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# The effect of chief executive officers' regulatory focus on the entrepreneurial orientation of small and medium-sized enterprises

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## Abstract

Entrepreneurial orientation (EO) has been identified as a central construct to understand how firms compete and perform effectively in increasingly competitive environments. Drawing on regulatory focus theory, this study examines how chief executive officers' (CEOs') regulatory focus, a motivational attribute that entails a promotion focus for growth and a prevention focus for safety, affects the EO of small and medium-sized enterprises (SMEs). Results from 110 UK SMEs show promotion focus positively, and prevention focus negatively affect EO when the two foci are examined independently. Our findings also demonstrate that EO varies significantly among firms led by CEOs with different combinations of the two foci. Specifically, firms engaged in significantly higher levels of EO when they are led by CEOs with a high rather than a low promotion focus, where prevention focus is at a high level. This study extends the literature by uncovering regulatory focus as a motivational microfoundation of EO.

## KEYWORDS

entrepreneurial orientation, microfoundation, regulatory focus, SMEs

## INTRODUCTION

Entrepreneurial orientation (EO) has been identified as a central construct to understand how firms compete and perform effectively in increasingly competitive environments (Covin & Slevin, 1991; Covin & Wales, 2019; Yeniaras & Unver, 2016). EO refers to 'a firm's strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods, and practices' (Wiklund & Shepherd, 2005, p. 74). Extensive studies have shown that EO significantly impacts firm activities (Dai et al., 2014; Kollmann & Stöckmann, 2014) and performance (Gupta & Wales, 2017; Khedhaouria et al., 2020; Rauch et al., 2009; Wales, 2016). Given that EO contributes to entrepreneurial success (Rauch et al., 2009), scholars have dedicated substantial attention to investigating the antecedents of EO (Wales, Gupta, & Mousa, 2013), among which increasing research has aimed to uncover the role of individual-level factors in shaping the EO at the firm-level (Dai et al., 2016; Simsek et al., 2010; Wales, Patel, & Lumpkin, 2013).

Extant studies have identified chief executive officers' (CEOs') general self-efficacy (Khedhaouria et al., 2015; Poon et al., 2006), core self-evaluations (Simsek et al., 2010) and narcissism (Wales, Patel, & Lumpkin, 2013) that are the drivers for EO. These studies have extended our understanding of how the personality traits of CEOs can impact EO. However, available research has highlighted that the influences of individuals' personalities on their behaviours are often translated through motivation (e.g., Barrick & Mount, 2005; Lanaj et al., 2012), meaning that motivation has a more proximate impact on the behaviours of CEOs than personality traits (Lanaj et al., 2012). From the upper echelons perspective (Hambrick, 2007; Hambrick & Mason, 1984), it can be argued that CEOs' motivation is more important to understand the behaviours of organisations. This is because motivation determines the underlying goals CEOs pursue (Molden et al., 2008), which tend to manifest through the strategic behaviours of organisations (Miller & Friesen, 1982). In other words, underpinned by their motivations, CEOs determine the

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strategic directions and actions of firms they lead. Indeed, as Gottschalg and Zollo (2007) point out, individual motivations, as microfoundations (Felin et al., 2015), are crucial to understanding organisational outcomes. Individual motivations are also important for entrepreneurship as motivational differences are likely to influence the different stages of the entrepreneurial process concerning the identification, evaluation and exploitation of new opportunities (Brockner et al., 2004). Therefore, it is imperative to better understand how CEOs' motivations influence EO, a determinant of entrepreneurial success (Rauch et al., 2009).

So far, little attention has been devoted to the effects of CEOs' motivation on EO, probably except the study by Pittino et al. (2017), despite the emphasised importance of motivational microfoundations (Felin et al., 2015; Gottschalg & Zollo, 2007). Pittino et al. (2017) considered the role of intrinsic and extrinsic motivation on EO. However, one more important and relevant motivational attribute in the entrepreneurship domain, that is, regulatory focus (Brockner et al., 2004; Johnson et al., 2015) has been neglected.

Regulatory focus theory suggests that people regulate their behaviours to realise their goals through two distinct motivational systems: promotion focus to maximise achievements and prevention focus to ensure safety (Higgins, 1997, 1998). Regulatory focus underlies the motives people are trying to satisfy, the goals they pursue and the strategic actions they prefer to use in realising their goals (Brockner et al., 2004; Molden et al., 2008). Although CEOs' regulatory focus has been shown to influence firm-level behaviours (Gamache et al., 2015; Kammerlander et al., 2015; Mount & Baer, 2021; Scoresby et al., 2021), its impacts on EO remain underexplored. Consequently, we aim to answer an important but neglected research question: *How does the regulatory focus of CEOs at the individual-level influence entrepreneurial orientation at the firm level?* More specifically, we examine how promotion and prevention focus independently influence EO, as well as how the interplay between promotion and prevention focus influences EO because people might have different combinations of the two foci, because individuals might be high or low in both foci or high in one but low in another (Kammerlander et al., 2015; Lanaj et al., 2012).

We collected data from 110 CEOs from small and medium-sized enterprises (SMEs) in the United Kingdom. SMEs represent an ideal context to examine how CEOs' regulatory focus impact EO because CEOs in such firms have higher managerial discretion than those from large firms (Busenbark et al., 2016; Wangrow et al., 2015). Large firms are often managed by a top management team (Finkelstein et al., 2009), meaning other team members might also influence EO. SMEs also play a dominant role in the United Kingdom as they account for 99.3% of firms in the private sector and provide 60% of employment (BEIS, 2018). It is crucial to

examine the determinants of EO in the SME context as EO can contribute to SME performance (Campopiano et al., 2020; Khedhaouria et al., 2020).

This study contributes to the literature in several ways. First, it contributes to entrepreneurship research in general by identifying an important motivational antecedent of EO, that is, regulatory focus, and responding to the most recent call for further studies examining the antecedents of EO (Wales et al., 2021). An examination of such an ignored antecedent is important as it can influence EO in different directions, which is a key determinant for entrepreneurial success (Rauch et al., 2009). Second, it enriches the emerging stream of literature that examines the microfoundations of EO by uncovering that CEOs' regulatory focus is an important motivational microfoundation of EO. Researchers have emphasised the importance of microfoundations in organisation and management theory (Barney & Felin, 2013; Felin et al., 2015; Liu et al., 2017) and more specifically called for research on the microfoundations of EO (Dai et al., 2016), to enhance our understanding of how individual-level factors can influence organisational-level outcomes (Felin et al., 2015). Our findings complement and expand prior works that have mainly focused on the personality traits of CEOs (Poon et al., 2006; Simsek et al., 2010; Wales, Patel, & Lumpkin, 2013) by shifting the focus towards CEOs' motivational attributes (i.e., regulatory focus), an underexplored area.

Third, we contribute to regulatory focus theory by considering not only the independent effects of promotion and prevention focus but also how the combinations of the two foci influence EO. Our study serves to address calls to investigate the interplay between promotion and prevention focus in shaping organisational outcomes (Kammerlander et al., 2015; Lanaj et al., 2012). Specifically, our study advances recent research in regulatory focus theory, which suggests that one of the two regulatory foci may predominate the other (Scholer et al., 2019) by showing that promotion focus tends to play a more dominant role than prevention focus in influencing organisational outcomes such as EO in the current research, when CEOs are high in both foci.

## THEORY AND HYPOTHESIS DEVELOPMENT

### Regulatory focus as a motivational microfoundation of EO

Research on EO has advanced significantly in the past three decades (Covin & Wales, 2019; Miller, 1983). However, debates remain on whether EO represents a behavioural or attitudinal construct (Covin & Lumpkin, 2011). We follow the view of Miller (1983, 2011) and Covin and Slevin (1989) that a firm is entrepreneurial because of its behaviours rather than its

disposition, which may or may not be manifested into behaviours (Covin & Lumpkin, 2011). While researchers propose different components of EO (Lumpkin & Dess, 1996), we focus on the original concept of EO, which comprises three core dimensions, namely, innovativeness, risk-taking and proactiveness, because extant research has converged on these three dimensions (Rauch et al., 2009; Wales, 2016). Innovativeness represents firms' pursuit of new products and processes through engaging in and supporting new ideas and experimentations (Lumpkin & Dess, 1996; Wiklund & Shepherd, 2005). Risk taking refers to the commitment of substantial resources to activities that have uncertain outcomes (Lumpkin & Dess, 1996; Miller & Friesen, 1978). Proactiveness refers to the advantage-seeking efforts to launch new products or processes ahead of competitors (Lyon et al., 2000).

Increasing research has started to explore how CEO-related factors influence EO (Bernoster et al., 2020; Engelen et al., 2015; Wales, Patel, & Lumpkin, 2013). For example, studies have found that a wide range of CEOs' personality traits are related to EO (Engelen et al., 2015; Poon et al., 2006; Simsek et al., 2010; Wales, Patel, & Lumpkin, 2013). These studies have expanded the emerging stream of literature that focuses on the microfoundations of EO (Dai et al., 2016). Specifically, microfoundations research aims to understand how individual-level factors influence organisational-level outcomes (Felin et al., 2015). Microfoundations at the CEO level are relevant to understand EO at the firm level because organisations are often a reflection of the people who are in charge. As firms' top decision makers, CEOs are likely to impact the strategic behaviours and outcomes of the organisations they lead (Finkelstein et al., 2009; Hambrick, 2007). Although research has shown that CEOs' personality traits are important microfoundations of EO, previous research has devoted limited attention to CEOs' motivation (Pittino et al., 2017).

As a motivation-based attribute (Higgins, 1997, 1998; Scholer et al., 2019), regulatory focus determines the type of goals people pursue, as well as how they strike for their goals (e.g., strategic eagerness or vigilance). As such, regulatory focus deals with individuals' actions that are driven by their different underlying motives and needs. A recent meta-analysis has shown that regulatory focus mediates the influences of personality traits on individuals' work behaviours (Lanaj et al., 2012). For example, regulatory focus has been found to mediate the effects of self-efficacy on individuals' work behaviours. Hence, regulatory focus, as a motivational construct that mobilises entrepreneurs to achieve their desired results (Brockner et al., 2004; Molden et al., 2008), is more proximal to the behaviours of CEOs and the firms they lead (Gamache et al., 2015). We thus expect CEOs' regulatory focus may advance our understanding of a motivational factor, beyond individuals' personality traits, that affects organisational-level outcomes (Felin et al., 2015), more

specifically EO in our study. That is, CEOs' regulatory focus might be a motivational microfoundation of EO.

Regulatory focus theory is based on the premise that people are concerned with different needs (Higgins, 1997, 1998). The needs for advancement, for example, are different from the needs for security (Molden et al., 2008). Regulatory focus determines the underlying motives people are trying to satisfy and the goals they are aiming to attain (Brockner et al., 2004). Specifically, regulatory focus theory distinguishes goal-directed self-regulation into two systems: promotion focus and prevention focus. People with a promotion focus are motivated to satisfy their needs for advancement and growth (Crowe & Higgins, 1997). They prefer eagerness strategies in pursuing their goals and are more sensitive to gain related outcomes (Brockner et al., 2004). By contrast, people with a prevention focus are driven to ensure their needs for security and responsibility. They prefer vigilant strategies in pursuing their goals and are more sensitive to loss-related outcomes (Crowe & Higgins, 1997).

Previous research has examined regulatory focus as a chronic disposition or a response to situational cues (Lanaj et al., 2012). The childhood experiences of interacting with primary caretakers shape people's regulatory focus (Higgins & Silberman, 1998). Specifically, an interaction that emphasised attaining accomplishments can induce a promotion focus while an interaction that emphasised insuring safety can induce a prevention focus (Higgins, 1997). Additionally, people's history of success or failure experiences in promotion- and prevention-related self-regulation affect their tendencies towards using that strategy for goal attainment (Higgins et al., 2001). Therefore, chronic regulatory focus, developed through people's developmental and achievement experiences mentioned above, is a stable disposition. In contrast, the situational regulatory focus is more malleable because it can be manipulated through the use of different situational factors (Wu et al., 2008), for example, influenced by factors such as the leadership style of supervisors (Kark & Van Dijk, 2007), the framings of task payoffs (Shah & Higgins, 1997) and types of jobs they have (Van-Dijk & Kluger, 2004). In line with previous entrepreneurship studies (e.g., Bryant, 2009; Kammerlander et al., 2015), we focus on chronic regulatory focus because it tends to have more stable effects on the decision making and behaviours of CEOs.

Promotion and prevention focus are independent systems (Higgins, 1997, 1998; Lanaj et al., 2012). As a result, people may have different combinations of the two foci. For example, some people might be high or low in both foci or high in one but low in another. Indeed, previous studies suggest that, based on the different combinations of regulatory foci, CEOs can be categorised into four types (Idson et al., 2000; Kammerlander et al., 2015; Markovits, 2012): rationalists, conservatives, achievers and indifferents. As shown in Figure 1, rationalists and conservatives share a high prevention focus,

		Promotion focus	
		High	Low
Prevention focus	High	Rationalists	Conservatives
	Low	Achievers	Indifferents

**FIGURE 1** CEOs with different combinations of regulatory foci, adopted from Markovits (2012).

but the former has a high promotion focus whereas the latter has a low promotion focus. Achievers and indifferents share a low prevention focus, and the former has a high promotion focus whereas the latter has a low promotion focus. Emerging evidence suggests firms' levels of exploration and exploitation tend to vary among firms led by the different types of CEOs (Kammerlander et al., 2015). We thus believe that EO will likely vary among firms that are led by CEOs with different combinations of regulatory foci. In the following, we discuss the independent effects as well as the interactive effects of promotion and prevention focus on EO.

### The independent effects of promotion focus on EO

We posit that CEO promotion focus will be positively associated with firms' levels of EO. We will explain below how promotion focus influences the three dimensions of EO, respectively, and thus the overall EO as a unidimensional concept. First, CEOs with a high promotion focus are more likely to foster innovation within their firms. Promotion-focused people are motivated to seek changes because the changes they initiated may allow them to move towards growth and advancement (Chernev, 2004; Liberman et al., 1999). In other words, changes represent an opportunity for promotion-focused people to attain gains that can satisfy their needs for growth (Brockner et al., 2004). As such, promotion-focused people are more willing to 'experiment with a wide range of alternatives and to deviate from existing best practices' (Ahmadi et al., 2017, p. 209). The willingness to change is essential for innovation as innovation requires firms to deviate from the status quo (Musteen et al., 2010). Indeed, top managers' positive attitude towards innovation can enhance firms' tendency to engage in innovation (Damanpour & Schneider, 2006). Furthermore, evidence suggests that CEO promotion focus can positively enhance firms' levels of investment in research and

development (R&D) (Kashmiri et al., 2019) although increasing incentive compensation may weaken the positive effects of CEO promotion focus on R&D expenditure (Scoresby et al., 2021).

Second, CEOs with a high promotion focus can also induce risk taking within their firms. Research suggests that promotion-focused people have a higher risk-taking propensity (Bryant & Dunford, 2008). The reason is that they are eager to achieve advancement through maximising the chance for gains (hits) and minimising the chance for non-gains (misses) (Crowe & Higgins, 1997). Indeed, the motivation to attain gains 'generally translates into a more eager form of exploration and greater risk taking' (Zhou & Pham, 2004, p. 127). Consistent with this notion, evidence suggests that promotion-focused people exhibit a risky response bias in completing different tasks (Crowe & Higgins, 1997). Likewise, promotion-focused teams (i.e., both members are promotion-focused individuals) make investment decisions that involve higher risks (Florack & Hartmann, 2007). Moreover, promotion-focused leaders are more likely to develop an organisational culture that encourages risk taking and tolerates mistakes (Kark & Van Dijk, 2007). Although the positive relationship between promotion focus and risk taking will be weakened when performance is above aspirations, the risk-seeking tendency associated with promotion focus becomes stronger when performance is below expectation (Mount & Baer, 2021).

Third, CEOs with a high promotion focus may orient firms to be more proactive in undertaking new opportunities. Promotion-focused people are driven to approach matches to advancement (e.g., gains) and approach mismatches to non-fulfilment (non-gains) (Higgins et al., 1994). As Johnson et al. (2015, p. 1512) noted, people with a promotion focus 'would be more likely to search for and identify new opportunities'; this is because proactively seeking and pursuing new opportunities may lead to potential gains that are more desirable for promotion-focused people (Brockner et al., 2004). Indeed, promotion focus positively influences people's

frequency to engage in proactive behaviours (Waterwall, 2017), which ‘involves challenging the status quo rather than passively adapting to present conditions’ (Crant, 2000, p. 436). Evidence also suggests promotion-focused people have a higher tendency to pursue new courses of action (Lieberman et al., 1999). For example, promotion-focused entrepreneurs are more proactive in networking as indicated by a higher number of business contacts they interact with for information (Pollack et al., 2015), which is crucial to new opportunities.

In summary, the above theoretical arguments and empirical evidence suggest that high levels of promotion focus will likely enhance firms’ levels of innovation, risk taking and proactiveness, the three dimensions of EO. Hence, we hypothesise the following.

**Hypothesis 1.** CEO promotion focus will be positively associated with firms’ levels of EO.

### The independent effects of prevention focus on EO

By contrast, we posit that CEO prevention focus will be negatively associated with firms’ levels of EO. We outline below how it is negatively related to the three dimensions of EO, respectively. First, CEO prevention focus will negatively influence firms’ levels innovativeness. Innovation requires firms to experiment with new alternatives and deviate from existing practices (Lumpkin & Dess, 1996; March, 1991). As such, the innovation processes involve substantial changes and uncertainties, either initiated or supported by managers, in the context of SMEs, mostly CEOs. However, prevention-focused CEOs are driven by stability (Lieberman et al., 1999). In other words, they tend to maintain a satisfactory status quo to ensure safety. Indeed, research has found that prevention-focused people are less likely to activate behaviour changes (Fuglestad et al., 2008) and prevention-focused managers have a lower tendency to explore new alternatives (Ahmadi et al., 2017). When prevention-focused CEOs are driven to ensure their safety needs through maintaining a satisfactory status quo, such CEOs should have low motivation to foster innovation within their firms.

Second, CEO prevention focus will negatively affect firms’ levels of risk taking. Prevention-focused people are more sensitive to the presence or absence of negative outcomes (Brockner et al., 2004). The sensitivity to potential losses has implications on their risk-taking tendency because, when evaluating new information or opportunities, they tend to weigh more heavily on the potential losses involved (Markman et al., 2005; Molden et al., 2008). As Zhou and Pham (2004: 127) noted, prevention-focused people’s motivation to protect against mistakes ‘generally translates into a more vigilant form of exploration and greater risk aversion’. As a result,

prevention-focused people are risk averse. Indeed, prevention-focused people exhibit a conservative response bias in completing different tasks (Crowe & Higgins, 1997) and are prone to engage in risk-avoidance behaviours (Gino & Margolis, 2011; Hamstra et al., 2011). We thus expect that CEOs with a high prevention focus should orient their firms to pursue activities that involve more certain outcomes. In other words, CEOs with a high prevention focus are less likely to encourage risk-taking activities in their firms.

Third, CEO prevention focus can also negatively affect firms’ levels of proactiveness. Proactiveness requires firms to act in anticipation of future demand and introduce new products or services ahead of their competitors (Lumpkin & Dess, 1996). However, prevention-focused people have a propensity to maintain a satisfactory status quo (Shin et al., 2017). That is, individuals with a high prevention focus are more likely to be reactive rather than proactive (Crant, 2000). Spanjol et al. (2011) found that, for example, prevention-focused teams introduced a lower number of new products than those introduced by promotion-focused teams. Likewise, firms that are led by CEOs with a high prevention focus should have a lower tendency to act in anticipation of market demands. Indeed, Greenbaum (2015) found that firms led by CEOs with a high prevention focus introduced a lower number of new products. Hence, we expect firms led by CEOs with a strong prevention focus should exhibit low levels of proactiveness.

Although a prevention focus will generally reduce EO, CEOs with a strong prevention focus might be induced to pursue entrepreneurial activities under certain circumstances. For example, in the situation of experiencing losses, risk taking can become a motivational necessity for prevention-focused people because it offers opportunities to eliminate loss and return to satisfactory status Scholer et al. (2010). Mount & Baer (2021) found that CEOs with a strong prevention focus engage in higher levels of risk taking when firms’ performance is above aspirations. Similarly, such a situation may also drive them to be more proactive. Scoresby et al. (2021) observed that increasing incentive compensation can attenuate the negative influence of prevention focus on R&D expenditure, a key input for innovation (Rosenbusch et al., 2011). However, as Scholer et al. (2010, p. 215) pointed out, ‘when a more conservative option was available that also offered the possibility to return to the status quo, prevention motivation predicted risk aversion’ and probably a lack of proactiveness and innovativeness. In a word, these situations are external conditions upon which the impact of prevention focus may be different.

Nevertheless, we argue that in general, high levels of prevention focus will likely hamper firms’ levels of innovativeness, risk taking and proactiveness, the three dimensions of EO. Accordingly, we hypothesise the following.

**Hypothesis 2.** CEO prevention focus will be negatively associated with firms' levels of EO.

## The interactive effects of promotion and prevention focus on EO

We have argued above the independent effects of promotion and prevention focus on EO. Researchers have called for studies to investigate how different combinations of promotion and prevention focus shape organisational outcomes (Kammerlander et al., 2015; Lanaj et al., 2012). Therefore, we also consider how the interplay between promotion focus and prevention focus influences EO. Available research has categorised CEOs into different types based on their combinations of regulatory foci (Kammerlander et al., 2015; Markovits, 2012): rationalists (high in both foci), conservatives (high in prevention but low in promotion), achievers (high in promotion but low in prevention) and indifferents (low in both foci). Hence, promotion focus and prevention focus may work in combination to influence EO.

As discussed earlier, a promotion focus will likely enhance and a prevention focus will likely reduce firms' tendencies to engage in innovation (Ahmadi et al., 2017; Kashmiri et al., 2019; Scoresby et al., 2021), risk taking (Bryant & Dunford, 2008; Crowe & Higgins, 1997), and proactiveness (Crant, 2000; Liberman et al., 1999). Following this reasoning, it can be expected that firms led by achievers with a high promotion but a low prevention focus might have a higher tendency to engage in EO than firms led by indifferents being low in both foci. The reason is that the presence of a high promotion focus will induce achievers to strike for growth through pursuing new opportunities (Brockner et al., 2004). By contrast, firms led by conservatives with a high prevention focus but a low promotion focus might have a lower tendency to engage in EO than firms led by indifferents who are low in both foci. This is because a high prevention focus will orient conservatives to be more vigilant on how they pursue new opportunities (Brockner et al., 2004). Therefore, we hypothesise the following.

**Hypothesis 3a.** Firms will engage in higher levels of EO when they are led by CEOs with a high rather than a low promotion focus (achievers versus indifferents), where prevention focus is at a low level.

**Hypothesis 3b.** Firms will engage in lower levels of EO when they are led by CEOs with a high rather than a low prevention focus (conservatives versus indifferents), where promotion focus is at a low level.

The influence of rationalists (high in both foci) on EO appears less clear because a high promotion focus tends

to enhance firms' tendency to engage in EO whereas a high prevention focus may reduce such a tendency. When assessing potential new opportunities, for instance, rationalists might face tension or conflict to strike for growth and also ensure safety. Because one of the regulatory foci tends to predominate the other in any given moment (Scholer et al., 2019), firms led by rationalists may be influenced more by either promotion or prevention focus. Following the arguments leading to Hypotheses 1 and 2, we suspect if promotion focus plays a predominant role in shaping EO, then firms led by rationalists that are high in both foci might have a higher tendency to engage in EO than firms led by conservatives with a low promotion and a high prevention focus. By contrast, if prevention focus plays a predominant role in shaping EO, then firms led by rationalists that are high in both foci might have a lower tendency to engage in EO than firms led by achievers with a low prevention and a high promotion focus. Accordingly, we hypothesise the following.

**Hypothesis 4a.** Firms will engage in higher levels of EO when they are led by CEOs with a high rather than a low promotion focus (rationalists versus conservatives), where prevention focus is at a high level.

**Hypothesis 4b.** Firms will engage in lower levels of EO when they are led by CEOs with a high rather than a low prevention focus (rationalists versus achievers), where promotion focus is at a high level.

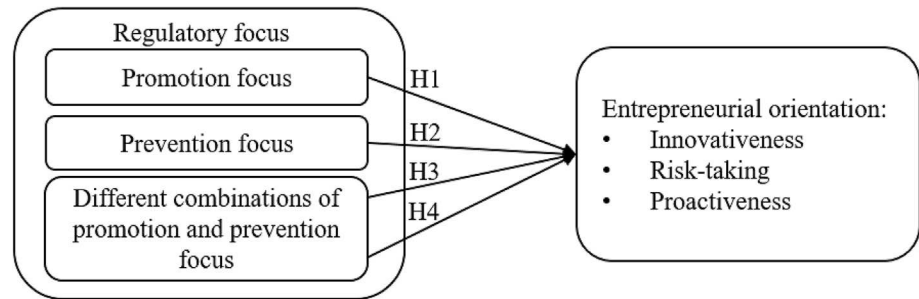
Taken together, we argue that regulatory focus is a microfoundation of EO. In particular, promotion focus will positively and prevention focus will negatively influence EO. We also expect that firms' levels of EO will vary between firms that are led by CEOs with different combinations of promotion and prevention focus. The conceptual model for the present study is demonstrated in Figure 2.

## METHOD

### Sample and data collection

We used the Financial Analysis Made Easy (FAME) database to draw our sample of SMEs, which refers to firms with up to 250 employees (Muller et al., 2017), from England, UK. SMEs were identified according to three conditions (Dada & Fogg, 2016): (a) firms with a primary trading address in England, UK; (b) active firms that are not in receivership or dormant; (c) firms with fewer than 250 employees in the last trading year. Based on the three conditions, 5000 firms were randomly selected. We aimed to collect data from CEOs because in small, simple firms, 'individual CEOs/top executives can

FIGURE 2 The conceptual model.



be expected to have accurate and reasonably complete knowledge of their organizations' operations' (Covin & Wales, 2019, p. 13). However, a significant number of the chosen firms lacked contact details for their CEOs, resulting in a sample size of 1542 firms for data collection.

In May 2015, we sent an electronic survey to the CEOs introducing our research and inviting their participation. Some emails failed to deliver due to issues such as invalid email addresses or the executives had retired or moved to other companies. In total, 1388 emails reached the target sample. Three rounds of follow-up emails, scheduled as 2, 4 and 5 weeks later, were sent after the initial email. Of the 1388 CEOs contacted, we obtained 157 responses. The response rate (11.3%) is comparable with similar studies using senior executives as a primary data source (Brettel & Rottenberger, 2013), which is within the typical range for mailed surveys to top management (Wales, Patel, & Lumpkin, 2013). We removed 47 of the 157 responses due to missing data on focal variables, resulting in a final sample of 110 valid cases for further analysis. We tested for non-response bias by comparing the data from early versus late responses. Given that no statistically significant differences were observed between the two groups, non-response bias was not a problem in this study.

The average age and tenure of CEOs were 50.67 and 14.41 years, respectively. The sample was dominated by male CEOs who accounted for 81.2% of all respondents. The gender ratio is consistent with the results from the UK 2014 Small Business Survey that only 18% of SMEs are led by women (BIS, 2015). The average firm age was 30.4 years. The firms varied in size, with 20% of the firms having fewer than 10 employees. The firms with 11–50 employees and 51–250 employees were 32.7% and 47.3%, respectively. The firms were from different industries: 28.2% were in manufacturing, 48.2% were in service and 23.6% were from other sectors.

## Measures

### EO

In line with the majority of EO studies (Gupta & Wales, 2017; Rauch et al., 2009), we operationalised EO

as a unidimensional construct by combining its dimensions. EO was measured using the 9-item scale developed by Covin & Slevin (1989). This scale has been widely used in previous EO studies (Rauch et al., 2009). The items were measured by using a 5-point Likert scale (ranging from 1 [*strongly disagree*] to 5 [*strongly agree*]). The Cronbach's alpha was 0.74, above the recommended value of 0.7, indicating high scale reliability. Appendix A shows the details of the survey questions used in this study.

### Promotion and prevention focus

We measured the independent variables using the Regulatory Focus Questionnaire (RFQ) developed by Higgins et al. (2001). RFQ captures people's histories of success in achieving promotion- and prevention-related goals (Higgins et al., 2001). It consists of 11 items, with 6 items for promotion focus and 5 items for prevention focus. CEOs were asked to provide their responses to each item using a 5-point Likert scale ranging from 1 to 5. We found inconsistent loading of two items on promotion focus. Following prior studies (Kammerlander et al., 2015; Wu et al., 2008), the two items were removed from further analysis. The Cronbach's alpha was 0.64 for promotion focus, and it was 0.83 for prevention focus, indicating acceptable internal reliability of the measures (Bryant, 2009; Hair et al., 2014). The internal reliabilities of promotion and prevention focus were consistent with the study from Kammerlander et al. (2015), which also found that prevention focus ( $\alpha = 0.77$ ) has higher internal reliability than promotion focus ( $\alpha = 0.60$ ).

### Control variables

We controlled for CEO age, CEO tenure, firm age, firm size, industry, technology turbulence and market turbulence. We controlled for CEO age and CEO tenure because they allow CEOs to accumulate more experience, which may influence the behaviours of firms they lead (Lee & Tsang, 2001). CEOs with more experience in innovation, for example, may have a higher tendency to foster such activities in their firms. Firm age, measured as the number of years since the business was established,



was controlled because older firms may have more experience and therefore greater propensity to engage in entrepreneurial activities. We used the logarithmic transformation for firm age and CEO tenure to adjust for kurtosis and skewness (Hair et al., 2014). Firm size, measured by the number of full-time employees, was also controlled as large firms may have more resources and capabilities to pursue entrepreneurial activities (Covin & Slevin, 1991; Stam & Elfring, 2008). Firm size was included as dummy variables with three categories: fewer than 10 employees, which served as the reference group in our model, 11–50 employees and 51–250 employees.

The industry was controlled to account for potential influences from the industry in which firms operate (Kammerlander et al., 2015; Lubatkin et al., 2006). Industry dummies include manufacturing, service and other businesses, which served as the reference group in our model. Finally, we controlled for technology turbulence and market turbulence because changes in the environment might provide firms with new opportunities but also new challenges (Su et al., 2011). Firms, for example, may react with entrepreneurial activities to maintain competitiveness in a turbulent environment. Technology turbulence and market turbulence were both measured by a 3-item, 5-point scale adapted from Jaworski and Kohli (1993). However, one item for market turbulence was removed due to inconsistent factor loading. The Cronbach's alpha was 0.83 for technology turbulence and 0.70 for market turbulence, indicating good scale reliability.

### Common method bias

Because our study relies on a self-report survey from one single respondent, it might lead to common method bias (Podsakoff et al., 2003). We employed several procedural remedies when designing the survey to minimise the risks of common method bias. First, we tested the questionnaire with two CEOs and three academics prior to the data collection to avoid item ambiguity that might hinder respondents' understanding of the items (Tourangeau et al., 2000). Second, we assured anonymity and confidentiality of the responses to reduce respondents' tendency to provide answers in ways that are more socially desirable (Podsakoff et al., 2003). Third, we embedded the items in different sections of a more comprehensive survey that entail other individual-level and firm-level constructs (e.g., exploration and exploitation). This can help to counter potential bias because respondents will be unable to draw meaningful conclusions about the study and adjust their answers (Podsakoff et al., 2003).

We also conducted Harman's one-factor test and confirmatory factor analysis (CFA) to assess common method bias (Podsakoff & Organ, 1986). The results from Harman's one-factor test showed that 5 factors accounted for 66.49% of the variance extracted

(eigenvalues greater than 1), with the first factor accounting for 22% of the total variance, meaning that no single factor represented the majority of the variance (Podsakoff et al., 2003). We then performed a CFA using all items of the focal variables, including promotion focus, prevention focus, and EO. The CFA model demonstrated adequate model fit (comparative fit index = 0.90, root mean square error of approximation = 0.08) (Hair et al., 2014), although the  $\chi^2$  of the model was significant ( $\chi^2 = 212.607$ ,  $df = 130$ ,  $p < 0.001$ ). Given these results, we can contend that the risk of common method bias is low in our study.

## ANALYSIS AND RESULTS

Table 1 presents the means, standard deviation and correlations for the variables used in this study. The correlation between promotion and prevention focus is low in magnitude ( $\rho = 0.21$ ,  $p < 0.05$ ), which is consistent with the findings in previous research (Higgins et al., 2001). We assessed multicollinearity using the variance inflation factor (VIF) statistics. The lowest value was 1.19, and the highest value was 3.01. All VIFs were substantially below the critical value of 10 (Neter et al., 1985), suggesting that multicollinearity is not a concern for the current study.

Table 2 reports the results of the regression analyses with EO as the dependent variable. Model 1 contains the control variables. The predicting variables promotion focus and prevention focus were added in Model 2. Results in Model 2 show that promotion focus has a significant positive impact on EO ( $\beta = 0.27$ ,  $p < 0.05$ ), providing support for Hypothesis 1. In line with our prediction, results in Model 2 demonstrate a significant negative relationship between prevention focus and EO ( $\beta = -0.19$ ,  $p < 0.05$ ), providing support for Hypothesis 2.

Consistent with prior studies (Idson et al., 2000; Kammerlander et al., 2015; Markovits, 2012), we used the median value of promotion and prevention focus to split CEOs into four groups: rationalists, conservatives, achievers and indifferents. Table 3 shows the mean values of EO among firms led by different types of CEOs. As illustrated in Figure 3, firms led by achievers have the highest levels of EO (3.51), followed by rationalists (3.23) and indifferents (3.04). Firms led by conservatives (2.80) have the lowest levels of EO. Results from ANOVA analysis show that the levels of EO are significantly different among the four groups ( $p < 0.05$ ).

To test for Hypotheses 3a/3b and 4a/4b, we conducted contrast tests to assess how EO differs among firms led by different types of CEOs. Table 4 shows the results from the contrast test. Among CEOs with a low prevention focus (achievers and indifferents), firms led by achievers with a high promotion focus showed significantly higher levels of EO than those led by indifferents with a low promotion focus ( $p < 0.05$ ), supporting

**TABLE 1** Means, standard deviations (*SD*) and correlations of variables.

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. CEO age	50.67	10.49							
2. CEO tenure	14.41	9.57	0.406**						
3. Firm age	30.40	32.11	0.172	0.344**					
4. Technology turbulence	3.95	0.83	-0.016	-0.221*	-0.138				
5. Market turbulence	3.42	0.81	0.019	-0.029	-0.171	0.390**			
6. Promotion focus	3.93	0.49	-0.065	-0.011	-0.017	0.102	0.192*		
7. Prevention focus	3.33	0.83	0.172	0.237*	0.240*	-0.109	0.038	0.210*	
8. Entrepreneurial orientation	3.13	0.74	.081	-.021	-0.086	0.266**	0.336**	0.247**	-0.207*

Note: *N* = 110 firms.

\**p* < 0.05.

\*\**p* < 0.01 (two-tailed).

**TABLE 2** Regressing entrepreneurial orientation onto promotion and prevention focus.

	Model 1	Model 2
Constant	2.46	1.72
<i>Controls</i>		
CEO age	0.00	0.00
CEO tenure (log)	0.35	0.30
Firm age (log)	-0.31***	-0.22*
Firm size (11–50) <sup>a</sup>	0.17	0.15
Firm size (51–250)	0.56***	0.51*
Manufacturing <sup>b</sup>	0.04	0.03
Service	-0.46***	-0.37*
Technology turbulence	0.20*	0.17
Market turbulence	0.13	0.15
<i>Direct effects</i>		
Promotion focus		0.27*
Prevention focus		-0.19*
<i>R</i> <sup>2</sup>	0.31	0.36
Adjusted <i>R</i> <sup>2</sup>	0.25	0.29
$\Delta R^2$		0.05
<i>F</i>	4.99***	4.98***
$\Delta F$		3.64*

<sup>a</sup>Firm size dummy variable with the reference group having less than 10 employees.

<sup>b</sup>Industry dummy variable with the reference group covering firms from other industries.

\**p* < 0.05.

\*\**p* < 0.01.

\*\*\**p* < 0.001; unstandardised regression coefficients (two-tailed tests).

Hypothesis 3a. Among CEOs with a low promotion focus (conservatives and indifferents), firms led by conservatives with a high prevention focus showed lower levels of EO than those led by indifferents with a low prevention focus, but the group difference is non-significant (*p* > 0.10). Therefore, Hypothesis 3b is not supported. Among CEOs with a high prevention focus (rationalists and conservatives), firms led by rationalists with a high

promotion focus exhibited significantly higher levels of EO than those led by conservatives with a low promotion focus (*p* < 0.05), supporting Hypothesis 4a. Among CEOs with a high promotion focus (rationalists and achievers), firms led by rationalists with a high prevention focus showed lower levels of EO than those led by achievers with a low prevention focus, but the group difference is non-significant (*p* > 0.10). Therefore, Hypothesis 4b is not supported in this study.

## Supplementary analysis

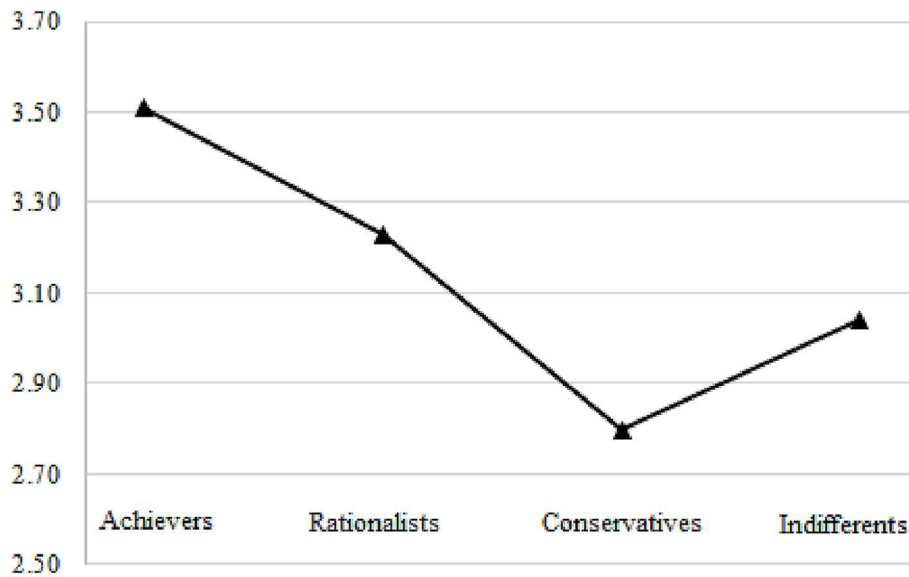
Our analysis above examined the impact of regulatory focus on the unidimensional EO by combining its dimensions, in line with the majority of EO studies (Gupta & Wales, 2017; Rauch et al., 2009). Previous research has also conceptualised EO as a multidimensional construct (Covin & Wales, 2019). We, therefore, performed supplementary analysis to examine how CEOs with different combinations of the two foci might impact the multidimensional EO, that is, innovativeness, risk taking and proactiveness separately (Kreiser et al., 2013). The results are largely consistent with the findings from our main study. In other words, with high levels of prevention focus, increasing levels of promotion focus will likely contribute to EO and its three dimensions. By contrast, with high levels of promotion focus, increasing levels of prevention focus are likely to reduce EO and its three dimensions.

## DISCUSSION

Integrating insights from the EO literature (Covin & Wales, 2019; Wales, Gupta, & Mousa, 2013) with the regulatory focus theory (Brockner et al., 2004; Higgins, 1997), we argued that CEOs' regulatory focus, a motivation-based attribute, influences EO at the firm level. Our empirical findings based on a sample of SMEs from the United Kingdom show that promotion focus

**TABLE 3** Group comparison of entrepreneurial orientation.

Groups	Number of cases	Mean	Std. deviation	Std. error	Minimum	Maximum
Achievers	23	3.51	0.67	0.14	1.89	5.00
Rationalists	34	3.23	0.81	0.14	1.44	4.78
Conservatives	29	2.80	0.68	0.12	1.89	4.33
Indifferents	24	3.04	0.61	0.13	1.00	4.00
Total	110	3.12	0.74	0.07	1.00	5.00

**FIGURE 3** Plot of entrepreneurial orientation among different groups.**TABLE 4** Contrast tests.

Groups (mean value)	Value of contrast	Std. error	<i>t</i>	<i>df</i>	Significance (two-tailed)
Rationalists (3.23)—conservatives (2.80)	0.43	0.19	2.30	61.00	0.02
Achievers (3.51)—indifferents (3.04)	0.47	0.19	2.49	44.00	0.02
Achievers (3.51)—rationalists (3.23)	0.28	0.20	1.41	52.42	0.16
Conservatives (2.80)—indifferents (3.04)	0.24	0.18	1.38	50.74	0.17

positively and prevention focus negatively influence EO when the two foci are examined separately. Our findings are in line with previous research that found promotion focus is positively and prevention focus is negatively related to exploration within SMEs (Kammerlander et al., 2015). This is not surprising because EO is exploratory in nature (Huang et al., 2020) as recent research has highlighted that its dimensions such as innovativeness and risk taking are the essence of exploration (Covin & Wales, 2019; Patel et al., 2015), whereas proactiveness has been found to positively influence exploration (Yeniaras & Unver, 2016).

Our further analysis shows that EO differs among firms that are led by CEOs with different combinations of the two foci. In particular, in the presence of a high prevention focus, a high promotion focus can significantly enhance EO (rationalists vs. conservatives). By

contrast, in the presence of a high promotion focus, a high prevention focus did not significantly reduce EO (rationalists vs. achievers). Our results are consistent with previous research findings suggesting that firms' levels of exploration differ significantly between rationalists and conservatives but not between rationalists and achievers (Kammerlander et al., 2015). Research in regulatory focus theory suggests one of the two foci tends to predominate the other (Scholer et al., 2019). Our findings show that promotion focus tends to play a more predominant role than prevention focus in shaping EO when CEOs are high in both foci (rationalists).

Our results also show that when prevention focus is at a low level, a high promotion focus significantly enhances EO (achievers vs. indifferents). When promotion focus is at a low level, EO is lower in firms led by CEOs with a high rather than a low prevention focus (conservatives

vs. indifferents), but the difference is insignificant. This is different from previous work, which found that the levels of exploration in firms led by conservatives were significantly lower than those led by indifferents (Kammerlander et al., 2015). One possible explanation for the non-finding is that while prevention focus may induce CEOs towards maintaining status quo (Molden et al., 2008), conservative CEOs might be stimulated to pursue change due to competitions or threats in the market environment. For example, new market offerings from competitors might stimulate firms led by conservatives to develop new products and take risks to remain competitive, which can help to satisfy CEOs' needs for safety (Brockner et al., 2004). Indeed, in the situation of experiencing losses, prevention-focused people are likely to deviate from their preferred practice to regain adequate status (Scholer et al., 2010). We suspect that situational factors might attenuate the influence of high prevention focus on EO. Hence, future research is needed to investigate how prevention focus influences organisations by taking into account not only promotion focus but also situational factors in the environment.

## Theoretical contributions

Our study makes several important contributions to the literature. First, it identifies an important motivational antecedent of EO, that is, regulatory focus. In a recent bibliometric analysis of 822 EO publications, Wales et al. (2021) highlighted that further studies examining the antecedents of EO are needed because researchers have devoted limited attention to this area. Previous studies have focused on the 'macro' explanations of EO, such as the environmental and organisational factors (Rosenbusch et al., 2013; Wales, Gupta, & Mousa, 2013). Our finding on the regulatory focus of CEOs as an important antecedent of EO in SMEs enriches the literature on how 'micro' factors concerning the characteristics of CEOs are related to EO. Our study also complements previous works such as personality traits (Bernoster et al., 2020; Poon et al., 2006; Simsek et al., 2010; Wales, Patel, & Lumpkin, 2013) and intrinsic/extrinsic motivations of CEOs (Pittino et al., 2017) by uncovering regulatory focus as an important motivational antecedent of EO in the context of entrepreneurship (Johnson et al., 2015). As such, our study serves to answer recent calls to better understand how CEO-level factors influence EO (Mousa & Wales, 2012; Pittino et al., 2017) and also Wales et al.'s (2021) call for further studies on the antecedents of EO.

Related to the first point, our study contributes to the emerging stream of literature on the microfoundations of EO by identifying regulatory focus as a motivational microfoundation of EO at the firm level. While CEOs' personality traits have been shown to be important microfoundations of EO, personality traits such as

general self-efficacy, core self-evaluations, and narcissism mainly deal with individuals' beliefs and evaluations about self (Luszczynska et al., 2005; Poon et al., 2006; Simsek et al., 2010; Wales, Patel, & Lumpkin, 2013). As a result, personality traits tend to influence behaviours through motivation (Barrick & Mount, 2005; Lanaj et al., 2012). In contrast to the microfoundations that have been identified in previous EO research, CEOs' regulatory focus is more proximal to the behaviours of CEOs and the firms they lead (Gamache et al., 2015). The reason is that regulatory focus determines individuals' motives and needs that drive actions (Higgins, 1997, 1998; Scholer et al., 2019). Our study sheds light on the motivational microfoundations of EO and enhances our understanding of how regulatory focus at a more fundamental and microfoundational level influences an important firm-level strategic orientation, EO, which can affect the performance of SMEs (Gupta & Batra, 2016; Keh et al., 2007; Khedhaouria et al., 2015, 2020).

Moreover, our findings contribute to regulatory focus theory by considering how the different combinations of the two foci influence EO and more importantly providing evidence of the dominance of promotion focus over prevention focus in shaping EO when CEOs are high in both foci. Although previous research has generated useful insights about the independent effects of promotion and prevention focus on organisations (Johnson et al., 2015), our understanding of their potential interactive effects in shaping the behaviours of organisations remains limited. Indeed, researchers have called for studies to explore how combinations of regulatory foci affect the strategic behaviours of organisations (Kammerlander et al., 2015; Lanaj et al., 2012). Although regulatory focus theory suggests that one of the two foci tends to predominate the other (Scholer et al., 2019), whether promotion or prevention focus plays a more dominant role remains underexplored. We contribute to this line of research by providing evidence to the dominance of promotion focus when interacting with prevention focus in shaping EO. In particular, high promotion focus can significantly enhance EO, even when prevention focus is at a high level.

## Managerial implications

Our findings also offer useful insights for practitioners. Understanding the implications of regulatory focus can inform CEOs' decisions on the selection and involvement of team members. For example, individuals with a high prevention focus are oriented towards maintaining the status quo (Brockner et al., 2004), meaning they are less likely to pursue and thus benefit from entrepreneurial activities. CEOs can compensate for this issue by selecting and involving promotion-focused team members in the decision-making process to capitalise on emerging new opportunities. The reason is that a high promotion

focus will likely induce individuals to engage in entrepreneurial activities for growth (Bryant & Dunford, 2008; Kashmiri et al., 2019). As such, CEOs can leverage the regulatory focus of team members to stimulate EO, which is related to firm performance (Campopiano et al., 2020; Gupta & Batra, 2016; Khedhaouria et al., 2020; Rauch et al., 2009).

Given that the motivational attributes of CEOs (i.e., regulatory focus) determine firms' levels of EO, people who are responsible for the recruitment of CEOs should also take this into consideration. Beyond evaluating factors such as the experience and education of the candidates, for example, board members might need to learn about the motivational attributes of the candidates in the screening process. This might be achieved through candidate interviews with the assistance of adapted questions drawing from the measurement scales developed by Higgins et al. (2001). We concur with the view of Kammerlander et al. (2015) that SMEs are likely to benefit from CEOs who have a high promotion focus as the underlying motive of growth and advancement from promotion focus might help to foster firms' entrepreneurial activities.

## Limitations and future research

This study, as with any empirical work, comes along with limitations that present opportunities for future research. First, extant research has found that the impact of regulatory focus might be dependent on their fit with situational conditions (Gamache et al., 2015; Higgins, 2000; Lanaj et al., 2012), which our study does not investigate. In particular, the congruence between the situational conditions with individuals' regulatory focus can lead to 'regulatory fit' and accentuate the effects of promotion and prevention focus (Higgins, 2000). For example, regulatory fit affects individuals' decision-making process (Ashraf & Thongpapanl, 2015; Thongpapanl et al., 2018), and the effects are stronger in emerging rather than developed markets (Ashraf et al., 2016). Similarly, Ahmadi et al. (2017) found that organisational context and the complexity of decision making play a role in shaping the impacts of managers' regulatory focus on firms' exploration orientation. Future studies should consider the impact of regulatory focus on EO under different conditions such as different levels of firm performance (Mount & Baer, 2021) and different organisational cultures (Khedhaouria et al., 2020).

Second, our study is based on a sample of firms from the UK context. As such, our findings might not be generalised to other national contexts as research has shown that EO is influenced by the national culture in which firms operate (Kreiser et al., 2010). For example, the United Kingdom has a low tendency towards uncertainty avoidance. This implies that CEOs from such a national culture might be more tolerant to commit resources

towards EO that entails uncertainty. Therefore, future research could extend our study by focusing on another national context that is distinct from the United Kingdom. Researchers could also consider whether and how the national cultural context might interact with the regulatory focus of CEOs to influence EO.

Third, using cross-sectional self-reported data from a single informant per firm also has limitations that should not be ignored. Using self-reported data from one informant might be subject to common method bias, yet the potential limitations associated with this method is a necessary trade-off as objective data from SMEs are often scarce (Kammerlander et al., 2015). Using a single informant might be appropriate within small firms where CEOs, as the primary decision makers, have a more holistic understanding of firms' operations (Covin & Wales, 2019). Results from Harman's one-factor test and CFA pointed to the unlikelihood of common method bias. Moreover, using cross-sectional data limits our ability to draw causal inferences on the relationship between CEO regulatory focus and EO. Further research might collect data from different points in time to scrutinise our results. Although we controlled for the age and tenure of CEOs, further research might also control the different personality traits that have been shown to influence EO (Busenbark et al., 2016).

Moreover, our findings may not hold in large firms that are managed by top management teams because other team members might also affect firm-level activities (Finkelstein et al., 2009). To mitigate this issue, we focused on SMEs because they are less likely to be managed by a top management team than large firms. Recent research suggests, for example, the regulatory focus of CEOs and CFOs might interact and influence firms' growth-oriented initiatives (Chen et al., 2017). Hence, it would be interesting to examine how the composition of top management teams that consist of people with different combinations of regulatory foci influence EO.

Finally, our investigation includes firms from different industry sectors following previous research on regulatory focus (Kammerlander et al., 2015). One potential limitation is that firms operating in different industries tend to experience different levels of competition and complexity (Jaworski & Kohli, 1993), meaning the extent to which regulatory focus influences EO might be shaped by the industry context in which firms operate. As such, future research should consider whether and how the impact of regulatory focus on EO might differ under different industry contexts.

## CONCLUSION

This study examines how CEOs' regulatory focus affects the EO of SMEs. Although previous research has shown how CEOs' personality traits shape EO (Poon et al., 2006; Simsek et al., 2010; Wales, Patel, &

Lumpkin, 2013), the role of CEOs' motivation remains underexplored (Pittino et al., 2017). The results of our analysis of CEOs from 110 SMEs show that promotion focus positively and prevention focus negatively influence EO when the two foci are examined separately. Furthermore, high promotion focus significantly enhances EO, regardless of whether prevention focus is at high or low levels. Our research contributes to the research on entrepreneurship, more specifically the microfoundations of EO, and regulatory focus. We hope that this research will stimulate further research on how the regulatory focus of top executives or top management teams influences other strategic behaviours and orientations of SMEs.

## AUTHOR CONTRIBUTIONS

**Shuangfa Huang:** Conceptualisation, methodology, formal analysis, data curation, writing—original draft, writing—review and editing, visualisation. **Qihai Huang:** Conceptualisation, writing—original draft, writing—review and editing. **Danny Soetanto:** Conceptualisation, writing—original draft, writing—review and editing. **Xinchun Li:** Conceptualisation, writing—original draft, writing—review and editing.

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## CONFLICT OF INTEREST STATEMENT

No conflict of interest.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the first author upon reasonable request.

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## APPENDIX: Survey Questions.

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### Scales

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#### *Promotion focus*

- Compared to most people, are you typically unable to get what you want out of life? (R)\*
- 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. (R)
- I feel like I have made progress toward being successful in my life.
- I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them. (R)\*

#### *Prevention focus*

- Growing up, would you ever 'cross the line' by doing things that your parents would not tolerate? (R)
- Did you get on your parents' nerves often when you were growing up? (R)
- 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? (R)
- Not being careful enough has gotten you into trouble at times. (R)

#### *Entrepreneurial orientation*

- We favour a strong emphasis on R&D, technological leadership, and innovations
- My firm has many new lines of products marketed in the past 3 years
- Changes in our product lines have usually been quite dramatic
- We have a strong propensity for high-risk projects (with chances of very high returns)
- We believe, owing to the nature of the environment, that bold, wide-ranging acts are necessary to achieve the firm's objectives
- When there is uncertainty, we typically adopt a bold, aggressive posture in order to maximise the probability of exploiting potential opportunities
- We initiate actions to which competitors then respond
- We are very often the first business to introduce new products, administrative techniques, operating technologies, etc.
- We typically adopt a very competitive, 'undo-the-competitors' posture

#### *Technology turbulence*

- The technology in our industry is changing rapidly
- Technological changes provide big opportunities in our industry
- A large number of new product ideas have been made possible through technological breakthroughs in our industry

#### *Market turbulence*

- Customers' product preferences change quite a bit over time
  - Our customers tend to look for new products all the time
  - We are witnessing demand for our products from customers who never bought them before\*
- 

Note: (R) = Reversed coded.

\*Items removed due to inconsistent factor loading.