

# Entrepreneurial orientation and SME performance in China's changing environment: The moderating effects of strategies

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**Abstract** Recent research has found an inverted U-shape relationship between entrepreneurial orientation (EO) and firm performance in the Chinese context. Building on Miles and Snow's (1978) strategy framework and Scott's (1995) country institutional profile, we propose that prospector and analyzer strategies align better with entrepreneurial orientation to allow firms to fully benefit from their risk-taking, proactiveness, and innovativeness. Data collected from 155 SMEs in China confirmed that prospector and analyzer strategies alleviated the curve significantly. The defender strategy enhanced the curvilinearity, yet this moderating effect was insignificant. Implications for policy-makers, international businesses, and entrepreneurial firms in China are discussed.

**Keywords** Entrepreneurial orientation · Curvilinear · Chinese SMEs · Strategies

Previous literature has established the positive contribution of entrepreneurial orientation—the extent to which “top managers are inclined to take business-related risks, to favor change and innovation in order to obtain a competitive advantage for their firm, and to compete aggressively with other firms” (Covin & Slevin, 1988: 218) to firm performance. However, recent research found that in the

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context of emerging economies (e.g., China), firms with higher entrepreneurial orientation (EO) suffer from a variety of constraints in their institutional environment (Tang, Tang, Marino, Zhang, & Li, 2008). As a result, EO has an inverted U-shape relationship with performance in the current Chinese context (i.e., EO exerted beneficial effects on firm performance, but only up to a specific point; beyond that level, further increments in EO actually interfered with or reduced firm performance) (Tang et al., 2008).

In this paper, we seek to further explore this curvilinear relation between EO and performance for small and medium-sized enterprises (SMEs) in China by employing the environment-strategy-performance (ESP) framework (Hambrick, 1983; Miller & Friesen, 1983). By doing so, we attempt to answer the research question: will entrepreneurial firms in China be able to apply appropriate strategies to overcome the contextual constraints and mitigate the negative performance implications of entrepreneurial activities? Specifically, building on Miles and Snow's (1978) strategy typology and Scott's (1995) country institutional profile, we investigate if any of the generic strategies (i.e., prospector, analyzer, and defender) can alleviate the negative impact of high levels of EO on performance. Our research suggests that entrepreneurial firms in China do not have to rely on their environment to change; rather they can employ proper strategies to better meet the requirements of China's dynamic, emerging economy.

The current study makes several contributions to entrepreneurship research. First, we extend previous research on the relationship of EO to firms' performance in emerging economies, a relationship that goes beyond the curvilinearity of the composite effects of innovation, risk-taking, and proactiveness. We clarify how the curvilinear EO-performance relationship varies with different strategies that firms adopt, particularly the strategies that may attenuate the negative impact of high levels of EO on firm performance.

Second, we deem this study will move global entrepreneurship research forward and help to address an important issue for entrepreneurs in emerging economies: there are very few prescriptive studies that provide guidance for firms to cope with the multiple constraints imposed by the institutional environment, though numerous descriptive studies have identified the constraints that prevent entrepreneurial firms from fully benefiting from EO (Bruton, Ahlstrom, & Obloj, 2008; Peng, 2002). We attempt to offer evidence regarding what entrepreneurial firms in China can do in order to reap the most from EO and the external environment.

Third, we elicit the evolutionary path of strategy applications in entrepreneurial firms. China has drawn much attention in academia not just because of its idiosyncratic nature in its economic development, but because it provides a natural lab for scholars to study the evolution of organizations and their strategies, which has happened in an intensively short period of time (c.f. Bhagat, McDevitt & McDevitt, 2010). Beyond the well-known open door policy in 1978 the institutional environment of China has dramatically changed, triggered by China's entry to the World Trade Organization (WTO) in 2001, so too have the strategies that fit the new environment for entrepreneurial firms (Tan & Tan, 2005). However, little research has devoted efforts to studying how such a coevolution between environment and strategy affects entrepreneurial firms in their pursuit of organizational goals (Fang, 2010). In this paper, employing the ESP framework (Hambrick, 1983; Miller &

Friesen, 1983), we identify the appropriate strategies that entrepreneurial firms can adopt to cope with or even take advantage of the regulatory, cognitive, and normative changes in China. Our findings, when compared with studies conducted in different time periods, present the evolutionary path of strategy applications in entrepreneurial firms, which provides insights for our prediction of the competitiveness of entrepreneurial ventures in China.

## EO, environment, strategy, and performance in China

The environment-strategy-performance (ESP) perspective posits that the relationship between generic strategies and organizational performance are viable across environmental contexts and that although the environment may not change the form of this relationship, it can modify its strength (Hambrick, 1983; Luo & Park, 2001; Miller & Friesen, 1983; Prescott, 1986). Therefore, the established relationship between environment, strategy, and performance often needs retesting to verify its validity in a new context (Kim & Lim, 1988; London & Hart, 2004), especially in China, where organizations meet unique challenges (Ahlstrom, 2010). For example, the EO-performance relationship has been widely accepted as positive and linear in Western countries. However, recent research, employing two studies and examining both perceptual and objective performance measures, reported that in China, EO exerted beneficial effects on firm performance, but only up to a specific level; beyond that level, further increments in EO interfered with or reduced firm performance (Tang et al., 2008).

This unusual, inverted U-shape can be largely attributed to developing yet immature regulatory, normative, and cognitive environments which are present in most emerging economies (Tang et al., 2008). In the current research, we concur with this statement and further, we are probing what entrepreneurial firms can do to offset the negative impact of high levels of EO on performance. To facilitate a comprehensive understanding of this issue, we draw on the typology developed by Miles and Snow (1978), the most widely applied and tested, to model the generic strategies that can potentially modify the curvilinear EO-performance relationship. According to Miles and Snow (1978), *prospector* firms constantly seek new opportunities and initiate major product changes in order to lead market changes. *Defenders*, on the other hand, emphasize refining and exploiting current product lines for a secured, often premium, market niche. The *analyzer* is a combination of prospector and defender. *Reactors* generally do not follow any conscious or consistent strategy and will not change their courses unless being forced to by the environment. Because previous research suggests that the reactor is not a viable strategic option (Luo & Park, 2001; Miles & Snow, 1978), our model focuses on the prospector, defender, and analyzer strategies.

Previous research found that Chinese firms have constantly adapted their strategies to a changing environment. For example, approximately three decades after China opened its door to the rest of the world (i.e., 1978) and adopted the market-driven approach to develop its economy, the environment had greatly departed from the central-planning system. It was recognized as volatile owing to the arbitrariness in making and enforcing government policies, and the competition was

intense and hostile due to deregulations and the lagged establishment of new laws and rules (Ahlstrom & Bruton, 2004; Tan & Litschert, 1994). As a result, Chinese firms were guarded and faced unpredictable environmental risks, and *defensive* strategies provided stronger buffers for firms compared with other strategies (Peng, 2002).

Since China's entry to the WTO in 2001, the environment in China has significantly improved, and the strategy application of Chinese firms has co-evolved with the changing environment. The effectiveness of defensive strategies has eroded while the *analysis* strategy has begun to exhibit a bigger contribution to performance (Tan & Tan, 2005). Compared with the aggressive prospector strategy and passive defender strategy, the analyzer strategy, which emphasizes both refining current routines for a secured return and generating incremental innovations for future market needs, has generated superior financial rewards (Luo & Park, 2001). With the increasing marketization in China, firms that blended marketing, efficiency, product line breadth, and commodity to specialty products in their strategy configuration gained better performance than others (Davies & Walters, 2004). Overall these studies suggest that Chinese firms have evolved out of the traditional passive, defensive strategies and are inclined to adopt more aggressive and proactive strategies.

Currently the institutional environment of China for entrepreneurial business is dynamic yet volatile, and to some extent, still subject to governmental and non-market decisions and activities. In order to deal with such a situation, SMEs have to spend already limited resources on non-market activities such as gift-giving, banquets, and donations, which are essential to establish personal networks (i.e., *guanxi*) and to provide a buffer for their weak legitimacy in the market (Ahlstrom & Bruton, 2002). The unpredictability of the environment prevents entrepreneurial firms from proceeding proactively and aggressively, and their motivation and willingness to grow and expand are constrained (Lau & Busenitz, 2001). Consequently, although low-EO firms may not perform well in China due to lack of differentiation from competitors, high-EO firms do not obtain competitive advantage either because of the lack of institutional support and organizational legitimacy (Tang et al., 2008). In this environment, the adoption of appropriate strategies appears critical for entrepreneurial firms in China in order to meet the requirements of the institutional environment and harvest from their entrepreneurial activities.

The moderating effects of strategies on the curvilinear relation between EO and performance

We predict that in the current environment of China, prospector and analyzer strategies will mitigate the inverse U-shape relationship between EO and firm performance, whereas defender strategies will enhance it. To facilitate the hypothesis development, we employ a country institutional profile, developed by Scott (1995) and empirically verified by Busenitz, Gómez, and Spencer (2000), as our foundation for exploring how and why strategies may shift this curve.

*The country institutional profile in China* A country institutional profile indicates how a country's government policies (regulatory dimension), widely shared social knowledge (cognitive dimension), and value systems (normative dimension) affect

entrepreneurship activities (Busenitz et al., 2000). The *regulatory environment*, which consists of laws, regulations, and codified government policies that may provide support and reduce risks for businesses (Busenitz et al., 2000), challenges Chinese firms in attaining success but also provides a unique setting for firms to pursue opportunities. As summarized by prior studies, the weak protection of private and intellectual properties in China has made it more difficult for businesses to harvest from innovations than they deserve (Huang, Amorim, Spinoglio, Gouveia, & Medina, 2004; Li & Zhang, 2007). However, in the past decade, building off of the financial strength accumulated in its past economic reform (which was characterized by enormous growth driven by exporting low-cost products), the Chinese government has initiated a new reform, in which China strives to transform from an economy of labor-intensive industries to an innovation-oriented economy. The goal of this new reform is a sustainable competitive position in global markets and move China to higher levels on the production pyramid.

Recognizing the importance of inspiring innovations by SMEs, the Chinese government has passed several new laws recently to reward innovative activities and nurture long-term innovation among SMEs, such as the *Detailed Procedures to Financing Small and Medium-sized Enterprises on International Market Expansion* (2001), *Law of the People's Republic of China on the Promotion of Small and Medium-sized Enterprises* (2002), and *Government Procurement Law of the People's Republic of China* (2002). Regional governments, which to some degree have a more direct impact on SMEs' survival and success than the central government (McNally & Chu, 2006), have been initiating their own campaigns in promoting innovation of SMEs. For example, some economic entities in China (e.g., Liaoning province, Qingdao, and Chongqing), specify that under the same conditions, government purchase contracts should be granted to SMEs instead of large corporations. In an economy that is heavily influenced or directed by government policies, these laws and regulations will significantly affect the environment so that innovative firms who are able to recognize and capitalize on this transition will be rewarded.

Another change that favors innovative businesses is occurring in the *cognitive environment* in China, which consists of the knowledge and skills possessed by the people in a country pertaining to establishing and operating a business (Busenitz et al., 2000). Realizing that entrepreneurs lack training in such practical areas as business plan preparation, workforce management, and cash-flow handling, China has recently established various entrepreneurship-related education programs, incubators, and foundations nationwide. For example, according to a joint survey conducted by Shanghai Association of Promoting Employment of College Graduates (SAPECG), Shanghai Institute of Foreign Trade (SIFT), and the National Council for Geographic Education (NCGE), approximately 50% of colleges and universities in China have integrated entrepreneurship in their curricula. Furthermore, many local governments allocate funds from their budgets to boost innovation businesses in their regions. For instance, the Shanghai Municipal Government grants RMB100 million (more than USD14 million) each year to Shanghai Collegiate Student Science and Technology Entrepreneurship Foundation to support students who start their own science and technology businesses. Such an increasingly supportive cognitive environment will enable Chinese entrepreneurs to learn essential education and skills and to pursue their businesses successfully.

The *normative environment*, the degree to which a country's culture, values, beliefs, and norms support small business activities (Busenitz et al., 2000), has also changed dramatically since China joined the WTO (Li & Zhang, 2007; Luo, 2007), and exerted a significant effect on Chinese businesses (Chia et al., 2007). As market principles have been widely accepted across economic sectors, China is quickly merging into the global economy and becoming an indispensable part of it. During this period, entrepreneurship and innovation have been broadly embraced as the key to establish a sustainable growth and to build a competitive advantage. Egri and Ralston (2004) documented such a change and found that the Chinese, compared with decades ago, are much less conservative, more open to new changes in their surroundings, and put more emphasis on their personal achievement (i.e., self-transcendence). Reflecting the change of social values and attitudes in organizational strategies, Chinese ventures have started to view differentiation strategies as more important than cost advantages. As a result, proactive businesses in China, who are generally keener to explore innovation strategies, are able to more acutely identify threats and opportunities and eventually benefit more from such a transitional environment than less-proactive firms.

*The moderating role of strategies* As the environment is changing, the ESP theory demands that Chinese ventures change their strategies in order to co-evolve with the environment. This is especially true for entrepreneurial businesses, which are generally more sensitive to environmental changes (Busenitz, West, Shepherd, Nelson, Chandler, & Zacharakis, 2003) and are proactively looking for emergent opportunities that can mitigate the negative implications of their entrepreneurial activities (Stevenson & Jarillo, 1990). The biggest emerging opportunity for entrepreneurial firms in China is probably, as described above, the new reform that is currently undergoing in China and the changes brought along by this reform. During this reform, China is striving to create substantial opportunities for entrepreneurial firms to switch to more innovative ventures and to capitalize on the increasing support provided by the government and research institutions. Upon recognizing that the low profit margin and the accumulated pollution due to labor-intensive industries will impede national economic growth, the Chinese government is currently refining its regulatory, cognitive, and normative environments to help SMEs to create their own core competitiveness (e.g., promoting national brands to win the competition with foreign firms). New laws have been released, multiple educational foundations have been established, and a lenient cultural aura is being created to help entrepreneurial firms to benefit from developing high-technology and innovative products.

Since prospector strategies grant entrepreneurial firms with much needed sensitivity and proactiveness, entrepreneurial firms will be able to diligently search for emerging opportunities, constantly experiment with new projects and services, and frequently change their product lines or create new market niches to meet the needs of new opportunities (Miles & Snow, 1978). In a transitioning environment, prospector strategies enable entrepreneurial firms to foresee these changes ahead of their competitors and make them actively seek or create methods to cope with these changes, no matter whether these changes are related to their present line of operations or not (Lumpkin & Dess, 1996). Compared with other firms, firms employing prospector strategies are prone to introduce new products and brands, and

to strategically eliminate operations that are in the mature or declining stages of the life cycle (Venkatraman, 1989).

Statistics indicate that SMEs who adopt the prospector strategy have been playing a more and more important role in China's economic growth. For example, in the years between 2001 and 2005, Chinese SMEs who sought help from the *Detailed Procedures to Financing Small and Medium-sized Enterprises on International Market Expansion* (2001) had an export growth rate of 53%, more than twice as much as the average export growth rate of SMEs (i.e., 22.5%) (He & Gu, 2007). As the new regulatory, cognitive, and normative environment is being formed, entrepreneurial firms are provided with more opportunities than ever *as long as* they successfully recognize and take advantage of the changes. In that regard, prospector strategies enable SMEs to identify and exploit the new opportunities, to overcome the negative impact of the old institutional environment, and as a result, to be rewarded for their entrepreneurial behaviors such as establishing joint or independent R&D centers abroad, focusing on building brand names rather than physical products, and attracting investment from overseas. As such, we propose:

**Hypothesis 1** Prospector strategies will moderate the inverted U-shaped relation between EO and performance such that firms who adopt prospector strategies will exhibit higher performance in response to EO than those who do not adopt prospector strategies.

While the proactive and innovative prospector strategies can help SMEs to benefit more from their entrepreneurial activities in a new institutional environment, the defensive strategy, on the other hand, is gradually losing its effectiveness. The defender strategy, compared with the prospector strategy, is rigid, shortsighted, non-adaptive, and risk-averse (Luo & Park, 2001; Shortell & Zajac, 1990). It emphasizes the efficiency of manufacturing and marketing existing product or service lines, leading firms to standardize and routinize current procedures and processes. As a result, firms adhere to extant products, procedures, and processes as their core capabilities, even when the external environment has changed. In this case, ESP posits that when the core capabilities do not meet the requirements of a new environment, they are turning into core rigidities (Leonard-Barton, 1992) or organizational myopia (Radner, 1975), which eliminate innovation activities in favor of cost concerns. For example, widely-adopted standardized practices, such as TQM, Six Sigma, and ISO 9000, have been found to gain effectiveness at the cost of innovative capabilities and the resultant long-term adaptability (Benner & Tushman, 2002). When an organization's strategic focus is on the improvement of current products, the generation of new knowledge will suffer (Grant & Baden-Fuller, 2004). Hence, the defender strategy diverts entrepreneurial firms' attention from innovation (e.g., searching for promising and future market needs and creating new methods to meet these needs) to refining and polishing their current, internal processes and procedures.

In China, firms who are used to the defensive strategy may especially cling to such a cost-dominated strategy because of the easy access to an almost unlimited supply of cheap labor. Defenders tend to ignore the changes in the regulatory, cognitive, and normative environment and do not realize that the cost advantages are not sufficient for them to survive or prosper. Rather, to efficiency-oriented defenders, cost-saving strategies are more effective than innovations and any deviation from the current

course will be viewed as disrupting their established, profitable business models. Although changes are occurring in the regulatory, cognitive, and normative environments, defenders tend to “wait and see” instead of “jumping on the boat” right away as prospectors do, because the potential returns brought by the changes can be uncertain and distant, which contradicts the tenet of the conservative defender strategy.

As a result, in an environment where governments and institutions are determined to promote innovation, defender firms may find themselves struggling to meet the requirements of this new environment and therefore, are limited to the chance of benefiting from the innovation-based, entrepreneurial activities. For example, a decade ago, Chinese SMEs mainly relied on the Original Equipment Manufacturer (OEM) approach, under which they focused on manufacturing and assembling products for brand businesses, especially overseas brands, leaving the marketing and R&D responsibilities to overseas companies. Since the adoption of the new labor law—[Labor Contract Law](#)—on January 1st, 2008 (which offers stronger protection to Chinese employees by raising the labor cost in China by about 15%), in Guangdong province (i.e., the manufacturing base for approximately 70% of shoes, 50% of watches, and 40% of computers and computer components for the world), it is estimated that about 20% of SMEs who used to rely on the narrow profit margin provided by defender strategies will be forced to file for bankruptcy or to move to other regions with lower labor costs (Wang, 2008). As such, we believe that the defender strategy is unable to help Chinese SMEs adapt to such a changing institutional environment or to reap their entrepreneurial activities. We hypothesize:

**Hypothesis 2** Defender strategies will moderate the inverted U-shaped relation between EO and performance such that firms who adopt defender strategies will exhibit lower performance in response to EO than those who do not adopt defender strategies.

The analyzer strategy, a unique combination of prospector and defender strategies, defends existing product lines and market niches, and at the same time reacts to competitors’ new product development in a timely manner, and cautiously penetrates new markets through incremental innovations (Miles & Snow, 1978). Compared with the proactiveness-oriented prospector strategy and the conservativeness-oriented defender strategy, the analyzer strategy satisfies the needs of both the old and new environments of China and thus is suggested as especially suitable for Chinese ventures to survive a transitional economy (Luo & Park, 2001; Tan & Tan, 2005). This hybrid form of defender and prospector strategies provides dual benefits: efficiency-oriented strategies strengthen a firm’s existing capabilities and generate adequate cash flow by maintaining low cost and current market niches, while innovation strategies broaden a firm’s vision and explore new domains by taking advantage of the emerging opportunities generated by the new environment. Recent empirical research confirms this proposition. Although the defensive strategy was found to best fit the Chinese environment a decade ago, currently the analysis strategy contributes more to organizational profitability (Tan & Tan, 2005). Additionally, when firms score high on all four strategies: marketing intensity, emphasis on efficiency, product line breadth, and commodity to specialty products (which is an indication of a hybrid strategy configuration such as the analyzer strategy), they will be rewarded by superior performance (Davies & Walters, 2004).

We should note that the changes occurring in China's institutional environment will not be completed overnight. In terms of the regulatory environment, it takes time for new laws and regulations that support innovative ventures to take full effect. The government also needs time to identify the flaws of the new system and take necessary steps to establish complementary measures to facilitate the designed outcomes. Regarding the cognitive environment, it is a lasting process to absorb the entrepreneurship knowledge and skills that have just begun to be transferred into classrooms. As for the normative environment, it requires a substantial amount of time, sometimes multiple generations, to develop new social norms and cultures in favor of proactive, risky, and innovative activities. For example, the *Detailed Procedures to Financing Small and Medium-Sized Enterprises on International Market Expansion* was first released in 2001 but more details were provided one year later for better enforcement of this policy. Thus, during the transition period, analyzer strategies offer entrepreneurial businesses the chance to utilize the "left-overs" of the old system and to meet the needs of the future market by developing incremental innovations. In other words, the analyzer strategy creates both buffers and opportunities for entrepreneurial ventures in the transition economy. We thus predict that:

**Hypothesis 3** Analyzer strategies will moderate the inverted U-shaped relation between EO and performance such that firms who adopt analyzer strategies will exhibit higher performance in response to EO than those who do not adopt analyzer strategies.

## Method

### Sample and data collection procedures

Data were collected through a field survey conducted in Northern China. The data collection process followed three steps. First, a national consulting company headquartered in Beijing was hired to administer the survey. The company maintains a list of SMEs in Northern China, and has direct or indirect business connections with most of these firms. A stratified random selection method was used to choose the survey subjects. According to *China Statistical Yearbook* (China Statistics Press, 2005), manufacturing industries account for approximately 2/3 of the national GDP. Therefore, of the 500 firms chosen for this study, 333 were randomly selected from manufacturing industries and 167 from service industries. The survey was developed in English and then subjected to double back-translation (Brislin, 1980).

Second, to test the face validity of the measures used in this study, eight additional firms were randomly selected from three industries: electronics, machines, and service. One top management team member (e.g., chief executive officers, chief finance officers, chief operations officers, or other executives who were in charge of a main function and had substantial knowledge about their firms) was recruited from each of these eight firms for a pretest. A few items were flagged as "ambiguous." They were reworded and resubmitted for another round of double back-translation. The process continued until all eight respondents were satisfied with all the items.

Last, all 500 firms in the sample were contacted by telephone and/or email and requested to participate in the survey. Twelve firms declined the request with reasons such as “Our CEO is too busy to participate” or “We are not interested.” In this case, substitute firms were randomly selected from the same industry. The questionnaire was then uploaded online and all submissions were automatically saved in an Access database.

From December of 2005 to February of 2006, 207 firms participated in the survey, yielding a response rate of 41.4% (207/500). Several procedures were taken to ensure the accuracy and reliability of the responses. First, five firms that indicated they were in “other” industries were excluded as non-identifiable industries. Second, the question on firm sales (one of the most important financial indices) was asked twice, but in different formats and in different sections of the survey. At the beginning of the survey, the respondents were asked to check one of the following six categories according to the companies’ sales revenues: less than 200,000 Chinese Yuan (RMB); 200,000–400,000 RMB; 400,000–600,000 RMB; 600,000–800,000 RMB; 800,000–1 million RMB; and more than 1 million RMB. At the end of the survey, respondents were asked to fill in the exact number of their companies’ sales revenues. Twelve companies answered these two questions inconsistently and were judged as unreliable answers and thus excluded from analysis. Third, we employed listwise deletion to eliminate 35 missing-value cases from analysis. Although listwise deletion saves fewer cases than pairwise deletion, we deem it more appropriate to employ listwise deletion because it will produce balanced analysis results across multiple models.

As a result, the final sample included 155 cases and the usable response rate was 31% (155/500). This final response rate is comparable to the ones reported in other studies conducted in China (e.g., Fuller, 2010; Luo & Park, 2001; Tang et al., 2008). ANOVA analysis was conducted to test for possible biases between the final sample and the missing-value cases. No significant difference was found in terms of the number of employees, strategies, EO, and performance. The final sample represented the industry distribution in China, with 64.3% of the firms in manufacturing industries. The firm size ranged from 5 to 791 employees, which categorizes the firms as SMEs in China.

## Measures

*Entrepreneurial orientation* Miller’s (1983) original scale for EO consisting of eight items was used. This set of EO measures is frequently used in international entrepreneurship studies (Kreiser, Marino, & Weaver, 2002; Steensma, Marino, Weaver, & Dickson, 2000; Wiklund & Sheperd, 2005). Miller’s (1983) measure emphasizes such organizational characteristics as aggressive product–market innovations, risky projects, and a proclivity to pioneer innovations that preempt the competition. All items were based on a 5-point Likert scale (ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”). The internal reliability of the EO measures assessed by Cronbach’s alpha is .73.

*Strategy* We adopted the original scenarios (Miles & Snow, 1978) to measure the three strategies but adapted them based on recent findings on strategy configuration. Configuration theorists, recognizing organizational systems as composed by multiple and co-existent relationships instead of either-or relationships (Fong, 2006; Kosmala & Herrbach, 2006; Kreiner, Ashforth, & Sluss, 2006; Piderit, 2000), suggest that

every organization employs multiple strategies simultaneously, but to different extents. Thus scholars argue that organizations' strategies are complex rather than simple, and a mix of strategies is likely to be pursued at the same time, so it is inappropriate to categorize organizations as belonging to a single type (e.g., defender or prospector) (Boyne & Walker, 2004; Meier, O'Toole, Boyne, & Walker, 2006). As such, we asked respondents to evaluate, based on a 5-point Likert scale, how important each of the three strategy scenarios (i.e., prospector, analyzer, and defender) was to their firms (1 = "Not important at all"; 5 = "Very important"). Compared with forced and exclusive scenarios, such a Likert scale measure reflects the findings of recent research and recognizes the possibility of co-existence of these strategies in a firm, and thus, should reflect the reality more accurately.

*Firm performance* Following Hatfield, Pearce, Sleeth, and Pitts (1998), Sapienza and Grimm (1997), and Tang, Kreiser, Marino, and Weaver (2010), we employed top managers' evaluation of the achievement of organizational goals as the performance measure. Such an approach is utilized for both theoretical and practical reasons. First, firms frequently set different goals and apply different strategies based on their interpretation of environmental changes (Boyd, Dess, & Rasheed, 1993; Jauch & Kraft 1986). Thus, it is appropriate to assess firm performance based on different goals pursued by organizations (Rumelt, Schendel, & Teece, 1991). Second, objective financial data for many businesses are not publicly available, especially for international, smaller, and privately-owned organizations. In addition, respondents are often unable or unwilling to provide the desired organization-level objective information (Fiorito & LaForge, 1986). Under such circumstances, subjective performance measures may yield more complete information (Covin & Slevin, 1989).

Specifically, in order to assess SMEs' organizational effectiveness (i.e., how effectively they achieve their goals) we asked them to identify the importance, based on a 5-point Likert scale (1 = "Not at all"; 5 = "Very important"), of the following ten goals to their company: profitability, sales, sales growth rate, market share, net profit, gross profit, cash flow, return on investment, product innovation, and process innovation. We then asked respondents to evaluate the achievement of these goals, based on a 5-point Likert scale (1 = "Not satisfied at all"; 5 = "highly satisfied"). We then weighted the satisfaction items by their importance ratings to generate the performance measure.

*Control variables* Previous studies suggest that EO is strongly associated with both organizational and environmental characteristics (Lumpkin & Dess, 1996; Wiklund & Sheperd, 2005). Six variables that may impose effects on our hypothesized relationships were controlled: industry instability, industry munificence, industry complexity, routine, firm size, and firm age. The EO-performance relationship is highly contextual, so we controlled for the three most common *environmental* characteristics in our model. The current objective environmental measures available in the management and entrepreneurship literature are industry-based (e.g., Baron & Tang, 2010; Dess & Beard, 1984; Keats & Hitt, 1988; Palmer & Wiseman, 1999; Sutcliffe, 1994) and firms in the same industry receive the same value as a measure of their objective environments. In reality, however, managers only respond and react to what they perceive; environmental conditions that are not noticed or perceived do not influence the management's decisions or actions (Bourgeois, 1985). Thus, the perceptual

environment should better reflect the strategic concerns in an organization than the objective environment (Miller & Droge, 1986) because organizations in the same industry may have different perceptions due to different market positions (Boyd et al., 1993; Pennings, 1975) and may apply different strategies accordingly.

We adopted the three perceived environmental dimensions originally developed by Khandwalla (1977) and Miller and Friesen (1982) and later revised by Covin and Slevin (1989). Our survey asked managers to indicate their perceived characteristics of the organization's principal product industries based on a 5-point Likert scale (1 = "Strongly disagree"; 5 = "Strongly agree"). The Cronbach alphas for complexity, dynamism, and munificence were .75, .66, and .66 respectively.

In terms of organizational variables, previous research constantly found that *firm size* has a positive relationship with EO in SMEs (Walter, Auer, & Ritter, 2006; Wiklund & Shepherd, 2004). The number of employees for each firm was controlled to approximate the firm size (Keats & Hitt, 1988; McKinley, 1987). Researchers believe that it is more the organizational norm than the physical structure of an organization that influences the firm's innovation capabilities (Collinson & Wilson, 2006). The more routinized a firm is, the less likely it will be involved in innovative and entrepreneurial activities. Thus, *organizational routine* developed by Van de Ven and Delbecq (1974) was controlled (alpha = .67). *Firm age* was also controlled because it has been verified to be a significant factor in explaining entrepreneurial firms' strategic behaviors. The older a firm is, the more hierarchy and inertia it has and thus the less it is motivated to shift organizational directions by innovating new products or services (Huergo & Jaumandreu, 2004).

## Analysis and results

Following Janssen (2001), we tested the hypothesized relationships mainly through two steps. First, we replicate the inversely curvilinear relationship between EO and performance. As shown in Eq. 1, we expect  $b_2$  to be positive and  $b_3$  to be negative in order to establish such a relationship.

$$\text{Performance} = b_0 + b_1 * \text{control} + b_2 * \text{EO} + b_3 * \text{EO}^2 \quad (1)$$

We then model Eq. 2, as follows. In this step, prospector, analyzer, and defender was each interacted with EO and its square term in order to model the moderating effects of strategies on the above curvilinear relationship. To find evidence for Hypotheses 1–3, we expect to have positive  $b_{10}$  and  $b_{11}$ , and negative  $b_{12}$ .

$$\begin{aligned} \text{Performance} = & b_0 + b_1 * \text{control} + b_2 * \text{EO} + b_3 * \text{EO}^2 + b_4 * \text{prospector} \\ & + b_5 * \text{analyzer} + b_6 * \text{defender} + b_7 * \text{EO} * \text{prospector} \\ & + b_8 * \text{EO} * \text{analyzer} + b_9 * \text{EO} * \text{defender} + b_{10} * \text{EO}^2 * \text{prospector} \\ & + b_{11} * \text{EO}^2 * \text{analyzer} + b_{12} * \text{EO}^2 * \text{defender} \end{aligned} \quad (2)$$

In Table 1, we summarize the means, standard deviations, and Pearson correlations of relevant variables. The correlation matrix shows that EO has a significantly positive

**Table 1** Means, standard deviations, and correlations.

	1	2	3	4	5	6	7	8	9	10	11
1. Performance											
2. Prospector	-.13										
3. Analyzer	-.08	-.17*									
4. Defender	-.01	.16*	-.08								
5. EO	-.35***	-.03	-.05	.08							
6. Complexity	-.16*	.25**	-.05	.32***	.23**						
7. Dynamism	-.49***	.13 <sup>†</sup>	-.01	.04	-.18*	.25**					
8. Munificence	-.19*	.09	.16*	.17*	-.12	.25**	.26***				
9. Routine	-.25***	.06	.00	-.02	-.19*	.02	.12	.14 <sup>†</sup>			
10. Size	.49***	-.11	-.10	-.08	.45***	-.07	-.44***	-.30***	-.19*		
11. Age	.29***	-.25**	-.04	-.15 <sup>†</sup>	.30***	-.09	-.28***	-.22**	-.01	.52***	
Mean	111.54	3.76	2.88	3.55	2.71	2.66	3.22	2.74	2.82	48.24	6.06
S.D.	16.59	.84	.84	.71	.40	.71	.49	.58	.48	78.97	6.26

<sup>†</sup>  $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ , two-tailed test.

relationship with firm performance ( $r = .35, p < .001$ ), which, although not hypothesized in this paper, confirms the positive contribution of EO to firm performance in China. Table 1 also shows that all control variables are related to performance significantly ( $r = -.16, p < .05$  for complexity;  $r = -.49, p < .001$  for dynamism;  $r = -.19, p < .05$  for munificence;  $r = -.25, p < .001$  for routine;  $r = .49, p < .001$  for size; and  $r = .29, p < .001$  for age), indicating that adequate control variables were added to our model.

Hypothesis test results are summarized in Table 2. Models 1 and 2 include the results of regressing control variables and the linear term of EO on firm performance. As Model 2 shows, EO has a significantly positive relationship with firm performance ( $\beta = .18, p < .05$ ). Model 3 adds the square term of EO, which shows a significantly negative relationship with performance ( $\beta = -.21, p < .05$ ). Thus, as expected, EO indeed has an inverted U-shape relationship with firm performance, confirming prior findings that in the current institutional environment of China, firms are not able to fully benefit from their entrepreneurial activities. The three moderators were entered in Model 4. We then added the three interaction items between EO and each of the three strategies along with another three interaction items that were formed by  $EO^2$  and each of the three strategies in Model 5, to investigate if any of the strategies would reshape the EO-performance relationship. All interaction items are mean centered to reduce the potential multicollinearity between interaction items and main-effect variables (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2002; Jaccard, Turrisi, & Choi, 1990).

Hypothesis 1 proposes that prospector strategies will moderate the inverted U-shaped relation between EO and performance such that firms who adopt prospector strategies will exhibit higher performance in response to EO than those who do not adopt prospector strategies. Hypothesis 3 predicts that analyzer strategies will moderate the inverted U-shaped relation between EO and performance such that firms who adopt analyzer strategies will exhibit higher performance in response to EO than those who do not adopt analyzer strategies. Model 5 shows that  $EO^2 \times \text{prospector}$  has a significantly positive relationship with firm performance ( $\beta = .26, p < .05$ ), indicating that as expected, the prospector strategy alleviates the inversely curvilinear relation between EO and performance. Hypothesis 1 is supported. The same pattern is found between  $EO^2 \times \text{analyzer}$  and firm performance ( $\beta = .18, p < .05$ ), supporting Hypothesis 3. Hypothesis 2 predicts that defender strategies will moderate the inverted U-shaped relation between EO and performance such that firms who adopt defender strategies will exhibit lower performance in response to EO than those who do not adopt defender strategies. The relationship between  $EO^2 \times \text{defender}$  and performance is not significant ( $\beta = -.27, n.s.$ ), although in the same direction (i.e., the defender strategy enhances the inversely U-shape relationship between EO and performance) as expected. Hypothesis 2 is not supported.

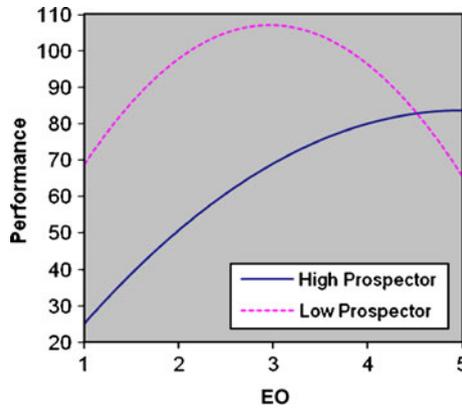
To understand the nature of the interactions, we followed the graphing method outlined by Aiken and West (1991) to form the figures to illustrate these moderating effects. Figure 1 reveals that the curvilinear relationship between EO and performance depends on if the prospector strategy is adopted. The relation between EO and performance follows an inverted U-shape for firms who do not adopt a prospector strategy (i.e., EO benefits firm performance when it ranges from low-end to moderate-level while high-end EO damages firm performance). For prospector firms, the negative relation between high-end EO and firm performance is largely

**Table 2** Hierarchical regression results.

	Model 1	Model 2	Model 3	Model 4	Model 5
DV = Weighted Performance					
Size	.31*** (.02)	.24** (.02)	.37*** (.02)	.35*** (.02)	.41*** (.02)
Age	.04 (.21)	.02 (.20)	-.02 (.21)	-.02 (.22)	-.07 (.22)
Routine	-.16* (2.35)	-.14* (2.33)	-.12* (2.32)	-.12 (2.35)	-.14* (2.55)
Complexity	-.06* (1.63)	-.12* (1.69)	-.16* (1.75)	-.16* (1.84)	-.14* (1.86)
Dynamism	-.32*** (2.56)	-.31*** (2.52)	-.35*** (2.56)	-.35*** (2.60)	-.36*** (2.52)
Munificence	.03 (2.04)	.03 (2.01)	.07 (2.05)	.07 (2.11)	.10 (2.08)
EO		.18** (3.21)	.25** (3.43)	.24** (3.50)	.35*** (4.05)
EO <sup>2</sup>			-.21* (3.53)	-.20* (3.69)	-.24 (4.053)
Prospector				-.03 (1.38)	.00 (1.48)
Analyzer				-.04 (1.33)	-.03 (1.42)
Defender				.01 (1.65)	-.14 (3.11)
EO*Prospector					.16* (4.40)
EO*Analyzer					.14 (4.78)
EO*Defender					.11 (7.40)
EO <sup>2</sup> *Prospector					.26* (6.96)
EO <sup>2</sup> *Analyzer					.18* (6.09)
EO <sup>2</sup> *Defender					-.27 (20.25)
R <sup>2</sup>	.36	.39	.40	.41	.48
Adj. R <sup>2</sup>	.34	.36	.37	.36	.41
F-value	14.04*** (6, 148)	13.18*** (7, 147)	12.38*** (8, 146)	8.89*** (11, 143)	7.31*** (17, 137)
d.f.					
Δ R <sup>2</sup>		.02	.02	.00	.07
Δ F-value		5.47*	4.56*	.16	3.03***
Δ d.f.		1	1	3	6

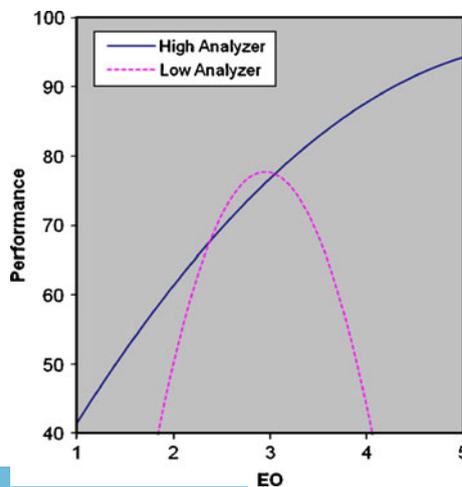
†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ , one-tailed test.

Standardized coefficients are displayed in the table with standard errors in parentheses.



**Figure 1** Performance as a function of EO and prospector strategy

mitigated and the inverted U-shape is turning into an inverted L-shape, indicating that the prospector strategy can help SMEs to better take advantage of their entrepreneurial activities. Figure 2 depicts the inverted curvilinear relationship between EO and performance when the analyzer strategy is added as a moderator. Similarly, for firms who do not apply the analyzer strategy, the EO-performance relationship follows an inverted U-curve. For analyzer firms, the EO-performance curve is mitigated in such a way that dramatic performance increments occur when EO increases from moderate to high levels. It should also be noted that overall firms with an analyzer strategy exhibit higher performance than those without an analyzer strategy, indicating that under the current institutional environment in China, the analyzer strategy will help entrepreneurial firms to fully benefit from their proactive, risky, and innovative behaviors.



**Figure 2** Performance as a function of EO and analyzer strategy

## Discussion

Prior entrepreneurship research conducted in emerging economies has focused on how entrepreneurial firms behave differently from their counterparts in Western and mature economies. The differing behaviors are often attributed to the volatile, and sometimes hostile, environments of emerging economies (Ahlstrom & Bruton, 2002). Such an environment poses great challenges to entrepreneurial firms in their capitalizing on proactive, risk-taking, and innovative activities. As a result, EO exerts beneficial effects on firm performance only up to a certain point, beyond which further increments in EO actually interfere with or reduce firm performance (Tang et al., 2008). In addition, the ESP perspective posits that strategy coevolves with the environment (Hambrick, 1983; Luo & Park, 2001; Miller & Friesen, 1983; Tan & Tan, 2005). Recent studies indicate that compared with a decade ago, the institutional environment of China has become more lenient to small businesses and thus, the once popular defensive strategies have gradually eroded (Tan & Litschert, 1994; Tan & Tan, 2005). Compared with the defender strategy, the analyzer strategy has begun to generate better performance for Chinese firms (Luo & Park, 2001).

Intrigued by and in order to extend these findings, we seek to find solutions for Chinese entrepreneurs by identifying new trends taking place in the regulatory, cognitive, and normative environments in China and investigating what strategies may help firms to take advantage of these new trends and gain full benefits of being entrepreneurial. Based on the strategy typology (Miles & Snow, 1978) and country institutional profile (Busenitz et al., 2000; Scott, 1995), we propose and find that prospector and analyzer strategies attenuate the inverted U-shape relationship between EO and firm performance while the moderating effect of the defender strategy is insignificant.

## Limitations

Before we elaborate on the implications of our findings, readers need to be informed of limitations of this study. First, although our findings confirm and extend previous research on EO conducted in China, they may be generalizable to Northern China only. Since China enjoys a large variety of economic and social climates (Boisot & Child, 1999), cultural generality is a crucial factor for Chinese entrepreneurship research (Baron & Tang, 2009), and thus our model should be extended with variations when applied in other settings (Kim & Lim, 1988).

Second, due to the difficulty of collecting data on SMEs in China, we used a survey design approach. One top management team member from each firm was responsible for answering all questions, which exposed our study to common method bias. We conducted multiple analyses to investigate the extent to which common method variance may be a threat to the validity of our findings. Following the recommendations provided by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), we assured the respondents that the survey was anonymous and only summarized test results would be released. We also conducted Harman's one factor test (Podsakoff et al., 2003) on the survey items to assess the severity of common methods bias. Results showed that the first factor only accounted for approximately 13% of the total variance, which suggested that no single factor accounted for the

majority of covariance. In addition, common method variance may not be a major threat to our study due to our unique research design. First, common method variance tends to be problematic only when the respondent is sensitive to survey questions (Boyd & Fulk, 1996). Our questions—regarding employment, goals, strategy, and industry—are relatively objective and not likely to evoke sentiment (Steenma et al., 2000). Second, as indicated by Chang, van Witteloostuijn, and Eden (2010), common method variance can be significantly mitigated if the investigated relationship is complicated, involving moderation or nonlinear relationships. Since our paper examines the moderating effect of organizational strategies on the curvilinear relationship between EO and firm performance, the threat of common method variance should be minimized.

### Implications for research

The current study offers several implications for future research. First, our study found that the innovation-oriented prospector strategy and the hybrid analyzer strategy attenuated the inverted U-shape relation between EO and performance because they enable Chinese SMEs to identify and capture emerging opportunities in the new environment. In the case of the defender strategy, however, although as expected, the defender strategy exerts a negative effect on the curvilinear EO-performance relationship, such an effect is insignificant. We suspect that the lack of significance might indicate that the low-cost strategy is still a viable option for certain SMEs in today's China. Future research is warranted to further examine the role of defender strategy in entrepreneurial firms.

Second, the current study provides important insights into the application of the ESP framework in emerging economies. We have verified that along with the changing environment, Chinese firms' strategy application is changing as well. Combined with prior findings, we delineate the evolutionary path of strategy application of entrepreneurial firms in China: from the defensive strategy a decade ago (Tan & Litschert, 1994), to the analysis strategy (Luo & Park, 2001), and now marching into the most aggressive prospector strategy. Future research is needed to confirm this evolutionary path with more empirical research conducted in more comprehensive regions in China.

Third, future research should investigate how the changing regulatory, cognitive, and normative environments *directly* affect firms' EO, performance, and other entrepreneurial activities (e.g., opportunity recognition, decision-making). Having suffered from accumulated pollution and narrow profit margins from labor intensive industries, China is striving to promote innovation across economic sectors and entrepreneurial firms. For example, Guangdong province, which benefited the most from the export-oriented strategy and produced the largest provincial GDP in China, has planned to transform its economy from manufacturing low-end, non-local brand, and high-polluting products to high technology and innovative products. By 2012, it plans to establish more than 100 R&D offices and become a major innovation center via collaboration with Hong Kong and Macau. Nationally, the Chinese central government plans to spend RMB600 billion (roughly USD86 billion) on hi-tech industries to promote innovations. These stimulus plans, along with the new generation who exhibits a preference toward risks and differentiations and school

systems that have been diligently catering to the needs of the uprising entrepreneurs, are widely spreading the entrepreneurial spirit within Chinese firms. Quantitative and qualitative research is warranted to examine how these institutional changes have affected entrepreneurial activities within Chinese SMEs.

### Implications for practice

*Implications for entrepreneurial firms in China* Our findings indicate that under the current regulatory, cognitive, and normative environments in China, aggressiveness and innovativeness have emerged within entrepreneurial ventures. The prospector strategy grants entrepreneurial firms better capability to exploit the new opportunities in the transitioning environment, and so does the analyzer strategy. Entrepreneurial firms need to realize that self-owned brands, R&D capabilities, and new product lines will play a more pivotal role in their survival and prosperity than ever before. A strategy focusing on innovation will enable SMEs to better benefit from new and changing regulations. Efficiency-oriented defender strategy will continue to have its value in China, however, it may gradually lose its usefulness in helping entrepreneurial firms to achieve their goals, especially the long-term ones endorsed by a changing environment.

*Implications for international companies in China* In the last decade, Chinese ventures have been transitioning from applying defensive strategies to analyzer and prospector strategies. This trend indicates that foreign businesses may face a tougher challenge from Chinese SMEs as Chinese ventures are becoming increasingly innovative and proactive. In order to gain a competitive advantage, international businesses have to shift their focus from taking advantage of cheap labor to competing innovatively. Our result echoes previous finding that multinational firms pursuing a capital- and technology-intensive strategy in China performed significantly better than those who solely adopted a labor-intensive strategy (Li, Poppo, & Zhou, 2008). We hope this finding can help international businesses in China to adjust their strategies and better compete in China.

*Implications for policy makers* The new reform initiated by the Chinese government for a more innovative economy relies heavily on whether a mature regulatory, normative, and cognitive environment can be established to facilitate such a process. Although the economic reform has penetrated more and more sectors in China, grey areas have also emerged (Tan, 2001) and opportunistic behaviors have thwarted investment on R&D that requires long-term return (Li & Zhang, 2007). The Chinese government often finds itself applying inadequate or ineffective measures to protect patents and copyrights or to prevent contract breaches and unfair competition (Guo, 1997; Li & Atuahene-Gima, 2001). Recent research on private and entrepreneurial firms in China has raised concerns about that sector's competitiveness, partly due to continuing problems in China's institutional environment with respect to the support of private firms (Huang, 2008). In order to successfully help Chinese SMEs to fully benefit from their innovative and entrepreneurial activities, policy makers in China need to assure that sufficient measures and resources be committed to building healthy regulatory, cognitive, and normative environments.

## Conclusion

Entrepreneurship is redrawing the economic map of domestic and international markets (Hult, Snow, & Kandemir, 2003). The fast and continuous development of emerging economies such as China warrants that the study of entrepreneurship in emerging economies is more important than ever (Bruton et al., 2008). China is rising with an impressive speed and entrepreneurial firms have been thriving with this rise and forming an important force in Chinese economy. Chinese SMEs have become key players in the global marketplace within a short period of time, which makes the study of their strategies essential (Fang, 2010). We hope that limitations as mentioned above can be fully addressed by future research, and our findings can be replicated in other regions of China or emerging economies in general.

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