



Exploration and exploitation in established small and medium-sized enterprises: The effect of CEOs' regulatory focus[☆]



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ABSTRACT

Based on theory of regulatory focus and organizational ambidexterity, we hypothesize that the level of engagement in exploration and exploitation in a small or medium-sized enterprise (SME) is affected by the respective CEO's chronic regulatory focus. In our analysis of survey responses from CEOs in Switzerland, we find that the CEO's level of promotion focus positively affects the firm's engagement in both, exploration and exploitation, while the CEO's prevention focus is negatively associated with the firm's exploration but not significantly related to its exploitation. The positive associations between a CEO's promotion focus and the firm's exploration/exploitation activities are enhanced under conditions of intense competition.

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1. Executive summary

Established businesses often excel in harvesting existing opportunities (exploitation). For instance, they improve the reliability of production processes, reduce material cost, or optimize the firm's internal routines. However, anecdotal evidence as well as scholarly studies have consistently shown that such exploitation is a required yet insufficient condition for long-term business success. In order to prevail across time, firms also need to be entrepreneurial and search for new business opportunities (exploration). Pursuing both sets of activities—exploitation and exploration—has been found to be challenging for firms, in particular for small- and medium-sized businesses (SMEs).

In this paper, we argue that the CEO's personality, in particular his/her (chronic) regulatory focus, affects whether the firm invests in exploration and/or exploitation, and analyze how those relationships are moderated by an important environmental determinant, namely competitive intensity. Regulatory focus is a quite stable disposition of individuals that develops in early childhood and that determines which types of goals an individual follows as well as how s/he tries to attain those goals. More specifically, regulatory focus consists of two independent dimensions: (1) promotion focus, which is associated with an individual's focus on gains and

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advancements as well as the desire to maximize the number of achieved “hits,” and (2) prevention focus, which is associated with an individual’s desire to avoid failure and to minimize the number of “losses.”

We theorize that a high level of promotion focus motivates CEOs to increase the respective firm’s level of both, exploration and exploitation (H1a and H1b). The underlying rationale is that such CEOs require a steady stream of (small and large) accomplishments in order to avoid negative emotions. Moreover, we argue that a high level of prevention focus motivates CEOs to decrease efforts in exploration and to increase efforts in exploitation (H2a and H2b) as such CEOs aim to invest only in activities that fulfill their needs of safety. While exploitative efforts such as quality-enhancing activities serve to fulfill such needs, exploration is likely seen to conflict with such desires. Previous studies have drawn attention to the interplay of regulatory focus with the context and situational stimuli; thus we argue that competitive intensity strengthens the positive relations between promotion focus and exploration (H3a) as well as exploitation (H3b). Further, we hypothesize that the negative relationship between prevention focus and exploration is weakened (H4a) and that the positive relationship between prevention focus and exploitation is strengthened (H4b) under competitive intensity.

We test the hypotheses based on 153 survey responses of CEOs of Swiss SMEs collected in 2012. We find support for our hypotheses H1a, H1b, H2a, H3a, H3b, and tentative support for hypothesis H4b. Hypotheses H2b and H4a were rejected. Several robustness tests were conducted to increase the reliability of the analyses. Based on a recent typology of individuals with high/low promotion/prevention focus, we further empirically investigated the exploration and exploitation activities of “achievers,” “rationalists,” “conservatives,” and “indifferents.”

This paper intends to make three contributions to research, especially with regard to entrepreneurial firm behavior: First, the study contributes to entrepreneurship literature by revealing the CEO’s promotion and prevention focus as important determinants of entrepreneurial activities in established firms. Second, the study advances research on organizational ambidexterity by drawing attention to CEO personality, in particular regulatory focus, as important yet so far neglected antecedent of organizational ambidexterity. Third, this study also contributes to research on regulatory focus by empirically studying different combinations of high/low promotion and prevention focus and by investigating the interplay of regulatory focus and competitive intensity.

2. Introduction

A major challenge for all established companies is the need to continually explore novel business activities and thereby remain entrepreneurial throughout the organizational life cycle (Bracker and Pearson, 1986; Hornsby et al., 2009; Zahra and Covin, 1995). An abundant body of extant research shows that, over time, incumbent firms tend to focus their attention on exploiting existing products and processes, thereby reducing their entrepreneurial activities, and, ultimately, becoming stagnant (e.g., Koberg et al., 1996; March, 1991; Rosenbusch et al., 2011). However, a critical determinant of long-term success is the firm’s ability to pursue opportunities oriented toward the long-term (i.e., engage in exploratory activities) while at the same time harvesting short-term efficiency gains arising from the refinement of existing products and processes (i.e., engaging in exploitative activities) (Choi et al., 2008; Gedajlovic et al., 2012; Lavie et al., 2010).

As exploration and exploitation require different sets of capabilities, engaging in both sets of activities is generally challenging for firms (Lavie et al., 2010), especially for resource-constrained small and medium-sized enterprises (SMEs) (Rothaermel and Alexandre, 2009; Voss and Voss, 2013). Thus, scholars have recently identified several environment-, firm-, and top management team-level drivers of firms’ concurrent engagement in exploration and exploitation (e.g., Gedajlovic et al., 2012; Hill and Birkinshaw, in press; Lavie et al., 2010). Despite these advancements, determinants that relate to the personality of the CEO are still poorly understood (Gibson and Birkinshaw, 2004; Raisch et al., 2009; Smith and Tushman, 2005). This is surprising in light of the strong influence of the CEO’s personality on firm behavior in general (e.g., Hambrick and Mason, 1984; Nadkarni and Herrmann, 2010) and on innovation in particular (Gerstner et al., 2013). Given the authority structures and low levels of hierarchies common in SMEs, the influence of CEOs in SMEs is even stronger (Bierly and Daly, 2007; Man et al., 2002) than in larger organizations.

In this paper, we focus on one important yet understudied facet of the CEO’s personality—his or her chronic regulatory focus (Brockner and Higgins, 2001). Chronic regulatory focus refers to an individual’s motivational sets that determine his or her goals as well as how that person aims to accomplish those goals (Stam et al., 2010). As “one of the most comprehensive motivation theories” (Kark and Van Dijk, 2007: 503), regulatory focus theory has been applied to study various entrepreneurial phenomena (Brockner et al., 2004; Burmeister-Lamp et al., 2012; Wu et al., 2008), such as venture creation (McMullen and Shepherd, 2002), entrepreneurial opportunity recognition and decision making (Crowe and Higgins, 1997; Tumasjan and Braun, 2012), as well as venture and SME performance (Hmieleski and Baron, 2008; Wallace et al., 2010). Chronic regulatory focus, which refers to a relatively stable personality trait (Higgins, 1997; Higgins et al., 2001; Strauman, 1996),² is well suited for explaining decision making and actions among CEOs (Das and Kumar, 2011; Worthy et al., 2007), as individuals are inclined to “direct their attention toward issues consistent with their regulatory preferences” (Chiaburu, 2010: 462). More specifically, a CEO’s chronic regulatory focus orientation affects his/her attention to specific issues, his/her preferred strategies for achieving goals, and his/her resource-allocation patterns (Wallace et al., 2010). As such, it is likely to also affect the firm’s exploration and exploitation activities. This influence of chronic regulatory focus depends on the environmental context (Lanaj et al., 2012) since the environment, in particular the competition in the firm’s market,

² Besides the chronic element of regulatory focus, there is also a more malleable, situational element of regulatory focus that can, for instance, be affected by framings of task specifics (van Dijk and Kluger, 2011), by leadership style of supervisors, or by work climate (Wallace et al., 2009)—elements, which are often manipulated in laboratory settings. Following previous entrepreneurship research (e.g., Bryant, 2009), the focus of this paper is on the more stable, chronic regulatory focus.

alters CEOs' perceptions of how well they achieve their goals. We therefore aim to examine the following research questions: (1) *How does the CEO's chronic regulatory focus affect the respective organization's levels of exploration and exploitation?* and (2) *How does competitive intensity moderate those relationships?*

Regulatory focus comprises two distinct and mutually independent dimensions: the promotion focus and the prevention focus. Individuals with high levels of promotion focus are driven to maximize achievements, whereas individuals with high levels of prevention focus strive to meet their obligations and avoid failures (Brockner and Higgins, 2001; Idson et al., 2000). Based on the extant literature on regulatory focus theory and research on organizational ambidexterity, we hypothesize that high levels of promotion focus among CEOs have positive effects on firms' exploration and exploitation. In addition, we argue that as the CEO's prevention focus increases, the level of exploration decreases and the level of exploitation increases. Furthermore, we suggest that these relationships are moderated by the competitive intensity in the firm's environment. We test our hypotheses using survey responses provided by CEOs of Swiss SMEs.

Our study contributes to the literature in several ways. First and foremost, we advance the entrepreneurship literature by revealing how CEO characteristics, especially the CEO's promotion focus, affect established firms' engagement in both, exploratory (i.e., entrepreneurial) and exploitative activities—firm behavior that is often associated with superior long-term performance (He and Wong, 2004; Lubatkin et al., 2006; Patel et al., 2013). In other words, our results contribute to a better understanding of the determinants of entrepreneurial firm behavior in later stages of the firm's life cycle. In addition, we contribute to the entrepreneurship literature and research on SMEs by providing further evidence of the substantial influence of CEO personality, especially chronic regulatory focus, on entrepreneurial firm behavior not only in the early venturing phases as proposed by prior studies (Higgins et al., 2001; Tumasjan and Braun, 2012) but also in established SMEs.

Second, we advance research on organizational ambidexterity (e.g., Raisch and Birkinshaw, 2008), which focuses on the antecedents and implications of a firm's engagement in both, exploration and exploitation. In particular, we reveal the promotion focus of CEOs as an important antecedent of ambidextrous firm activities. As such, our findings complement the body of so far identified important managerial antecedents of organizational ambidexterity (Lavie et al., 2010).

Third, we not only study how the CEO's promotion and prevention foci independently affect firm behavior, but—in a post-hoc analysis—we also compare four generic types of CEOs (CEOs with high/low promotion and high/low prevention focus) and study their respective firms' exploration and exploitation behaviors. In this regard, we follow a recent call by Lanaj et al. (2012: 1026) to take into account the fact that “people [can] have high levels on both foci, just one focus, or neither.” Moreover, we advance the literature on regulatory focus (Higgins, 2005; Worthy et al., 2007) by studying how the effect of chronic regulatory focus depends on competitive intensity as an important environmental determinant.

3. Theoretical foundations and development of hypotheses

3.1. The CEO's chronic regulatory focus

Researchers in numerous disciplines study how various CEO characteristics, such as attitudes, demographics, and personality, affect firm behavior through decision making and action (e.g., Baron et al., 2012; Brockner et al., 2004; Wiklund and Delmar, 2003), thereby building on upper echelons theory (Hambrick and Mason, 1984). In the field of entrepreneurship, Simsek et al. (2010), for instance, show how CEOs' personalities influence their respective firms' entrepreneurial orientations. Much of the empirical evidence showing that CEO characteristics matter for firm behavior is derived from large, listed firms. However, these effects can be expected to be even more salient in SMEs (Lubatkin et al., 2006; Raisch and Birkinshaw, 2008; Wallace et al., 2010) given the enhanced degree of managerial discretion possessed by CEOs of smaller companies (Finkelstein and Hambrick, 1990) as well as their direct and frequent contact with workers and managers on all levels (Bierly and Daly, 2007; Man et al., 2002).

In management research in general and entrepreneurship research in particular, one aspect of individuals' characteristics—regulatory focus—has attracted a notable amount of attention in recent years (e.g., Brockner et al., 2004; Bryant, 2009; Hmieleski and Baron, 2008; Tumasjan and Braun, 2012; Wu et al., 2008). In building on and extending classic achievement theory (McClelland et al., 1953), regulatory focus theory (Higgins, 1997; Higgins et al., 2001) aims to explain how individuals differ in their approaches to goal attainment and in their underlying motivations. “Chronic regulatory focus” refers to a relatively stable (Higgins, 1997; Hmieleski and Baron, 2008) personality trait of individuals that is shaped through various, mostly childhood and adolescence, experiences (Higgins and Silberman, 1998), in particular socialization in early childhood (Higgins, 1989). More specifically, an individual's subjective history of success with a specific regulatory strategy, especially in the early stages of life, affects his/her preferences for using that strategy to achieve goals (Higgins et al., 2001). Chronic regulatory focus can be assessed in terms of two independent elements (Stam et al., 2010): promotion focus and prevention focus.

Individuals with high degrees of promotion focus are motivated by the need for growth and advancement (Crowe and Higgins, 1997). They therefore concentrate on potential gains and strive to maximize their achievements or “hits,” where a “hit” is a positive outcome provoked by the individual's decisions and actions (see Brockner et al., 2004). In other words, individuals with high levels of promotion focus are motivated by the perceived potential for positive outcomes and aim to maximize rewards for their efforts, while the motivation of individuals with low levels of promotion focus remains largely unaffected by the possibility of maximizing hits (Brockner et al., 2004). The absence of achievements leaves individuals with high levels of promotion focus with negative feelings of sadness and disappointment (Idson et al., 2000).

In contrast, individuals with high degrees of prevention focus are driven by the need for security, safety, and responsibility and thus strive to avoid any errors or potential negative outcomes (Brockner et al., 2004). They are driven by a fear of punishment for

failures caused, for instance, by negligence instead of being motivated by rewards for their successful activities. The absence of failures creates positive feelings of calmness among individuals with high levels of prevention focus, whereas presence of failure leads to negative feelings of tension (Idson et al., 2000).

As individuals' preferences for promotion focus and prevention focus are not two ends of a continuum but orthogonal (Higgins et al., 2001), individuals can have different combinations of high or low levels of promotion and prevention focus (Idson et al., 2000). For instance, some individuals might exhibit high levels of promotion and prevention foci because they have had positive experiences with both motivational sets in the past (Higgins and Silberman, 1998; Lanaj et al., 2012; Markovits, 2013). In fact, studies carried out by Higgins et al. (2001) reveal only a low correlation between the two chronic regulatory foci indicating independence of the two dimensions.

3.2. The CEO's chronic regulatory focus and its effect on exploration and exploitation

The need for CEOs to engage in exploratory and exploitative activities has been frequently emphasized (e.g., Gedajlovic et al., 2012; Raisch et al., 2009). Exploration is typically associated with “search, experimentation, and variation,” whereas exploitation refers to enhancements of “productivity and efficiency through choice, execution, and variance reduction” (Lavie et al., 2010: 110). Exploratory firm activities include, for instance, investigating new technologies, targeting new customer groups, or venturing into new market segments, while cost-cutting or quality-improving activities as well as attempts to increase the level of automation are frequently cited as examples of exploitative activities (Lubatkin et al., 2006). In our paper, we follow extant research (Knott, 2002; Lavie et al., 2010) in assuming that exploration and exploitation, while being distinct sets of activities that rely on specific capabilities and knowledge (March, 1991; Raisch et al., 2009), are complementary firm activities.³ As such, firms that engage in both explorative and exploitative activities can harvest synergies (Bierly and Daly, 2007; Cegarra-Navarro et al., 2011). Researchers have theorized and empirically shown that engaging in both exploratory and exploitative activities exerts a positive influence on firm performance (e.g., He and Wong, 2004). Exploitative activities are important to harvest short-term efficiency gains, yet exclusively pursuing those activities would result in the firm missing important opportunities and, ultimately, becoming a victim of the creative-destruction processes (March, 1991). On the other hand, exploratory activities are more future-oriented and open up new business opportunities that enable adaptation to changing environments and growth (Raisch and Birkinshaw, 2008). However, pure engagement in those activities may result in inferior performance, as such firms might never fully realize their business potential but instead instantly jump into investing in new opportunities (Wiklund and Shepherd, 2011).

However, attempts to engage in both, exploration and exploitation at the same time, create substantial challenges for firms. In this regard, March's (1991) work emphasizes the inherent tensions that organizations face when aiming to engage in exploitative and exploratory activities, as both sets of activities are naturally distinct, and require different knowledge and skills. The challenges associated with engaging in both, exploration and exploitation, are particularly salient for SMEs (Lubatkin et al., 2006) because SMEs often lack the resources needed to engage in “structural ambidexterity,” i.e., to build separate organizational units for the pursuit of exploration and exploitation—an element that has been proposed by various researchers (e.g., O'Reilly and Tushman, 2004) as fostering entrepreneurship in established companies. Moreover, sequential instead of simultaneous engagement in exploration and exploitation (a strategy labeled “temporal ambidexterity”) has been argued to be difficult to implement due to the difficulty of detecting optimum shift times and the high ramp-up costs associated with shifting from one phase to another (Lavie et al., 2010; Turner et al., 2013). Thus, given their resource constraints, SMEs might engage in leadership-based contextual ambidexterity (Lubatkin et al., 2006; Patel et al., 2013) in order to be able to explore and exploit at the same time. Leadership-based contextual ambidexterity is an approach that refers to key decision makers' “behavioral capacity to simultaneously demonstrate alignment and adaptability” (Gibson and Birkinshaw, 2004: 209) and that is likely to be particularly affected by CEO personality. Organizations that possess high levels of leadership-based contextual ambidexterity are associated with high levels of both, firm-level exploration and exploitation (Gibson and Birkinshaw, 2004).

The factors that determine a firm's ability to engage in exploration and exploitation are not yet fully understood. In addition to environmental and organizational factors (Lavie et al., 2010), the characteristics and behaviors of key decision makers can create heterogeneity in firms' levels of exploration and exploitation (Gedajlovic et al., 2012; Mom et al., 2009). We propose that variations in CEOs' chronic regulatory focus help explain heterogeneity in the levels of exploration and exploitation in the respective SMEs.

3.2.1. The CEO's promotion focus and its effect on exploration and exploitation

CEOs with high (as compared to low) levels of promotion focus generally feel intrinsically motivated to maximize their achievements in terms of size and number, and to continuously earn rewards for the activities with which they are associated (Brockner et al., 2004). As promotion focus is associated with reaching for “maximal goals” (Brendl and Higgins, 1996; Idson et al., 2000), these CEOs are expected to pursue goals such as improving their firm's competitive position to the best possible level. Hence, typical achievements that CEOs

³ Scholarly debates on the nature and relationships of exploration and exploitation remain vivid (Gupta et al., 2006; Lavie et al., 2010). For instance, several authors claim that exploitation and exploration constitute two ends of a continuum, and that they need to be balanced (Raisch et al., 2009). Others view them as two separate and independent dimensions of firm activities, also labeled as orthogonal activities (e.g., Gibson and Birkinshaw, 2004). The complementary perspective that we apply claims that exploration and exploitation are separate dimensions yet positively correlated. The underlying rationale of this assumption is that firms benefit from previous investments in one domain (e.g., exploration) when making subsequent investments in the other domain (e.g., exploitation). For instance, resources released through successful exploitation activities can be used to finance future exploratory activities (Brouwer, 2000). This complementary view is supported by an abundant body of empirical work (see Bierly and Daly, 2007).

with high levels of promotion focus perceive as “hits,” which help them to achieve their overall professional goals, include but are not limited to: attracting new customers, launching new products, enhancing the firm’s reputation, and improving financial indicators relative to previous years and/or competitors.

Such “hits” can be achieved by engaging in exploratory and exploitative activities. Engagement in exploratory activities—the active search for new business opportunities (Raisch and Birkinshaw, 2008)—might lead to perceived rewards in the form of new product launches or an expansion of the customer base (Shepherd et al., 2009). As a consequence, CEOs with high levels of promotion focus are likely to be more motivated to engage in exploratory firm activities than CEOs with a low promotion focus. This is in line with extant research showing that high levels of promotion focus are associated with the individual’s willingness to deviate from established paths (Lieberman et al., 1999).

Moreover, high levels of promotion focus render individuals more creative (Friedman and Förster, 2001) and enable them to generate more novel ideas (Crowe and Higgins, 1997). Exploratory activities, which are characterized by the detection and pursuit of new opportunities outside the firm’s current business model (Raisch and Birkinshaw, 2008), require utilizing skills and knowledge in new, non-paradigmatic ways (Raisch et al., 2009). Hence, CEOs with high levels of promotion focus appear particularly well-suited to pursue such activities.

We also hypothesize that the engagement of CEOs with high levels of promotion focus is not constrained to exploratory activities, but also spans exploitative tasks. Research has long emphasized the uncertain nature of exploratory activities given the lack of knowledge about their effective future payoffs (Kline and Rosenberg, 1986). In fact, many exploratory projects fail over time (Cooper, 2008). As a consequence, a pure focus on exploratory activities would lead to extended periods in which “hits” are absent between two exploratory breakthroughs. As CEOs with high levels of promotion focus are sensitive to the absence/presence of hits, they would experience negative feelings of sadness in those times (Idson et al., 2000). Given those CEOs’ desire to avoid the negative emotions associated with such a situation, we argue that high levels of promotion focus also induce CEOs to continuously focus on exploitative activities. For instance, refinement activities that improve product or service quality, and those that enhance process reliability enable CEOs to achieve rather predictable short-term “hits” in the form of increased customer satisfaction or decreased production costs and, subsequently, higher profit margins (e.g., Gibson and Birkinshaw, 2004; He and Wong, 2004). As such, engagement in exploitative activities helps generate a rather predictable “continuous stream of rather incremental hits”⁴ and also contributes to the CEO’s aspiration to reach for “maximal goals.” Based on our assumption that exploitation and exploration are complementary, we hypothesize that CEOs with a high level of promotion focus intensively engage in exploratory and in exploitative firm activities. Therefore:

H1a and H1b. *A CEO’s level of promotion focus is positively associated with: (a) the firm’s level of exploration and (b) the firm’s level of exploitation.*

3.2.2. The CEO’s prevention focus and its effect on exploration and exploitation

In the following, we will hypothesize that CEOs with high levels of prevention focus engage in less exploration yet more exploitation than CEOs with low levels of prevention focus. High levels of prevention focus are typically associated with striving for “minimal goals” (Idson et al., 2000), which are defined as the “lowest goal whose end state will produce satisfaction” (Brendl and Higgins, 1996: 104). In a professional context, striving for minimal goals is associated with aiming to meet the obligations imposed by shareholders as well as customers or board members. Hence, while high levels of promotion focus motivate CEOs to optimize their firm’s market position to the *best possible degree*, high levels of prevention focus encourage CEOs to improve their firm’s market position to a *minimum threshold level* that satisfies the demands of stakeholders as well as CEOs’ own needs for security and responsibility.

We first posit that a high level of prevention focus decreases the CEO’s willingness to engage in exploration activities. As argued above, the exploration of non-paradigmatic business opportunities bears a high probability of failure (Anderson and Tushman, 1990) due to the unknown outcomes and frequent failure of such search processes (Cooper, 2008; Kline and Rosenberg, 1986). CEOs with high levels of prevention focus are generally sensitive to the possibility of failure and aim to avoid it. Engagement in uncertain exploratory activities would suffuse CEOs characterized by high levels of prevention focus with strong negative emotions, especially tension (Idson et al., 2000). The avoidance of uncertain exploratory activities, however, puts these CEOs into a mood of calmness that is associated with positive emotions and is therefore assessed as “preferred” by such CEOs (Idson et al., 2000). Hence, regulatory focus theory implies that these CEOs’ basic need for safety likely motivates them to avoid any potential failure associated with engaging in uncertain exploration, even if that implies missing potentially promising opportunities (Hmieleski and Baron, 2008).

While we theorize that a high level of prevention focus decreases exploratory activities, we also argue that it induces CEOs to engage in more exploitation. CEOs with high levels of prevention focus strive to fulfill their minimal goals and thereby meet stakeholders’ demands. Those minimal goals typically relate to improving product or service quality according to customer requests or increasing the firm’s profit as requested by the board. We argue that exploitative activities, such as the optimization of production processes through increased automation, support CEOs in achieving those minimal goals while at the same time fulfilling their need for safety. For instance, exploitative firm activities that target improved product/service quality or lower production costs help to improve the firm’s market position at a relatively low level of business risk because the technology, production processes, and customer requirements are generally well understood (Christensen and Bower, 1996).

⁴ The assumption that exploitative effort leads to predictable hits holds true as long as the CEO manages to ultimately implement the improvements. Indeed, there is anecdotal evidence that in some cases reluctant employees impede the proposed changes. Furthermore, it should be noted that while exploitation is associated with more predictable hits (as compared to exploration), this does not imply that less effort is needed.

Moreover, due to their basic need for responsibility, individuals with high levels of prevention focus have been shown to be intrinsically motivated to continuously reduce error rates (Pennington and Roese, 2003). As such, CEOs with high (as compared to low) levels of prevention focus are more likely to steadily engage in exploitative quality-improvement measures in order to meet not only customer demands but also their own quality standards. This argumentation is in line with previous research that theorizes that CEOs with high levels of prevention focus often have experience in throughput functions, such as production and engineering, which are closely tied to exploitative improvements (Chiaburu, 2010). In addition, previous research argues that CEOs with high levels of prevention focus are associated with high levels of formalization in the organization (Chiaburu, 2010). Formalization, in turn, has been shown to increase the firm's level of exploitation, as it reduces variation (e.g., of product quality), and helps in the codification and implementation of best practices (Jansen et al., 2006). In summary, we hypothesize that:

H2a and H2b. *A CEO's level of prevention focus is: (a) negatively associated with the firm's level of exploration and (b) positively associated with the firm's level of exploitation.*

3.3. Moderating effects of competitive intensity

We also hypothesize that the effect of a CEO's chronic regulatory focus on the firm's level of exploration and exploitation is contingent on environmental factors because individuals, depending on their personality, are attentive to specific cues from the environment and adapt their behavior accordingly (Barrick, 2005). In support of this notion, previous research shows that the effect of individuals' regulatory focus on their respective behavior depends on the context (Hmieleski and Baron, 2008), especially in terms of whether a "fit" or "misfit" exists between the preferred regulatory focus strategy and the environment (Cesario et al., 2004; Higgins, 2005). Depending on whether an individual assumes that the environmental conditions allow him/her to achieve his/her goals, either positive or negative emotions are triggered (Baas et al., 2011; Idson et al., 2000) leading to variation in behavior.

One environmental factor that might be particularly important in the context of regulatory focus is "competitive intensity," which is defined as a situation of fierce rivalry among players in an industry in which the behavior of one organization strongly depends on the actions of competing firms, leading to high levels of unpredictability and uncertainty as well as a lack of growth opportunities (Auh and Menguc, 2005). Previous empirical studies showed that competitive intensity affects CEOs' sensemaking and decision-making (e.g., Dean and Sharfman, 1993; Miller and Friesen, 1983) as well as firm behavior, for instance inter-firm collaboration (Ang, 2008) and innovation (Boone, 2001). Competitive intensity is likely to interact with CEOs' chronic regulatory focus because it changes the reward structure of the industry as perceived by the CEO, and it alters the presence and absence of perceived achievements and failures due to the increased uncertainty and the increased volatility of competitive advantage (McMullen et al., 2009). As such, competitive intensity acts as a situational stimulus that interacts with the CEO's regulatory focus.

The literature on exploration and exploitation also refers to the important role of environmental factors in general (e.g., Miller and Friesen, 1984; Zahra and Bogner, 2000) and competitive intensity in particular (Tang and Hull, 2012; Yang and Li, 2011), as different environments require different strategies to ensure success (e.g., Levinthal and March, 1993). Specifically, intense competition affects the risk and uncertainty associated with specific firm activities (Auh and Menguc, 2005). In a study of the automotive and computer industries, for example, Fine (1998: 31) shows that increased competition requires firms to intensify their engagement in both, exploitative and exploratory activities.

3.3.1. Competitive intensity, promotion focus, and exploration/exploitation

CEOs with high levels of promotion focus are sensitive to the presence or absence of hits (Higgins, 1997). In order to achieve hits and remain successful in a competitively intense environment, firms must pursue both exploitative activities and exploratory activities (Auh and Menguc, 2005; Zahra, 1993). Consequently, we argue that as competitive intensity increases, CEOs with high levels of promotion focus intensify their efforts in both domains in order to maintain a continuous stream of "hits" and hence experience continuous feelings of joy instead of sadness (Idson et al., 2000).

More specifically, in a competitively intense industry, potential hits are harder to achieve and last for shorter time periods as compared to less competitive industries due to the high level of rivalry among firms in such contexts (Auh and Menguc, 2005). As CEOs with high levels of promotion focus are motivated to achieve maximal goals (Idson et al., 2000), the dismal prospects of competitively intense environments are likely to motivate them to also "explore new markets [and] find novel ways to compete" (Zahra, 1993: 325), and to identify other markets with reward structures that better fit their achievement-based regulatory focus.

Moreover, in highly competitive industries, CEOs with high levels of promotion focus become acutely aware of other businesses' success with exploration, as exploratory behavior is often the root cause of intensified competition (Fine, 1998). Given these CEOs' focus on maximal goals, the successes of competitor firms should stimulate them to put even more effort into exploration.⁵ For these reasons, we expect CEOs with high levels of promotion focus to even more actively engage in exploration when competitive intensity is high than when it is low.

In Section 3.2.1, we argued that CEOs with high levels of promotion focus engage in exploitation more than CEOs with low levels of promotion focus because advances from exploitation might provide a continuous stream of rather predictable "hits," such as increases in profit margins owing to reductions in production costs. Engagement in exploitation thus creates feelings of joy for CEOs with high levels of promotion focus due to the presence of hits and enables them to avoid feelings of sadness arising from the absence of hits

⁵ We thank one anonymous reviewer for pointing out this argument.

(Idson et al., 2000). We argue that these CEOs increase their exploitative efforts when competitive intensity is high in order to “respond to and counter competitive behavior” (Auh and Menguc, 2005: 1654). In competitively intense industries, competitors are constantly working on imitating and refining products, thereby increasing quality and lowering prices (cf. Dickson, 1992). As a consequence, competitive advantages quickly erode in such environments. In order to sustain a continuous stream of “hits” and to work toward the maximal goal of achieving the best possible market position in a competitively intense environment, CEOs need to intensify their exploitation activities in such a market. For instance, the implementation of specific measures to enhance product reliability might enable a company to be market leader for several years in an environment of low competition. However, this competitive advantage rapidly vanishes in competitively intense markets, making new investments in exploitation necessary to sustain the company's market position and avoid the absence of “hits.” As CEOs with high levels of promotion focus strive to avoid an absence of hits in order to retain positive feelings such as “joy,” they are likely to put more effort into exploitative activities such as cost cutting projects in order to achieve temporary competitive advantages when competitive intensity is high instead of low (Lavie et al., 2010). Therefore:

H3a and H3b. *Competitive intensity: (a) enhances the positive effect of a CEO's level of promotion focus on the firm's exploration and (b) enhances the positive effect of a CEO's level of promotion focus on the firm's exploitation.*

3.3.2. Competitive intensity, prevention focus, and exploration/exploitation

High levels of competitive intensity are associated with high levels of uncertainty and risk (March, 1991). With increasing competitive intensity, the required organizational moves and the related success become more and more stochastic and dependent on competitors' actions (Auh and Menguc, 2005). In such situations, the basic needs for safety and responsibility among CEOs with high levels of prevention focus remain increasingly unfulfilled and these CEOs find it more and more difficult to fulfill their obligations (cf. Higgins, 1997). As a consequence, the CEOs with high levels of prevention focus experience strong negative feelings of fear and worry (Baas et al., 2011; Idson et al., 2000) in such a situation, which has been labeled a “lack of regulatory closure” in prior literature (Baas et al., 2011). Unfulfilled basic needs have been shown to trigger creativity (Clapham, 2001; De Dreu et al., 2008) and the willingness to explore divergent thinking (Baas et al., 2011) among individuals with high levels of prevention focus. The underlying reason is that the perceived challenges to fulfill one's needs and meet one's obligations in a competitively intense environment serve as “activizers” or “energizers” for CEOs with high level of prevention focus (cf. Förster et al., 2005). The strong feelings of tension and worry about unsatisfied general needs of safety and security in situations of competitive intensity outrank the lower-level goals of avoiding failure in individual exploratory projects (see Brendl and Higgins, 1996 for a discussion on goal hierarchies). Hence, we argue that CEOs with high levels of prevention focus become increasingly open to actively engaging in exploration when competition intensifies. Consequently, we hypothesize that the negative association between high levels of prevention focus and exploration is attenuated in competitive environments.⁶

With regard to exploitation, we argue that CEOs with high levels of prevention focus engage even more in exploitative activities when competitive intensity is high rather than low. The underlying rationale for this mechanism is two-fold. First, competitive intensity is characterized by imitation among competitors (Dickson, 1992) and, in turn, rapid diffusion of products and technologies (Levinthal and March, 1993) as well as a lack of customer preferences for specific providers of products and services (Kohli and Jaworski, 1990). Such characteristics require steady exploitation efforts in order to meet the various demands of stakeholders, especially customers who continuously desire improved quality and lower prices. CEOs with high levels of prevention focus, who are characterized by a need for responsibility (Higgins, 1997), feel compelled to meet those demands. They are therefore likely to increase their exploitation efforts when competitive intensity is high. Second, a competitively intense market is an environment that punishes non-activity (Kark and Van Dijk, 2007). As CEOs with high levels of prevention focus are attentive to the likelihood of failure and punishment, they invest in activities that are promising to avoid the presence of such negative outcomes. Exploitative activities, such as formal cost-control initiatives, efficiency measures, or customer-retention programs, that result, for instance, in lower production costs or a more stable customer base are well suited for maintaining competitive advantages, at least in the short term (Auh and Menguc, 2005; Miller and Friesen, 1984). Therefore:

H4a and H4b. *Competitive intensity: (a) attenuates the negative effect of a CEO's level of prevention focus on the firm's exploration and (b) enhances the positive effect of a CEO's level of prevention focus on the firm's exploitation.*

4. Methodology

4.1. Sample and data collection

To test our hypotheses, we collected survey data from SMEs, which we defined as firms with up to 500 employees (Dickson et al., 2006). The data covered CEO characteristics, firm characteristics, and the firms' exploration and exploitation activities, as well as other

⁶ An alternative, prospect theory-based explanation for such behavior is that the need to avoid firm failure outranks the need to avoid failure on an exploratory project level.

Table 1
Sample characteristics.

	Sample in this study	Swiss Federal Statistical Office (2013; ¹ entire firm/human population)
<i>Number of firms</i>	153	549,571
<i>CEO age (years)</i>	50.6	50.2 ²
<i>Firm size</i>		
0–9 employees	32.0%	92.1%
10–49 employees	35.9%	6.4%
50–249 employees	27.5%	1.3%
> 250 employees	4.6%	0.2%
Mean of employees	51/73 ³	8/67 ³
<i>Firm age (years)</i>	47	NA ⁴
<i>Industry</i>		
Construction/ Manufacturing (%)	39.2%/50.0% ³	28.4%/45.5% ³
Services (%)	59.5%/48.1% ³	71.6%/54.5% ³
Others (%)	1.3%/1.9% ³	NA ⁵
<i>Legal form of organization</i>		
Limited (liabilities) companies	80%/84% ³	34%/82% ³
Others	20%/16% ³	76%/18% ³

¹ Firm population is based on STATENT and human population on SAKE, two databases that are provided by the Swiss Federal Statistical Office.

² Average age of self-employed individuals in Switzerland.

³ Only firms with more than 10 employees considered, since data of Swiss Federal Statistical Office also includes self-employed individuals with no (or only few) employees, which are not in the focus of this study.

⁴ No data on firm age is available from the Swiss Federal Statistical Office. Data as reported by Frey et al. (2004), who study a representative sample of Swiss firms report an average firm age of 43 years.

⁵ Primary sector excluded as non-relevant for this study; primary sector firms are predominantly microfirms.

factors. In July 2012, we sent an electronic survey to 2508 individuals (of which 1229 were CEOs of SMEs)⁷ that had at least once within the last 10 years expressed an interest in one of the largest, annual Swiss business events for SMEs (“Swiss SME Day”)⁸ and were therefore included in a university mailing list. A follow-up reminder was sent after four weeks. After five weeks of data collection, a total of 362 individuals (including 182 CEOs of SMEs) had completed the survey, resulting in a response rate of 14.4% for all respondents and 14.8% for the CEO subsample. These figures are comparable to those found in other studies targeting entrepreneurs and top managers (e.g., Patel et al., 2013; Zellweger et al., 2012). For our analyses, we solely rely on the CEO subsample. We removed 27 of the 182 responses owing to missing data regarding our focal constructs.⁹ On average, the CEOs in the sample were 51 years old and had almost 16 years of tenure within the firm. 45% of them were majority owners (at least 50% of shares) of their firms, 25% held a minority share, and 30% held no ownership stake.

4.1.1. Representativeness

To assess the representativeness of our sample, we compared key characteristics of the CEOs and firms in our sample with data on the entire population of Swiss SMEs provided for instance by the Swiss Federal Statistical Office (see Table 1). In terms of size, micro businesses (less than 10 employees; 32% of our sample) were under-represented in our sample relative to the entire population of Swiss firms (microbusinesses account for 92% of companies). With regard to firm age, our sampled firms (mean age: 47 years) were older than those in a study by Frey et al. (2004), who analyzed survey responses of 1121 randomly chosen Swiss SMEs (mean age: 43 years). The fact that our sampled SMEs were older and larger than the average Swiss SME is in line with our focus on entrepreneurial behavior in established SMEs, which tend to be larger than newly founded ventures.

In order to further scrutinize the representativeness of our sample (cf. Kotha and Swamidass, 2000; Patel et al., 2013), we compared specific characteristics of the sample firms with the corresponding population of Swiss SMEs.¹⁰ The Welch t-test showed no statistical differences between the sample and the population with respect to the age of CEOs ($t = .32, p = .57$). Moreover, chi-square tests comparing four groups of legal forms ($\chi^2(3) = 3.79, p = .29$) as well as the firm's affiliation with the industry or service sector ($\chi^2(1) = 1.37, p = .24$) revealed no statistical differences between the sample and the population.

⁷ Non-CEO receivers of the questionnaire included department or sales managers, project leaders, and consultants.

⁸ See www.kmu-tag.ch.

⁹ To test whether these missing answers affected our results, we used multiple imputation and ran additional sets of OLS regressions based on the imputed dataset. The magnitude, directions, and significances of the results remained stable.

¹⁰ We thereby excluded microfirms (less than 10 employees) since the dataset provided by the Swiss Federal Statistical Office includes an abundant number of self-employees with no or few employees and thus firms, which are not in the focus of this study. For the age distribution in the population, we assumed a standard deviation of 12 years.

4.1.2. Key informant approach and retrospective bias

Our analysis is based on survey answers provided by CEOs as key informants. This approach, which is in line with other studies of SMEs (e.g., Dehlen et al., 2014; Patel et al., 2013), is based on the assumption that CEOs have the best insight into those firm characteristics and activities that are under investigation (Auh and Menguc, 2005).¹¹ Retrospective bias, which often constitutes a hazard for data gathered via surveys (Brundin et al., 2008), is unlikely to affect our data because of several specificities of the research design. First, our independent variables—the CEO's promotion and prevention focus—are designed to capture the respondent's view of past successes with certain motivational strategies. As the subjective (as opposed to objective) evaluation of the past is at the core of regulatory focus theory (Higgins et al., 2001), any potential retrospective bias of the respondent constitutes an integral part of the model rather than a distortion of it. Second, questions relating to our dependent variables (exploration and exploitation) as well as our moderator (competitive intensity) are tied to the *present* status of the firm rather than to historical data and, hence, cannot be subject to retrospective bias.

4.1.3. Non-response bias

We checked for two possible sources of non-response bias in our sample. First, we probed whether the CEOs who answered our survey differed from the CEOs who did not respond to our survey. As a first test, we conducted a one-way ANOVA comparing key characteristics of early and late respondents, assuming that late responses are more similar to non-responses (Kanuk and Berenson, 1975). We found no significant differences between early and late responses with regard to our explanatory variables. Moreover, we manually collected data on the industry affiliation of all firms in our database as well as the age of a subsample of 555 CEOs who had not responded to our survey by searching public databases, newspapers, and other publicly available archives. We conducted chi-squared tests and found no statistically significant differences at the .05 level between respondents and non-respondents with respect to industry. Furthermore, when comparing the age of non-responding CEOs with the respondents' age, we found no statistically significant difference using the Welch t-test for unequal variances and sample sizes ($t = .19, p = .67$).

Second, to test for any distortion caused by missing answers on our dependent variables, we followed Heckman's (1976) two-step approach and compared partially completed responses with those that were complete. We first calculated a logit model that included CEO gender, CEO tenure, and firm size—all of which might affect response probability but are unrelated to the dependent variables in our sample—as independent variables and the response as the binary dependent variable (coded "1" for missing data on exploration or exploitation). We then used the outcome of this logit model to calculate the inverse Mill's ratio, which we included in our models. Regression models¹² show that the inclusion of the inverse Mill's ratio did not distort the results presented in this study. In sum, we concluded that the results were most likely not affected by non-response bias.

4.1.4. Common method bias

While designing the survey, we took several ex-ante steps to mitigate the risk of common method bias. First, we decreased the respondents' motivation to answer the survey in a socially desirable way by assuring strict confidentiality (Podsakoff et al., 2003). Second, the questions related to our variables were embedded in a more comprehensive survey and ordered in a way that made it almost impossible for respondents to draw any conclusions about the researchers' likely propositions and to edit their answers accordingly (Podsakoff et al., 2003). As an ex-post assessment of common method variance, we first conducted an explanatory factor analysis in order to reveal relationships among the measured variables (Hair et al., 2006). If common method bias exists, "either (a) a single factor will emerge from the analysis, or (b) one general factor will account for the majority of the covariance" among variables (Podsakoff and Organ, 1986: 536). The analysis of our data revealed eight factors with eigenvalues greater than one,¹³ which together accounted for 65% of the total variance. The largest factor explained only 16.6% of the variance. We thus concluded that there was no dominant factor explaining variance in our sample. To scrutinize this finding, we also conducted a confirmatory factor analysis to analyze how well the data structure proposed by the researchers¹⁴ is able to explain covariance among the measured items (Chang et al., 2010). This test showed that the model fit of our hypothesized data structure (see Section 4.2 and Appendix A.1) ($\chi^2(74) = 107.904$, RMSEA = .06, CFI = .95) was significantly better ($p < .001$) than a model with only one dominant factor ($\chi^2(77) = 375.725$, RMSEA = .16, CFI = .56), where the latter indicates the presence of common method bias. Given these findings, we assess the risk of common method bias in our study as low.

4.2. Measures

We applied an iterative, two-way translation (e.g., Dickson et al., 2006) to transform the original questionnaire from English into German. This approach aimed to maintain accuracy while maximizing understandability.

¹¹ We compared the CEOs' responses regarding exploration, exploitation, and competitive intensity with a few available responses from employees of the respective companies and found satisfactory agreement.

¹² Available from the authors upon request.

¹³ When conducting an exploratory factor analysis, researchers need to select the factors that will be considered. The eigenvalue of a factor indicates how much variance the factor explains (the larger the eigenvalue, the more variance that is explained). A general rule of thumb is to concentrate on factors with eigenvalues larger than 1 (Hair et al., 2006).

¹⁴ The hypothesized data structure refers to the measurement model used for data analysis, i.e., all used constructs and items (e.g., assumption that the four items provided in A.1 load on a single factor ("competitive intensity")).

4.2.1. Dependent variables

Various measures have been applied to assess exploration and exploitation in the extant literature (Gupta et al., 2006). We followed the approach used by Lubatkin et al. (2006), as they also focus on SMEs, and as they also adopt a broad view on exploration and exploitation that extends the narrow, technology-centric, and product-based focus of other studies (e.g., He and Wong, 2004), which might not be applicable for every industry. The exploration and exploitation variables were each assessed using six questionnaire items (see Appendix A.1), with possible responses ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). A firm’s level of exploration (exploitation) was calculated as the mean of the values for each of the six items associated with exploration (exploitation), so that it ranged from 1 to 5. The Cronbach’s alphas are .75 for exploration and .70 for exploitation, which suggests an adequate reliability (Hair et al., 2006).¹⁵

4.2.2. Independent variables

We measured both independent variables—promotion and prevention focus—using the Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001; see Appendix A.1), which has previously been applied in entrepreneurial contexts (e.g., Bryant, 2009). RFQ has been shown to be the most adequate measure to capture an individual’s chronic regulatory focus (Haws et al., 2010). CEOs were asked to self-report their subjective histories of prevention and promotion success based on six established items for the promotion focus and five for the prevention focus. They provided their responses using a five-point Likert scale ranging from 1 to 5. A principle component analysis with varimax rotation showed an inconsistent loading of one promotion item (“Compared to most people, are you typically unable to get what you want out of life?”), which was therefore excluded from further analysis. The internal reliability of the promotion ($\alpha = .60$)¹⁶ and prevention ($\alpha = .77$) scales can be assessed as acceptable (Bryant, 2009; Hair et al., 2006). After adjusting for reversely coded items, we averaged each respondent’s answers for the individual items (Zhao and Pechmann, 2007) to create one measure of promotion focus and one measure of prevention focus.

4.2.3. Moderating variables

Competitive intensity was assessed using the scale developed by Jansen et al. (2006). The questionnaire consists of four items (see Appendix A.1), which are rated using a seven-point Likert scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). We averaged answers to the four items to derive the level of competitive intensity in each case.

4.2.4. Control variables

We included several control variables associated with engagement in exploration and exploitation: CEO age, CEO tenure, CEO ownership, firm age, firm size, family ownership, industry, and firm performance (e.g., Gedajlovic et al., 2012; Jansen et al., 2006; Lubatkin et al., 2006; Mom et al., 2009). We included CEO age and CEO tenure to account for any effects of CEO characteristics that were the result of experience (e.g., Mom et al., 2009). For example, one could argue that CEOs with more experience are more likely to have the skills needed to simultaneously pursue exploration and exploitation. However, one could also suggest that older CEOs may be more focused on exploiting existing opportunities than on searching for new ones. We also controlled for the possibility that CEO ownership affects engagement in exploration and exploitation, as CEO ownership entails a specific pattern of goal setting and motivation (Gedajlovic et al., 2012). CEOs who own the majority (>50%) of their firms represent the baseline in our analyses, while other cases are depicted using two dummy variables: “no CEO ownership” (coded “1” if the CEO did not hold any portion of the company) and “CEO minority ownership” (coded “1” if CEO owned shares but less than 50% of the company). Firm age was measured as the number of years since the firm’s foundation (e.g., Lubatkin et al., 2006). Older firms are expected to maintain routines, which implies a focus on exploitation rather than exploration (Bracker and Pearson, 1986). We included firm size, measured as the number of full-time employees (Lubatkin et al., 2006) because larger firms have several advantages (e.g., availability of resources) as well as several disadvantages (e.g., bureaucracy impeding flexibility) with regard to exploration relative to smaller firms (Bierly and Daly, 2007). Moreover, SMEs’ exploration and exploitation activities may be influenced by family ownership (dummy coded as “1” if firm was not perceived as a family firm by the CEO), as shown by Lubatkin et al. (2006). Finally, the industry dummies take potential environmental influences into account. Following Lubatkin et al. (2006), we dummy coded firms as “construction,” “manufacturing,” and “other businesses.” Service firms served as the reference point in our model.

We also asked the respondents to indicate their assessment of firm performance (e.g., Deshpandé et al., 1993) over the last three years on a seven-point Likert-type scale using four items (“How would you assess your firm’s development over the last 36 months relative to that of your competitors in terms of: (a) overall performance, (b) market share, (c) turnover growth, and (d) profitability”). We included performance as (inferior) performance has been shown to affect innovation behavior (Chrisman and Patel, 2012). In particular, the firm’s performance might alter the respective CEO’s framing and his or her perceived end state.¹⁷

¹⁵ Factor loadings, average variance extracted (AVE), and composite reliability (CR) (all available from the authors upon request) were similar to those found in previous studies (e.g., Gedajlovic et al., 2012).

¹⁶ We suspect that the comparatively low level of internal reliability for promotion focus is caused by the specific cultural context of our study (see Sassenberg, Ellemers, and Scheepers (2012)).

¹⁷ To further investigate the possibility that performance differences might have substantially altered our findings, we repeated all calculations based on a subsample that excluded the lowest 5% of performers. The effect of all independent and moderator variables remained stable in terms of size, magnitude, and significance. A descriptive analysis of this subsample of low performers did not provide any support for prospect-theory-based assumptions that low performers engage in more exploration than high performers due to loss aversion (Kahneman and Tversky, 1979).

Table 2
Descriptives.

	Mean	SD	1.	2.	3.	4	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. CEO age	50.58	8.43															
2. CEO tenure	15.64	10.70	.424***														
3. No CEO share	.29	.46	-.034	-.276***													
4. CEO minority share	.25	.44	-.290***	.031	-.378***												
5. Firm age	47.43	43.59	.044	.181*	.305***	-.039											
6. Firm size (employees)	50.87	85.86	-.094	-.010	.212**	.089	.383***										
7. Non-family firm	.41	.49	-.053	-.207*	.363***	.090	.009	.088									
8. Construction	.20	.40	-.187*	-.005	.006	.051	.031	-.008	-.112								
9. Manufacturing	.20	.40	.088	.140 [†]	.043	-.062	.087	.098	-.213**	-.244**							
10. Other business	.01	.11	.109	.150 [†]	.052	.065	.092	.041	.021	-.057	-.057						
11. Performance	4.66	1.05	-.130	.023	.091	.132	-.020	.130	.056	.095	-.066	.037					
12. Promotion focus	4.01	.54	-.011	-.113	.064	-.145 [†]	-.126	-.060	-.129	.039	.038	-.067	.207*				
13. Prevention focus	3.42	.72	-.144 [†]	-.087	.072	.003	.063	.150 [†]	.065	-.041	-.059	-.100	.006	-.080			
14. Competitive intensity	5.45	1.33	-.017	.083	-.018	.054	.066	.109	-.177*	.162*	-.058	.091	-.028	.046	.024		
15. Exploration	3.60	.66	.112	.042	-.066	-.026	-.089	-.040	-.184*	-.073	.170*	.027	.204*	.366***	-.173*	.061	
16. Exploitation	3.85	.57	.159 [†]	0.051	.115	-.123	.102	-.012	.002	-.169*	.148 [†]	.064	.204*	.350***	-.045	.101	.394***

N = 153; [†] p < .10; * p < .05; ** p < .01; *** p < .001.

5. Analyses

5.1. Descriptives

Descriptive statistics and correlations for all variables are provided in Table 2. Overall, we find only moderate levels of correlation between the variables. In particular, the correlation between promotion focus and prevention focus is low (Pearson correlation of -0.080 , $p > .1$), which is in line with previous findings (Higgins et al., 2001). The correlation between exploration and exploitation is positive and significant ($.394$; $p < .001$), which is in line with prior studies (Bierly and Daly, 2007; Gedajlovic et al., 2012) and supports our assumption that exploration and exploitation are complementary variables rather than two ends of a continuum.

5.2. Regression models

To test our hypotheses, we calculated multivariate regression models built on ordinary least squares (OLS). In line with suggestions in the extant literature (Aiken and West, 1991) and in order to rule out any distortion caused by multicollinearity we standardized all variables before conducting the regressions. We conducted several tests to probe the quality of the data and scrutinize whether the assumptions of OLS regression were met (e.g., Hair et al., 2006). We first identified two cases with absolute values for the R-student measure greater than 3 (see, e.g., Kotha et al., 2001). These outliers were removed from the sample, resulting in a final sample size of 153 cases for the OLS regressions. Furthermore, Ramsey RESET tests (e.g., Parker, 2006) showed that our regression models, which assume linearity, were correctly specified (Model 3: $F(3, 133) = .16$, $p = .924$; Model 6: $F(3, 133) = .44$, $p = .724$). Moreover, Kolmogorov–Smirnov tests (Massey, 1951) revealed that the standardized residuals were sufficiently normally distributed (Model 3: $Z = .052$, $p > .100$; Model 6: $Z = .060$, $p > .100$). As confirmed by the White test (White, 1980), our data does not suffer from heteroskedasticity (Model 3: $\chi^2(127) = 107.61$, $p = .893$; Model 6: $\chi^2(127) = 126.73$, $p = .490$). All individual variance inflation factors (VIFs; based on standardized variables) were below 2.2 and thus below the critical value of 10. Hence we assume that multicollinearity did not distort or dilute our results (Neter et al., 1985).

5.3. Regression results

In Models 1–3, the dependent variable is exploration, whereas in Models 4–6, the dependent variable is exploitation. Models 1 and 4 contain only the control variables. In Models 2 and 5, the independent variables—promotion and prevention focus—and the moderator variable competitive intensity are added. Models 3 and 6 additionally include the interaction terms.

Model 1 shows that non-family ownership has a negative and marginally significant ($\beta = -.16$, $p < .10$) effect on exploration. Moreover, firm performance is positively and significantly related to both exploration ($\beta = .25$, $p < .01$; Model 1) and exploitation ($\beta = .26$, $p < .01$; Model 4).¹⁸ In Models 2 and 5, promotion focus exerts a positive and significant influence on exploration ($\beta = .30$, $p < .001$) and on exploitation ($\beta = .32$, $p < .001$). These findings are consistent with Hypotheses 1a and 1b. The effect of prevention focus on exploration is negative and marginally significant ($\beta = -.14$, $p < .1$), which is in line with Hypotheses 2a. However, as the effect of prevention focus on exploitation is insignificant ($\beta = .00$, $p > .1$), Hypothesis 2b is rejected for this sample. Competitive intensity is insignificant in Model 2 ($\beta = .06$, $p > .1$), whereas it is significant in Model 5 ($\beta = .16$, $p < .05$). In Models 3 and 6, which include the interaction terms, the interaction between promotion focus and competitive intensity exerts positive and significant effects on exploration ($\beta = .18$, $p < .05$) and exploitation ($\beta = .15$, $p < .05$). This is consistent with Hypotheses 3a and 3b. However, the interaction between prevention focus and competitive intensity does not have a significant effect on exploration ($\beta = -.01$, $p > .1$) or exploitation ($\beta = .10$, $p > .1$). Hypotheses 4a and 4b are thus rejected at the .1 significance level. The F-values are 2.966 ($p < .001$) for Model 3 and 3.501 ($p < .001$) for Model 6. The adjusted R^2 values of .171 for Model 3 and .208 for Model 6 indicate that these models offer a better fit than the other models. The results of the regressions are shown in Table 3. Moreover, Figs. 1a–d provide graphic illustrations of the moderator effects.

5.4. Robustness checks

We conducted a series of robustness tests to scrutinize our findings and to identify potential root causes for the non-findings (Hypotheses 2b, 4a, and 4b). First, we repeated our regressions using alternative calculations for our core variables in order to account for any distortions infused by the specific calculations of our variables. As the reliability of the promotion scale was low, we ran additional calculations with (a) all six items and (b) only four, positively coded items of the promotion focus scale (the negatively coded item “When it comes to achieving things that are important to me, I find that I don’t perform as well as I ideally would like to do” was also removed). All effects that were significant in the regressions described in Section 5.3 remained stable in terms of magnitude, direction, and significance.

When calculating “competitive intensity” based on three rather than four items (the item “Price competition is a hallmark of our local market” was removed, thereby increasing the internal reliability from .88 to .91), the effects of the independent and moderator variables as reported in Section 5.3 remained stable in terms of magnitude, direction, and significance. In addition, the interaction

¹⁸ The result that family firms engage more in exploration is in line with research that has identified several important advantages for family firms when targeting radically new market opportunities (e.g., König et al., 2013). The positive correlation between firm performance and exploration and exploitation provides further empirical evidence that slack resources foster ambidexterity (e.g., Lavie et al., 2010).

Table 3
Exploration and Exploitation.

	Models 1–3: exploration			Models 4–6: exploitation		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CEO age	.121	.087	.108	.146	.130	.148†
CEO tenure	-.056	-.017	-.042	-.051	-.017	-.030
No CEO share	-.019	-.039	-.088	.036	.001	-.010
CEO minority share	-.008	.013	.016	-.070	-.049	-.043
Firm age	-.070	-.034	-.003	.119	.157†	.175*
Firm size	-.037	-.013	-.014	-.087	-.092	-.104
Non-family firm	-.164†	-.098	-.091	-.002	.088	.091
Construction	-.061	-.089	-.074	-.137	-.164*	-.151†
Manufacturing	.137	.117	.138†	.128	.128	.143†
Other business	.026	.014	.021	.043	.039	.049
Performance	.254**	.185*	.176*	.261**	.196*	.187*
Promotion focus		.296***	.296***		.322***	.314***
Prevention focus		-.136†	-.140†		.001	-.001
Competitive intensity (CI)		.064	.096		.159*	.202*
Promotion focus x CI			-.175*			.153*
Prevention focus x CI			-.005			.097
F-Ratio	1.886	2.972***	2.966***	2.170*	3.539***	3.501***
R ²	.128	.232	.259	.145	.264	.292
Adjusted R ²	.060	.154	.171	.078	.190	.208
Change in R ²	.128	.104	.027	.145	.119	.028
Observations	153	153	153	153	153	153

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

effect of prevention focus and competitive intensity on exploitation was positive and marginally significant ($\beta = .13$, $p < .10$) in this model. This is in line with the argumentation leading to H4b, which we had rejected based on the results given in Section 5.3. This interaction effect (as well as the effects reported in 5.3) remained stable in their magnitude, size, and direction when performing the below listed robustness tests with three rather than four competitive-intensity items.

We also ran calculations with alternative dependent variables, namely “organizational ambidexterity” (O’Reilly and Tushman, 2013). Organizational ambidexterity was calculated as the sum of, the product of, or the difference between exploration and exploitation (Jansen et al., 2005; Patel et al., 2013). The regressions reveal a positive effect of promotion focus on organizational ambidexterity, which is enhanced under competitive intensity, for the multiplicative ($\beta = .39$, $p < .001$ for direct and $\beta = .21$, $p < .01$ for interaction effect) and additive ($\beta = .37$, $p < .001$ for direct and $\beta = .19$, $p < .01$ for interaction effect) calculations of organizational ambidexterity (see Table 4).¹⁹ Prevention focus does not exert a positive effect on organizational ambidexterity (in line with our results rejecting H2b). The independent variables did not show any significant effect when the difference between exploration and exploitation was used as dependent variable. These findings suggest that chronic regulatory focus affects the absolute values of exploration and exploitation but does not have any effect on how CEOs balance those two sets of activities.

Moreover, our results remained stable in terms of magnitude, direction, and significance regardless of whether control variables were included or excluded (see Spector and Brannick, 2011 for a discussion of potential distortion through the inclusion of control variables).

As in many studies focusing on survey responses provided by CEOs (e.g., Patel et al., 2013; Zellweger et al., 2012), our sample size is limited. To rule out the possibility that the results described in Section 5.3 were caused by few extreme data points, we followed previous research and applied a bootstrapping approach (Bacharach et al., 2005; D’Aveni and Ilinitch, 1992). More specifically, we constructed 1000 resamples and repeated the calculations five times. All of the results presented in Section 5.3 remained stable in terms of magnitude, direction, and significance.

To rule out the possibility that our results are sensitive to the model’s specification, we conducted alternative regressions. Robust regressions calculated in STATA as well as generalized linear models based on maximum likelihood instead of the OLS parameter estimation were applied. These robustness checks also resulted in stable results compared to those reported in Section 5.3 (i.e., the magnitude, direction, and size of the results were stable).

5.5. Post-hoc test: interactive effects of promotion and prevention focus

In a subsequent step of our analysis, we aimed to shed light on exploitation and exploration for CEOs with varying combinations of promotion and prevention focus (Lanaj et al., 2012). We first used the median to split the sample into four clusters (Idson et al., 2000; Markovits, 2013), which we labeled according to the taxonomy provided by Markovits (2013): high promotion focus and low prevention focus (“achievers”), high promotion focus and high prevention focus (“rationalists”), low promotion focus and low prevention focus (“indifferents”), and low promotion focus and high prevention focus (“conservatives”). We then calculated the mean values

¹⁹ Organizational ambidexterity is also positively correlated with CEO age, indicating that CEOs might become more skilled in pursuing ambidextrous firm activities over time. The positive effect of manufacturing on ambidexterity might be traced back to the cyclicity and the focus on technological innovation in this industry, which requires constant search for and harvesting of new opportunities.

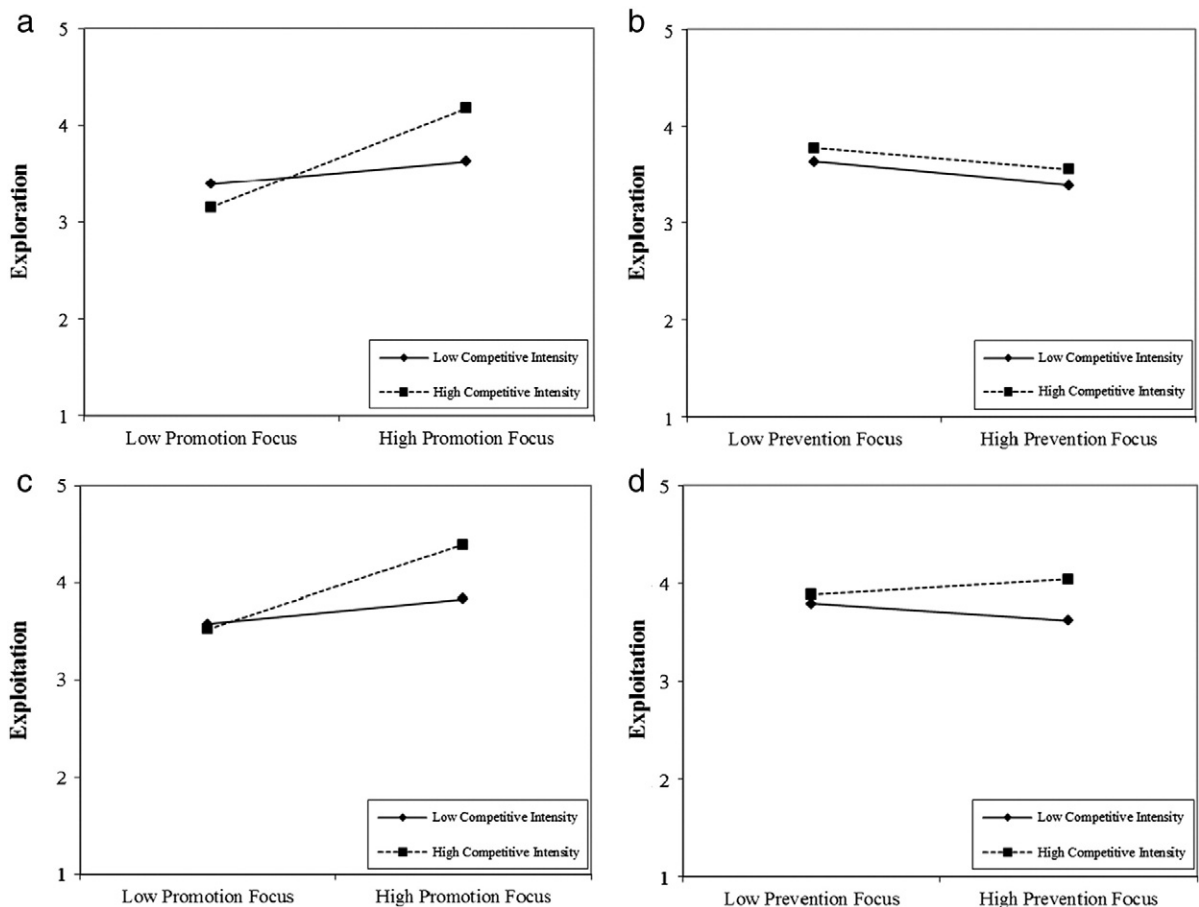


Fig. 1. a–d: interaction effects.

of exploration (Fig. 2a) and exploitation (Fig. 2b) for each of the four groups, and tested the significance of their differences using contrast analysis.

The results of the contrast analysis (see Tables 5a/b) show that achievers engaged in the highest level of exploration (mean = 3.89), followed by rationalists (mean = 3.66) and indifferents (mean = 3.54). The level of exploration is lowest for conservatives (mean = 3.20). The four groups differed significantly in terms of their level of exploration, with the exception of rationalists and indifferents ($p = .448$). These results are in line with Hypotheses H1a and H2a.

With regard to exploitation, the activity level of achievers and rationalists was highest (mean = 4.00), followed by indifferents (mean = 3.71), and conservatives (mean = 3.55). While the difference between rationalists/achievers and indifferents turned out significant, the difference between achievers and rationalists as well as the difference between indifferents and conservatives were insignificant (in line with the regression results that led us to reject H2b). These results are further discussed in Section 6.

6. Discussion

This study aimed to enhance our understanding of how the CEO's promotion and prevention focus affect the respective firm's exploration and exploitation. In so doing, we aimed to advance theory on entrepreneurship in later stages of the organizational life cycle. The empirical results revealed a strong positive effect of the CEO's promotion focus and a negative effect of the CEO's prevention focus on the firm's level of exploration. These findings extend previous entrepreneurship studies that found evidence of a positive correlation between promotion focus and, for instance, the search for new ideas and the recognition of opportunities in new ventures (e.g., Hmieleski and Baron, 2008; Tumasjan and Braun, 2012). Our findings go beyond prior research by shifting the focus to later phases of the organizational life cycle, as we show how entrepreneurship can be fostered in established firms. In particular, our results reveal that high levels of CEOs' promotion focus are positively and high levels of prevention focus are negatively associated with entrepreneurship in the respective firms. This extension is important, as established SMEs, while they often benefit from specific advantages, such as established customer bases (e.g., Masurel and Van Montfort, 2006), are typically challenged by a tendency toward inertia caused by engraved routines (e.g., Withers et al., 2011). Several prior studies have highlighted that while new ventures typically emphasize exploration (Hill and Birkinshaw, 2008), firms tend to become more focused on exploitation over time (O'Reilly and Tushman, 2008). Our findings thus contribute to research seeking to identify how firms, especially SMEs, can remain

Table 4
Ambidexterity.

	Models 1–3: multiplicative ambidexterity			Models 4–6: additive ambidexterity			Models 7–9: subtractive ambidexterity		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
CEO age	.158†	.130	.154†	.159†	.129	.152†	-.017	-.035	-.030
CEO tenure	-.083	-.036	-.060	-.064	-.020	-.043	-.007	-.001	-.012
No CEO share	-.010	-.043	-.080	.009	-.023	-.060	-.050	-.038	-.074
CEO minority share	-.044	-.015	-.009	-.046	-.020	-.015	.055	.056	.054
Firm age	.036	.082	.113	.027	.071	.100	-.172†	-.172†	-.159
Firm size	-.068	-.056	-.065	-.073	-.062	-.069	.043	.071	.079
Non-family firm	-.120	-.025	-.019	-.101	-.009	-.003	-.152	-.170†	-.166†
Construction	-.098	-.129†	-.112	-.117	-.150†	-.134†	.065	.064	.066
Manufacturing	.176*	.163*	.187*	.158†	.146†	.168*	.015	-.005	.001
Other business	.042	.035	.046	.041	.031	.041	-.014	-.021	-.024
Performance	.310***	.225**	.212**	.307***	.228**	.216**	.005	-.002	-.002
Promotion focus		.389***	.384***		.368***	.364***		-.010	-.004
Prevention focus		-.070	-.073		-.083	-.086		-.128	-.130
Competitive intensity (CI)		.125†	.174*		.132†	.176*		-.082	-.091
Promotion focus × CI			.212**			.196**			.028
Prevention focus × CI			.064			.053			-.091
F-Ratio	2.559**	4.751***	4.928***	2.491**	4.460***	4.513***	1.017	1.041	.985
R ²	.166	.325	.367	.163	.312	.347	.073	.096	.104
Adjusted R ²	.101	.257	.293	.097	.242	.270	.001	.004	-.002
Change in R ²	.166	.159	.042	.163	.149	.035	.073	.023	.008
Observations	153	153	153	153	153	153	153	153	153

†p < .10; *p < .05; ** < .01; ***p < .001.

entrepreneurial over time (Gedajlovic et al., 2012; Man et al., 2002; Zahra and Covin, 1995) by identifying the CEO's promotion and prevention focus as determinants of continued exploration.

Our investigation (see Section 5.4) also reveals that the CEO's level of promotion focus not only positively affects the firm's exploration but also its exploitation and, hence, its organizational ambidexterity (Raisch and Birkinshaw, 2008). As such, our study advances the thriving research stream that seeks to understand heterogeneity in firms' levels of organizational ambidexterity (Lavie et al., 2010), especially among SMEs (Gedajlovic et al., 2012; Lubatkin et al., 2006; Patel et al., 2013). We highlight the CEO's personality, especially his or her promotion focus, as an important determinant of organizational ambidexterity—a type of antecedent that has attracted little scholarly attention to date (cf. Lavie et al., 2010; Raisch and Birkinshaw, 2008). This finding might also inform research on upper echelons theory (Quigley and Hambrick, in press), which has so far largely neglected the role of the CEO's chronic regulatory focus despite its focus on CEO characteristics.

Contrary to our expectations, the CEO's prevention focus did not significantly affect the firm's level of exploitation. This non-finding might have the following explanation: Based on arguments found in regulatory focus theory and research on organizational ambidexterity, we argued in Section 3.2.2 that high levels of prevention focus are associated with high levels of formalization, which in turn should foster exploitative firm activities. However, as extant studies of the relationship between formalization and exploitation (e.g., Jansen et al., 2005) focus on larger companies, their findings might not be fully transferrable to SMEs. In fact, one might suspect that high levels of prevention focus could induce the CEO of an SME to establish excessively formalized structures in order to avoid errors within the organization. Such overly formalized routines might be associated with high levels of bureaucracy, which can hamper advancements and improvements (e.g., Adler and Borys, 1996). Therefore, in-depth research is required to study and assess the specific error-avoidance measures that CEOs with high levels of prevention focus install in their firms as well as the implications of those measures.

We also studied the context dependency of the results, and provide evidence that the positive effect of a CEO's promotion focus on the firm's exploration and exploitation is enhanced when competitive intensity is high. As such, this study contributes to the emerging stream of research that investigates how the effects of regulatory focus depend on industry characteristics (Hmieleski and Baron, 2008). Moreover, we hypothesized that CEOs with high levels of prevention focus invest more in exploration and exploitation in

Table 5a
Contrast tests: exploration.

Groups (mean value)	Contrast value	SD	T	Df	Significance (two-tailed)
Achiever (3.89) – Rationalist (3.66)	.227	.13	1.800	149	.074
Achiever (3.89) – Indifferent (3.54)	.348	.16	2.133	149	.035
Achiever (3.89) – Conservative (3.20)	.686	.14	4.991	149	.000
Rationalist (3.66) – Indifferent (3.54)	.121	.16	.761	149	.448
Rationalist (3.66) – Conservative (3.20)	.459	.13	3.479	149	.001
Indifferent (3.54) – Conservative (3.20)	.338	.17	2.018	149	.045

Table 5b
Contrast tests: exploitation.

Groups (mean value)	Contrast value	SD	T	Df	Significance (two-tailed)
Achiever (4.00) – Rationalist (4.00)	.004	.11	.031	149	.975
Achiever (4.00) – Indifferent (3.71)	.295	.14	2.051	149	.042
Achiever (4.00) – Conservative (3.55)	.452	.12	3.729	149	.000
Rationalist (4.00) – Indifferent (3.71)	.292	.14	2.087	149	.039
Rationalist (4.00) – Conservative (3.55)	.449	.12	3.858	149	.000
Indifferent (3.71) – Conservative (3.55)	.157	.15	1.062	149	.290

contexts characterized by high rather than low competitive intensity. We did not find a significant effect on exploration, which might be explained as follows. Competitively intense situations might threaten CEOs with high levels of prevention focus. Theory on threat rigidity has long proposed that “when placed in a threat situation, an individual’s most well-learned or dominant response might be emitted” (Staw et al., 1981: 502) because of, for instance, psychological stress. Yet the dominant response of CEOs with high levels of prevention focus is avoidance of firm activities with uncertain outcomes and, therefore, a reluctance to engage in exploration. This argument, which is based on threat rigidity, might counteract the regulatory focus-based argumentation found in Section 3.3.2 and ultimately explain the insignificant results.

The hypothesized positive interaction effect of competitive intensity and prevention focus on exploitation was rejected in our main regression models. However, additional tests based on adapted calculations of “competitive intensity” (not referring to item on “price wars” any more) resulted in stable, positive, and significant effects (see Section 5.4). This preliminary finding suggests that CEOs with high levels of prevention focus might be highly sensitive to specific market characteristics. For example, their exploitative activities might be different in markets with easily replaceable (commodity) goods, in which competitors engage in price wars, than in other markets where competitive intensity is high but companies mainly compete on the basis of, for instance, product and service quality.

Our study further advances theory on entrepreneurship (Brockner et al., 2004) and regulatory focus (Lanaj et al., 2012), as we study different combinations of promotion and prevention focus (see the post-hoc analysis). In line with prior work (Markovits, 2013), we distinguish among rationalists (high promotion and high prevention focus), achievers (high promotion and low prevention focus), conservatives (low promotion and high prevention focus), and indifferents (low promotion and low prevention focus). In line with our regression results, we find that among CEOs with high levels of promotion focus, firms led by achievers engage in significantly more exploration (and similar levels of exploitation) than firms led by rationalists. Two mechanisms might explain this pattern. First, when considering exploratory activities, rationalists might find themselves in a dilemma. Regulatory focus theory suggests that their high levels of promotion focus make them desire hits and that non-activity leads to negative emotions, such as disappointment and sadness (cf. Idson et al., 2000). At the same time, given their high levels of prevention focus, engagement in exploratory activities imbues these CEOs with high levels of tension arising from the perceived threat of failure. This dilemma might detract from the firm’s overall level of exploration. Second, rationalists might be less likely than achievers to be overconfident—the tendency to overestimate the correctness of one’s own assessment (Busenitz and Barney, 1997)—when, for instance, estimating the potential of identified opportunities. While high levels of promotion focus are generally associated with increased overconfidence bias (Trevelyan, 2008), high levels of prevention focus are related to the desire to avoid mistakes (Higgins, 1997) and, as such, might reduce the CEO’s overconfidence bias. One might argue that rationalists can switch between the two regulatory foci and thus use a more careful and conservative prevention-focused approach when assessing exploratory opportunities. Future studies might therefore explore the decision-making patterns and underlying criteria of rationalist CEOs in more detail. In this regard, it would be of particular interest to

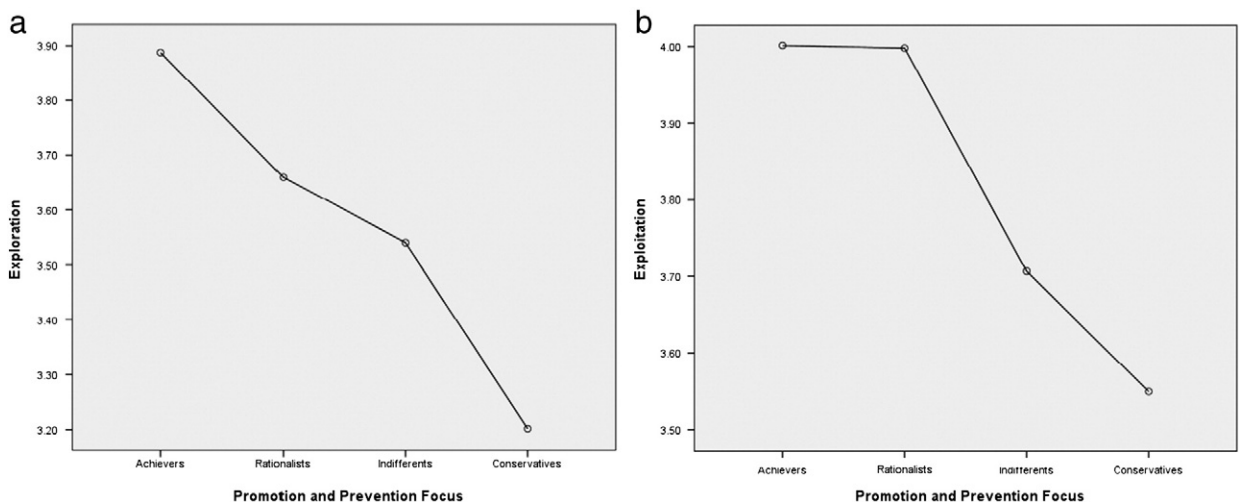


Fig. 2. a–b: post-hoc analyses.

study the performance implications. Organizational ambidexterity research (He and Wong, 2004) claims a positive association among exploration, exploitation, and firm performance, which suggests that achievers outperform rationalists. Conversely, based on recent research on entrepreneurship and regulatory focus (Baron, 2004; Brockner et al., 2004), which claims that entrepreneurs profit from scoring high on promotion and prevention, one would expect rationalists to generally be more entrepreneurially successful than their achiever counterparts (see also our discussion of the overconfidence argument). Given those inconsistent predictions, further research is required that studies under which contextual boundaries either achiever-CEOs or rationalist-CEOs are more successful regarding the respective firm's performance.

The findings from our contrast analysis also reveal that individuals with low levels of both prevention and promotion focus (indifferents) engage in significantly more exploration than conservatives (high levels of prevention and low levels of promotion focus), with the difference between rationalists and indifferents being non-significant. While this is in line with our theorizing (H1a and H2a), it challenges the way in which indifferents are pictured in the extant literature. While most research remains surprisingly silent about individuals with low levels of both foci (Lanaj et al., 2012), Markovits (2013: 85) describes indifferent employees as people without ideals that “find little interest in work or career and derive little satisfaction from it,” who neither pursue innovations nor are reluctant to implement them and who are generally low performers. Our findings challenge this overly negative view of indifferents. In future studies, investigations of the characteristics of those individuals would be welcome, as would examinations of the conditions under which they become CEOs of SMEs (e.g., as family-internal successors in family firms). Such research may also focus on the motivations of indifferents, how they perform their tasks, and the precise performance implications of appointing such individuals as leaders.

6.1. Limitations and future research

As with any empirical work, our study comes along with several limitations that reveal potential avenues for additional research. A first limitation is our reliance on a single informant per firm as well as the subjective nature of data on exploration, exploitation, and competitive intensity, as individual respondents might have biased perspectives. However, this tradeoff must be weighed against the fruitfulness of insights gained from studying the behavior of SMEs, where often only the CEO has deep insights into the relevant decision making and firm operations, and for which objective data is scarce.

Second, our investigation focuses on a specific type of firms—established Swiss SMEs—and is based on a sample that might not be fully representative of all SMEs. We therefore encourage scholars to replicate our study for other types of firms and in other geographical settings in order to scrutinize the generalizability of our findings. In addition, although the internal reliability of the promotion scale in our sample was acceptable (Hair et al., 2006; Reed et al., 2006), it was rather low. This is similar to other studies applying the Higgins scale in continental European contexts (e.g., Carmona et al., 2008; Sassenberg et al., 2012). We encourage researchers to focus on further investigating this phenomenon and proposing changes to the original RFQ scale that will result in higher levels of reliability for studies conducted in specific geographical contexts.

Third, our data set is cross-sectional, which implies we cannot a priori rule out reverse causality. For instance one might argue that previous firm performance alters the respective CEO's promotion and prevention focus. However, extant research indicates that such feedback of prior activities rather affects the height of goals than the type of goals or ways to achieve those goals (Donovan and Hafsteinnsson, 2006; Ilies and Judge, 2005). Moreover, previous studies have argued for and provided some empirical evidence for the quite stable nature of chronic regulatory focus (Higgins et al., 2001; Keller and Bless, 2006; Strauman, 1996) and thus indicate that reverse causality is relatively unlikely. Nevertheless, future research should account for potential changes in CEOs' regulatory focus over time by collecting longitudinal data on CEOs' promotion and prevention focus. Furthermore, lagged performance data would allow deriving further insights on the success of CEOs with high/low promotion/prevention focus in terms of their exploration and exploitation activities.

In addition, we suggest that scholars extend the investigation of determinants of exploration in SMEs to include other CEO characteristics, such as ambiguity tolerance (e.g., Begley and Boyd, 1988) or internal locus of control (Judge and Bono, 2001), as well as other environmental factors, such as munificence (e.g., Baum et al., 2001). Other promising avenues for additional research lie in studying what specific exploratory and exploitative activities CEOs with various combinations of promotion and prevention focus pursue.

6.2. Managerial implications

This study also has important practical implications. Our results show that high levels of promotion focus among CEOs might be particularly valuable for SMEs in highly competitive markets, as such CEOs intensely pursue entrepreneurial opportunities while they also harvest short-term efficiency gains. This insight is particularly relevant for three types of real-life situations. First, owners of SMEs are advised to pay particular attention to hiring external CEOs who score high on promotion focus. Adapted questions from the Higgins et al. (2001) scale on chronic regulatory focus (see Appendix A.1) might help owners investigate the level of a candidate's promotion focus in a pre-offer assessment. Second, exiting owners who care about the future wellbeing of their firms (e.g., DeTienne, 2010) and who intend to hand over their firms in competitive markets should evaluate whether potential successors are characterized by high levels of promotion focus, as this might affect the firm's future prosperity. Third, SME CEOs who sense intensifying competition should investigate whether they are equipped with high levels of promotion focus, an attribute that will allow them to successfully lead their firms in competitively intense environments according to findings of this study. If this is not the case, they might consider one of two options. First, although research regarding whether and how otherwise stable personality traits can be intentionally altered is still inconclusive (Roberts et al., 2006), awareness of the shortfalls that accompany a lack of

promotion focus might help CEOs critically assess their decision making and resource allocations. Second, in line with findings in research on minority dissent (De Dreu and West, 2001), CEOs might include individuals with high levels of promotion focus in their management or advisor teams.

6.3. Conclusion

CEOs' characteristics substantially affect their organizations' entrepreneurial activities, particularly in SMEs. The chronic regulatory focus of key decision makers, especially their level of promotion focus, affects the firm's engagement in exploratory and exploitative activities, and might ultimately have an impact on firm performance. In order to advance entrepreneurship theory, we encourage scholars to further investigate how CEOs' personal characteristics in interaction with important environmental factors affect firm behavior.

Appendix A. 1 – Focal questionnaire items

Promotion and prevention focus basing on the regulatory focus questionnaire

This scale is based on Higgins et al. (2001). Respondents were asked to answer each question on a five-point scale. The questions refer to specific situations in the life of respondents. Answer options ranged from “never or seldom” (= 1) to “very often” (= 5). Items marked with an asterisk are reversed scored. Items marked with “(–)” were removed.

Items for promotion focus

Compared to most people, are you typically unable to get what you want out of life?* (–) / How often have you accomplished things that got you “psyched” to work even harder? / Do you often do well at different things that you try? / When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.* / I feel like I have made progress toward being successful in my life. / I have found hobbies or activities in my life that capture my interest or motivate me to put effort into them.

Items for prevention

Growing up, would you ever “cross the line” by doing things that your parents would not tolerate?* / Did you get on your parents' nerves often when you were growing up?* / How often did you obey rules and regulations that were established by your parents? / Growing up, did you ever act in ways that your parents thought were objectionable?* / Not being careful enough has gotten me into troubles at times.*

Exploration and exploitation

Respondents were asked to describe the firm's orientation during the past three years using a five-point Likert scale (1 = “strongly disagree” to 5 = “strongly agree”), which has been used, for instance, by Lubatkin et al. (2006).

Items for exploration

The firm looks for novel technological ideas by thinking “outside the box.” / The firm bases its success on its ability to explore new technologies. / The firm creates products or services that are innovative to the firm. / The firm looks for creative ways to satisfy its customers' needs. / The firm aggressively ventures into new market segments. / The firm actively targets new customer groups.

Items for exploitation

The firm commits to improve quality and lower cost / The firm continuously improves the reliability of its products and services. / The firm increases the levels of automation in its operations. / The firm constantly surveys existing customers' satisfaction. / The firm fine-tunes what it offers to keep its current customers satisfied. / The firm penetrates more deeply into its existing customer base.

Competitive intensity

The scale is based on scales developed by Jaworski and Kohli (1993) and Birkinshaw et al. (1998), and was also used, for instance, by Jansen et al. (2006). Competitive intensity is measured on a seven-point Likert scale ranging from 1 = “strongly disagree” to 7 = “strongly agree.”

Items for competitive intensity

Competition in our local market is intense./Our organizational unit has relatively strong competitors./Competition in our local market is extremely high./Price competition is a hallmark of our local market.

References

- Adler, P.S., Borys, B., 1996. Two types of bureaucracy: enabling and coercive. *Adm. Sci. Q.* 41 (1), 61–89.
- Aiken, L., West, S., 1991. *Multiple Regression: Testing and Interpreting Interactions*. Sage, Newbury Park.
- Anderson, P., Tushman, M.L., 1990. Technological discontinuities and dominant designs: a cyclical model of technological change. *Adm. Sci. Q.* 35 (4), 604–633.
- Ang, S.H., 2008. Competitive intensity and collaboration: impact on firm growth across technological environments. *Strateg. Manag. J.* 29 (10), 1057–1075.
- Auh, S., Menguc, B., 2005. Balancing exploration and exploitation: the moderating role of competitive intensity. *J. Bus. Res.* 58 (12), 1652–1661.
- Baas, M., De Dreu, C.K.W., Nijstad, B.A., 2011. When prevention promotes creativity: the role of mood, regulatory focus and regulatory closure. *J. Pers. Soc. Psychol.* 100 (5), 794–809.
- Bacharach, S.B., Bamberger, P.A., Vashdi, D., 2005. Diversity and homophily at work: supportive relations among white and African-American peers. *Acad. Manag. J.* 48 (4), 619–644.
- Baron, R.A., 2004. Potential benefits of the cognitive perspective: expanding entrepreneurship's array of conceptual tools. *J. Bus. Ventur.* 19 (2), 169–172.
- Baron, R.A., Hmieleski, K.M., Henry, R.A., 2012. Entrepreneurs' dispositional positive affect: the potential benefits – and potential costs – of being “up”. *J. Bus. Ventur.* 27 (3), 310–324.
- Barrick, M., 2005. Yes, personality matters: moving on to more important matters. *Hum. Perform.* 18 (4), 359–372.
- Baum, J.R., Locke, E.A., Smith, K.G., 2001. A multidimensional model of venture growth. *Acad. Manag. J.* 44 (2), 292–303.
- Begley, T.M., Boyd, D.P., 1988. Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *J. Bus. Ventur.* 2 (1), 79–93.
- Bierly, P., Daly, P., 2007. Alternative knowledge strategies, competitive environment and organizational performance in small manufacturing firms. *Enterpr. Theory Pract.* 31 (4), 493–516.
- Birkinshaw, J., Hood, N., Jonsson, S., 1998. Building firm-specific advantages in multinational corporations: the role of subsidiary initiative. *Strateg. Manag. J.* 19 (3), 221–241.
- Boone, J., 2001. Intensity of competition and the incentive to innovate. *Int. J. Ind. Organ.* 19 (5), 705–726.
- Bracker, J., Pearson, J.N., 1986. Planning and financial performance of small, mature firms. *Strateg. Manag. J.* 7 (6), 503–522.
- Brendl, C., Higgins, E., 1996. Principles of judging valence: what makes events positive or negative? In: Zanna, M. (Ed.), *Advances in Experimental Social Psychology*, 28. Academic Press, San Diego, pp. 95–160.
- Brockner, J., Higgins, E.T., 2001. Regulatory focus theory: implications for the study of emotions at work. *Organ. Behav. Hum. Decis. Process.* 86 (1), 35–66.
- Brockner, J., Higgins, E.T., Low, M.B., 2004. Regulatory focus theory and the entrepreneurial process. *J. Bus. Ventur.* 19 (2), 203–220.
- Brouwer, M., 2000. Entrepreneurship and uncertainty: innovation and competition among the many. *Small Bus. Econ.* 15 (2), 149–160.
- Brundin, E., Patzelt, H., Shepherd, D.A., 2008. Managers' emotional displays and employees' willingness to act entrepreneurially. *J. Bus. Ventur.* 23 (2), 221–243.
- Bryant, P., 2009. Self-regulation and moral awareness among entrepreneurs. *J. Bus. Ventur.* 24 (5), 505–518.
- Burmeister-Lamp, K., Lévesque, M., Schade, C., 2012. Are entrepreneurs influenced by risk attitude, regulatory focus or both? An experiment on entrepreneurs' time allocation. *J. Bus. Ventur.* 27 (4), 456–476.
- Busenitz, L.W., Barney, J.B., 1997. Differences between entrepreneurs and managers in large organizations: biases and heuristics in strategic decision-making. *J. Bus. Ventur.* 12 (1), 9–30.
- Carmona, C., Buunk, A.P., Dijkstra, A., Peiró, J.M., 2008. The relationship between goal orientation, social comparison responses, self-efficacy, and performance. *Eur. Psychol.* 13 (3), 188–196.
- Cegarra-Navarro, J.G., Sánchez-Vidal, M.E., Cegarra-Leiva, D., 2011. Balancing exploration and exploitation of knowledge through an unlearning context: an empirical investigation in SMEs. *Manag. Decis.* 49 (7), 1099–1119.
- Cesario, J., Grant, H., Higgins, T.E., 2004. Regulatory fit and persuasion: transfer from “feeling right”. *J. Pers. Soc. Psychol.* 86 (3), 388–404.
- Chang, S.J., van Witteloostuijn, A., Eden, L., 2010. From the editors: common method variance in international business research. *J. Int. Bus. Stud.* 41 (2), 178–184.
- Chiaburu, D.S., 2010. Chief executives' self-regulation and strategic orientation: a theoretical model. *Eur. Manag. J.* 28 (6), 467–478.
- Choi, Y.R., Lévesque, M., Shepherd, D.A., 2008. When should entrepreneurs expedite or delay opportunity exploitation? *J. Bus. Ventur.* 23 (3), 333–355.
- Chrisman, J.J., Patel, P.C., 2012. Variations in R&D investments of family and nonfamily firms: behavioral agency and myopic loss aversion perspectives. *Acad. Manag. J.* 55 (4), 976–997.
- Christensen, C.M., Bower, J.L., 1996. Customer power, strategic investment, and the failure of leading firms. *Strateg. Manag. J.* 17 (3), 197–218.
- Clapham, M.M., 2001. The effects of affect manipulation and information exposure on divergent thinking. *Creat. Res. J.* 13 (3–4), 335–350.
- Cooper, R.G., 2008. Perspective: the stage-gate® idea-to-launch process—update, what's new, and nexgen systems. *J. Prod. Innov. Manag.* 25 (3), 213–232.
- Crowe, E., Higgins, E.T., 1997. Regulatory focus and strategic inclinations: promotion and prevention in decision-making. *Organ. Behav. Hum. Decis. Process.* 69 (2), 117–132.
- D'Aveni, R.A., Ilinitch, A.Y., 1992. Complex patterns of vertical integration in the forest products industry: systematic and bankruptcy risks. *Acad. Manag. J.* 35 (3), 596–625.
- Das, T.K., Kumar, R., 2011. Regulatory focus and opportunism in the alliance development process. *J. Manag.* 37 (3), 682–708.
- De Dreu, C.K., West, M.A., 2001. Minority dissent and team innovation: the importance of participation in decision making. *J. Appl. Psychol.* 86 (6), 1191–1201.
- De Dreu, C.K., Baas, M., Nijstad, B.A., 2008. Hedonic tone and activation level in the mood-creativity link: toward a dual pathway to creativity model. *J. Pers. Soc. Psychol.* 94 (5), 739–756.
- Dean, J.W., Sharfman, M.P., 1993. Procedural rationality in the strategic decision-making process. *J. Manag. Stud.* 30 (4), 587–610.
- Dehlen, T., Zellweger, T., Kammerlander, N., Halter, F., 2014. The role of information asymmetry in the choice of entrepreneurial exit routes. *J. Bus. Ventur.* 29 (2), 193–209.
- Deshpandé, R., Farley, J.U., Webster, F.E., 1993. Corporate culture, customer orientation and orientation in Japanese Firms: a quadrad analysis. *J. Mark.* 57 (1), 23–37.
- DeTienne, D.R., 2010. Entrepreneurial exit as a critical component of the entrepreneurial process: theoretical development. *J. Bus. Ventur.* 25 (2), 203–215.
- Dickson, P.R., 1992. Toward a general theory of competitive rationality. *J. Mark.* 56 (1), 69–83.
- Dickson, P.H., Weaver, K.M., Hoy, F., 2006. Opportunism in the R&D alliances of SMEs: the roles of the institutional environment and SME size. *J. Bus. Ventur.* 21 (4), 487–513.
- Donovan, J.J., Hafsteinsson, L.G., 2006. The impact of goal-performance discrepancies, self-efficacy, and goal orientation on upward goal revision. *J. Appl. Soc. Psychol.* 36 (4), 1046–1069.
- Fine, C.H., 1998. *Clock speed: winning industry control in the age of temporary advantage*. Basic Books, Cambridge, MA, pp. 1–273.
- Finkelstein, S., Hambrick, D., 1990. Top-management-team tenure and organizational outcomes: the moderating role of managerial discretion. *Adm. Sci. Q.* 35 (3), 484–503.
- Förster, J., Liberman, N., Higgins, E.T., 2005. Accessibility from active and fulfilled goals. *J. Exp. Soc. Psychol.* 41 (3), 220–239.
- Frey, U., Halter, F., Zellweger, T., 2004. *Bedeutung und Struktur von Familienunternehmen in der Schweiz*. St. Gallen.
- Friedman, R.S., Förster, J., 2001. The effects of promotion and prevention cues on creativity. *J. Pers. Soc. Psychol.* 81 (6), 1001–1013.
- Gedajlovic, E., Cao, Q., Zhang, H., 2012. Corporate shareholdings and organizational ambidexterity in high-tech SMEs: evidence from a transitional economy. *J. Bus. Ventur.* 27 (6), 652–665.
- Gerstner, W., König, A., Enders, A., Hambrick, D., 2013. CEO narcissism, audience engagement, and organizational adoption of technological discontinuities. *Adm. Sci. Q.* 58 (2), 257–291.
- Gibson, C.B., Birkinshaw, J., 2004. The antecedents, consequences, and mediating role of organizational ambidexterity. *Acad. Manag. J.* 47 (2), 209–226.
- Gupta, A.K., Smith, K.G., Shalley, C.E., 2006. The interplay between exploration and exploitation. *Acad. Manag. J.* 49 (4), 693–706.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., Tatham, R.L., 2006. *Multivariate Data Analysis*, Sixth ed. Prentice Hall, Upper Saddle River.
- Hambrick, D., Mason, P.A., 1984. Upper echelons: the organization as a reflection of its top managers. *Acad. Manag. Rev.* 9 (2), 193–206.

- Haws, K.L., Dholakia, U.M., Bearden, W.O., 2010. An assessment of chronic regulatory focus measures. *J. Mark. Res.* 47 (5), 967–982.
- He, Z.-L., Wong, P.-K., 2004. Exploration vs. exploitation: an empirical test of the ambidexterity hypothesis. *Organ. Sci.* 15 (4), 481–494.
- Heckman, J.J., 1976. The common structure of statistical models of truncation, sample selection and limited dependent variables and a simple estimator for such models. *Ann. Econ. Soc. Meas.* 5 (4), 475–492.
- Higgins, E.T., 1989. Self-discrepancy-theory: what patterns of self-beliefs cause people to suffer? *Advances in experimental social psychology*. Academic Press, San Diego, CA, pp. 93–136.
- Higgins, E.T., 1997. Beyond Pleasure and Pain. *Am. Psychol.* 52 (12), 1280–1300.
- Higgins, E.T., 2005. Value from regulatory fit. *Curr. Dir. Psychol. Sci.* 14 (4), 209–213.
- Higgins, E.T., Silberman, I., 1998. Development of regulatory focus: promotion and prevention as ways of living. In: Heckhausen, J., Dweck, C.S. (Eds.), *Motivation and Self-regulation Across the Life Span*. Cambridge University Press, New York, pp. 78–113.
- Higgins, E.T., Friedman, R.S., Harlow, R.E., Idson, L.C., Ayduk, O.N., Taylor, A., 2001. Achievement orientations from subjective histories of success: promotion pride versus prevention pride. *Eur. J. Soc. Psychol.* 31 (1), 3–23.
- Hill, S.A., Birkinshaw, J., 2008. Strategy–organization configurations in corporate venture units: impact on performance and survival. *J. Bus. Ventur.* 23 (4), 423–444.
- Hill, S.A., Birkinshaw, J., 2014. Ambidexterity and survival in corporate venture units. *J. Manag.* 1–34 (in press).
- Hmieleski, K.M., Baron, R.A., 2008. Regulatory focus and new venture performance: a study of entrepreneurial opportunity exploitation under conditions of risk versus uncertainty. *Strateg. Entrep. J.* 2 (4), 285–299.
- Hornsby, J.S., Kuratko, D.F., Shepherd, D.A., Bott, J.P., 2009. Managers' corporate entrepreneurial actions: examining perception and position. *J. Bus. Ventur.* 24 (3), 236–247.
- Idson, L.C., Liberman, N., Higgins, E.T., 2000. Distinguishing gains from nonlosses and losses from nongains: a regulatory focus perspective on hedonic intensity. *J. Exp. Soc. Psychol.* 36 (3), 252–274.
- Ilies, R., Judge, T.A., 2005. Goal regulation across time: the effects of feedback and affect. *J. Appl. Psychol.* 90 (3), 453–467.
- Jansen, J.J.P., Van den Bosch, F.A.J., Volberda, H.W., 2005. Exploratory innovation, exploitative innovation, and ambidexterity: the impact of environmental and organizational antecedents. *Schmalenbach Bus. Rev.* 57 (4), 351–363.
- Jansen, J.J.P., Van Den Bosch, F.A.J., Volberda, H.W., 2006. Exploratory innovation, exploitative innovation, and performance: effects of organizational antecedents and environmental moderators. *Manag. Sci.* 52 (11), 1661–1674.
- Jaworski, B.J., Kohli, A.K., 1993. Market orientation: antecedents and consequences. *J. Mark.* 57 (3), 53–70.
- Judge, T.A., Bono, J.E., 2001. Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *J. Appl. Psychol.* 86 (1), 80.
- Kahneman, D., Tversky, A., 1979. Prospect theory: an analysis of decision under risk. *Econometrica* 47 (2), 263–292.
- Kanuk, L., Berenson, C., 1975. Mail surveys and response rates: a literature review. *J. Mark. Res.* 22 (4), 440–453.
- Kark, R., Van Dijk, D., 2007. Motivation to lead, motivation to follow: the role of the self-regulatory focus in leadership processes. *Acad. Manag. Rev.* 32 (2), 500–528.
- Keller, J., Bless, H., 2006. Regulatory fit and cognitive performance: the interactive effect of chronic and situationally induced self-regulatory mechanisms on test performance. *Eur. J. Soc. Psychol.* 36 (3), 393–405.
- Kline, S.J., Rosenberg, N., 1986. An overview of innovation. In: Landau, R., Rosenberg, N. (Eds.), *The Positive Sum Strategy: Harnessing Technology for Economic Growth*. National Academy Press, Washington, DC, pp. 275–305.
- Knott, A.M., 2002. Exploration and exploitation as complements. *The Strategic Management of Intellectual Capital and Organizational Knowledge: A Collection of Readings*. Oxford University Press, New York, pp. 339–358.
- Koberg, C.S., Uhlenbruck, N., Sarason, Y., 1996. Facilitators of organizational innovation: the role of life-cycle stage. *J. Bus. Ventur.* 11 (2), 133–149.
- Kohli, A.K., Jaworski, B.J., 1990. Market orientation: the construct, research propositions managerial implications. *J. Mark.* 54 (2), 1–18.
- König, A., Kammerlander, N., Enders, A., 2013. The family innovator's dilemma: how family influence affects the adoption of discontinuous technologies by incumbent firms. *Acad. Manag. Rev.* 38 (3), 418–441.
- Kotha, S., Swamidass, P., 2000. Strategy, advanced manufacturing technology and performance: empirical evidence from US manufacturing firms. *J. Oper. Manag.* 18 (3), 257–277.
- Kotha, S., Rindova, V.P., Rothaermel, F.T., 2001. Assets and actions: firm-specific factors in the internationalization of US Internet firms. *J. Int. Bus. Stud.* 32 (4), 769–791.
- Lanaj, K., Chang, C.-H., Johnson, R.E., 2012. Regulatory focus and work-related outcomes: a review and meta-analysis. *Psychol. Bull.* 138 (5), 998–1034.
- Lavie, D., Stettner, U., Tushman, M.L., 2010. Exploration and exploitation within and across organizations. *Acad. Manag. Ann.* 4 (1), 109–155.
- Levinthal, D.A., March, J.G., 1993. The myopia of learning. *Strateg. Manag. J.* 14 (2), 95–112.
- Liberman, N., Idson, L.C., Camacho, C.J., Higgins, E.T., 1999. Promotion and prevention choices between stability and change. *J. Pers. Soc. Psychol.* 77 (6), 1135–1145.
- Lubatkin, M., Simsek, Z., Veiga, J., 2006. Ambidexterity and performance in small-to medium-sized firms: the pivotal role of top management team behavioral integration. *J. Manag.* 32 (5), 646–672.
- Man, T., Lau, T., Chan, K., 2002. The competitiveness of small and medium enterprises: a conceptualization with focus on entrepreneurial competencies. *J. Bus. Ventur.* 17 (2), 123–142.
- March, J., 1991. Exploration and exploitation in organizational learning. *Organ. Sci.* 2 (1), 71–87.
- Markovits, Y., 2013. The development of regulatory foci characters and moderation effects on satisfaction and commitment. *Int. J. Acad. Organ. Behav. Manag.* 1 (4), 79–103.
- Massey Jr., F.J., 1951. The Kolmogorov–Smirnov test for goodness of fit. *J. Am. Stat. Assoc.* 46 (253), 68–78.
- Masurel, E., Van Montfort, K., 2006. Life cycle characteristics of small professional service firms. *J. Small Bus. Manag.* 44 (3), 461–473.
- McClelland, D., Atkinson, J.W., Clark, R.A., Lowell, E.L., 1953. *The Achievement Motive*. Appleton-Century-Crofts, New York.
- McMullen, J.S., Shepherd, D.A., 2002. Regulatory focus and entrepreneurial intention: action bias in the recognition and evaluation of opportunities. In: Bygrave, W.D. (Ed.), *Frontiers of Entrepreneurship Research*. Babson College, Wellesley, MA, pp. 61–72.
- McMullen, J.S., Shepherd, D.A., Patzelt, H., 2009. Managerial (in)attention to competitive threats. *J. Manag. Stud.* 46 (2), 157–181.
- Miller, D., Friesen, P., 1983. Strategy-making and environment: the third link. *Strateg. Manag. J.* 4 (3), 221–235.
- Miller, D., Friesen, P., 1984. A longitudinal study of the corporate life cycle. *Manag. Sci.* 30 (10), 1161–1183.
- Mom, T.J.M., van den Bosch, F.A.J., Volberda, H.W., 2009. Understanding variation in managers' ambidexterity: investigating direct and interaction effects of formal structural and personal coordination mechanisms. *Organ. Sci.* 20 (4), 812–828.
- Nadkarni, S., Herrmann, P., 2010. CEO personality, strategic flexibility, and firm performance: the case of the Indian business process outsourcing industry. *Acad. Manag. J.* 53 (5), 1050–1073.
- Neter, J., Wasserman, W., Kutner, M.H., 1985. *Applied linear statistical models: regression, analysis of variance, and experimental design*. Richard D Irwin, Inc., Homewood.
- O'Reilly, C., Tushman, M., 2004. The ambidextrous organization. *Harv. Bus. Rev.* 82 (4), 74–83.
- O'Reilly, C., Tushman, M., 2008. Ambidexterity as a dynamic capability: resolving the innovator's dilemma. *Res. Organ. Behav.* 28, 185–206.
- O'Reilly, C., Tushman, M., 2013. Organizational ambidexterity: past, present and future. *Acad. Manag. Perspect.* 27 (4), 324–338.
- Parker, S.C., 2006. Learning about the unknown: how fast do entrepreneurs adjust their beliefs? *J. Bus. Ventur.* 21 (1), 1–26.
- Patel, P., Messersmith, J., Lepak, D., 2013. Walking the tightrope: an assessment of the relationship between high-performance work systems and organizational ambidexterity. *Acad. Manag. J.* 56 (5), 1420–1442.
- Pennington, G.L., Roese, N.J., 2003. Regulatory focus and temporal distance. *J. Exp. Soc. Psychol.* 39 (6), 563–576.
- Podsakoff, P.M., Organ, D.W., 1986. Self-reports in organizational research: problems and prospects. *J. Manag.* 12 (4), 531–544.
- Podsakoff, P., MacKenzie, S., Lee, J., Podsakoff, N., 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88, 879–903.

- Quigley, T.J., Hambrick, D., 2014. Has the "CEO effect" increased in recent decades? A new explanation for the great rise in America's attention to corporate leaders. *Strateg. Manag. J.* (in press). <http://dx.doi.org/10.1002/smj.2258>.
- Raisch, S., Birkinshaw, J., 2008. Organizational ambidexterity: antecedents, outcomes, and moderators. *J. Manag.* 34 (3), 375–409.
- Raisch, S., Birkinshaw, J., Probst, G., Tushman, M.L., 2009. Organizational ambidexterity: balancing exploitation and exploration for sustained performance. *Organ. Sci.* 20 (4), 685–695.
- Reed, K.K., Lubatkin, M., Srinivasan, N., 2006. Proposing and testing an intellectual capital-based view of the firm. *J. Manag. Stud.* 43 (4), 867–893.
- Roberts, B.W., Walton, K.E., Viechtbauer, W., 2006. Patterns of mean-level change in personality traits across the life course: a meta-analysis of longitudinal studies. *Psychol. Bull.* 132 (1), 1–25.
- Rosenbusch, N., Brinckmann, J., Bausch, A., 2011. Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *J. Bus. Ventur.* 26, 441–457.
- Rothaermel, F.T., Alexandre, M.T., 2009. Ambidexterity in technology sourcing: the moderating role of absorptive capacity. *Organ. Sci.* 20 (4), 759–780.
- Sassenberg, K., Ellemers, N., Scheepers, D., 2012. The attraction of social power: the influence of construing power as opportunity vs responsibility. *J. Exp. Soc. Psychol.* 48 (2), 550–555.
- Shepherd, D.A., Covin, J.G., Kuratko, D.F., 2009. Project failure from corporate entrepreneurship: managing the grief process. *J. Bus. Ventur.* 24 (6), 588–600.
- Simsek, Z., Heavey, C., Veiga, J.J.F., 2010. The impact of CEO self-evaluation on the firm's entrepreneurial orientation. *Strateg. Manag. J.* 31 (1), 110–119.
- Smith, W.K., Tushman, M.L., 2005. Managing strategic contradictions: a top management model for managing innovation streams. *Organ. Sci.* 16 (5), 522–536.
- Spector, P.E., Brannick, M.T., 2011. Methodological urban legends: the misuse of statistical control variables. *Organ. Res. Methods* 14 (2), 287–305.
- Stam, D.A., Van Knippenberg, D., Wisse, B., 2010. The role of regulatory fit in visionary leadership. *J. Organ. Behav.* 31 (4), 499–518.
- Staw, B.M., Sandelands, L.E., Dutton, J.E., 1981. Threat-rigidity effects in organizational behavior: a multilevel analysis. *Adm. Sci. Q.* 26 (4), 501–524.
- Strauman, T., 1996. Stability within the self: a longitudinal study of the structural implications of self-discrepancy theory. *J. Pers. Soc. Psychol.* 71 (6), 1142–1153.
- Tang, Z., Hull, C., 2012. An investigation of entrepreneurial orientation, perceived environmental hostility, and strategy application among Chinese SMEs. *J. Small Bus. Manag.* 50 (1), 132–158.
- Trevelyan, R., 2008. Optimism, overconfidence and entrepreneurial activity. *Manag. Decis.* 46 (7), 986–1001.
- Tumasjan, A., Braun, R., 2012. In the eye of the beholder: how regulatory focus and self-efficacy interact in influencing opportunity recognition. *J. Bus. Ventur.* 27 (6), 622–636.
- Turner, N., Swart, J., Maylor, H., 2013. Mechanisms for managing ambidexterity: a review and research agenda. *Int. J. Manag. Rev.* 15 (3), 317–332.
- Van Dijk, D., Kluger, N., 2011. Task type as a moderator of positive/negative feedback effects on motivation and performance: a regulatory focus perspective. *J. Organ. Behav.* 32 (8), 1084–1105.
- Voss, G.B., Voss, Z.G., 2013. Strategic ambidexterity in small and medium-sized enterprises: implementing exploration and exploitation in product and market domains. *Organ. Sci.* 24 (5), 1459–1477.
- Wallace, J., Johnson, P., Frazier, M., 2009. An examination of the factorial, construct, and predictive validity and utility of the regulatory focus at work scale. *J. Organ. Behav.* 30 (6), 805–831.
- Wallace, J.C., Little, L.M., Hill, A.D., Ridge, J.W., 2010. CEO regulatory foci, environmental dynamism, and small firm performance. *J. Small Bus. Manag.* 48 (4), 580–604.
- White, H., 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48 (4), 817–838.
- Wiklund, J., Delmar, F., 2003. What do they think and feel about growth? An expectancy-value approach to small business managers' attitudes toward growth. *Enterp. Theory Pract.* 27 (3), 247–270.
- Wiklund, J., Shepherd, D.A., 2011. Where to from here? EO-as-experimentation, failure, and distribution of outcomes. *Enterp. Theory Pract.* 35 (5), 925–946.
- Withers, M., Drnevich, P., Marino, L., 2011. Doing more with less: the ordinal implications of firm age for leveraging capabilities for innovation activity. *J. Small Bus. Manag.* 49 (4), 515–536.
- Worthy, D.A., Maddox, W.T., Markman, A.B., 2007. Regulatory fit effects in a choice task. *Psychon. Bull. Rev.* 14 (6), 1125–1132.
- Wu, C., McMullen, J.S., Neubert, M.J., Yi, X., 2008. The influence of leader regulatory focus on employee creativity. *J. Bus. Ventur.* 23 (5), 587–602.
- Yang, T., Li, C., 2011. Competence exploration and exploitation in new product development: the mode-rating effects of environmental dynamism and competitiveness. *Manag. Decis.* 49 (9), 1444–1470.
- Zahra, S.A., 1993. Environment, corporate entrepreneurship, and financial performance: a taxonomic approach. *J. Bus. Ventur.* 8 (4), 319–340.
- Zahra, S.A., Bogner, W.C., 2000. Technology strategy and software new ventures' performance: exploring the moderating effect of the competitive environment. *J. Bus. Ventur.* 15 (2), 135–173.
- Zahra, S.A., Covin, J.G., 1995. Contextual influences on the corporate entrepreneurship-performance relationship: a longitudinal analysis. *J. Bus. Ventur.* 10 (1), 43–58.
- Zellweger, T., Kellermanns, F., Chrisman, J., Chua, J., 2012. Family control and family firm valuation by family CEOs: the importance of intentions for transgenerational control. *Organ. Sci.* 23 (3), 851–868.
- Zhao, G., Pechmann, C., 2007. The impact of regulatory focus on adolescents' response to antismoking advertising campaigns. *J. Mark. Res.* 44 (4), 671–687.