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Managerial learning and new product innovativeness in high-tech industries: Curvilinear effect and the role of multilevel institutional support

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ABSTRACT

Combining organizational learning theory and institutional theory, this study examines how managerial learning affects the new product innovativeness of high-tech firms in an emerging market and assesses whether such an effect is conditional on institutional support. We propose that managerial learning helps firms increase the innovativeness of their new products, but this effect declines at high levels of managerial learning. Furthermore, we suggest that institutional support at government and individual levels enhances the effect of managerial learning on new product innovativeness while organization-level institutional support reduces the effect. Empirical findings based on a survey of 174 high-tech firms in China support most of the hypotheses. This study sheds light on the driving forces of new product innovativeness for firms in an underdeveloped institutional environment.

1. Introduction

What determines firms' innovation strategies is a persistent and intriguing question for innovation scholars. To answer this question, previous studies have identified a variety of firm capabilities as drivers of innovation, among which organizational learning has received prominent attention (e.g., Garriga, Krogh, & Spaeth, 2013; Yang, Phelps, & Steensma, 2010). Continuous learning enables firms to overcome path dependency, gain new insights, and reduce the chances of falling into "competency traps", all of which lead to higher involvement in product innovation (Argote, McEvily, & Reagans, 2003). Although organizational learning is certainly important, recent studies have taken a more integrative approach and proposed that the effectiveness of learning on innovation depends on its interaction with the external environment (e.g., Alegre & Chiva, 2008; Bao, Chen, & Zhou, 2012). However, extant research on the environmental context of organizational learning and innovation tends to emphasize the economic or industry characteristics of the market environment, such as uncertainty or dynamism in the competitive environment (Bao, Chen, et al., 2012). Much less is known about how firms' learning and innovation vary across different institutional contexts or about the institutional sources of their innovation variation.

Another issue pertinent to current innovation literature is that knowledge in the field is built largely on studies from developed countries, which may cause problems when generalizing the findings to emerging markets (Zhou, 2006), whose institutional environments are underdeveloped (Wu & Chen, 2014; Yuan & Pangarkar, 2010). These countries have weak intellectual property rights (IPR) laws, ineffective legal enforcement systems, nontransparent information flow, high intervention from government, and so on (Sheng, Zhou, & Lessassy, 2013). Institutions, as sets of values and norms, are able to constrain, regulate, and shape firm behaviors such as organizational learning (Crossan, Lane, & White, 1999). Institutions can either enable or hinder learning's effective functioning in innovation processes. Therefore, underdeveloped institutions in emerging markets pose challenges for firms to exploit the benefits of learning in innovation (Chen, Li, Shapiro, & Zhang, 2014). Thus, it is pressing for marketing and management scholars to advance understanding on innovation strategies of firms in emerging markets with underdeveloped institutions.

Recognizing these insufficiencies, this study explores the confluence of organizational learning theory and institutional theory to discuss the joint effect of organizational learning and institutional factors on an important dimension of innovation, new product innovativeness. Extant studies have conceptualized new product innovativeness using terms such as "originality", "radicalness", and "uniqueness" (Sheng et al., 2013). We focus on the degree of "uniqueness" of a firm's new products relative to the industry/market (Garcia & Calantone, 2002). New product innovativeness reflects the *magnitude* of differences in a new product from other products and measures the discontinuity in the status quo in marketing and/or technological processes (Garcia & Calantone, 2002; Lau, Yam, & Tang, 2011). We further examine whether institutional support at different levels, including government, organization, and individual levels, enhances or reduces the influence of

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learning on new product innovativeness. Empirically, we examine the predictions using a survey sample of Chinese firms operating in high-technology industries.

This study makes two contributions to innovation literature. First, it adapts the organizational learning framework to the emerging market context by addressing the important role of managerial learning in innovation. Managerial learning refers to gaining knowledge related to administrative systems, management practices, and organizational structures (Damanpour & Aravind, 2012; Gold, 1983). It could occur within or across the boundaries of a firm. In internally oriented managerial learning, members of the firm generate and spread new administrative knowledge within the organization; while in externally oriented managerial learning, firms learn from the experience of other organizations by observing their administrative practices and performance (Denrell, 2003). As compared to managerial learning with an internal orientation, managerial learning with an external orientation reduces risks, increases legitimacy and opens up gateways to new knowledge that departs from existing organizational memory, thus increases the opportunities of innovation (Bao, Chen, et al., 2012). Therefore, we will focus on externally oriented managerial learning[3] in this study.

Management literature has long recognized its important role in organizational change, especially under turbulent conditions (Damanpour & Evan, 1984; Law, Tse, & Zhou, 2003). Although innovation represents an important change for firms, the influence of managerial learning on innovation remains an under researched topic. As a departure from prior studies that emphasize technological and marketing skills learning in developed countries (Baker & Sinkula, 2005; Garriga et al., 2013; Yang et al., 2010; Zhou & Li, 2012), we propose that managerial learning enables firms to establish internal mechanisms by which they can overcome institutional voids in emerging market and break free from traditional organizational paths. Second, we use a multilevel lens to uncover the richness of the learning and innovation relationship; this lens draws attention to the different institutional contexts in which learning and innovation occur and illuminates the multiple consequences of institutional support at different levels on the learning–innovation relationship. Specifically, we examine the contingent effects of institutions at three levels (i.e., government, organization, and individual) and show that institutional support at different levels has varying effects on the learning–innovation relationship. Government- and individual-level institutional support facilitates the integration of managerial learning into the organization, and therefore enhances the influence of managerial learning on innovation while organization-level institutional support discourages the integration of managerial learning, leading to reduced effect of managerial learning on innovation.

2. Theoretical background

2.1. An organizational learning perspective of innovation

Various theories have attempted to disentangle the drivers of innovation, the most influential of which is the organizational learning perspective (Drazin & Schoonhoven, 1996). Organizational learning refers to the process by which firms adapt their goals, attention rules, and search rules in response to changes in the external environment over time, thereby achieving more effective alignment (Cyert & March, 1963). This learning enables a firm to develop new knowledge and capabilities and gradually improve its routines for creating and maintaining competitive advantages (Uotila, Maula, Keil, & Zahar, 2009).

Building on this logic, prior research suggests that organizational learning plays a key role in the success of firm strategies, especially product innovation (Alegre & Chiva, 2008; Bao, Chen, et al., 2012). Alegre and Chiva (2008) show that organizational learning consists of acquisition, dissemination, and deployment of knowledge and therefore is positively related to product innovation performance. Similarly, other studies have found that both technological knowledge learning and marketing knowledge learning have positive effects on innovation (e.g., Garriga et al., 2013; Yang et al., 2010). However, another important type of learning, managerial learning, has received relatively limited attention in innovation literature.

2.2. An institutional perspective of innovation

Institutional theory is concerned with the development of the taken-for-granted assumptions, beliefs, and values underlying organizational characteristics and practices (DiMaggio & Powell, 1983, 1991; Zucker, 1977). It offers powerful explanations for how the institutional environment shapes firm behaviors and strategies and, thus, the resource endowments both within and outside the firm (Wan & Hoskisson, 2003).

With regard to how institutional factors shape innovation activity, prior research has emphasized the important role of government policy in promoting innovation at the national level (e.g., Klein Woolthuis, Lankhuizen, & Gilsing, 2005; Roessner, 1989). Research has proposed that institutional failures, such as a lack of IPR laws and technical standards' regulations, hinder innovation, and thus designing a national innovation policy framework to improve institutional environment may foster innovation. However, despite a few attempts to promote such an agenda (e.g., Iyer, LaPlaca, & Sharma, 2006; Sheng et al., 2013), the issue of how institutional factors shape individual firms' innovation strategy has received limited attention.

2.3. Integration of institutional and organizational learning perspectives on innovation

Research on innovation from the institutional and organizational learning perspectives has largely evolved independent of each other. Institutional theory alone is inadequate to explain and predict firms' innovation activities, because it overlooks firms' capabilities of exploring the benefits of institutional contexts. Firms under the same institutional conditions, however, may differ in their ability to use and exploit the opportunities the institutional environment offers, leading to varying effectiveness of the institutional environment in facilitating firm innovation. Because learning is a change process that is embedded in and aligned with the organizational context (Sabherwal & Sabherwal, 2005), it may enable a firm to reconfigure, redirect, transform, appropriately shape, and integrate existing resources and capabilities so as to achieve congruence with different institutional contexts (Teece, Pisano, & Shuen, 1997).

The neglect of institutional forces in innovation literature also leads to difficulties in explaining how organizational learning influences the innovation decision-making process across different institutional contexts. This issue is especially salient for firms in emerging markets because these markets' institutional environments are greatly different from those in developed countries (Yuan & Pangarkar, 2015). For example, firms in emerging markets face several institutional environmental constraints in pursuit of their innovation strategy. First, emerging markets typically have insufficient legal protection, especially weak IPR protection, regional controls with bureaucratic and corrupt legal–political governance, and weak market monitoring mechanisms (Chen et al., 2014;). In turn, these weak systems cause appropriability hazards for innovations (Luo, Sun, & Wang, 2011), pose challenges for firms trying to acquire resources necessary for innovation (Choi, Lee, & Williams, 2011; Choi, Park, & Hong, 2012), and create considerable policy uncertainty for firms investing in innovation (Chen et al., 2014). Second, unlike consumers in developed countries, those in emerging markets are more price sensitive because of their lower purchasing power (Boehe & Cruz, 2010; McWilliams & Siegel, 2001). Most firms in emerging markets tend to focus on low-cost products; as a result, they lack the motivation to depart from the path and invest in innovation, even in the presence of technological knowledge. Therefore, it is necessary to

[3] We use the term managerial learning in the interest of parsimony.