pitching their ventures to external audiences. We chose this context because entrepreneurs are likely to experience negative affect from fear of failure in this setting likely given the wide range of potentially negative feedback. We conducted two studies in which negative affect was captured with self-reported and psychophysiological measures. Our results indicate that entrepreneurs high in fear of failure experience more negative affect and that passion moderates this relationship between fear of failure and negative affect. Specifically, while both studies show that harmonious passion dampens the influence of fear of failure on negative affect, the results of the two studies differ in terms of obsessive passion's moderating role in the relationship between entrepreneurs' fear of failure and their experience of negative affect while engaged in an entrepreneurial activity. While the first study indicates that obsessive passion magnifies the relationship between entrepreneurs' fear of failure and their experience of negative affect as self-reported by entrepreneurs, we find the opposite in Study 2—namely, that obsessive passion dampens the relationship between entrepreneurs' fear of failure and their experience of negative affect as reflected in entrepreneurs' facial expressions. Together, these studies make a number of contributions to the entrepreneurship literature.

First, we contribute to the literature on affect in entrepreneurship by investigating antecedents of negative affect in entrepreneurs. So far, the literature on affect in entrepreneurship has mainly focused on the consequences of negative affect or on the antecedents of aggregated affective constructs, such as well-being or burnout. Following calls for research on the antecedents of state negative affect in entrepreneurship beyond business failure (Cardon et al., 2012; Delgado García et al., 2015), our work investigates what leads active early-stage entrepreneurs to experience negative affective states. We do so by integrating two relatively opposing positions on the predictability and consistency of affective expressions across situations: dispositionism and situationism. Based on the interactionist principle of AET (Weiss and Cropanzano, 1996), we theorize (and empirically support) that entrepreneurs' dispositional fear of failure leads them to experience negative affect during the situational event of a pitching competition. Building on AET to investigate the antecedents of momentary negative affect, our study considers both the situational context and the dispositional traits of the entrepreneur. Existing entrepreneurship and organizational behavior studies on personality dispositions as determinants of affect have mostly examined affective experiences not as state affect itself but as related aggregated affective constructs, such as job satisfaction (Müller and Gappisch, 2005), well-being (Srivastava et al., 2001), and burnout (Perry et al., 2008); fewer studies have looked at the antecedents of real-time affective phenomena, such as momentary emotions or moods (Delgado García et al., 2015; Weiss and Kurek, 2003). If we are to go beyond predicting affective aggregates and use entrepreneurs' stable dispositional characteristics to explain state affect as it is experienced (i.e., varying over time), we must focus on how dispositional constructs interact with varying environmental events. Entrepreneurial activities are particularly rich in affective events, such as pitching competitions, but these events are still underexplored as contexts in which individuals experience negative affect (Morris et al., 2012). Nevertheless, we know from the literature that state affect is elicited by events (Lazarus, 1991). Although most emotion theories argue that these events mark the starting point of affective states, the events entrepreneurs experience are not entirely externally caused or random. Experienced events are filtered through entrepreneurs' perceptions, and aspects of their personality may influence their reactions to these events. Against this background, we emphasize the interface between entrepreneurs' inner and outer environments and contribute to the literature on affect in entrepreneurship by theorizing and empirically demonstrating how negative affect is determined by entrepreneurs' fear of failure and passion in the context of an affective event that is typical to entrepreneurship. Gaining awareness of the conditions under which their latent dispositional fear of failure might result in negative affect could help entrepreneurs make sense of their affective processes and thus make them more equipped to deal with negative affect and its detrimental consequences. Indeed, a clear understanding of the sources of one's affective experiences is a pre-condition for functional self-regulation of negative affect (Boden and Thompson, 2015).

Second, we contribute to the growing literature on fear of failure in entrepreneurship. With the exception of Cacciotti et al. (2016) and Kollmann et al. (2017), who recognize that fear of failure is responsive to the environment in which the entrepreneur is active, existing research does not consider the experience of fear of failure in entrepreneurship as it relates to an interaction between the person and the entrepreneurial context. The extant literature is dominated by a static focus on fear of failure as a precluding factor for entry into entrepreneurship (Arenius and Minniti, 2005). Such an approach leads to a somewhat limited understanding of the dynamics underlying how entrepreneurs experience fear of failure *during* the entrepreneurial process. In contrast, the current study considers fear of failure as a latent dispositional trait responsive to events in the entrepreneurial process, whose negative emotional effects depend on the situation in which the entrepreneur finds him- or herself. By placing our study in the naturally occurring setting of early-stage venture pitching competitions, our study helps clarify when beliefs and cognitive schema stemming from fear of failure get activated, which is critical for understanding fear of failure in the entrepreneurial context and its impact on affective experiences. Moreover, although fear of failure is considered an enduring characteristic of the individual (e.g., Arenius and Minniti, 2005; Hessels et al., 2011), we theorize and find that this fear may not always be highly salient. Our results show that an entrepreneur's affective response to fear of failure can be dampened or magnified depending on the type of passion he or she has for the entrepreneurial activity. Thus, when investigating fear of failure in entrepreneurship, researchers need to consider not only the situational context but also other characteristics of entrepreneurs that might impact the affective consequences of fear of failure in response to important

events throughout the entrepreneurial process.

Finally, our results contribute to the literature on passion in entrepreneurship. Although the literature on the role of passion in the entrepreneurial process has grown substantially over the past few years and has made many important contributions to our understanding of entrepreneurial motivation and action (e.g., Bélanger et al., 2013; Cardon et al., 2009; Cardon and Kirk, 2015; Murnieks et al., 2014), the current study is unique in that it theoretically and empirically examines a different function of passion in the entrepreneurial process—specifically, passion's role in modulating entrepreneurs' negative affective experiences. While many studies have connected entrepreneurs' passion with positive affect, our findings indicate that passion also plays an important role in the experience of negative affect. Research on passion in entrepreneurship has suggested that passion leads to persistence in the entrepreneurial process and keeps entrepreneurs on track (Cardon et al., 2009; Murnieks et al., 2014). However, to date, no study has examined whether these effects are due (at least in part) to passion's governing role over entrepreneurs' experience of negative affect during affective events. Seminal works on passion have recognized the close bond between passion and identity (Cardon et al., 2009; Murnieks et al., 2014; Vallerand et al., 2003). Our study starts from this notion of a close bond and offers new insights into the identity mechanisms underlying passion, especially into the role these mechanisms play in the development of negative affect. Specifically, we acknowledge that there are two ways passion can relate to identity depending on the type of passion—an autonomous way for harmonious passion and a controlled way for obsessive passion—and we find partial evidence that these two identity processes have different effects on how entrepreneurs affectively process stimuli from events. By integrating passion into our model, we show the importance of identity processes for entrepreneurs' experience of negative affect. Also, in demonstrating passion's moderating role, we offer an additional and complementary explanation for the importance of passion throughout the entrepreneurial process.

Indeed, we report interesting differences between harmonious and obsessive passion, which have important implications for research. In particular, our results offer empirical evidence that harmonious passion dampens the influence of fear of failure on negative affect. Therefore, we uncover an additional functional outcome of harmonious passion besides those already studied (Houlfort et al., 2013; Liu et al., 2011): the ability of harmonious passion to act as a buffer against negative affect from fear of failure. Entrepreneurs might not be able to change their dispositional fear of failure in the short run or avoid affective events; however, developing harmonious passion appears to be desirable in dealing with negative affect from fear of failure.

Our replication efforts in Study 2 have additional and perhaps previously unrecognized theoretical and empirical implications. Specifically, the results of the two studies differ as to the direction of the moderating effect of obsessive passion: while the first study shows an exacerbating effect of obsessive passion on the relationship between fear of failure and negative affect, we find the opposite in Study 2. This difference in findings is interesting. We reason that a possible explanation for the unexpected result in Study 2 could be the context: a pitching competition in which entrepreneurs present their new venture on stage in front of investors and industry experts. For this kind of pitching task entrepreneurs normally prepare well and practice in advance, and for the 5 min they have on stage, they are focused exclusively on their presentation since a lot depends on them doing well in such a task. Although obsessively passionate entrepreneurs normally have increased perceptions and processing of failure-relevant situational stimuli, in the particular context of a pitching task, obsessively passionate entrepreneurs may lack the time and the cognitive space available to perceive and interpret situational failure-relevant information because their cognitive resources will be increasingly devoted to the presentation they are conducting. Indeed, strategic communication research (Berger, 1995, 1997; Levelt, 1989) has explained that delivering a message that is planned and rehearsed in advance has heavy processing demands, leaving insufficient attentional capacity to carry out other cognitive activities. Orally presenting the pre-assembled phrases and scripts of their business pitch and trying their best to make the content of their presentation persuasive require conscious and deliberative effort and are likely to heavily tax obsessively passionate entrepreneurs' attention and processing resources (Berger, 1997). Clearly, as the presenting entrepreneur devotes attentional capacity to strategic message features, his or her opportunity to carefully monitor the environment and audience decreases, thereby reducing his or her capacity to perceive situational failure-relevant information. Thus, in this case, the task-specific characteristics (e.g., full concentration on the content being presented and attention to speech rate, vocal intonation, vocalized pausing, facial expression, body language, and time restrictions) might override obsessively passionate entrepreneurs' usual attentional bias toward situational failure-relevant information. Put differently, the demands of the pitching task might reverse the negative side effect of obsessive passion. Taken together, while obsessive passion might not have a detrimental moderating effect on the relationship between fear of failure and negative affect when the entrepreneur is publicly presenting a pre-rehearsed pitch, obsessive passion might still have a detrimental effect as soon as the entrepreneur has more time and cognitive capacity to have off-task thoughts and perceive, process, and ruminate about failure-relevant information.

11. Limitations and future research

As with all studies, the current study has a number of limitations that lead to avenues for future research. First, the cross-sectional nature of the data for Study 1 calls for prudence in interpreting causality even though the nature of the constructs supports it (Shook et al., 2004). In Study 2, we eased this concern by separating the measurement of the independent and dependent variables. Future studies using a longitudinal research design and repeated measurements could help us further understand the dynamic interplay between short-term affective reactions, long-term affect, and dispositional traits.

Second, the size of the samples is a potential limitation of our study as smaller sample sizes tend to decrease statistical power (Aiken and West, 1991; Jaccard et al., 1990). However, in video-based research of entrepreneurial pitching, smaller sample sizes are not uncommon because of the difficulty in collecting this type of data (e.g., Pollack et al., 2012a, Study 1). It is also important to mention that such entrepreneurial pitching events are not easily accessible by researchers, and it is even more difficult to obtain

permission to film the pitches due to privacy concerns and disclosure risks of sensitive information. Despite our sample size limitations, our findings provide evidence that is generally consistent with our a priori hypothesized patterns. Nonetheless, future research should seek to employ larger sample sizes whenever possible.

Third, we collected data for both our studies from early-stage entrepreneurs at pitching competitions, a setting that is highly likely to activate entrepreneurs' cognitive schema about the aversive consequences of failure stemming from dispositional fear of failure. Although this sample and research design were required to test our hypothesized theoretical mechanisms (Cacciotti et al., 2016; Weiss and Cropanzano, 1996), these conditions may impose some limitations on the generalizability of the findings across other groups of entrepreneurs or for other affective events. Moreover, our sample for Study 1 uniquely consists of entrepreneurs based in Germany, which might limit the generalizability of our results across cultures. Study 2, however, alleviates this issue somewhat since the participants were international entrepreneurs from various countries. Nevertheless, we encourage further work to replicate our findings in other settings and extend the conceptual model.

Fourth, although the automated facial expression algorithm we used in Study 2 is based on the de facto standard (Ekman, 2003; Ekman and Friesen, 1978, Facial Action Coding System) for measuring emotional facial expressions and although the algorithm has analyzed more than five million faces in 75 countries, it does have some limitations that need to be considered. Although the classical studies by Ekman and colleagues have demonstrated that facial expressions of emotions are universally recognized (e.g., Ekman and Friesen, 1971), the psychology literature has debated the universality of emotions (see the meta-analysis Elfenbein and Ambady, 2002). Currently, automated facial expression algorithms do not integrate cultural or contextual aspects into emotion recognition (Stöckli et al., 2018). Adding cultural aspects to the algorithm would greatly increase its validity. Moreover, automated facial expression algorithms cannot offer any information about possible differences between emotion experienced and emotion expressed. Work on emotion regulation by Gross (2002) suggests that even when individuals experience an emotion, they may not visibly express the emotion. Individuals can use emotion-regulation strategies that change how they experience an emotion or suppress its expression. Although the algorithm we used recognizes micro-emotions that cannot be regulated (Ekman, 2003), we acknowledge that facial expression algorithms may not be able to account for the possible regulation of expressive forms of emotion. Furthermore, by complementing facial emotion recognition with further biometric measures (i.e., galvanic skin responses, heart rate variability, and so on), future research could better clarify how (or whether) the experiential intensity of negative affect can be influenced by entrepreneurs' suppression of their facial expressions when pitching their ventures.

Fifth, although we focus on the moderating effect of passion on the affective consequences of fear of failure, the same mechanisms may extend to other consequences of fear of failure in the entrepreneurial context and/or other contexts. Future research can investigate whether passion's moderating role extends to the motivational, cognitive, and behavioral consequences of fear of failure in other entrepreneurial contexts and in other managerial contexts. In particular, fear of failure is thought not only to have an inhibitory effect on entrepreneurial action but also to stimulate greater striving in some instances (Cacciotti et al., 2016; Mitchell and Shepherd, 2010). Considering that we theorized and found partial proof that the two types of passion play different moderating roles in the relationship between fear of failure and negative affect, future research can contribute by investigating whether the two types of passion play different moderating roles in the relationship between fear of failure and, for example, the amount of effort entrepreneurs invest in their ventures. Such research can help determine whether an optimal balance, or tipping point, exists for regulating fear of failure beyond which the effects are detrimental rather than beneficial for entrepreneurs and new ventures. Along the same line of thinking, future research could also investigate whether regulating fear of failure's affective consequences is always desirable. For example, depending on the situation, negative affect might have beneficial outcomes. Negative emotions can indicate that things are not going fine; thus, when they experience negative emotions, entrepreneurs may be more likely to systematically address the root problem and process information carefully before finding a solution or deciding on a course of action (Schwarz and Clore, 2003). Moreover, negative affect might indicate that progress toward accomplishing existing tasks is slower than desired, thus leading entrepreneurs and others to exert more effort on those tasks (Foo et al., 2009). While negative affect is clearly detrimental in a pitching presentation, it would be interesting to investigate situations in which negative affect may be beneficial and understand the consequences of passion's moderating effects in more detail.

Finally, future research can help increase our understanding of the moderating role of harmonious passion and obsessive passion in the development of state affect by exploring, for example, different affective states governed by passion and the momentary circumstances at play. For example, it would be interesting to understand the regulatory functions of passion that increase or suppress positive momentary affect rather than—or in addition to—negative momentary affect. With a focus on the relationships involved in the generation of positive affect, is the nature of the moderating relationships of the different types of passion the opposite to what we found in the current study? Furthermore, in this study, we looked at the differential moderating effect of different forms of passion—harmonious and obsessive. Future research could apply Cardon et al.'s (2009) conceptualization of entrepreneurial passion and investigate whether entrepreneurs' passion for three distinct entrepreneurial identities—inventor, founder, and developer—moderate the experience of negative affect from fear of failure differently depending on the affective event's domain. As such, it could be that entrepreneurs with fear of failure and entrepreneurial passion for growing ventures experience more negative affect in situations that evaluate their ability to nurture, grow, and expand ventures than in situations that evaluate their ability to identify, invent, and explore new opportunities.

12. Conclusion

In conclusion, our study finds that entrepreneurs experience negative affect from dispositional fear of failure in different ways depending on the type of passion. Specifically, the more entrepreneurs experience harmonious passion, the less intense their negative

affective reactions to fear of failure will be. In contrast, the moderating effect of obsessive passion seems to be more complex and possibly has both a positive and a negative direction. We hope that our findings inspire future research on the moderating effect of passion on different types of affective reactions throughout the entrepreneurial process.

Declaration of Competing Interest

None.

Appendix A. The Passion Scale Items adapted from Vallerand et al. (2003)

Harmonious Passion

1. My role as an entrepreneur is in harmony with the other activities in my life.
2. The new things that I discover in my entrepreneurial activity allow me to appreciate it even more.
3. My entrepreneurial activity reflects the qualities I like about myself.
4. Being an entrepreneur allows me to live a variety of experiences.
5. My entrepreneurial activity is well integrated in my life.
6. Being an entrepreneur is in harmony with other things that are part of me.

Obsessive Passion

1. I have difficulties controlling my urge to work on my entrepreneurial activity.
2. I have almost an obsessive feeling for my entrepreneurial activity.
3. My entrepreneurial activity is the only thing that really turns me on.
4. If I could, I would only work on my entrepreneurial activity.
5. Being an entrepreneur is so exciting that I sometimes lose control over it.
6. I have the impression that my role as an entrepreneur controls me.

General passion (used as a control in Study 2)

1. I spend a lot of time doing my entrepreneurial activity.
2. I like my role as an entrepreneur.
3. My entrepreneurial activities are important for me.
4. My role as an entrepreneur is a passion for me.

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