



Entrepreneurial Orientation, Organizational Learning, and Performance: Evidence From China

Yongbin Zhao
Yuan Li
Soo Hoon Lee
Long Bo Chen

This study examined the relationships among entrepreneurial orientation (EO), experimental learning (EL) and acquisitive learning (AL), and firm performance (FP). We tested our model in China as EO is the engine that is driving firms to take advantage of opportunities in an increasingly market-oriented transitional economy. From the responses of 607 firms, we found that EO was positively related to EL but had an inverse U-shaped relationship with AL. Both EL and AL enhanced FP although the effects from AL were weaker and became nonsignificant when external knowledge was embedded into the firm's internal private knowledge.

Introduction

Entrepreneurial orientation (EO) is a firm-level construct that has been defined as the propensity by a company's top management to take calculated risks, be innovative, and demonstrate strategic proactiveness (Covin & Slevin, 1989; Miller, 1983). It is therefore a psychological construct that reflects the intentions and inclinations of the organization's key players toward entrepreneurial tasks and behaviors (Krauss, Frese, Friedrich, & Unger, 2005). As members of a firm's upper echelon, top management's EO influences the firm's strategic choices in establishing the organization's culture and business practices related to learning about, finding, and exploiting new opportunities (Covin & Miles, 1999; Hambrick & Mason, 1984).

Studies in the United States have found, in general, a positive relationship between EO and firm performance (FP) (Lumpkin & Dess, 1996; Wiklund & Shepherd, 2005).

Please send correspondence to: Soo Hoon Lee, tel.: (757) 683-6173; e-mail: slee@odu.edu.

However, this positive relationship is often not replicated in emerging economies, which may be explained by differences in constraints faced by firms operating in different contexts (Lumpkin & Dess; Tang, Tang, Marino, Zhang, & Li, 2008). Specifically, the availability of managerial expertise and the extent of government controls influence managerial risk taking, innovativeness, and proactiveness, which affect FP (Tang et al.). Additionally, firms in transitional economies often do not possess sufficient advanced technological capabilities and knowledge resources to innovate at the same level as firms in market-oriented developed economies because they had been ensconced in bureaucratic, state-owned monopolies where competition had been absent (Peng, 2003; Yamakawa, Peng, & Deeds, 2008). Since knowledge is a major asset that enables firms to obtain a competitive advantage, organizational practices that enable firms to acquire advanced knowledge resources efficiently would enhance their competitiveness (Grant, 1996).

Peng (2003) suggests that firms in transitional economies have two strategic choices to obtain resources, namely, by developing them internally or by acquiring them externally. In changing competitive environments, organizational learning enables a firm to obtain new knowledge necessary for new organizational activities (Argyris & Schon, 1996). Top management's EO influences a firm's strategic choice on the types of learning to adopt. Dess et al. (2003) proposed that firms could acquire new knowledge through experimental learning (EL) and/or acquisitive learning (AL). EL is associated with learning to transform, extend, and exploit the firm's existing internal knowledge. AL is associated with learning new competencies and knowledge externally beyond the firm's current boundaries (Morgan & Berthon, 2008). For firms in transitional economies, external knowledge is acquired through interorganizational relationships with firms in developed countries (Peng; Yamakawa et al., 2008) or from publicly available sources (Matusik, 2002). Currently, there are no studies that have examined the relationships between EO and different types of learning in transitional economies. However, we predict a positive relationship between EO and EL because of greater opportunities to create firm-specific knowledge that is resistant to imitation from competitors. Since there is a limit by which firms with high EO can benefit from AL because of difficulties in transferring and integrating dissimilar knowledge into the firm, we predict that EO will be related to AL in an inverted U-shaped relationship.

Another research question that this study asks is to understand the extent to which EL and AL impact upon performance. For firms in transitional economies, the lack of internally advanced technological knowledge may limit their ability to exploit their existing knowledge through EL. At the same time, because external knowledge derived from AL is not firm-specific or proprietary, there is a limit to which the firm can create a sustainable competitive advantage from external sources. However, if the resource-based view of the firm (RBV) is generalizable to transitional economies, our results should show that knowledge derived from EL has greater performance impact compared to that obtained from AL.

Therefore, the contributions of our study are twofold. First, by exploring learning mechanisms as links between EO and FP, the results of our study will add to extant literature by providing empirical evidence for the relationships between EO, organizational learning, and performance. The results will provide managers in transitional economies who face limited resources and other organizational constraints with information on which learning approach to adopt so as to derive the most performance benefit.

Second, in choosing China as the context for this study, our results will add to the current literature beyond those found in developed economies in which the EO construct and its performance implications have largely been the focus (Lumpkin & Dess, 1996;

Wiklund & Shepherd, 2005). Although it is beyond the scope of this study to compare EO and learning processes between developed and transitional economies, our results will add to the understanding on the generalizability of management theories and methodologies pertaining to organizational learning and RBV to explain the strategy, structure, and processes of Chinese enterprises. The empirical evidence obtained from this study will also provide important managerial guidance to firms in other transitional contexts that are trying to enter the global market economy.

Theoretical Background and Hypotheses

Although extant research in the United States has found, in general, a positive relationship between EO and FP, the underlying reason for why this occurs has not been investigated. In addition, the positive relationship is often not replicated outside the United States (Tang et al., 2008; Wang, 2008), suggesting that there are intervening relationships between EO and FP. We consider organizational learning as an intervening variable in this study because historically, stagnant state-owned enterprises have reportedly been revitalized through organizational learning as they acquired new abilities and knowledge to compete in the global economy (Harrison & Leitch, 2005; Li, Sun, & Liu, 2006). Since past studies have not considered organizational learning as a possible intervening variable between EO and performance, our study seeks to fill this gap and in doing so, we cross-fertilize the areas of entrepreneurship and organizational learning.

EO in a Transitional Context

According to Kirzner (1979), the goal of entrepreneurship is to search for, discover, and exploit new opportunities to create wealth. Top management with high levels of EO proactively seek to learn about potential changes in their environments so as to take calculated risks on opportunities that arise from new technologies, new markets, or new ways of operating (Lumpkin & Dess, 1996). New startups, firms in new industries, the private sector, or open economies that face greater environmental dynamism tend to have higher levels of EO because the opportunity to obtain entrepreneurial rewards attracts individuals who are risk taking, innovative, and proactive more in these contexts than those in matured firms, firms from declining industries, government-owned enterprises, or closed economies (Daft, 2000). Similarly, changes in economic systems can also cause a change in a firm's level of EO as a new generation of management with more risk-taking, innovative, and proactive capabilities are hired to leverage on these new opportunities (Tan, 2007). Therefore, as transitional economies reform their economic systems from closed-market, centralized, state-planning business approaches toward greater market orientation and autonomy, firms in these economies will need higher levels of EO to change their strategic orientations, learn global best practices, or develop technological advancements to respond more competitively to market forces and customer demands (Chow, 2006; Liu, Luo, & Shi, 2003; Teng, 2007; Zhou, Yim, & Tse, 2005).

Therefore, as China transitions toward a market-based economy, Peng (2003) argues that Chinese firms that operate in a turbulent environment are faced with two strategic choices to obtain resources. The first is to develop competitive resources and capabilities in-house and the second is to utilize external sources, such as interorganizational relationships, to obtain needed assets. He argues that in the early phase of transitions, the lack of managerial expertise to manage uncertainties, and in the face of other institutional

constraints, managers may rely on external sources of knowledge. However, he argues that this is a short-term solution because firms in transitional economies needed to develop their own internal, unique capabilities in the longer term to obtain a sustainable competitive advantage.

Due to differences in market context, several Chinese studies have not found a positive EO–performance relationship. Tang et al. (2008) postulated that an inverse curvilinear relationship arises because Chinese firms with low levels of EO may not strive to innovate or compete aggressively, while Li and Atuahene-Gima (2001) and Tan and Tan (2005) suggest that those with high levels of EO may not have sufficient managerial expertise or technical knowledge to manage high-risk entrepreneurial projects in untried technologies, products, or services. The result is that firms with either very low or very high levels of EO are expected to have low levels of performance because they do not have adequate knowledge resources to implement their goals quickly to capitalize on transient market opportunities. By understanding how entrepreneurial firms in transitional economies obtain knowledge resources, our results will provide important managerial lessons to firms in other transitional economies that aim to compete in the global economy. Hence, we choose China as the context of our study because as the largest transitional economy, our results will add to the extant literature that has largely focused on developed economies.

Organizational Learning

Organizational learning is a process by which a firm acquires information, understanding, know-how, techniques, and practices to improve task performance (Argyris & Schon, 1996; Fiol & Lyles, 1985; Nonaka & Takeuchi, 1995). Thus, firms with high levels of learning are associated with greater innovations and they generally outperform their rivals (Hurley & Hult, 1998). For firms in transitional economies, organizational learning enables them to access managerial capabilities and technological know-how necessary to compete in a global economy. Consequently, they can update their knowledge base to respond to uncertainties and adapt to external changes at a faster rate than rivals to maintain a long-term competitive advantage (Harrison & Leitch, 2005; Slater & Narver, 1995).

To reduce uncertainty and leverage opportunities more successfully, firms enhance their value by learning to exploit their existing knowledge or acquire new ones from collaboration partners and public sources (Fiol & Lyles, 1985; Grant, 1996; March, 1991). Dess et al. (2003) and Zahra, Nielsen, and Bogner (1999) name these two types of learning as EL and AL, respectively, and so we use these terms in this study to be consistent with others in the entrepreneurship area.

EL, also called incremental learning (Slater & Narver, 1995), adaptive learning (Senge, 1990), or single-loop learning (Argyris & Schon, 1996), occurs *inside* the firm and generates knowledge distinctive to the firm (Dess et al., 2003, p. 356; Zahra et al., 1999, p. 173). In EL, a firm utilizes its existing internal knowledge to create value through the process of knowledge exploitation (March, 1991) or knowledge application (Spender, 1996). In knowledge exploitation, the firm's existing knowledge base is refined, transformed, extended, and updated so that innovations can be achieved within its current product lines to maintain its competitive position (Baker & Sinkula, 2007; March).

According to Easterby-Smith (1997), firms can learn to exploit their internal knowledge through the EL process by sharing information among organizational members and experimenting that knowledge through trial and error to create new knowledge. For most firms, EL is the starting point for a firm's technological innovations as the firm tends to

follow a technological trajectory that is constrained by its existing capabilities (Winter, 1984). Since private knowledge is held by specific individuals, when organizational members communicate with each other, their private knowledge that is currently underutilized, widely dispersed, or fragmented throughout the firm because it was not previously apparent to others could be pooled, integrated, and leveraged. Through the internal communication process, the firm identifies its internal knowledge assets and competencies so that they can be integrated and leveraged. As other individuals learn to apply this private knowledge through trial-and-error learning or “learning-by-doing” (Dess et al., 2003; Keil, 2004; Schildt, Maula, & Keil, 2005), new knowledge assets and competencies are created. Accordingly, the EL process comprises internal communication, exploitation of internal private knowledge, and the accumulation of new experiences through learning by doing. Through an incremental and adaptive process, the private knowledge that is embedded within organizational members can be integrated and accumulated to enable the firm to create unique value as these firm-specific idiosyncratic knowledge resources and capabilities are combined (Zahra & Garvis, 2000).

AL is defined as the acquisition and internalization of knowledge from the firm’s external environment (Dess et al., 2003, p. 356; Zahra et al., 1999, p. 173) so that the firm can learn new competencies beyond its current boundaries (Morgan & Berthon, 2008, p. 1332) to achieve radical innovations for new product categories (Baker & Sinkula, 2007). AL is also called breakthrough learning (Slater & Narver, 1995), generative learning (Senge, 1990), or double-loop learning (Argyris & Schon, 1996) as the firm acquires knowledge from external sources, such as from collaboration partners (Peng, 2003) or from public sources, such as government, industry, and consumer reports (Matusik, 2002), to increase its stock of knowledge.

In AL, a firm utilizes its new external knowledge to create value through the process of knowledge exploration (March, 1991) or knowledge generation (Spender, 1996). It is similar to Nonaka and Takeuchi’s (1995) “conversion” phase as well as Cohen and Levinthal’s (1990) “absorptive capacity” in which a firm innovates by exploring, experimenting, extracting, and leveraging the external knowledge it acquired. For example, in the 1980s, American automobile manufacturers had to rethink the way they learned about competition, new technologies, and markets when they realized that traditional ways of learning, such as using traditional market research, employing large-scale consumer testing, and having large, in-house R&D departments, did not result in market-share gains. This inquiry led American automakers into new learning paradigms that included the use of strategic alliances, outsourcing, and integrated supply-chain management.

The Relationship Between EO and Learning

To find entrepreneurial opportunities, firms need to learn to search for, recognize, and assimilate potentially valuable knowledge (Huber, 1991). Organizational learning is expected to play a key role in entrepreneurship because it facilitates the acquisition and utilization of knowledge (Ireland, Hitt, & Sirmon, 2003). Studies from developed, market economies suggest that firms with high levels of EO consider knowledge and learning as important means to developing a competitive advantage. Specifically, Keh, Nguyen, and Ng (2007) and Sapienza, de Clercq, and Sandberg (2005) found empirical evidence that proactive firms exchanged, acquired, and utilized knowledge more intensively. Wang (2008) found that the commitment to learn mediated the relationship between EO and performance for a sample of U.K. firms.

Firms that are more proactive, risk tolerant, and innovative have a culture of sharing information and learning and so they are able to develop knowledge capabilities and

leverage opportunities faster than their rivals (Fosfuri & Tribó, 2008; Slater & Narver, 1995). Hence, organizational learning enables firms to gain a strategic advantage in wealth creation and strategic renewal by developing their dynamic capabilities (Zahra et al., 1999). Since firms in transitional economies face fast changing environments, we hypothesize that firms with high levels of EO will engage in organizational learning to acquire the needed knowledge to adapt and respond quickly to fleeting opportunities. In addition, effective organizational learning activities can help firms in transitional economies reduce uncertainty and find market opportunities more quickly to compete more effectively.

According to Dess et al. (2003), the effects of EO on EL and AL should be different because these two learning types have different features. Since innovation is a complex activity, firms can acquire knowledge internally or externally from the marketplace (Peng, 2003). The internal hierarchy provides a firm with a source of private knowledge that is specific to the firm. Internal private knowledge includes the organization's unique codes (such as rules, formal and informal procedures and policies, or mental maps) and routines (such as processes) to guide organizational actions to perform complex tasks (Argyris & Schon, 1996). The external market provides a source of knowledge from interorganizational partners (Peng) or public knowledge from which the firm acquires industry and occupational best practices (Matusik, 2002). While there is some consensus that entrepreneurial firms have a bias for learning (Sapienza et al., 2005), little attention has been paid to the relationship between EO with EL and AL. Our study aims to fill this gap.

EL is particularly important and useful for firms in transitional economies because they tend to be constrained by a lack of resources to acquire the most up-to-date technological knowledge externally (Teng, 2007). Given that EL is less resource intensive and has more certain outcomes (Dess et al., 2003; Zhou et al., 2005), firms with high levels of EO in such economies can bridge their knowledge gap more easily by exploiting their internal private knowledge. Also, by adopting the familiar and "true-and-tried" solutions from their past experiences and exchanging related information across multiple functional areas, firms with high levels of EO can learn more efficiently through the EL process. Moreover, the new knowledge that is created through the combination of existing knowledge is less likely to conflict with the firm's established models and would face less resistance in their application and adoption within the firm (Kogut & Zander, 1992). Therefore, we predict that firms with high levels of EO will be proactive and deliberate in engaging in internal searches to create new knowledge by combining underutilized, internal private knowledge bases. To take advantage of fleeting opportunities quickly in transitional economies, we expect that firms with high levels of EO are more likely to begin their experimentation and information search processes by culling from internal knowledge bases to look for available business models and mental schemas that can be easily altered and applied to address current needs.

Hypothesis 1a: EO will be positively related to EL.

However, many Chinese firms cannot rely on their internal, private knowledge to compete in a global economy because much of it is outdated and outmoded. AL provides firms in transitional economies with a process to learn external, nonproprietary knowledge from public sources (Matusik, 2002) or through interorganizational relationships, such as joint ventures, alliances, or other kinds of collaboration partners (Peng, 2003; Yamakawa et al., 2008).

Unlike EL, the influence of EO on AL is unlikely to be linear (Bhuian, Menguc, & Bell, 2005). Specifically, when a firm's level of EO is low, its propensity to take risks is low as it lacks the capacity to deviate from its existing strategies and routines to assimilate new external knowledge (Atuahene-Gima & Ko, 2001). Similarly, among firms with very

high levels of EO, they are more apt to innovate “outside the box” (Christensen & Raynor, 2003) or in the “blue ocean” (Kim & Mauborgne, 2005). Such new-to-the-world ideas are more likely to come from their internal tacit and private knowledge than from external sources of knowledge (Atuahene-Gima & Ko; Leifer et al., 2000). Hence, radical innovators are less likely to rely on external knowledge, but instead will focus their efforts to create new knowledge by identifying and exploiting internal pools of private information (Bhuiyan et al.).

However, among firms with moderate levels of EO, they would most likely balance their efforts in exploring new market opportunities and technological trends by acquiring such knowledge externally (Grant, 1996; Ireland et al., 2003). Through the AL process, firms acquire external knowledge to improve their performance in the short term by avoiding being trapped in suboptimal levels of knowledge or being able to resist rigidities in their current knowledge base. However, too much AL causes firms to follow the routines of other firms, which reduces the creation of firm-specific, unique knowledge necessary to give the firm a sustainable competitive advantage (Dess et al., 2003; Tang et al., 2008). As a result, Wang and Nicholas (2005) found that the degree of learning from alliance partners was limited and Murray, Kotabe, and Zhou (2005) found that alliance partners only transferred knowledge that are low level and not unusual in China. Therefore, we predict that firms with both low and high levels of EO will have low levels of AL, but those with moderate levels of EO will have high levels of AL.

Hypothesis 1b: EO will have an inverse U-shaped relationship with AL.

In summary, we propose in hypotheses 1a and 1b that among firms in transitional economies, those with high levels of EO will emphasize EL to develop unique, firm-specific knowledge, while those with moderate levels of EO will emphasize AL to obtain external knowledge. Since we predict both a linear as well as an inverse curvilinear relationship between EO and EL and between EO and AL, respectively, we will not test the EO and FP relationship because of countervailing intervening effects.

The Relationship between Learning and Performance

The relationship between learning and performance has generally been found to be positive. For example, Kropp, Lindsay, and Shoham (2006) found that firms that place high values on learning have significantly higher levels of performance in international business venturing, while Lynn, Skov, and Abel (1999) found that learning enhances the successful development of new products in high-technology organizations. While EL and AL are essential for firms, the types of knowledge obtained from EL and AL processes are different and so the outcomes on performance are expected to be different. Understanding these differences will help firms make better decisions in choosing the appropriate form of organizational learning processes that will yield a better return from utilizing their scarce resources more efficiently.

Research on AL or absorptive capacity suggests that a firm’s access to and utilization of external knowledge has a positive impact on FP (Cohen & Levinthal, 1990). Specifically, Matusik (2002) found that the acquisition of external knowledge led to higher-quality products and fewer product recalls because the firm was able to produce products that had greater compatibility with external systems configurations. Similarly, Atuahene-Gima (2005) found that the external knowledge obtained from AL helped firms find new market opportunities, recognize consumer preferences, exploit emerging market opportunities, and enhance innovative capacity better.

However, according to proponents of RBV, public knowledge by itself cannot be a source of sustainable competitive advantage because it is not proprietary to any one firm and is therefore also readily available to competitors (Barney, 1991). Firms undertaking AL risk expending scarce organizational resources to acquire external knowledge that has no uniqueness (Hughes, Hughes, & Morgan, 2007; Sirmon, Hitt, & Ireland, 2007). March (1991) argues that compared to EL, learning from AL processes takes longer as the search for new knowledge is more diffused and its benefits are less certain because the knowledge obtained is organizationally more distant from the locus of the firm's competencies and activities. Where the external knowledge is complex, there may be barriers to knowledge transfer because the ability to learn to apply the external knowledge depends on the firm's absorptive capacity to reconfigure, reintegrate, and transform the knowledge into competencies that are useful to the firm (Cohen & Levinthal, 1990; Kogut & Zander, 1992). The utilization of external knowledge for innovation depends upon the firm's existing knowledge base and its ability to understand the external knowledge, assimilate it, and apply it for commercial ends (Cohen & Levinthal). Thus, there is a possibility that the firm may expend too much resources learning external knowledge without gaining much benefits because they may acquire too many undeveloped new ideas without any distinctive competence (March). If the external knowledge has minimal similarity with the firm's core knowledge, there are limits to its usefulness and absorption into the firm (Mowery, Oxley, & Silverman, 1996). Also, cultural differences between collaboration partners may complicate the learning process between the firms (Mowery et al.). Nevertheless, the failure to appropriate external knowledge into a firm can be a source of competitive *disadvantage* (Leonard-Barton, 1995; Zahra et al., 1999). Therefore, AL represents a necessary but insufficient condition for organizational success (Dess et al., 2003; Zahra & Garvis, 2000).

Instead, according to RBV, internal private knowledge is more likely to be the basis for a firm's sustainable competitive advantage because it is determined by the firm's history and experience, which makes it path dependent, inimitable, rare, and unique (Barney, 1991; Lynn et al., 1999). Through the EL process, the new knowledge that is generated from the application and transfer of existing private knowledge, skills, and know-how from organizational members faces less conflict and resistance from established models in the firm (Kogut & Zander, 1992; March, 1991; Nelson, 1982). Therefore, knowledge derived from EL is expected to have greater value to a firm because its path dependence makes it unique and difficult for competitors to learn and imitate (Barney; Grant & Baden-Fuller, 2004; Kogut & Zander). Hence, Burpitt (2004) found that EL was positively and significantly associated with new market entries and greater revenues.

Empirical evidence from the area of strategic alliance shows that EL takes precedence over AL because integrating and internalizing knowledge within a firm is easier and more efficient (Grant & Baden-Fuller, 2004). Although knowledge from AL broadens a firm's knowledge base, Chang, Chen, and Lai (2008) did not find any evidence that external knowledge significantly increases the value of alliances. They found that interfirm knowledge flow was usually more difficult to manage than intrafirm knowledge flow because of differences in standards, which constrained the extent to which the external know-how can be easily internalized. In contrast, they found that by fine-tuning internal capabilities and know-how, greater opportunities for value creation were created.

In summary, although both EL and AL will enhance FP, drawing on RBV, we predict that EL will have a more positive effect on FP relative to AL because the distinctive and firm-specific knowledge that is generated from EL is more difficult for competitors to replicate (Lei, Hitt, & Bettis, 1996). In contrast, the difficulties involved in obtaining a sustainable competitive advantage from publicly available external knowledge may not

readily fit into a firm's internal systems and processes. This puts AL at a disadvantage compared to EL where the internal private knowledge is path dependent, idiosyncratic, and sticky (Barney, 1991; Leonard-Barton, 1995). With greater emphasis for firms in transitional economies to focus on innovation, taking risk, and proactiveness as a source of competitive advantage in the global economy, we predict that EL will have a greater performance impact than AL.

Hypothesis 2: Relative to EL, AL will have less positive effects on FP.

Nonaka and Takeuchi (1995) posit that organizational learning is a recursive and dynamic process, implying that EL and AL processes interact. A firm can augment its existing knowledge gap by combining, transforming, and assimilating the externally acquired knowledge into its existing private store (Dess et al., 2003; Teng, 2007; Zahra & George, 2002). Internal capabilities serve as a foundation for a firm to identify and explore external knowledge (Su, Tsang, & Peng, 2009). The integration of external knowledge with internal capabilities enhances a firm's level of innovation as the knowledge obtained from external exploratory activities enables the firm to discover something new and the internalization of the new knowledge acquired from AL prevents organizational inertia and the onset of organizational rigidities (Leonard-Barton, 1995).

Keil (2004) provided clinical evidence from case studies to show that firms obtain new capabilities by engaging in AL and then integrating the external knowledge through EL processes. In doing so, the firm obtains a sustainable competitive advantage when the heterogeneous knowledge bases from many different sources are integrated to create new capabilities that are unique and difficult for competitors to imitate (Cohen & Levinthal, 1990; Leonard-Barton, 1995). In addition, the infusion of newly acquired external knowledge challenges prevailing organizational assumptions and internal cognitive maps, which enhances organizational renewal (Zahra et al., 1999). To obtain these potentially positive benefits, we predict that the externally acquired knowledge that is derived from the AL process will be utilized subsequently in the firm's EL process to generate new internal private knowledge.

Hypothesis 3a: AL will be positively related to EL.

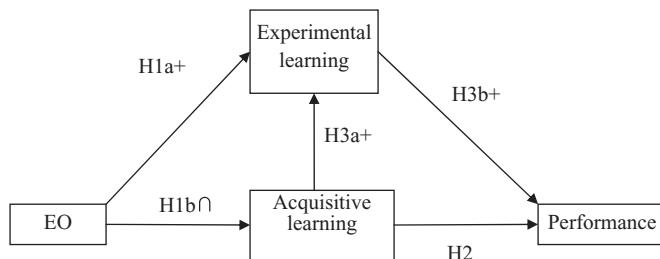
When a firm absorbs the external knowledge it acquired through AL, its internal store of private knowledge is expanded, which enhances its innovative capacity. The expected outcome is enhanced FP when new products and services or new ways of operating and behaving to support technological commercialization and other novel combinations result (Grant, 1996; Nonaka & Takeuchi, 1995). Since externally acquired knowledge resources do not naturally fit into the firm's internal systems and processes but have to be adapted (Leonard-Barton, 1995), only knowledge that is potentially useful in filling the firm's knowledge gap is extracted and leveraged (Dess et al., 2003; Sirmon et al., 2007; Teng, 2007). Accordingly, we predict that when external knowledge is integrated into the firm's internal private store, the former will no longer have any significant incremental benefits on FP. Therefore, the performance impact from AL will be mediated by EL.

Hypothesis 3b: EL will mediate the relationship between AL and FP.

In summary, we propose that EL has greater performance impact for firms in transitional economies because any knowledge advantage obtained from AL will be absorbed by the firm in its subsequent EL processes. The relationships among EO, EL, AL, and FP are illustrated in Figure 1.

Figure 1

Theoretical Model



Methods

Sample and Data

To test the hypotheses, a questionnaire survey was used to elicit responses from a sample of firms in Shanghai as well as the Shaanxi, Sichuan, Liaoning, Guangdong, Shandong, Henan, and Shanxi provinces of China. These geographical locations were selected to represent the geographic, economic, and demographic diversities in China. A statistically random sample of 850 state-owned, collective-owned, limited, joint-venture, and privately owned manufacturing firms was obtained to reflect the proportion of such enterprises in the census from the official government agency, the Economic Commerce Committee (EEC), which had administrative oversight of commercial enterprises in these geographical areas.

Special care was undertaken during the survey process to ensure reliability and validity in the following ways. First, the survey items pertaining to EO, EL, AL, and FP were derived from past studies. These items were translated into Chinese with the assistance of Chinese scholars in the knowledge management field who resided in the United States. Since they were familiar with both languages and the survey items, this ensured that there was no loss in meanings after the original items were translated and back-translated. Next, a pilot test on the preliminary draft questionnaire was conducted with 15 firms from the Shaanxi, Henan, and Shandong provinces to ensure face validity. From the feedback obtained from the pilot study, we revised the items in accordance with the suggestions by Tan (1996). For example, while five of the six items that measured EO were drawn from Covin and Slevin's (1989) scale, we modified the wording of the sixth item from "typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities" to "an attitude of adventure and proactiveness when faced with uncertainty." We did so to reflect a more tentative posture of most Chinese firms toward technological opportunities due to resource constraints and a weaker position in technological leadership, which limit their bold and aggressive postures compared to firms in developed countries (Yamakawa et al., 2008). These 15 responses were subsequently excluded from the final data set. Third, to overcome the low participation rate typical of mail surveys in China, we used face-to-face interviews where the interviewer completed the questionnaire survey during the interview on behalf of the respondents. To ensure reliable responses, the six interviewers were trained extensively to ensure that they did not introduce any biases by asking leading questions during the interview. They were also trained to understand the objectives of the study, fill in the questionnaire completely, assure the respondents of confidentiality, and answer

Table 1

Profile of Responding Firms

Characteristics of respondents and company	
Tenure of respondent (average years)	18.82
Number of employees	
<51	11.2%
51–200	22.5%
201–500	16.2%
501–1,000	16.7%
>1,000	33.2%
Unreported	0.2%
Revenues (in million RMB)	
<10	15.0%
10–50	32.0%
50–200	26.0%
>200	19.5%
Unreported	7.5%
Types of firms	
State-owned enterprises	28.6%
Joint ventures	12.9%
Limited companies	37.6%
Private companies	13.8%
Collective enterprises	4.6%
Others	2.5%

clarification questions that might arise. Before each interview, the interviewers had to become familiar with the background of each company and its top management. In using the interview technique, personal trust was developed between the interviewer and interviewee, which led to more complete surveys, reducing statistical biases due to missing data. Also, questions or answers given could be clarified on the spot to enhance reliability. We ensured that the interviewers did not inject biases pertaining to demand characteristics by training them to ask the questions using a common script. The interviewers were discouraged from deviating from the interview script except to answer the interviewees' questions or to clarify the interviewees' answers.

We contacted all 850 firms in 2002, of which 662 agreed to participate in the study. Those firms that declined indicated that it was their company's policy not to participate in survey studies. A number of firms relocated or liquidated during the data collection phase, resulting in a total of 607 usable responses for data analyses. The high response rate of 71.41% is particularly notable because top management or their official representatives completed the surveys. A profile of the respondents is provided in Table 1.

Measures

The survey items were drawn from existing theory-driven research to ensure construct validity. As suggested by Tan (1996), they were revised only after extensive consultations with senior executives to fit the Chinese context for face validity. An example on how the wording was modified is given in the previous section. All the survey items are shown in Table 2 and were measured on 7-point Likert scales, where 1 = strongly disagree and 7 = strongly agree.

Table 2**Harmon 1-Factor Test**

Please indicate the extent to which the firm has:	EO	FP	IC	EKR	AL	EAL
(1) An attitude of adventure and proactiveness when faced with uncertainty	0.79					
(2) A strong tendency for high-risk NPD projects which have a chance for very high returns	0.76					
(3) A strong emphasis on R&D, technological leadership, and innovation	0.75					
(4) A tendency to adopt a competitive “undo-the-competitors” posture	0.74					
(5) A tendency to initiate actions for competitors to respond to	0.71					
(6) A tendency to be a market leader, always first in introducing new products, services, or technologies	0.63					
(7) Change in market share		0.87				
(8) Change in sales volume		0.85				
(9) Change in firm reputation		0.82				
(10) Change in operating profit		0.74				
(11) Change in asset size		0.72				
(12) Work experiences from one SBU or department are quickly diffused to other units			0.78			
(13) Experience of serving customers is shared among internal departments			0.72			
(14) Departments are strongly motivated to learn from each other			0.71			
(15) Employees take part in decision making based on their experience			0.68			
(16) Exploited process technology				0.82		
(17) Exploited technology transferred from outside				0.76		
(18) Exploited know-how and patents				0.75		
(19) Exploited technological equipment				0.71		
(20) Actively acquired new technologies from business partners					0.88	
(21) Actively acquired market development skills from business partners					0.86	
(22) Actively collected information on technological developments					0.82	
(23) Actively collected information on consumer needs and preferences					0.80	
(24) Actively obtained new and important information from business partners					0.79	
(25) Actively collected government-related information					0.73	
(26) Cooperation among departments and job functions are encouraged						0.70
(27) Employees are encouraged to try new work methods						0.70
(28) Employees take part in decision making based on their experience						0.55
Eigenvalue	7.689	3.573	2.126	1.993	1.574	1.144
Percent of variance	27.46%	12.76%	7.59%	7.12%	5.53%	4.09%
Cronbach's alpha	0.86	0.87	0.79	0.74	0.73	0.77
AVE	0.59	0.65	0.96	0.62	0.65	0.85

Note: Cronbach's alpha and AVE for all items related to EL are 0.74 and 0.52, respectively.

AVE, average variance extracted; EL, experimental learning; EO, entrepreneurial orientation; FP, firm performance; IC, internal communication; EKR, exploitation of knowledge resources; AL, acquisitive learning; EAL, experience accumulated through learning-by-doing; NPD, new product development; SBU, strategic business unit.

EO. The measure for “EO” comprises six items drawn from the original scale in Covin and Slevin (1989), one of which had been refined to fit the Chinese context as discussed earlier (Atuahene-Gima & Ko, 2001; Li, Liu, & Zhao, 2006).

EL. Based on Easterby-Smith's (1997) article, we operationalized “EL” along three dimensions: internal communication (IC), exploitation of knowledge resources (EKR), and experience accumulated through learning-by-doing (EAL). Since his article was a conceptual study, there were no questionnaire items available. As a result, we drew items from other research that had measures for the specific sub-constructs. Hence, IC was measured using four items from Powell, Koput, and Smith-Doerr (1996), EKR measured four sources

of knowledge resources within a firm from Nelson (1982), and EAL measured three ways of mutual learning among members of an organization from March (1991).

AL. Based on the measurement items from Lee, Lee, and Pennings (2001) and Yli-Renko, Autio, and Sapienza (2001), we measured “AL” on the extent to which the firm relied on external sources to obtain knowledge regarding: new technologies, market development skills, technological developments, consumer needs and preferences, information on business partners, and information on the government as shown in Table 2.

FP. FP is often measured as a multidimensional construct because firms often strive to improve multiple performance objectives pertaining to both accounting and reputational outcomes (Meyer & Gupta, 1994; Wiklund & Shepherd, 2005). Past studies have also measured a firm’s financial standing against those in its industry to obtain relative measures of FP (Kohli & Jaworski, 1990; Meyer & Gupta; Wiklund & Shepherd). Hence, we measured five dimensions of performance relative to competitors in terms of market share, sales volume, market reputation, operating profits, and asset size over a 5-year period in accordance with these past measures. Such items have been shown to be reliable measures in the Chinese context (Tan & Litschert, 1994).

Control Variables. We controlled for firm size because in emerging economies such as China, information asymmetry and high transactions costs tend to favor large organizations with slack resources and access to institutions, which smaller firms do not enjoy (Li & Atuahene-Gima, 2001; Li, Sun, & Liu, 2006). “Firm size” was measured in terms of the total number of employees in the firm using an ordinal scale, where 1 = fewer than 51 employees, 2 = 51–200 employees, 3 = 201–500 employees, 4 = 501–1,000 employees, and 5 = more than 1,000 employees.

We also controlled for the type of ownership since the level of firm autonomy is expected to impact EO (Li, Sun, & Liu, 2006; Tan, 1996). “Ownership” was coded into an ordinal scale based on the level of autonomy, where 1 = state-owned enterprises, 2 = joint-venture companies, 3 = collective-owned enterprises, 4 = joint-stock companies, 5 = limited corporations, 6 = privately owned enterprises, and 7 = others.

A third control variable is the life cycle stage of the firm because existing literature suggests that EO tends to be higher during the early stages of firm founding (Anderson & Zeithaml, 1984). Lumpkin and Dess (2001) found that FP tend to be highest during growth stage. Moreover, the types of knowledge that is acquired during different life cycle stages are different. Specifically, Jones, Lanctot, and Teegeen (2001) found that during earlier life cycle stages, firms tend to acquire technological product knowledge but acquire technological process knowledge at later stages. Since a firm’s life cycle stage is a meso-variable that comprises multiple interacting antecedents, we controlled for its impact on FP as a control variable. We measured “life cycle stage” using an ordinal scale where 1 = start-up, 2 = growth, 3 = maturity, and 4 = decline. Finally, given that the sampling frame were manufacturing firms, the degree of technological change may influence organizational learning processes (Grant, 1996). Thus, the fourth control variable, “technology change,” was measured using a 7-point Likert-type scale, where 1 = no change and 7 = very fast changes.

Reliability and Construct Validity

Following the approaches of Barclay, Higgins, and Thompson (1995) and Netemeyer, Bearden, and Sharma (2003), the reliability and validity of the constructs were assessed as

follows. First, we obtained the reliability scores for each construct. As shown in Table 2, the Cronbach's alphas for all six constructs were well above 0.70, indicating that the items within each construct were internally consistent and the scales were deemed reliable for further data analyses (Nunnally, 1978).

Next, using principal component analysis with varimax rotation from exploratory factor analysis, we performed the Harmon 1-Factor test. As shown in Table 2, we obtained six distinct factors where the items pertaining to the predictor and intervening variables did not load with items pertaining to the dependent variable. The factor loadings were also significantly above the requisite 0.40 level suggested by Fornell and Larcker (1981), indicating convergent validity for each construct as each item shared more variance within its construct than with the error variance (Gefen, Straub, & Boudreau, 2000).

Next, we evaluated convergent validity using average variance extracted (AVE), which measures the amount of variance that is captured by the construct as opposed to the

measurement error (Fornell & Larcker, 1981). $AVE(V_\eta) = \frac{\sum \lambda_{yi}^2}{\sum y_{yi}^2 + \sum \varepsilon_i}$, where η is the

construct, λ_{yi} is the standardized factor loading for the scaled item y_i , and ε_i is the measurement error for the scaled item y_i . If AVE is less than 0.50, the variance due to measurement error is larger than the variance that is captured by the construct η , and so the validities of the scaled item y_i and the construct η are in question. AVE is also used to test the discriminant validity of the constructs (Fornell & Larcker). If the square of the intercorrelations between the two constructs is less than the AVE estimates of the two constructs, the discriminant validity between the two constructs is good. The AVE values and the intercorrelations among the constructs are reported in Tables 2 and 3, respectively, which clearly demonstrate discriminant validity.

Finally, we evaluated the discriminant validity of the constructs using confirmatory factor analysis, which measures the extent to which the constructs are distinct from each other. AGFI of 0.81, CFI of 0.93, and RMSEA of 0.07 were obtained, indicating acceptable levels of distinctiveness among the six factors (Hair, Black, Babin, Anderson, & Tatham, 2006). Therefore, the overall analyses of the data indicate that the theoretical constructs exhibit good psychometric properties.

Table 3

Descriptive Statistics and Intercorrelations

Variables	Mean	SD	1	2	3	4	5	6	7
1. Firm size	3.34	1.46							
2. Ownership	—	—	—0.30**						
3. Life cycle stage	2.55	0.85	-0.11**	0.33**					
4. Technology change	4.79	1.51	0.01	-0.08*	-0.10*				
5. EO	4.66	1.05	-0.07	0.05	-0.09*	0.16**			
6. Experimental learning	4.28	0.80	-0.02	0.02	-0.10*	0.28**	0.57**		
7. Acquisitive learning	4.09	1.14	0.06	0.04	0.01	0.20**	0.35**	0.46**	
8. Performance	4.73	0.96	0.14**	0.06	0.01	0.22**	0.22**	0.37**	0.26**

* $p < .05$, ** $p < .01$

Data Analysis

We tested our model using regression analyses to account for the effects from the control variables as well as structural equation analysis to examine the path relationships as stated in the hypotheses. Our approach to estimating the structural equation model follows the two-stage procedure recommended by Anderson and Gerbing (1988). First, we estimated the reliability and validity of the model, followed by using structural equation modeling (SEM) to test the hypothesized relationships.

Since EL was measured by three sub-constructs, IC, EKR, and EAL, whose items were drawn from three different studies, we conducted additional tests to examine if the results would be similar if we created a more parsimonious measure of EL by combining the items pertaining to the three sub-constructs, yet ensure that the theoretical robustness of EL remained. Thus, we compared the Cronbach's alpha with all 11 items representing EL against the Cronbach's alpha for each of the three separate sub-constructs. The Cronbach's alpha for all 11 items was 0.83, which is higher than any of the separate sub-constructs (Cronbach's alpha for IC = 0.79, EKR = 0.74, and EAL = 0.77), indicating that the overall EL construct is more reliable compared to the situation where we utilized the three sub-constructs. Thus, for the sake of parsimony, we chose to combine all 11 items pertaining to EL into one construct since the result is more robust.

Results

The descriptive statistics and correlation matrix are shown in Table 3. The variance inflation factors for the regression models in Table 4 are less than 2, indicating no serious multicollinearity problems among the predictor and intervening variables. This is a notable result since a major objection to survey research is the potential for common

Table 4

Regression Analyses Pertaining to Hypotheses 1 and 2 in Figure 2

	Experimental learning		Acquisitive learning		Firm performance	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Ownership	0.016	-0.069*	0.083*	0.092**	0.156***	0.151***
Firm size	0.100**	0.042	0.119***	0.137***	0.189***	0.169***
Life cycle stage	-0.146***	-0.111***	0.036	0.043	-0.232***	-0.157
Technology change	0.361***	0.212***	0.249***	0.175***	0.256***	0.158***
EO		0.583***		0.249***		
EO × EO				-0.137***		
Acquisitive learning						0.089**
Experimental learning						0.313***
R ²	0.162	0.424	0.079	0.166	0.178	0.277
Adjusted R ²	0.148	0.408	0.059	0.141	0.159	0.252
F value	11.00***	25.88***	4.02***	6.57***	9.38***	11.25***

* $p < .05$, ** $p < .01$, *** $p < .001$

EO, entrepreneurial orientation.

method variance, and hence multicollinearity. The design and execution of our survey method allowed us to avoid such problems.

Assessment of Model Fit

Although the chi-square likelihood ratio test assesses the fit of the model, it is however very sensitive to the sample size as well as the number of items and constructs in the model. Hence, other fit indices, such as chi-square/df, RMSEA, GFI, and AGFI were used to assess the fit of the data to the overall theoretical model. Values indicating good fit are under 3.0 and 0.08 for chi-square/df and RMSEA, respectively, and over 0.90 and 0.80 for GFI and AGFI, respectively. The values obtained and shown in Tables 5 and 6 indicate that the data fits the model.

Table 5

SEM Results Pertaining to Hypotheses 1 and 2 in Figure 2

Hypothesis	Description of path	Estimate	p-value	Result
Hypothesis 1a	EO → Experimental learning (EL)	0.219***	0.000	Supported
Hypothesis 1b	EO → Acquisitive learning (AL)	0.063	0.684	Supported
	EO ² → AL	-0.172*	0.034	
Hypothesis 2	AL → Performance	0.041*	0.046	Supported
	EL → Performance	0.604***	0.000	

* $p < .05$, ** $p < .01$, *** $p < .001$

Notes: Chi-square/df = 2.25; GFI = 0.90; AGFI = 0.85; NFI = 0.95; RFI = 0.93; IFI = 0.97; TLI(NNFI) = 0.96; CFI = 0.97; RMSEA = 0.045.

SEM, structural equation modeling; GFI, goodness of fit index; AGFI, adjusted goodness of fit index; NFI, normed fit index; RFI, relative fit index; IFI, incremental fit index; TLI(NNFI), Tucker-Lewis index; CFI, comparative fit index; RMSEA, root mean square error of approximation.

Table 6

SEM Results Pertaining to Hypotheses 1 and 3 in Figure 3

Hypothesis	Description of path	Estimate	p-value	Result
Hypothesis 1a	EO → Experimental learning (EL)	0.213***	0.000	Supported
Hypothesis 1b	EO → Acquisitive learning (AL)	0.010	0.947	Supported
	EO ² → AL	-0.187*	0.019	
Hypothesis 3a	AL → EL	0.027*	0.039	Supported
Hypothesis 3b	AL → Performance	0.034	0.110	Supported
	EL → Performance	0.603***	0.000	

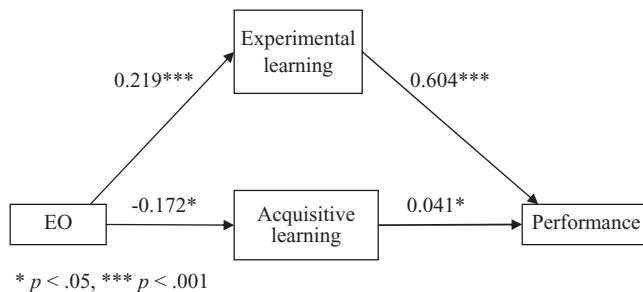
* $p < .05$, ** $p < .01$, *** $p < .001$

Notes: Chi-square/df = 2.24; GFI = 0.90; AGFI = 0.85; NFI = 0.95; RFI = 0.93; IFI = 0.97; TLI(NNFI) = 0.96; CFI = 0.97; RMSEA = 0.045.

SEM, structural equation modeling; GFI, goodness of fit index; AGFI, adjusted goodness of fit index; NFI, normed fit index; RFI, relative fit index; IFI, incremental fit index; TLI(NNFI), Tucker-Lewis index; CFI, comparative fit index; RMSEA, root mean square error of approximation.

Figure 2

Effects on Performance From Acquisitive and Experimental Learning



Hypotheses Tests

Table 4 reports the results using regression analysis while Tables 5 and 6 show the path relationships using SEM. Model 2 in Table 4 as well as the SEM results in Tables 5 and 6 show that the relationship between EO and EL is significantly positive at $p < .001$, giving strong support for hypothesis 1a. Model 4 in Table 4 as well as the SEM results in Tables 5 and 6 show that the relationship between EO^2 and AL is significantly negative at $p < .05$, suggesting an inverse U-shaped relationship between EO and AL. A negative coefficient between EO^2 and AL indicates a concave quadratic function between EO and AL, in which the level of AL increases up to an inflection point before decreasing downward as EO increases (Meyer, 2009). Thus, hypothesis 1b is also supported by our data. Model 6 in Table 4 and the SEM results in Table 5 show that the relationship between EL and performance is greater in magnitude and significance than the relationship between AL and performance. Thus, our data provides support for hypothesis 2. The relationships from the SEM analysis pertaining to hypothesis 2 are depicted in Figure 2.

Table 6 shows that the relationship between AL and EL is significantly positive at $p < .05$, which provides support for hypothesis 3a. When external knowledge is embedded into the firm's private knowledge bases as shown in Table 6, the relationship between AL and performance becomes nonsignificant although the relationship between EL and performance remains significant at $p < .001$. Thus, hypothesis 3b is supported by our data. These relationships pertaining to hypotheses 3a and 3b are depicted in Figure 3.

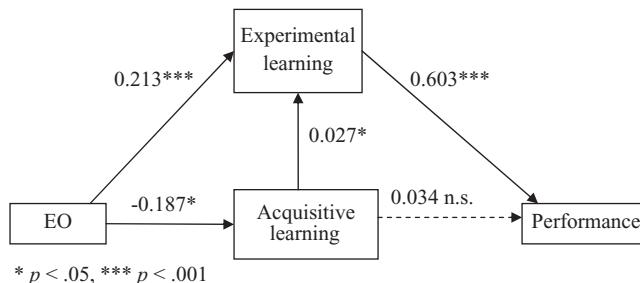
Discussions and Conclusions

In this study, we examined the intervening relationships between EO and FP because the positive EO–performance link is often not replicated outside of the United States (e.g., Tang et al., 2008). Since the goal of entrepreneurship is to search for and discover new opportunities (Kirzner, 1979), we examined the role of organizational learning in enabling firms with high levels of EO to acquire needed knowledge to create wealth. In this regard, we chose China as the context for our study because as China transitions from a central planning to a market economy, firms are given increasing autonomy to undertake entrepreneurial ventures (Chow, 2006).

To capitalize successfully on entrepreneurial opportunities and to create wealth, Chinese firms with high level of EO need to learn to acquire appropriate knowledge resources from EL processes for firm-specific knowledge as well as AL processes for

Figure 3

Effects on Performance When External Knowledge Is Embedded Into the Firm's Internal Knowledge



external knowledge. The notion that EL and AL are distinct is not new but its application in this context is. By examining the roles of different types of organizational learning processes, this study explains the different relationships between EO and EL and AL, and shows which learning process has greater performance impact in Chinese firms. In addition, the results explain how firms with high levels of EO integrate knowledge obtained from AL into the firm's internal knowledge base for further exploitation by EL.

We found that EO was positively related to EL. This may be because firms in transitional economies are constrained by a lack of resources to acquire the most up-to-date technological knowledge externally. Given that EL exploits the firm's existing knowledge base, the new knowledge that is created through the combination of existing knowledge is more certain and less likely to conflict with its established models. However, the negative coefficient between EO² and AL supports our hypothesis that when a firm's level of EO is low, its propensity to learn through external knowledge is low. Moreover, when EO is high, the firm is also less likely to rely on external knowledge for its innovations because publicly available external knowledge does not provide unique and proprietary knowledge to create radical innovations. Only moderate levels of EO were associated with the highest level of AL, depicting a concave quadratic relationship between EO and AL. In using data from a transitional economy, we were able to provide support to Dess et al.'s (2003) conceptual model and ascertain the theoretical generalizability of the organizational learning construct beyond established economies in which it has been developed and tested.

We examined which organizational learning types conferred a greater competitive advantage to firms in transitional economies. This is an important research question, given that the firms in transitional economies have limited resources to play catch-up to developed countries in building their dynamic capabilities. Although both types of learning enhanced FP, we found that knowledge obtained from AL had a lower performance impact than knowledge derived from EL because the former is nonproprietary to the firm and other firms can have access to it. Our results supported the generalizability of the RBV of the firm in which firms obtain a sustainable competitive advantage by investing in the development of internal capabilities.

Although we expected that when external knowledge acquired from AL is absorbed into the firm, it will generate synergies from EL processes, we did not find it to be so as knowledge obtained from AL was fully mediated by the EL. The results show the limited usefulness of AL in enhancing FP. When firms have limited resources, they have greater opportunities to develop a competitive advantage by investing in their own internal

capabilities development. Our results provide empirical support to Dess et al.'s (2003) assertion that AL represents a necessary but insufficient condition for competitive success as measured by the firm's ability to develop new knowledge. We found that the level of AL influenced the subsequent level of EL but not the other way around. Specifically, when external knowledge that is acquired from AL was subsequently absorbed into a firm's internal knowledge base, no incremental competitive advantage is created from the external knowledge. Our results support RBV that greater value is derived from a firm's internal knowledge base. They are consistent with the assertions made by Leonard-Barton (1995) and Zahra and George (2002) that AL is merely a means by which a firm's potential absorptive capacity is realized. This mediated relationship, while conjectured in the extant literature, has not been verified until now.

The evidence from the intricate paths in our model suggests that an RBV perspective of the relationship between EO and FP can only be finely tested if we employ some type of mid-range theory, such as organizational learning, to explicate the *mechanisms* connecting the two constructs. Absent these mechanisms, there is no way to explain *how* and *why* EO should impact FP. Our results provided one reason for why the EO–performance relationships were not replicated outside the United States, which is because of weak absorptive capacities in non-U.S. firms. These results also imply that firms with high levels of EO emphasize the utilization of the knowledge from EL more, so that external knowledge derived from moderate levels of AL can be integrated into the firm's internal knowledge base to obtain a competitive advantage.

Limitations and Future Research

The most serious limitation in our study was the use of cross-sectional data. Therefore, although our model implies causality, we cannot draw causal inferences from the results. We had anticipated this issue and thus requested our sample firms to supply a 5-year retrospective panel of the same data. This request was met with stiff resistance for the reason that the respondents were not able to reliably recall the nonfinancial details of our instrument. Although we could have measured the dependent and independent variables at two different time periods, this, however, would mean that we would have had to theorize about the likely time frame over which organizational learning would result in FP. At best, this time frame would be a guess timate as there is no extant literature to support it. Therefore, future studies should pay attention to obtaining longitudinal data.

In addition, although we would have liked to obtain actual measures of financial FP, our request for such data during the pilot study was also met with stiff resistance. In order to increase survey participation and the response rate, we conceded to using relative measures of FP. Also, the inverse U-shaped relationship that we found between EO and AL suggests that future theoretical development should take into account the possibility that EO is not monotonically related to other organizational processes, which suggests the need to identify other intervening factors.

Finally, although we picked China as the sampling frame because we believed that we would find a greater variation of entrepreneurial and nonentrepreneurial organizations, the study is still limited by its context and, therefore, attempts to draw conclusions beyond this context should be cautiously made. Yet, we believe there are good theoretical reasons to believe that firms in other emerging or transitional economies may experience similar dynamics. Therefore, a useful extension would be to conduct this study in other transitional environments, such as India, Eastern European countries (such as Poland and the Baltic States), and South American countries (such as Chile and Peru).

Managerial Implications

Based on our findings, we offer the following managerial implications. First, we showed that EO is beneficial to firms with an organizational learning capability. Therefore, entrepreneurs who want their firms to engage continually in innovation should first build learning mechanisms in their organizations to enhance their ability to accumulate, assimilate, and apply both internal and external knowledge.

Second, because of the positive relationship between EO and EL and the inverse U-shaped relationship between EO and AL, top management of firms in transitional economies must be sensitive to their level of EO aspirations so that they can make the appropriate infrastructure investments, such as the development of information systems to facilitate internal communication for knowledge exploitation, provision of data warehousing platforms to store and accumulate new knowledge that is created through learning-by-doing, or the assignment of dedicated functional roles to manage and facilitate the exploitation of internal knowledge resources through the EL process. Where the level of a firm's EO aspirations are very high, firms should invest in EL processes as they create more value rather than invest in AL processes, such as forming alliance relationships.

Finally, our study suggests that it is important for top management to understand the relationship between EL and AL. While AL represents a necessary condition for FP because it enables a firm to obtain useful external knowledge, such knowledge resources do not provide a firm with a sustainable competitive advantage if the firm does not have the ability to realize the absorptive capacities (Zahra & George, 2002). Specifically, our data shows that among the Chinese firms in our sample, the external knowledge they acquired remained only as potential capacities as these firms were unable to transform the external knowledge into realized capacities and synergies for wealth creation. They faced a limit on the extent to which publicly available knowledge gave them a competitive advantage, suggesting that Chinese firms need to build stronger absorptive capacities to leverage the external knowledge they acquire.

The results suggest that even if the EL process is fraught with uncertainties because firms in transition economies lack managerial capabilities and advanced technologies, relying largely on AL to create a competitive advantage has limited benefits. Therefore, rather than expend undue resources to obtain knowledge through strategic alliances, firms in transitional economies may improve their performance more through internal development.

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Yongbin Zhao is a Research Fellow in the School of Management at Xi'an Jiaotong University.

Yuan Li is a Professor in the School of Management at Xi'an Jiaotong University.

Soo Hoon Lee is an Assistant Professor in the College of Business and Public Administration at Old Dominion University.

Long Bo Chen is a Ph.D. student in the School of Management at Xi'an Jiaotong University.