

A curvilinear relationship between entrepreneurial orientation and firm performance: The moderating role of employees' psychological safety

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Abstract While many studies on the relationship between entrepreneurial orientation (EO) and firm performance suggested a considerable variation in size and direction of the relationship, our study tested a model that considered the drawbacks of a high EO. We identified that EO has a curvilinear relationship with firm performance and analyzed how the psychological safety of employees can mitigate the negative effects of high EO on firm performance. We tested our model on 157 enterprises comprising 1633 employees and 157 managers. After taking a longitudinal approach with objective financial outcome data, our results showed that EO has an inverted U-shaped effect in predicting firm performance and that employees' psychological safety moderates the relationship between EO and firm performance, mitigating the negative effects. This study has theoretical implications related to the potential negative impact of excessive EO and practical implications for companies in mitigating this drawback by increasing employees' psychological safety.

Keywords Entrepreneurial orientation · Firm performance · Psychological safety · Small and medium enterprises · Curvilinear relationship

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Introduction

Entrepreneurial orientation (EO) has been studied as a key determinant influencing organizations' strategic decision-making process that provides a basis for exploring new opportunities (George and Marino 2011; Wales et al. 2013). Researchers have empirically examined the benefits of EO for firm performance (Covin et al. 2006; Lechner and Gudmundsson 2014). However, according to a meta-analysis of the relationship between EO and firm performance (Rauch et al. 2009), the magnitude and direction of the relationship between EO and firm performance varies across study samples (Leal-Rodríguez et al. *in press*). While some studies have found that businesses with a higher level of EO perform better than firms with a lower level of EO (with an $r > .30$, e.g., Covin and Slevin 1986), other studies have reported lower correlations between EO and firm performance (with an $r < .30$, e.g., Covin et al. 1994), no significant relationship (e.g., George et al. 2001), or even a negative relationship (e.g., Tang et al. 2008; Wang 2008). Although we recognize that extant studies provide a building block for better understanding EO's effect on firm performance, the underlying reason for this variation has not been actively investigated (Rauch et al. 2009; Rosenbusch et al. 2013; Wiklund and Shepherd 2005). We believe scholarly and managerial attention is needed to investigate the dangers that EO might pose to firm performance (Tang et al. 2008; Wang 2008; Wiklund and Shepherd 2005; Zhao et al. 2011).

The considerable variation in the size and direction of reported relationships between EO and firm performance may suggest an unidentified contextual factor (Covin and Lumpkin 2011). Zhao et al. (2011) advanced the theoretical argument that an intense emphasis on EO can be detrimental because it leads firms to pursue risky projects obsessively. Indeed, when EO is overemphasized, firms are more likely to make highly risky decisions in a rapid manner. In such decisions, the outcome may not be desirable. To understand the effect of high EO, psychological safety of employees is particularly relevant, due to its role in shaping decision making (Edmondson 1999). If firms with high EO do not have sufficient managerial skills to lead their members toward entrepreneurial opportunities or to operate high-risk entrepreneurial projects (Li and Atuahene-Gima 2001; Madhoushi et al. 2011; Winslow and Solomon 1993), employees, unless they feel comfortable following managers' entrepreneurial decision-making, might resist the new responsibilities that entrepreneurial tasks and changes often require (Rauch et al. 2009). Employees might also worry that newly introduced entrepreneurial projects might threaten their job security (Green et al. 2008). According to this logic, psychological safety—which refers to employees' perception that their organization is safe for risk-taking actions—can be considered a mechanism that interacts with EO to shape firm performance. Yet, the role of psychological safety as a possible moderator between firm EO and firm performance has not yet been examined.

Therefore, this study's main purposes are (1) to empirically test whether EO has drawbacks on firm performance and (2) to determine if the contextual factor of employees' psychological safety can explain when EO has a positive or negative impact on firm performance. Based on a longitudinal study involving data of 157 enterprises comprising 1633 employees and 157 managers, we examine the significance of EO as an antecedent to firm performance as well as the relevance of employees' psychological safety as a moderator in the relationship between EO and firm performance. In doing so, this study contributes to the literatures of entrepreneurship and management by providing a fine-tuned understanding of one way to prevent

high EO from impeding firm performance: increasing employees' psychological safety allows them to engage in entrepreneurial tasks comfortably, and thus the organization can obtain a competitive advantage and achieve high performance (Edmondson 1999). In addition, by testing the EO–firm performance relationship with samples from South Korea, our results provide empirical evidence that high EO can have a negative impact on firm performance in cultures with high uncertainty avoidance, where typical employees tend to perceive threats when facing the ambiguity that entrepreneurial opportunities often imply (Boso et al. 2013; Covin and Miller 2014; Hofstede 1993). This study further provides theoretical justification and empirical tests and discusses the implications of study findings for scholars and practitioners.

Theory and hypotheses

In this section, we present our hypotheses on the effect of EO on firm performance and on the power of psychological safety in smoothing the negative effects of excessive levels of EO. These hypotheses and our research model are depicted in Fig. 1.

Entrepreneurial orientation and firm performance

EO has been defined as the tendency of the organization's management to be innovative, proactive, and risk-taking toward entrepreneurial decisions and actions (Covin and Slevin 1989). These three characteristics are based on Miller's (1983) initial conceptualization and have been used frequently in the literature. They are defined as follows:

- (a) Innovativeness is the predisposition to engage in creative experimentation through the introduction of new products/services or a new way of operation.
- (b) Proactiveness is a quick move to seek opportunities ahead of the competition in anticipation of future demand.
- (c) Risk-taking consists of taking bold actions by trying new and unproven methods in uncertain environments.

These aspects of EO are usually highly intercorrelated, with r values ranging, for example, from .39 to .75 (Bhuiyan et al. 2005; Richard et al. 2004; Stetz et al. 2000; Tan and Tan 2005). Therefore, many studies combine these aspects into a single construct (e.g.,

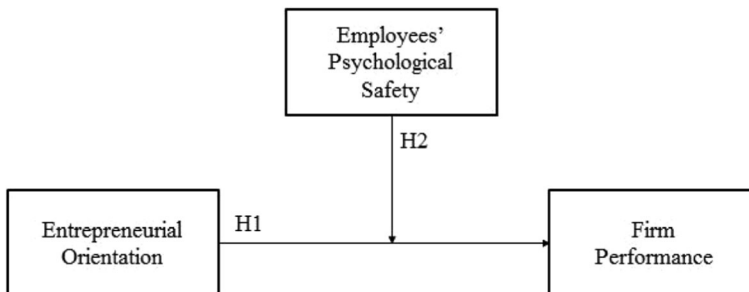


Fig. 1 Research model: The role of psychological safety in the relationship between entrepreneurial orientation and firm performance

Covin et al. 1994; Lee et al. 2001; Naman and Slevin 1993; Walter et al. 2006; Wiklund and Shepherd 2005), arguing that EO is best conceptualized as a unidimensional construct (e.g., Covin and Wales 2012). Accordingly, we conceptualize EO as the overall propensity of management that influences the company's strategic choices in exploring and leveraging new business opportunities (Lechner and Gudmundsson 2014; Krauss et al. 2005). Organizations with a high EO innovate frequently and quickly while taking risks in their strategies (Lechner and Gudmundsson 2014). They also try to anticipate demand and position new products/service offerings proactively, with a hope that their entrepreneurial actions result in good performance outcomes (Rauch et al. 2009).

A construct closely related to EO is entrepreneurial culture, which is a system of shared values and beliefs within an organization toward the exploration of new opportunities, resources, and innovation (Leal-Rodríguez et al. *in press*; Wei et al. 2013). Entrepreneurial culture affects the organization's strategic choices for innovation and performance achievement (Leal-Rodríguez et al. *in press*; Yarbrough et al. 2011). Similarly, corporate entrepreneurship is related to EO, as it refers to the capability possessed by organizations to enrich entrepreneurship and innovation at the organizational level (Peris-Ortiz 2009). Furthermore, EO can be connected to a firm's entrepreneurial capital, which influences organizational members to take risks in order to contribute to organizational performance (Albort-Morant and Rey-Martí 2015).

The effects of EO have been investigated in several settings. For example, manufacturing firms with high EO tend to innovate frequently while taking risks in their new product and research and development strategies (Miller and Friesen 1982). Retail companies' efforts to anticipate demand and proactively position new products and service offerings are often conducted with the expectation of strong performance outcomes (Ireland et al. 2003). Highlighting the qualities of innovativeness, proactiveness, and high risk-taking, research has explored the influence of EO, and many studies have yielded support for the positive impact of EO on firm performance (Rauch et al. 2009). Particularly in today's business environment of rapid change and increased competition, the future revenue stream from existing business is likely to be uncertain, so entrepreneurial organizations pursue bold and innovative ways to seek out new opportunities. Indeed, the suggestion that higher EO should lead to better performance has formed the basis for the interest in studying the relationship between EO and performance (Leal-Rodríguez et al. 2015) across diverse study samples (see Rauch et al. 2009).

However, we argue that high EO might also have a negative impact on firm performance. Two main points corroborate this argument. First, when urgency and risk-taking are overemphasized, individuals suffer from a loss of security and may feel uncomfortable about a managerial propensity that seems to be risky and threatens their feeling of safety in organizations (Rosenbusch et al. 2013). In searching for opportunities for growth, managers with a high level of EO proactively seek to learn about potential changes in their environment and instill their risk-taking, proactive, and innovative ways of thinking among organizational members (Anderson and Eshima 2013). However, typical employees may not have sufficient skills in tolerating uncertainty, and this lack of security may cause an unintended negative impact on firm performance. Maslow (1954), for instance, suggested that unless employees' need for safety is met, it may be difficult to expect them to meet their other needs, including self-actualization. Employees, when they feel uncomfortable, may lack a tolerance for ambiguity and simply want to avoid high risks. Scholars have pointed out that one cannot simply expect a high tolerance for ambiguity from most

employees; most of these individuals prefer to avoid risks and ambiguity and they are usually less tolerant of ambiguous situations than their entrepreneurial managers (Fiedler et al. 1976; Hill and Levenhagen 1995; Rauch et al. 2009). The concept of tolerance for ambiguity was first introduced by Budner (1962). Budner's definition of this construct can be viewed as a continuum (Sexton and Bowman 1985). At one end is the view of ambiguity as desirable and a challenging goal to overcome, and MacDonald (1970) argued that people with this view (e.g., entrepreneurial managers) may actively seek unstructured situations. At the other end, ambiguity is viewed as stressful and threatening. A state of ambiguity is a circumstance with insufficient knowledge to structure its complexity or novelty (Budner 1962), which can be found in an entrepreneurial environment (Scheré 1982). Thus, entrepreneurial managers with a high tolerance are thus more willing to take chances in a risky and uncertain decision-making state, while employees with a low tolerance prefer to avoid uncertain and ambiguous situations (Gürol and Atsan 2006).

Second, firms with high levels of EO may have insufficient managerial structure and regulation to lead high-risk entrepreneurial projects in untried technologies, products, or services, which can result in poor performance (Li and Atuahene-Gima 2001). Under high risk and uncertain situations, employees may be hesitant to take bold and proactive actions. Unless they are required to be autonomous by their jobs, employees prefer to know exactly what they are supposed to do; thus, their work environment is usually highly structured (Fiedler et al. 1976). Harvey (1988) suggested that organizational members tend to fear the unknown and associate the unknown with discomfort or fear because they tend to have less control over the unexplored business process and thus its outcome. In employees' trial of maximizing control of a situation and minimizing loss of safety, they favor certain directions and facts to build their competence (Argyris 1962). Therefore, over time, established organizations set up rules and regulations to reduce uncertainty and limit employees' need to deal with it (Fiedler et al. 1976; Rauch et al. 2009; Winslow and Solomon 1993).

To summarize, although many EO studies have shown that firms with high EO are proactive, risk-taking, and innovative toward entrepreneurial decisions and actions (e.g., Covin and Slevin 1989), excessive EO may impede firm performance, particularly when EO requires employees to take rapid risk-taking actions. Even if managers with high EO feel comfortable with uncertain situations and even take advantage of risky situations to find future opportunities, the same tendency toward entrepreneurial opportunity cannot be naturally expected from employees. Employees may tend to avoid challenging and ambiguous situations, unless they feel sure that their actions will not cause a detrimental impact on firm performance. Consistent with these arguments, we state that firm performance will be highest when there are moderate levels of EO. In other words, the relationship between EO and firm performance is curvilinear (i.e., positive until a certain level of EO is reached, and subsequently negative). According to this view, we posit the following hypothesis:

H1: EO has a curvilinear (inverted U-shaped) relationship with firm performance.

A moderating role of employees' psychological safety

Introducing a moderator into the bivariate relationship between EO and firm performance helps reduce the potential for misleading inferences and permits a more precise and specific understanding (Rosenberg 1968) of the EO–firm performance relationship.

Entrepreneurial firms, although they welcome uncertain situations, may not have the right structures in place for employees who have less tolerance for uncertainty and thus are less comfortable with risky situations (Jelinek and Litterer 1995). In this situation, employees may feel a threat when engaging in risk-taking behaviors. Edmondson (1999) defined psychological safety as a general belief that the organization is safe for risk-taking actions. The construct of psychological safety has its roots in research on organizational change, in which Schein and Warren (1965) discussed the need to create psychological safety for individuals if they are to feel secure and capable of handling unstable situations. Thus, employees' psychological safety depends on a sense of confidence that the organization will not embarrass them for making a mistake or challenging an ambiguous situation. This confidence is based on mutual trust and respect in which employees feel comfortable when asked to take bold actions (Edmondson 1999).

When a firm's employees possess psychological safety, high EO is more likely to result in high performance. As previously discussed, organizations with a high EO emphasize the value of tolerating ambiguity in order to take risky, proactive, and innovative actions. In a firm with less psychological safety, employees may fear the unknown situations that high EO will trigger, feel uncomfortable following managers' entrepreneurial decision-making (Harvey 1988), and be reluctant to take on the new responsibilities introduced by entrepreneurial tasks and changes (Wales et al. 2013). The risk-taking implied by EO might lead to a higher chance of failure because, by definition, risk is associated with greater outcome variance (Rauch et al. 2009).

Psychological safety among employees is an important contextual factor for the relationship between EO and firm performance because psychologically safe employees can take necessary actions to question the status quo and develop plans to improve through sustainable change of actions (Edmondson 1999; Lynn et al. 1999). Psychological safety alleviates excessive concern about others' reactions to one's entrepreneurial actions that have the potential for embarrassment and failure (Edmondson 1999). If employees are concerned about being seen as incompetent, they may be unwilling to engage in the trial and error-type behaviors that could help the firm grow and improve. In contrast, with psychological safety, employees feel comfortable engaging in risk-taking behaviors such as experimental trials, discussing their mistakes with others, and learning from failures. If they respect and feel respected by other organizational members and feel confident that organizational members will not hold errors against them (i.e., psychological safety), the relationship between EO and firm performance is likely to be supported. For example, Kropp et al. (2006) found that firms that value a shared feeling of safeness have significantly higher levels of success in international business ventures. Lynn et al. (1999) also found that experimental actions based on the shared feeling of comfort enhance the successful development of new products in high-technology organizations. On the basis of these characteristics, we argue that employees' psychological safety might limit the shortcomings associated with excessive levels of EO in shaping firm performance. In the presence of high psychological safety, firms are better equipped to translate the quality of EO into high firm performance, thanks to the activation of a process of smoothing the sense of insecurity triggered by high EO. Therefore, psychological safety can serve as a moderating mechanism that enables firms to channel their high levels of EO into an effective performance outcome. Thus, greater psychological safety can mitigate the

detrimental effect that overemphasis on EO may have on firm performance. According to this view, we posit the following hypothesis:

H2: Employees' psychological safety has a moderating effect on the relationship between EO and firm performance.

Method

Sample and data collection

Our sample consisted of small and medium enterprises (SMEs) whose managers had a large degree of freedom in making important decisions related to product layout, product display, promotion, sourcing channels, and marketing channels; in these firms, it was highly likely that EO could explain sales growth. We chose SMEs with a relatively small number of employees (i.e., less than 30) with managers who aimed for continuous sales growth. SMEs were located in different regions in South Korea and operated on a regional base, with managers recruiting local people. Sample SMEs sold grocery items such as dairy products, fruit, and meat and consumer items such as cleaning products, cosmetics, and magazines. Because of the service-oriented nature of the work, employees worked inter-dependently and were mutually accountable for a common objective of sales growth. Employees had to monitor which products sold frequently, make recommendations on optimal product display so that customers could easily find what they wanted, and prepare for the time when most customers visited the SMEs.

We used a multiphased method and several sources of data to test our hypotheses. First, questionnaires were used to elicit responses from multiple SMEs. We asked managers to assess their firm-level EO because managers typically have an objective and general view of their firms and can provide objective ratings (Zhao et al. 2011). Accordingly, most EO studies rely on responses from managers for measuring organizational EO (Rauch et al. 2009). In addition, we asked employees to report on the quality of their psychological states within a firm because they can comment on their own engagement and work attitudes. All respondents were asked to provide demographic information as well. The distribution of surveys to both managers and employees avoided same-source bias. After deleting missing data and matching employee data with manager data, complete survey response data were available for 157 of the 250 invited firms (62.8%), with a total of 1633 employees (58.8%) and 157 managers (62.8%).

Businesses, on average, had 10 employees (range, 4 to 22). The average business was 8 years old. There was one manager per firm, and employees performed their daily jobs interactively with their colleagues. Managers' average age was 48 years, and 43.3% were women. Employees' average age was 30 years, and 60.4% were women. All employees had completed at least a high school degree, and 34.0% held bachelor's degrees or above. Table 1 illustrates the demographic data for the sample.

One fiscal year after conducting surveys with managers and employees, we asked the finance department to obtain firm financial performance data for monthly sales over the past 3 years. The conceptual argument of the EO–firm performance relationship emphasizes financial aspects of performance, and sales growth data are one of the most commonly used financial outcome variables in entrepreneur research (Rauch et al. 2009).

Table 1 Demographic data

	Managers	Employees
Numbers (n)	157	1633
Average age	48 years old	30 years old
The percentage of women	43.3%	60.4%
The percentage of people who held bachelor's degrees or above	59.2%	34.0%

Measures

Survey items were drawn from existing literature to ensure construct validity. To avoid deviating from the original meanings, the survey items were translated into Korean and back-translated into English with the assistance of Korean and Korean-American scholars in the entrepreneurship and management fields who reside in the United States. A pilot test of the preliminary draft questionnaire was then conducted with five SMEs in South Korea. We interviewed three employees per firm and five managers on site in their native language to check whether original survey items reflected their daily jobs. After consultation with firm managers and employees, survey items were not significantly revised but, following Chan's (1998) referent-shift consensus model, the reference of items was refined to the firm level to fit the SMEs' context to ensure face validity.

Entrepreneurial orientation Nine items that measured EO were drawn from Covin and Slevin's (1989) scale. Since a firm's EO is typically measured by management (Covin and Slevin 1989), we surveyed managers in charge of overall firm operations. For the sake of parsimony and consistency with existing EO studies (e.g., Chadwick et al. 1999; Lee et al. 2001; Wiklund 1999), we combined all nine items pertaining to EO into one construct. Rauch and his colleagues' meta-analysis (2009) supports the use of an aggregated index to explain performance, and our own Cronbach's alpha tests confirmed that finding within our sample (Cronbach's alpha: all nine items, 0.824; innovativeness, 0.721; risk-taking, 0.782; proactiveness, 0.742). Managers rated the EO level of their firm on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample EO items included "My firm has marketed very many new lines of products or services in the past 5 years" and "In dealing with competitors, my firm is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc."

Employees' psychological safety Seven items that measured employees' psychological safety were drawn from Edmondson's (1999) study. Edmondson's scale was originally developed to measure the team-level construct of psychological safety, but we used a firm-level referent. Employees rated their psychological safety level in the firm on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items for psychological safety included "Members of this firm are able to bring up problems and tough issues" and "It is safe to take a risk at this firm" (Cronbach's alpha = 0.754). We also conducted several analyses to statistically demonstrate within-firm agreement and between-firm differences for the psychological safety variable aggregated to the firm level. For the within-firm

agreement, the median interrater agreement was .93, suggesting that individual ratings within a firm were highly consistent (Bliese 2000). Next, we assessed intraclass correlation coefficients using one-way analysis of variance (ANOVA) on the individual-level data, with firm as the independent variable and the scale score as the dependent variable. The indication of convergence within units—i.e., an ICC(1) value >0 and a corresponding ANOVA F-statistic that is statistically significant (Kenny and LaVoie 1985)—was met in our sample: the ICC(1) was .18 ($p < .01$), indicating that the mean for the ratings for the psychological safety variable adequately represented the firm variable and much of the firm variance in ratings was due to different firm membership (Bliese 2000). The ICC(2) coefficient was .76 for psychological safety and statistically significant ($p < .01$), justifying aggregation of data at the firm level (Bliese 2000; James et al. 1993).

Firm financial performance The empirical literature reports a high diversity of performance indicators (see reviews by Combs et al. 2005) but commonly distinguishes between financial and nonfinancial measures (Rauch et al. 2009). In the entrepreneurship literature, objective archival financial data are preferred to nonfinancial data or perception of financial data (Rauch et al. 2009). Self-reporting of data can lead to common method variance, memory decay, and social desirability. To avoid such issues, we chose a financial outcome variable of sales growth. Although sales growth is related to profitability, there are important differences between the two measures (Combs et al. 2005). For example, businesses may focus heavily on long-term sales growth, thereby sacrificing short-term profits. Our sample of SMEs had the priority of enhancing sales rather than enhancing profit. To obtain information on sales growth, we conducted surveys at the end of year 2014 and obtained monthly sales data at the end of year 2015 for the past 3 years from archival data from each financial department of the SMEs. After calculating annual revenue by summing monthly sales data, we calculated revenue growth by dividing the difference between the current year's annual revenue and the previous year's annual revenue by the previous year's annual revenue with data taken directly from the finance department. We calculated annual revenue growth from 2013 to 2014 as well as from 2014 to 2015 and used the annual revenue growth from 2014 to 2015 as the dependent variable. Specifically, this measure was computed by using the following formula: $[(\text{Aggregation of monthly sales data in year 2015}) - (\text{Aggregation of monthly sales data in year 2014})] / (\text{Aggregation of monthly sales data in year 2014})$. We utilized the change rate in firm financial performance over time, instead of the absolute amount at a specific point in time, because the absolute volume of firm sales may be affected by a number of extraneous factors, such as the geographical region of an SME, the structure of customer bases, local economic situations, and performance history. Thus, the rate of change in sales performance offers a relatively comparable indicator of firm performance over time, one that controls for extraneous factors (Sung and Choi 2012). Furthermore, this measure is objective and does not come from the same source as the perception variables.

Data analysis

To test the research model and hypotheses, we drew on partial least squares (PLS) path modeling, a variance-based structural equation modeling technique. PLS was suitable

for exploring our research hypotheses because the sample size was relatively small ($n = 157$), the study hypothesis was based on the prediction of the dependent variable, and the study incorporated latent variables in the subsequent analysis for predictive purposes (Leal-Rodríguez et al. *in press*; Roldán and Sánchez-Franco 2012). We used SmartPLS 2.0 software to assess the measurement model as well as the structural model of the research hypotheses (Leal-Rodríguez et al. *in press*; Ringle et al. 2005).

Results

With a PLS model, the measurement model evaluates the reliability and validity of the research model, and the structural model tests the research hypotheses (Leal-Rodríguez et al. *in press*).

Measurement model

The measurement model met all the requirements for evaluating the reliability and validity of the research model (Table 2). First, the reliability requisite was met, as all the standardized loadings were greater than 0.7 (Carmines and Zeller 1979). Second, the construct validity requirement was also met, as all reflective constructs had composite reliabilities greater than 0.7 (Nunnally and Bernstein 1994). In addition, the convergent

Table 2 Results of measurement model analysis

Construct/indicator	Loading	Composite Reliability (CR)	Cronbach's Alpha	Average Variance Extracted (AVE)
Entrepreneurial Orientation (EO)		.765	.824	.843
EO1	.862			
EO2	.824			
EO3	.914			
EO4	.927			
EO5	.854			
EO6	.848			
EO7	.831			
EO8	.843			
EO9	.918			
Employees' Psychological Safety (PS)		.726	.754	.765
PS1	.832			
PS2	.854			
PS3	.726			
PS4	.719			
PS5	.815			
PS6	.782			
PS7	.821			
Firm Financial Performance (FP)		1.000	1.000	1.000
FP1	1.000			

validity was met because the average variance extracted measures of the latent variables surpassed the 0.5 level (Fornell and Larcker 1981). Finally, all the variables complied with the discriminant validity requirement (Table 3).

Structural model

The structural model was assessed on the basis of the sign, magnitude, and significance of the structural path coefficients. Table 4 illustrates the explained variance (R^2) in the endogenous variables and the path coefficients for the research model. The independent variables were EO and EO squared (EO^2) because Hypothesis 1 posited a curvilinear (i.e., inverted U-shaped) relationship between EO and firm performance. In order to test the moderating effect of employees' psychological safety, we followed the product-indicator technique proposed by Henseler and Fassott (2010) and added the interaction terms between independent variables and the moderating variable (i.e., $EO \times$ employees' psychological safety and $EO^2 \times$ employees' psychological safety).

In Hypothesis 1, we predicted a curvilinear effect of EO on firm performance. To evaluate our results, we examined the sign and the significance of both the linear and the squared terms of the pair of coefficients that generated the inverted U-shaped effects. As shown in Step 1 of Table 4, the significant positive coefficients for the linear term ($\beta = .352$, $p < .01$) coupled with the significant negative coefficient for the squared term ($\beta = -.214$, $p < .01$) corroborated our inverted U-shaped curvilinear prediction; therefore, Hypothesis 1 was supported. Hypothesis 2 predicted that employees' psychological safety would moderate the curvilinear relationship between EO and firm performance. The interaction between employees' psychological safety and EO^2 (Step 3 of Table 4) was significant ($\beta = .543$, $p < .01$), thus supporting Hypothesis 2.

Discussion

While recognizing and finding support for the effects of EO on firm performance, this study also indicates the potential danger associated with an excessive EO and highlights how this drawback can be mitigated. Addressing the limitation in the EO literature that excessive EO might influence firm performance negatively (Tang et al. 2008; Wang 2008), this study examined the moderating role of employees' psychological safety in the relationship between EO and firm performance. In this regard, we chose multiple SMEs in South Korea for our study sample. Support for the study's hypotheses was found, and we were able to provide one reason for the controversy on the variation in

Table 3 Discriminant validity analysis

	EO	PS	FP
EO	0.868		
PS	0.114	0.789	
FP	0.213	0.387	1.000

EO indicates entrepreneurial orientation, *PS* psychological safety, *FP* firm performance

Table 4 Results of structural model analysis

Independent variable	Dependent variable: Firm financial performance					
	Step 1		Step 2		Step 3	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
EO	.352 **	.121	.324 **	.122	.187	.143
EO—squared	-.214 **	.110	-.221**	.111	-.219 *	.110
Moderating variable						
Employees' psychological safety			.365 *	.206	.477 **	.226
Interaction						
EO X Employees' psychological safety					.124	.157
EO ² X Employees' psychological safety					.543 **	.328
R ²	.306		.347		.412	
ΔR ²			.041		.065	

EO indicates entrepreneurial orientation

* $p < 0.05$; ** $p < 0.01$

the magnitude and direction of the relationship between EO and firm performance: Employees' psychological safety served as a moderating variable influencing the relationship between EO and firm performance.

Implications for theory

Our study has multiple theoretical implications. First, our findings corroborate our argument by showing that EO has a positive effect on firm performance to a certain point, but then the positive effect on firm performance decreases. While the positive aspects of EO are well known (Rauch et al. 2009), we have attempted to increase scholars' awareness of the potential drawbacks of high EO, alerting them to the possible negative effects such high EO may have on firm performance. In particular, the study results show that managers should balance their EO in order to avoid the trap of excessive EO, which may result in jeopardizing firm performance. In their meta-analysis, Rauch et al. (2009) suggested that most EO studies have assumed a direct effect of EO on firm performance; examining the conditions under which EO is positive or detrimental to firm performance is an area where substantial theoretical and empirical contributions can be made.

Second, our study shows that the inverted U-shaped relationship between EO and firm performance may be more complex than initially expected. Indeed, while our results point out that employees' psychological safety moderates this relationship, they also underscore that the moderating effect is actually strong enough to reverse the inverted U-shaped relationship between EO and firm performance. The evidence from our findings suggests that the relationship between EO and firm performance can be finely tested if we employ a moderating variable, such as employees' psychological safety, to explain the complicated mechanism connecting the two constructs. This approach is valuable in gaining a deeper understanding of the EO–firm performance relationship. It implies that we should not let

high EO impede firm performance and that employees' psychological safety is an important contextual factor in which employees can engage in their entrepreneurial tasks comfortably and the organization can obtain a competitive advantage and apply organizational practices that enable it to acquire advanced knowledge resources efficiently (Edmondson 1999). The moderating variable of psychological safety that we found between EO and firm performance might suggest that other variables—such as performance orientation or leader-member relations—could also influence the relationship between EO and firm performance (De Clercq et al. 2010). Thus, future research should examine other potential moderating variables to further explain the strength and direction of the EO–firm performance relationship.

Third, the use of archival data on sales growth as a dependent variable in our study contributes to the validity of the EO–firm performance relationship. It is well established that the strategic activities implied by EO, such as developing new products, have financial consequences. An implication of this finding is that the primary function of EO is to enhance financial outcomes rather than to advance other goals that organizations and their managers may pursue. While self-reported data may offer greater opportunities for testing multiple dimensions of performance, such as job satisfaction and organizational cohesion, such measures are subject to bias due to reliance on a single source and subjective ratings. Using objective performance data in a time-lagged field study enabled us to avoid the potential problems of common method variance, memory decay, or social desirability associated with self-reported performance data. By addressing the difficulty of acquiring objective financial performance measures, our study provides an approach for scholars interested in using more objective data.

Fourth, by testing the EO–firm performance relationship with samples from South Korea, our results add to the understanding of the generalizability of theories and methodologies pertaining to EO and psychological safety outside of the United States. Previous studies have indicated that EO's impact may differ across countries without explaining how (c.f., Knight 1997; Thomas and Mueller 2000). Our results provide empirical evidence that high EO can have a negative impact on firm performance in cultures with high uncertainty avoidance, where typical employees tend to perceive threats when facing the ambiguity that entrepreneurial opportunities often imply (Hofstede 1993). The empirical evidence obtained from this study also provides direction to scholars studying various organizational and entrepreneurial phenomena in other cultural contexts in which many entrepreneurs are trying to benefit from unexplored opportunities (Kreiser et al. 2010).

Implications for practice

Our study's practical implications center on the importance of employees' psychological safety. Many scholars, such as Li and Atuahene-Gima (2001) and Tan and Tan (2005), have suggested that managers with high levels of EO may not have sufficient managerial expertise or knowledge to lead their members to complete high-risk entrepreneurial projects in untried technologies, products, or services. Our findings support these explanations and indicate that one aspect of this expertise relates to reducing employees' concerns about the potential threats and risks (i.e., enhancing employees' psychological safety) that uncertain projects can trigger. Managers may need to address these concerns through internal communication and support.

To enhance psychological safety among employees, managers should consider implementing formal practices for their business before exploring entrepreneurial opportunities in ambiguous situations. For example, carefully developed mentoring programs between managers and employees, training programs on mitigating risks, or explanations of the value of taking bold, proactive, and innovative actions may establish trust and respect between managers and employees that can serve as the basis for employees' psychological safety. Since employees who worry about ambiguous situations may seek help from managers, managers should be able to clarify uncertain opportunities and the best alternatives for those employees. If this were done, employees might better understand how their jobs are not threatened by new opportunities and how their work behavior can in fact enhance the EO–firm performance relationship. Creating a risk-free environment where employees freely test their new ideas and ask questions for clarity may also formalize the process of propagating psychological safety.

Another implication relates to global management. By showing how important it is for entrepreneurial firms in cultures with a high uncertainty avoidance to be aware of their employees' attitudes toward entrepreneurial opportunities, our results provide critical managerial lessons for global firms operating in other cultural contexts (Kreiser et al. 2010). Diverse cultures may influence business in different ways than managers assume (Lee et al. 2011; Yoon and Kayes 2016). For example, an aggressive “outdo the competitor” strategic stance, as suggested by high EO, may be perceived as positive by stakeholders and be rewarded in cultures that value competitiveness, but may be viewed negatively and be punished in cultures that value harmony and peaceful coordination (Winslow and Solomon 1993). Thus, managers should be sensitive to the culture of the global business environment so that employees can more readily appreciate the needs of EO and thus be in a better position to lessen their concerns related to risk and ambiguity.

The relationship between EO and firm performance is in general positive in the United States (Rauch et al. 2009; Zhao et al. 2011). This may be because U.S. firms with high levels of EO might not have neglected the importance of the psychological safety of employees. It is also possible that workers in the United States are influenced by a culture of low uncertainty avoidance (i.e., the U.S. uncertainty avoidance score is among the lowest, 46), so that EO can have a positive impact on firm performance (Hofstede 1991). Managers with high EO should have knowledge of the characteristics of the culture and use their managerial skills to instill psychological safety among employees. To successfully capitalize on entrepreneurial opportunities and create wealth, firms with high EO need to consider cultural factors and should consider employees' psychological safety and address possible cultural issues so that employees can work on their tasks successfully.

Limitations and implications for future research

This study has limitations and suggestions for future research. First, although we measured the independent and dependent variables at two different time periods, fiscal years 2014 and 2015, statements of causality based on the study results must be treated with caution. On the positive side, our study used annual sales growth data and our model was rooted in the theoretical bases of EO and employees' psychological safety as well as practical bases of the fiscal year of SMEs in South Korea, providing a reasonable level of confidence in the study's results. Future research should include more rigorous longitudinal data or employ a

panel design or experimental study to determine how different stages of EO impact firm financial performance and how different stages of psychological safety moderate this EO–firm performance relationship.

Second, we chose samples from South Korea, and this study is limited by its context. Although absolute conclusions may not be made beyond this context, we believe there are good theoretical reasons to believe that firms with a similar cultural characteristic may experience similar dynamics. Given that EO–firm performance research has spread rapidly across the world in recent years, our findings are encouraging, because it appears that this type of research is valid and valuable in many study contexts (Kraus et al. 2012). For example, Knight (1997) noted different levels of response between French- and Anglo-Canadian respondents. Marino et al. (2002) also argued that it is worth considering various nations when studying factors influencing the relationship between EO and strategic alliance portfolio extensiveness. These findings suggest that examining the EO–firm performance relationship in other countries with different cultural backgrounds is a valuable contribution to the EO and management literatures.

Conclusion

This study examined the drawbacks of high EO and the moderating role of psychological safety in the relationship between EO and firm performance. While recognizing the positive effects of EO on firm performance, this study also indicates the potential danger associated with an excessive EO and highlights how this drawback can be mitigated. Based on our empirical study involving a sample of 157 SMEs in South Korea, EO has an inverted U-shaped relationship with firm performance, and the psychological safety of employees can mitigate the negative effects of high EO on firm performance. To capitalize on entrepreneurial opportunities and create wealth, firms with high EO need to consider the employees' psychological safety that moderates the relationship between EO and firm performance.

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