



A causal analysis of the role of institutions and organizational proficiencies on the innovation capability of Chinese SMEs

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ABSTRACT

We attempt to advance the existing narrative about the role of local institutions vis-à-vis the organizational capabilities of Chinese SMEs, and the influence of such linkages on the innovation capability of these firms. Specifically, we complement recent work by investigating the impact of macro- as well as micro-level aspects of Chinese institutions (Government support; *Guanxi*) on the ‘Improvisation’ and ‘Learning’ capabilities of Chinese SMEs and, ultimately, these firms’ innovation capability. Our conceptual arguments are embedded in Institutional, Organizational learning, and Resource-based theories. We isolate, unpack, and discuss several inter-related, yet distinct, causal mechanisms that ultimately influence Chinese SMEs’ innovation capability development. Based on a *Partial Least Squares* analysis of more than 200 firms, we find empirical support for all six hypotheses which represent the above-mentioned relationships. Our findings offer insights pertaining to: (1) the relative impact of institutional versus firm-specific factors in developing organizational proficiencies, (2) the mapping of macro- and micro-level institutional effects on organizational proficiencies, and (3) the relative effect of organizational proficiencies on innovation performance.

1. Introduction

In China, as in many other parts of the world, small and medium sized enterprises (SMEs) are an integral part of the domestic economy (Cardoza, Fornes, Li, Xu, & Xu, 2015; Chen, 2006). In fact, Wang and Yao (2002: 199) refer to them as the “...backbone of China’s economic growth.” Recent reports indicate Chinese SMEs (henceforth, CSMEs) account for approximately 60% of China’s GDP (*China Daily*, 2017), more than 70% of patents (*China Banking News*, 2018), and nearly 70% of exports (*Ecovis*, 2017) with an export-growth rate higher than that for overall exports (Zhang, Wang, Zhao, & Zhang, 2017). Not only do CSMEs contribute in economic terms, i.e., GDP, tax revenues, and employment (*China Banking News*, 2018), these firms are also strategically crucial—as ‘innovation’ engines that augment China’s economic and social development (e.g., Cardoza et al., 2015). However, with rapidly changing technology and market environments, CSMEs face intense global competition. Consequently, many CSMEs must transition from competing primarily on price to competing via developing innovative products that offer the best total value to their customers (Loon & Chik, 2019).

Despite their important role as well as the need to successfully navigate China’s ‘innovation imperative,’ relatively little is known about

influences that augment CSMEs’ *Innovation Capability*, i.e., the ability to create better or more effective products, processes, services, technologies, or ideas that are accepted by markets, governments, and society (Yu & Si, 2012). A literature review suggests that studies investigating CSMEs’ innovation capabilities belong to two broad categories: (1) those investigating the role of *macro*-level influences such as institutional forces (e.g., Yi, Wang, & Kafourous, 2013; Wu, 2013), and (2) those investigating the role of *micro*-level influences such as informal networks and social capital (e.g., Atuahene-Gima & Murray, 2007; Ng & Law, 2015). Only recently have researchers suggested that both types of above-mentioned influences “...could be effective *complementary* conduits” (Gao, Shu, Jiang, Gao, & Page, 2017: 168; emphasis added; also see Maksimov, Wang, & Luo, 2017) for innovation.

Our study advances the above-mentioned ‘complementarity’ line of thought by *causally* investigating linkages between China’s institutional context and CSMEs’ internal capabilities, as well as the impact of these linkages on CSMEs’ innovation capability. Developing a holistic view of SMEs’ innovation architecture is crucial because the development of firms’ innovation capabilities has a long gestation period fraught with unexpected twists and turns, and cannot simply be attributed to the presence (or absence) of institutional incentives to create/develop such capabilities (Awate, Larsen, & Mudambi, 2012). Thus, we attempt to

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also contribute to the broader conversation about development of organizational proficiencies in the presence of existing institutional architecture (see Peng, Sun, Pinkham, & Chen, 2009; Yamakawa, Peng, & Deeds, 2008) and the impact of these institutionally-supported proficiencies vis-à-vis the innovation capability of local firms (Zhu, Wittman, & Peng, 2012). Advancing both these narratives still is crucial because of limited research on drivers of SME innovation in ‘emerging’ countries (Child et al., 2017).

Our intended contributions are both theoretical and empirical. On the theoretical level, we identify and discuss various mechanisms through which two Chinese institutions engender organizational capability development in CSMEs, and how these capabilities ultimately shape the development of innovation capability in CSMEs. In other words, we explain the ‘how’ as well as the ‘why’ of above-mentioned relationships, and attempt to identify boundary conditions which encapsulate these linkages. On the empirical level, we *causally* investigate the theorized linkages in one of the world’s largest economic experimental settings, China, and confirm the complementary nature of macro- and micro-level influences on CSMEs’ innovation capability. Thus, our findings have implications for other emerging markets with similar characteristics—particularly if these markets too seek economic development by nurturing the innovation capability of indigenous firms.¹

Innovation capability is critical to firms’ competitiveness. The more innovative a firm is, the more dynamic capabilities it possesses and the more likely it is to have superior performance (Chen & Cates, 2018). Moreover, innovation activity benefits firms not only in their domestic market but also provides them with opportunities in international markets (Filatotchev & Bishop, 2002). Given that the Chinese government has adopted ‘Going Global’ approach as a strategic pathway for the country’s economic development and implemented policies to promote Chinese firms’ international expansion (Han, Liu, Xia, & Gao, 2018), developing innovation capability has become imperative for Chinese firms—especially CSMEs—who face liabilities of smallness and newness in comparison with Chinese SOEs (Zhu et al., 2012).

1.1. The role of institutions on innovation capability

Fortunately, in their quest for innovation, CSMEs have two allies: (1) their (personal and business) networks, and (2) Chinese government authorities (with a mandate to support local innovation). However, these two aspects of China’s institutional context *per se* do not guarantee innovation; they may be ‘necessary’ but are not ‘sufficient’ conditions to conduct innovation. The pursuit of innovation is, fundamentally, a firm-level activity that must also rely on relevant organizational proficiencies to leverage potentially favorable external conditions (Petti, Rubini, & Podentti, 2017). In other words, it is crucial to focus *concurrently* on external institutions as well as internal capabilities, and the linkages between these two modalities vis-à-vis development of firms’ innovation capability.

To illustrate, although CSMEs can access significant government resources to pursue innovation, a dearth of IPR laws as well as their weak enforcement limits these firms’ incentives to innovate (Adomako, Opoku, & Frimpong, 2018; Li & Atuahene-Gima, 2001; Sheng, Zhou, & Lessassy, 2013; Wang, Huo, Tian, & Hua, 2015) and profit from new products and processes (Zhang et al., 2017). Under such conditions, firms may have to rely on formal and informal institutional supports to

pursue innovation (Baumol, Litan, & Schramm, 2009). Among all informal institutional supports, *guanxi* is most widely considered (Lin, 2011; Park & Luo, 2001; Yang, 1994; Yen, Barnes, & Wang, 2011), and among the formal institutional supports, government support is widely studied (Hu, 2001; Li & Atuahene-Gima, 2001; Li, 1998; Luo, 2008; Rao, Pearce, & Xin, 2005). Thus, given our study’s (Chinese) setting, we consider these two aspects (*Guanxi*; Government Support)² of China’s institutional context. Our focus on above-mentioned informal and formal (respectively) dimensions of the Chinese context is also motivated by the stickiness (Peng, Wang, & Jiang, 2008) between a deeply-embedded local institution—here, *guanxi*—and the Chinese government’s increasing monetary as well as non-monetary support for the country’s innovating firms (Sheng et al., 2013).

Consistent with previous work, we define *Guanxi* in terms of the existence of a personal connection between two independent economic actors (here, between CSME managers and the firms’ suppliers, customers, and distributors, as well as government officials) to “...enable a bilateral flow of personal or social transactions” (Yeung & Tung, 1996: 55). We define *Government Support* in terms of the *perceived* direct or indirect, financial and/or non-financial assistance offered by (local, provincial, or national) Chinese government agencies to CSMEs.

1.2. The role of organizational proficiencies on innovation capability

However, as stated previously, favorable institutional conditions are necessary, but not sufficient, to facilitate innovation in firms. According to organizational theorists, firms’ internal resources and capabilities are also instrumental. Under the resource-based view (circa Penrose, 1959), resources that are valuable, rare, inimitable, or organizationally-embedded (i.e., non-marketable) are imperative to ‘superior’ firm performance vis-à-vis competitors (e.g., Barney, 1991). In principle, the more such resources a firm possesses, the greater its propensity for generating favorable outcomes, both financial (e.g., profits) and/or non-financial (e.g., innovation). While generally valid, the implicit assumption here is that a firm in possession of such resources also has the requisite knowledge and the know-how to leverage the resources’ intrinsic attractive properties. In other words, whether the firm can ultimately leverage these properties to its advantage depends on whether the firm possesses relevant *capabilities* to convert its existing resource ‘stocks’ into ‘flows.’ Indeed, this is a defining element of the ‘dynamic capabilities’ view.

In that view, as Teece, Pisano, and Shuen (1997: 509; emphasis added) note, the “...competitive advantage of firms rests on distinctive *processes* (ways of coordinating and combining), shaped by the firm’s (specific) asset positions (such as the firm’s difficult-to-trade knowledge assets and complementary assets), and the evolution path(s) it has adopted or inherited.” Thus, we would argue that, for CSMEs, the ‘value’ of above-mentioned institutional supports would be orchestrated via two critical organizational proficiencies—Improvisation capability and Learning capability—which broadly capture the essence of “...processes” that Teece et al. (1997) refer to.

We define *Improvisation Capability* as the organizational proficiency to purposefully and organically rearrange, retool, and/or reconfigure a firm’s existing resources and capabilities to generate previously non-existent ‘competency’ portfolios that can efficiently, effectively, spontaneously, and creatively address the firm’s foreseeable strategic

¹ A anonymous reviewer expressed reservations about the generalizability of our findings due to the context-specificity of two included institutional constructs. Although not entirely unjustified, we submit that the *core* of these constructs (see definitions later in the manuscript) are universal—and not exclusive to the Chinese setting. Yet, as we also abundantly caution, the generalizability of our findings to other emerging markets depends crucially upon the extent to which the essence of our constructs is embedded in other emerging markets worldwide.

² A anonymous reviewer highlighted two issues pertaining to this construct. One, government support can be viewed as an endogenous variable and may, therefore, result in sample selection bias. We discuss this important point later in the manuscript, and argue that it is a relatively minor concern in the (Chinese SMEs) context of our study. Two, the reviewer pointed out that our operationalization of *Government Support* variable more accurately reflects managerial *perceptions* of such support. We agree with the reviewer’s observation and urge readers to be mindful about this issue.

mandates (see Ciborra, 1996; Galbraith, 1990; Vera & Crossan, 2005; Weick, 1998). Consistent with previous work, we view organizational learning as a dynamic process that shares previously accumulated and/or recently acquired knowledge across different levels of the organization (Crossan, Lane, & White, 1999; Huber, 1991). Thus, we define *Learning Capability* as the organizational proficiency to search for, acquire, collate, share, and/or interpret data with the purpose of transforming it into actionable information (e.g., see Shukla, 1995) to develop skills, such as innovation skills, that not only are unique to the firm's own culture but also consistent with the national context in which the firm operates (Bhatnagar, 2006).

In the following paragraphs, we consider two dimensions of China's institutional context (*Guanxi*; Government support) as well as two organizational proficiencies (Improvisation capability; Learning capability), and causally investigate relationships among these constructs as they impact the innovation capability of Chinese SMEs. To reiterate, we define *Innovation Capability* as the ability to create better or more effective products, processes, services, technologies, or ideas that are accepted by markets, governments, and society (Yu & Si, 2012). We weave arguments from Institutional, Organizational learning, and Resource-based theories to isolate, unpack, and discuss several distinct mechanisms that facilitate a more sophisticated grasp of how and when relationships between macro- and micro-level variables augment CSMEs' innovation capability. Our discussion leads to six empirically-testable hypotheses. Using a structural equation modeling technique, and after conducting relevant validity analyses, we test these hypotheses in a sample of 210 Chinese SMEs. We find support for all our predictions. We discuss the implications of our findings, assess our study's limitations, and suggest possible extensions to an important line of inquiry.

2. Conceptual framework and hypotheses

Fig. 1 depicts our study's theoretical model. As shown in the model, the two salient Chinese institutional factors (*Guanxi*; Government Support) influence CSMEs' organizational capabilities (Improvisation capability; Learning capability). In turn, these two capabilities influence CSMEs' Innovation capability. Although the capabilities have similar origins, we submit that the *mechanisms* through which the antecedents exert their effect vary in important ways. Recognizing this variance is necessary to better understand how institutional conditions

influence CSMEs' organizational proficiencies, and how these proficiencies ultimately influence CSMEs' innovation capability. In the following paragraphs, we discuss each of these distinct, but inter-related, mechanisms. Fig. 2 provides an overview of these mechanisms.

2.1. *Guanxi* and improvisation capability

Underlying the role of *guanxi* as a driver of firms' improvisation capability is the notion of reciprocity "sometime in the future" (as opposed to "sometime in the *foreseeable* future"), even solidarity (Luk et al., 2008), and long-term mutual benefit. Thus, there is a strong social incentive to put one's best foot forward. Although *guanxi* occurs at the individual level and is based on personal relationships (Wang, 2007), it can also benefit organizations (Park & Luo, 2001; Xin & Pearce, 1996). In a rapidly transitioning economy like China, where there is plenty of "new" market information—but which remains out of reach except via personal connections (Sheng, Zhou, & Li, 2011)—having *guanxi* serves two important functions: (1) it attracts/invites resources (physical as well as non-physical), and (2) it minimizes business risks. In terms of the former, *guanxi* may involve something as simple as a plea to help top-off resource deficiencies, such as financial needs (Cai, Hughes, & Yin, 2014), or seek intellectual input, such as experience-based insights (Bergh & Lim, 2008)—perhaps even emotional or moral support—that increase CSMEs' capacity to evaluate or fine-tune embryonic product/business ideas. Such accumulation would augment the quantity, quality and variety of firms' existing resources (Self-cite), thereby allowing these firms to deploy existing resources in novel ways or experiment with them to create new (i.e., substantively unique) product-market portfolios (Bergh & Lim, 2008; Self-cite).

Guanxi also enhances CSMEs' improvisation capability in a subtle way. To the extent it minimizes firms' existing resource deficiencies, the experience heterogeneity offered by *guanxi* (Bergh & Lim, 2008) facilitates a filtering of organizational ideas/energy (i.e., economizes on wasteful resource deployments) by closing off potentially unproductive inquiries earlier than in the absence of such (*guanxi*-based) experience. Such efficiencies in resource channelization imply that firms not only can minimize the risks (e.g., Ge, Stanley, Eddelston, & Kellermanns, 2017; Lu, Liu, Wright, & Filatotchev, 2014) associated with imprudent organizational diversions but also—importantly—concentrate on their propensity to reinvest in or (re)construct (Ge et al., 2017) product-

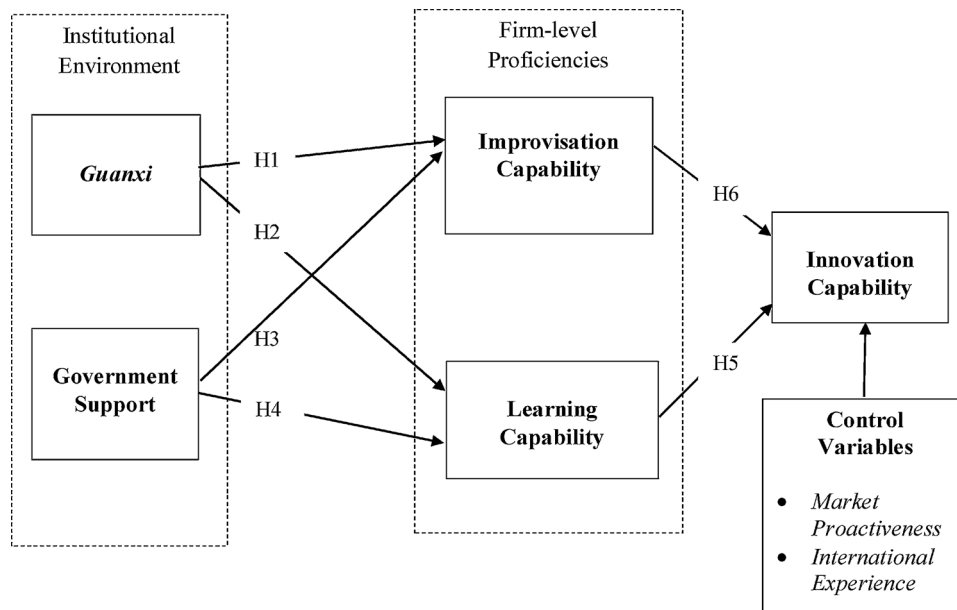


Fig. 1. Conceptual model.

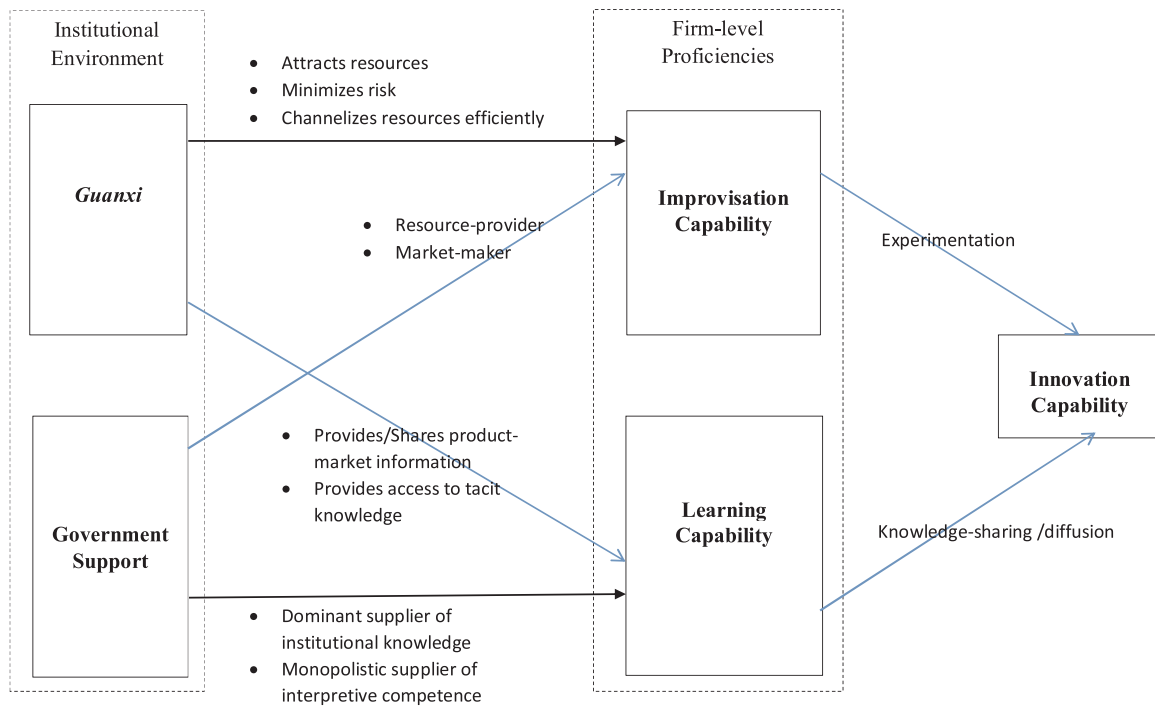


Fig. 2. Causal mechanisms underlying the hypothesized relationships.

market offerings that are potentially more efficacious. Since *guanxi* cannot be acquired in open markets (Luk et al., 2008), CSMEs with a ‘weak’ *guanxi* network would be limited in their ability to improvise as efficiently/effectively as their counterparts with a ‘strong’ *guanxi* network (Self-cite). In other words, the broader and stronger the *guanxi*, the greater CSMEs’ improvisation capability. Formally,

Hypothesis 1. *Guanxi* is positively related to the improvisation capability of Chinese SMEs.

2.2. *Guanxi* and learning capability

Akin to its role in augmenting CSMEs’ improvisation capability, *guanxi* facilitates learning capability in two principal ways: (1) by allowing economic actors (e.g., customers and suppliers) in CSMEs’ network to provide/share product-market information, and (2) by facilitating CSMEs’ access to tacit knowledge embedded within their respective *guanxi* networks. Researchers have suggested that *guanxi* between economic actors typically involves information-sharing about products and/or markets (e.g., Luk et al., 2008; Wang & Chung, 2013). In general, these actors can be presumed to know relatively more about their own realm and relatively less about the realm of those they are interacting with. Stated differently, *guanxi* allows information from one realm to permeate to the other, giving both actors an opportunity to learn from each other. Such percolation of data forms a basis of learning (Bergh & Lim, 2008), and is imperative to the development of intellectual capital that is only accessible to those within the particular *guanxi* network (Luk et al., 2008). Moreover, because firms do not belong to the exact same *guanxi* networks nor possess identical resource bundles (see Penrose, 1959), the knowledge configurations arising from their *guanxi*-based interactions must necessarily yield exclusive, specialized, and unique learning (Luk et al., 2008; Ge et al., 2017). In other words, although the principle underlying evolution of *guanxi*-based organizational knowledge is singular, its manifestation will vary in terms of CSMEs’ organizational learning.

Importantly, *guanxi* enables CSMEs to access tacit knowledge (Bergh & Lim, 2008)—and its diversity—embedded within their respective *guanxi* networks. Given the informal nature of *guanxi*, this knowledge is

relatively costless to acquire. Moreover, due to the reciprocal, mutually-beneficial, and long-term nature of *guanxi*, the knowledge is also likely to be reliable and trustworthy (Chua, Morris, & Ingram, 2009). Thus, *guanxi* is an efficient knowledge-creating vehicle that permits CSMEs to leapfrog and/or buffer market-oriented uncertainties and information voids (Luk et al., 2008; Ge et al., 2017), especially when reliable information is scarce. It allows “...explicit cognitive investment in retrospective sense-making” (Xie & Li, 2018: 225) and implies it nurtures purposive learning (see Zollo & Winter, 2002) which is embedded more in reason than emotion or even speculation.

Hypothesis 2. *Guanxi* is positively related to the learning capability of Chinese SMEs.

2.3. Government support and improvisation capability

As with *guanxi*, Chinese government’s support³ of indigenous SMEs

³ In the (Chinese) context of our study, there are several conceptual/theoretical reasons why *Government Support* can be considered to be an exogenous variable; we discuss empirical reasons in the Methods section. One, given the ‘top-down’ hierarchical structure of Chinese government institutions, it is very unlikely that individual SMEs can practice lobbying or influence Chinese government policies via collective vocalization. Two, while some influence-peddling cannot be ruled out as a plausible threat to exogeneity, our knowledge of China and extensive experience in the country suggests this could occur via *guanxi*, a separate construct which we have explicitly incorporated in our model. Three, the concept of ‘lobbying’ (i.e., a threat to exogeneity) is a distinctly Western concept that does not have a *substantive* equivalent in China, as the country essentially is a one-party State. As suggested earlier, *guanxi* might come close, but it is unlikely that a firm’s *guanxi* with government officials will influence (innovation-related) public policy designed for *all* companies, large as well as small, and SOEs as well as private firms. Four, potential concerns about the endogenous role of *Government Support* implicitly assume that all CSMEs have the same type, amount and intensity of influence—if they have any influence at all—on policy-making related to government support for innovation. This assumption fundamentally violates a central tenet of the Resource-based view that firms are heterogeneous. Finally, to the extent that individual firm(s) can influence Chinese government support for their activity, it is more likely to

can benefit these firms in their quest for building innovation capability. Here too, this capability is determined by CSMEs' improvisation and learning capabilities. However, as we argue below, the mechanisms via which (perceived) government support influences the improvisation and learning capabilities differs in notable ways. Above all, at least in China, government plays an important non-market role which complements the (quasi) market role filled by local firms' *guanxi* network. Thus, while *guanxi* essentially performs a 'Pull' (or 'bottom-up') function, government support performs a 'Push' (or 'top-down') function. In the context of improvisation capability, government support assists improvisation in two principal ways: (1) as a resource provider, and (2) as a market-maker.

As a provider of resources, both basic resources (e.g., technical information) as well as specialized resources (e.g., procedural know-how about, say, navigating bureaucratic hurdles), government support of CSMEs signals a 'high-status' affiliation (Cai et al., 2014; Maksimov et al., 2017) that can, directly or indirectly, trigger (additional) resource commitment, especially from undecided or uncommitted high-status actors. This suggests CSMEs not only would have access to a superior resource pool but also, importantly, that government's provision of "private/tacit" information reduces the institutional uncertainty surrounding deployment of that pool to improvisation initiatives. Thus, government support can reduce improvisation-related risks for CSMEs (Boubakri, Mansi, & Saffar, 2013; Zhu et al., 2012) and empower them to engage available resources more effectively than would otherwise be possible.

Government support facilitates CSMEs' improvisation capability in another way. As a resource provider/administrator/director, government performs a market-making role. This involves lending CSMEs government's leverage to fill information voids in the institutional arena (see Xie & Li, 2018). Such voids exist in rapidly evolving economies like China (e.g., see Maksimov et al., 2017), and hinder organizational processes which can nurture development of competitive proficiencies (Jiang, Branzei, & Xia, 2016). Conversely, (perceived) government support motivates CSMEs to react speedily to tacit knowledge and invest in improvisation because the Chinese government has the power to design policies that facilitate product and/or process development (Holtbrugge & Berning, 2018; Zhou & Li, 2008), actively participate in firms' operational and strategic decisions, and even favor specific firms (Guo, Xu, & Jacobs, 2014). Likewise, government can mandate local agencies to implement business-friendly policies such as SME financing (Cardoza et al., 2015). Stated differently, the tactical and strategic provisions embedded in (perceived) government support of CSMEs facilitate a more robust competitive platform that permits a less risky (Boubakri et al., 2013; Hodgkinson, Hughes, & Arshad, 2016; Zhu et al., 2012) and, therefore, more reliable/confident recombination of available resources and organizational talents. As a result, (perceived) government support augments a coherent, novel, and timely improvisation (see Bergh & Lim, 2008) in these firms.

Hypothesis 3. Government support is positively related to the improvisation capability of Chinese SMEs.

2.4. Government support and learning capability

Perceptions of government support are also crucial to developing CSMEs' learning capability. In that role, government bestows CSMEs with privileged access to distinctive knowledge available only via non-

(footnote continued)

be true for Chinese SOEs (as opposed to Chinese SMEs, the focus of our study). Thus, our conceptualization of *Government Support* as an exogenous factor is consistent with several studies that—like us—submit that the genesis of such support lies beyond organizational boundaries (e.g., see Minh & Hjortso, 2015: 213; Petti et al., 2017: 216; Xin & Pearce, 1996).

market channels. It provides such access in two ways: (1) as the dominant supplier of institutional knowledge, and (2) as the monopolistic supplier of its 'interpretive' competence (i.e., ability to read the bigger institutional picture "better" than individual SMEs or their collective). In the former role, government supplies foundational knowledge of local/international markets and/or regional/national competitive conditions (Zhou & Li, 2008), evolving institutional conditions and government priorities, as well as anticipated market imperfections. Thus, government support minimizes CSMEs' search and information costs (Cai et al., 2014) and speeds up CSMEs' organizational learning (Han et al., 2018) by enabling them to circumvent blind spots about which they would, at best, have incomplete knowledge.

Yet, access to institutional insights *per se* has limited value for CSMEs unless they also have the facility to accurately and quickly process the nebulous—even opaque—character of such insights. Indeed, given liabilities of size and newness (Zhu et al., 2012), it is doubtful whether CSMEs can optimize the 'learning' benefit afforded via the above-mentioned access. Under these conditions, favorable perceptions of government's 'sense-making' ability can be crucial to organizational learning (Xie & Li, 2018). In its advisory role, government can elucidate when, where, and how CSMEs can best navigate the innovation space. Such clarity about resource engagement itself can facilitate organizational action (Turner & Pennington, 2015) as to how firms can co-mingle their existing knowledge/learning with non-market insights arising from government's interpretation of the broader context. In other words, (perceived) government support can amplify the 'Opportunity capture' potential embedded in organizational learning. Although this potential is available to all firms, CSMEs are likely to benefit relatively more than larger firms in this regard (Tan, 2001). Thus,

Hypothesis 4. Government support is positively related to the learning capability of Chinese SMEs.

2.5. Improvisation capability, learning capability and innovation capability

In general, CSMEs' learning as well as improvisation capabilities are important antecedents of organizational innovations (e.g., see Gomes & Wojahn, 2017; Hsu & Fang, 2009; Moorman & Miner, 1998b), albeit they are not the only antecedents. The two capabilities *jointly* impact firms' innovation capability in the sense that they (respectively) represent the 'think' and 'do' aspects of innovation capability development. Indeed, both improvisation (Sawy & Pavlou, 2008) and organizational learning manifest themselves in product as well as process innovations (Gomes & Wojahn, 2017; Jimenez-Jimenez & Sanz-Valle, 2011). Yet, these two capabilities work in distinct ways in relation to innovation capability development. Below, we argue that CSMEs' improvisation capability influences their innovation capability via experimentation whereas these firms' learning capability impacts innovation capability development through knowledge sharing/diffusion.

Every innovation requires organizational learning (Gomes & Wojahn, 2017) as well as a process (Hsu & Fang, 2009) to transform new knowledge and apply it to the development of new products (Gomes & Wojahn, 2017). Although learning capability strongly influences innovation behavior (Floyd & Wooldridge, 1999), isolation or compartmentalization of acquired knowledge is unlikely to facilitate innovation capability because few, if any, individual actors have monopoly on ideas and experiences (both of which, we submit, are crucial inputs into knowledge) nor do ideas and experiences *per se* organize themselves into innovative outcomes. Only through diffusion and sharing can knowledge embedded within CSMEs make a substantive impact on innovation. In other words, exposure to alternative views can—via a 'debate-and-discuss' process—facilitate collective (innovation) outcomes that are more robust than those arising from unscrutinized inputs. Thus, to be innovative, organizations should have a strong learning philosophy (Siguaw, Simpson, & Enz, 2006).

Innovation capability also requires improvisation which, too, is a “...collective activity” (Miner, Bassoff, & Moorman, 2001). However, improvisation influences innovation through a process of experimentation; it is the ‘do’ element we introduced previously. This involves combining inputs speedily, efficiently, and effectively into an innovation package whose complexity is hard to replicate (Huggins & Thompson, 2015). Indeed, the value created via such experimentation depends on availability of ‘superior’ knowledge and the firms’ capability to mix/combine different types of knowledge from different sources (Huggins & Thompson, 2015). The bigger the quality and quantity of this resource pool, the greater the firms’ propensity for experimentation, and the greater its influence vis-à-vis innovation capability development. Experimentation permits CSMEs’ to determine which innovations are feasible as well as the boundary conditions surrounding such feasibility. It may help to uncover the substantive limits of resources being recombined as well as the elasticity/fungibility of processes leveraged in CSMEs’ quest to create a better outcome. Thus, experimentation is a conduit that enables CSMEs to assess the innovation potential of available resources in light of what these firms “know” or believe they can achieve.

Hypothesis 5. Learning capability is positively related to the innovation capability of Chinese SMEs.

Hypothesis 6. Improvisation capability is positively related to the innovation capability of Chinese SMEs.

3. Methodology⁴

3.1. Instrument development

We developed our survey instrument via a 3-stage process recommended by Gerbing and Anderson (1988). In stage 1, we conducted in-depth interviews—each lasting between 120 and 180 min—with eight high-level executives (Owners; CEOs; General Managers) whom we identified via personal ties. These executives represented eight different manufacturing SMEs that exported to international markets. To conduct these Mandarin-language interviews, we had assistance from a (bilingual) colleague at a well-known local university. We asked each interviewee open-ended questions (see Appendix A) about relationships between their respective firms’ institutional environment and firm capabilities. In stage 2, we combined information derived from the above-mentioned interviews and an extensive literature review to

⁴ Continuing our argument that *Government Support* is an exogenous factor (see footnote 2), we refer readers to Reeb, Sakakibara, and Mahmood, (2012) which spells out alternative ways to combat threats to empirical validity of results in the presence of endogeneity in the sample. Their suggestions for potential solutions include: (1) “...careful research design that incorporates field research or institutional knowledge” (p. 213), (2) being more attentive to control variables as well as (among other) reducing measurement error, (3) developing a structural model, (4) relying on “...a simple framework for developing the theoretical underpinnings of the eventual empirical specification” (pp. 216-217), (5) “...identifying the main theoretical mechanisms by which the dependent variable arises” (p. 217), (6) relying on a ‘insider approach’ to generate insights about firms’ behavior that can inform theory, and (7) “...developing a strong theoretical argument for how a phenomenon causes a particular effect” (p. 217). A careful reading of our manuscript would indicate that our study meets *all* of these recommendations. Moreover, as we mention later in this section, over 30% of CSMEs we contacted did *not* respond to our survey—despite local Chinese governments’ urging these firms to complete our survey (see ‘Sample Generation’ subsection). As such, this statistic demonstrates a weak link between CSMEs and government support since all CSMEs would benefit by following the governments’ simple, costless directive. Thus, we would argue the weak link reinforces our claim that government support is an exogenous variable. Hence, we can be confident that our study’s treatment of *Government Support* as an exogenous variable is justified conceptually as well as empirically.

develop our English-language survey instrument (see Appendix B). We relied on four Business-school professors and the (original) eight executives to ascertain our instrument’s face validity (i.e., the extent of correspondence between constructs we intend to measure and the survey items created to measure them). Following this assessment, we changed a few words to improve the clarity of our instrument. In stage 3, three Chinese-English bilingual speakers—all MBA students from Anhui University—collectively translated the survey instrument from English into Chinese. The resultant Chinese version was back-translated by three *additional* bilingual Chinese-English speakers—also MBA students at Anhui University—to ensure conceptual equivalence. As expected, the survey’s back-translated version matched the original version.

3.2. Sample generation

We administered the above-mentioned survey from May 2014 through November 2014 to a sample of CSMEs operating in the Anhui and Shandong provinces in Southeastern and Eastern China respectively. We focused on China for four main reasons: (1) the Chinese context allows us to *causally* investigate an evolving natural experiment in terms of the ‘partnership’ between government and private enterprises, (2) the country (thus) is integral to our research *program* on the drivers of innovation, (3) as a leading emerging market, China is the focus of several academic studies that attempt to extend West-centric theories/findings to other contexts, and (4) China’s increasing importance on the world stage. The implication of our country focus is that it permits us to contribute, theoretically as well as empirically, to an important academic inquiry that is currently relevant in the context of a prominent emerging market. Another implication is that, to be meaningful, the findings of our study must only be generalized to other settings that are similar to those examined in our study.

Located between Beijing and Shanghai, Shandong is a major industrial region and one of China’s four largest provincial economies. It represents the country’s more developed regions which account for 54% of China’s GDP, 86% of imports, and 89% of exports. Shandong is also China’s second largest consumer market (*China by Numbers*, 2012). Although it is *relatively* less developed, we included Anhui province to represent China’s Central and Western regions. In general, the Central region has benefited from its geographical position between the government-supported/nurtured East and the resource-rich West. Indeed, partly because of the above factor, Anhui has attracted investment (since 2009) by the Chinese government and experienced significant growth and rapid industrialization (Fornes, Cardoza, & Xu, 2012). Thus, by including Shandong and Anhui provinces, we believe we have a more holistic picture of: (1) China’s institutional environment in the more developed and *relatively* less developed regions, and (2) by extension, its role vis-à-vis the innovation capabilities of Chinese SMEs.

To develop our sample, we obtained CSMEs’ contact information from Anhui Import-Export Chamber of Commerce and the Dongying Municipal Bureau of Commerce. These two local government agencies are responsible for regulatory oversight of their respective provinces’ SMEs, and are widely considered (at least locally) to have basic information about these firms. Due to resource constraints—and consistent with our research question—we randomly selected 350 manufacturing-sector CSMEs from a sample of 712 SMEs (159 and 553 in Anhui and Shandong provinces respectively) that were also engaged in international activities during 2014, the time-frame of our study. We did not include domestically-focused CSMEs because—being much further down the value-chain (due to their very small size, or because they were niche-suppliers to bigger SMEs)—they were unlikely receive government support or innovate. Likewise, we did not include non-manufacturing sector CSMEs in our sample because of substantive differences between manufacturing and non-manufacturing firms (Self-cite, 2019).

Given our need to uncover the influence of governmental support as

Table 1
Profile of sampled Chinese SMEs (N = 210).

Sample Characteristics	Percentage
Industry Type	
Light industry	19.5%
Textile	13.8%
Metal & machinery	11.4%
Chemical engineering	11.4%
Automobile	10.5%
Petrochemical & rubber	9.5%
Medical	4.8%
Other	19.1%
Geographic Location	
Shandong province	52.3%
Anhui province	47.6%
Firm Age (Years in Existence)	
< 10 years	41.9%
10-20 years	46.1%
> 20 years	11.9%
Firm Size (Number of Employees)^a	
< 100	19.5%
100-299	36.1%
300-499	14.8%
500-999	12.2%
> = 1000	17.0%
Annual Sales (in Millions of RMB)	
< 10	12.1%
10-49	20.4%
50-99	19.9%
100-199	13.2%
> = 200	35.3%

^a There is no commonly accepted definition of SMEs across the world. In China, the threshold for defining SMEs differs from that in the EU or USA. For example, in USA, firms with up to 500 employees are considered to be SMEs. In contrast, firms in China can employ up to 2000 (for industrial firms) or even 3000 people (for construction firms) and still be considered SMEs (Hall, 2007).

well as *guanxi*, we applied the 'Key informant' technique which relies on individual(s) who have comprehensive knowledge of the (researched) issue. Thus, we approached a senior manager from each firm who had relevant 'historical' knowledge about their SME's outward/external interactions. Collecting survey data from managers in Asian countries is challenging (e.g., Peng & Luo, 2001). Consequently, to increase participation, we hired local research assistants to conduct the survey during interviews with CSME managers. In line with our research question, we identified target CSMEs based on the following criteria. CSMEs must: (1) be established after 1980 when China began liberalizing, (2) be significantly involved in the manufacturing sector, (3) show evidence of relevant international activity, and (4) export at least 15% of their total output during the first 2–3 years of establishment.

Table 1 reports the profile of companies in our final sample. On average, our key informants had worked for 6.9 years at their firm. Their official designations included Sales manager (31%), Department manager (25%), Business/General manager (22%), Vice president (8%), and Supervisor (7%); the remaining 8% of respondents did not report their designations. In the context of CSMEs, these designations can be equated with senior/top management; these titles should *not* be interpreted solely from a Western perspective where they may not convey the same level of seniority/importance.

To increase the response rate, we sought assistance from the local Chinese government agencies. We distributed our survey with an official letter from these agencies requesting firms to participate in our study within a pre-specified window. Since most CSMEs tend to forge political ties with local governments to obtain resources (Sheng et al., 2011), they tend to be more responsive to government requests (Zhou, Wu, & Luo, 2007). After up to three rounds of telephone follow-up, we received 240 completed responses of which 30 responses had missing or incomplete data. Thus, our final sample consisted of 210 usable

responses, a 60% response rate. In China, a 'survey' response rate of under 30% is not uncommon whereas a response rate of more than 30% is considered to be satisfactory (Uhlenbruck, 2004). Thus, our study's 60% response rate can be deemed to be quite respectable.

To evaluate potential non-response bias, we compared CSMEs who participated in our survey against those who did not participate in our survey. We compared these two sets of CSMEs in terms of organizational characteristics such as company age, total sales, and the number of employees. We did not find any statistically significant differences between the two subgroups along any of the three above-mentioned characteristics. Likewise, we did not find any statistically significant differences in terms of organizational characteristics between CSMEs from the two provinces. Thus, non-response bias does not appear to be a concern (Sheng et al., 2011). We do not report these findings due to space constraints, but can provide them upon request.

3.3. Scale development and measurement

We designed our survey based on managerial interviews (see above) and extensive literature review, and measured all survey items on 7-point Likert or Semantic differential scales.⁵ We refer readers to Appendix B for descriptive statistics pertaining to individual scale items. Table 2 contains details about construct measurement and reliability, whereas Table 3 reports descriptive information about our study's variables.

3.3.1. Independent and dependent variables

3.3.1.1. *Guanxi*. As seen in Table 2, we measured *Guanxi* based on four items reported in Luk et al. (2008) to measure CSME managers' personal relationships with suppliers, buyers/customers, distributors, and relevant government officials. These items loaded on the *Guanxi* construct with factor loadings between 0.81 and 0.87, and were well above the recommended cutoff of 0.70 (Fornell & Larcker, 1981). Cronbach's alpha for these items was 0.87 and the Composite reliability index was 0.91. The items explained about 72% of variance in the *Guanxi* construct.

3.3.1.2. *Government support*. We adopted four items from Li and Atuahene-Gima (2001) to measure CSME managers' perception⁶ of *Government Support*. These items measure local government's financial as well as non-financial assistance to regional firms. The items loaded on the construct between 0.88 and 0.92 with a Cronbach's alpha of 0.93 and reliability of 0.95; they explained almost 83% of the variance.

3.3.1.3. *Improvisation capability*. We measured CSMEs' *Improvisation Capability* based on Moorman and Miner (1998). These scale items measured firms' capability to purposefully reconfigure their existing resources and capabilities in light of anticipated changes in their competitive environment. Two of the three items loaded on this construct above 0.88 whereas the third item loaded at 0.536 below the recommended cutoff value. We retained the latter item primarily for theoretical reasons. The Cronbach's alpha for these items was 0.70, and the reliability index was 0.83; the items explained almost 63% of the variation.

3.3.1.4. *Learning capability*. We measured CSMEs' *Learning Capability*, by adapting three items from Weerawardena, O'Cass, and Julian's (2006) study. These items measured the extent to which CSMEs searched, collected, or possessed knowledge about foreign markets. The three items loaded on the construct with loadings between 0.93 and

⁵ In general, a Likert-scale question asks respondents to agree or disagree (say, on a 1-7 scale) with a given question whereas a Semantic differential scale is designed to identify the connotative meaning of objects, words, or concepts.

⁶ We are grateful to an anonymous reviewer for this insight.

Table 2
Construct measurement and validation.

Constructs	Scale Items	Standardized Loadings	T-Statistic	Cronbach's Alpha	Composite Scale Reliability	Average Variance Extracted
Guanxi (GX)	GXa	0.865	14.11	0.87	0.91	0.72
	GXb	0.843	12.08			
	GXc	0.865	16.28			
	GXd	0.814	17.73			
Government Support (GS)	GSa	0.882	36.94	0.93	0.94	0.83
	GSb	0.918	58.06			
	GSc	0.917	67.73			
	GSd	0.916	64.81			
Improvisation Capability (IMPC)	IMPCa	0.904	42.63	0.70	0.82	0.63
	IMPCb	0.881	30.31			
	IMPCc	0.536	4.77			
Learning Capability (LC)	LCa	0.932	81.72	0.94	0.96	0.88
	LCb	0.946	109.704			
	LCc	0.951	131.32			
Innovation Capability (INVC)	INVCa	0.891	47.88	0.92	0.94	0.81
	INVCb	0.910	56.87			
	INVCc	0.922	82.49			
	INVCd	0.871	44.28			
Market Proactiveness (MPRO)	MPROa	0.908	37.41	0.74	0.88	0.79
	MPROb	0.872	26.13			
International Experience		n.a.	0.37	n.a.	n.a.	n.a.

Table 3
Descriptive statistics.

Variable	Mean	S.D.	1	2	3	4	5	6	7
1 Guanxi	5.67	0.88	1.00						
2 Government support	5.42	0.93	0.11	1.00					
3 Improvisation capability	1.09	1.11	0.19***	0.23**	1.00				
4 Learning capability	4.91	1.32	0.15**	0.37***	0.27***	1.00			
5 Innovation capability	5.30	1.11	0.22***	0.36***	0.27***	0.57***	1.00		
6 Experience	6.83	3.99	0.03	-0.001	0.06	0.09	0.07	1.00	
7 Market Proactiveness	5.56	0.97	0.17**	0.38***	0.20***	0.47***	0.56***	0.13	1.00

*** Correlation is significant at the 0.01 level.

** Correlation is significant at the 0.05 level.

0.95, Cronbach's alpha of 0.94 and a reliability index of 0.96; they explained almost 90% of the construct's variance.

3.3.1.5. Innovation capability. We measured the study's dependent variable, *Innovation Capability*, based on four items developed by Akman and Yilmaz (2008). These items measured CSMEs' ability to create better or more effective products, processes, services, technologies, or ideas that are accepted by markets, governments and society. As expected, these items loaded between 0.87 and 0.92 on this construct with a Cronbach's alpha of 0.92, a reliability index of 0.94; they explained over 80% of the construct's variance.

3.3.2. Control variables

To control for extraneous influences on our study's outcome variable, we included two control variables: (1) *Market Proactiveness*, and (2) *International Experience*. Previous studies have indicated these variable can affect CSMEs' innovation capability (e.g., Zhou et al., 2005). We adopted two items from Wang (2008) to measure firms' market proactiveness which we defined in terms of how well CSMEs anticipated future customer needs, identified new business opportunities, and introduced new products before their competitors did competition (e.g., Keh, Nguyen, & Ng, 2007; Lumpkin & Dess, 1996). These items loaded highly (0.87 and 0.91) on the construct, with a

Cronbach's alpha of 0.74 and reliability index of 0.88; they explained almost 80% of the construct's variance.

We defined firms' *International Experience* as the familiarity with and prior knowledge CSMEs have to reduce the psychic distance between their home (here, China) and host markets and minimize the inherent risk and uncertainty (Madsen & Servais, 1997). We measured this variable in terms of the age of the firm (in years). We should emphasize this operationalization is consistent with our sampling criteria in that we required CSMEs in our sample to export at least 15% of their total output within the first 2–3 years of establishment. Thus, we can reasonably assume that firms are almost immediately exposed (from their conception date) to international markets.⁷

3.4. Validity tests and tests of common-method bias

As noted earlier, we developed our survey based on the existing literature as well as interviews with executives. Likewise, we reported various statistics pertaining to our instrument and the variables used our study (refer Appendix B as well as Tables 2 and 3). These statistics included results pertaining to construct-, convergent-, and discriminant validity tests.

⁷ We are grateful to an anonymous reviewer for requiring this clarification.

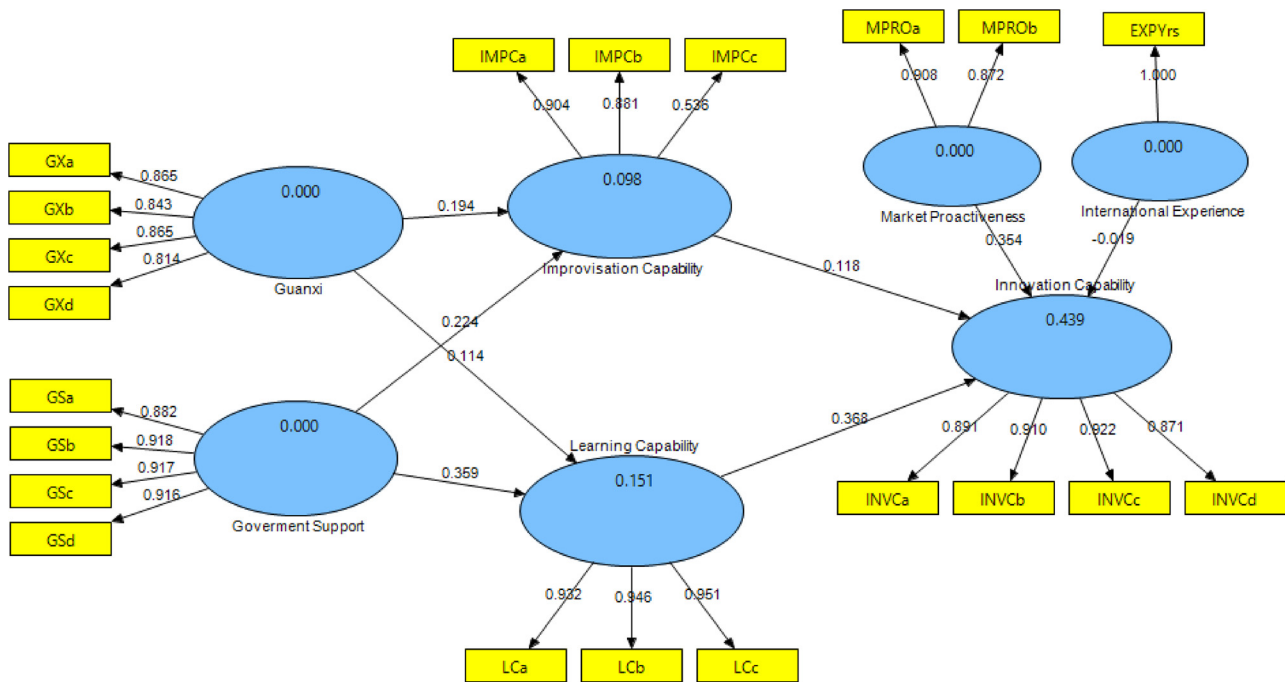


Fig. 3. Relationships among variables and constructs.

3.4.1. Validity tests

To assess the validity of our study's constructs, we followed the Kleijnen, Ruyter, and Wetzels (2007) study. First, we conducted confirmatory factor analysis to evaluate how well individual scale items loaded on the construct(s) they were presumed to represent. The findings of this analysis were in line with our expectations (refer Table 2). Next, following Chin (1998) as well as Fornell and Larcker (1981), we computed the 'Composite Scale Reliability' and 'Average Variance Extracted' indexes to evaluate the consistency of our scales. We compared these indexes to their recommended cutoff value(s) of 0.70 and 0.50 respectively (Fornell & Larcker, 1981). As indicated below, all variables included in our study exceeded the recommended cutoffs—thus (statistically) endorsing the validity of our constructs.

To assess convergent validity, we examined the standardized factor loadings of individual scale items on the construct they were intended to measure (Chin, 1998). As reported in Table 2, all except one of our scale items loaded higher than 0.80 (often considerably higher) on the constructs we expected them to load on. Thus, we infer convergent validity. Likewise, to evaluate discriminant validity, we adopted the Fornell-Larcker criterion. According to Fornell and Larcker (1981), the square root of 'Average Variance Extracted' index must exceed the absolute value of a measure's standardized correlation vis-à-vis other measures included in the analysis. The results in Tables 2 and 3 indicate that correlation coefficients of the constructs are all less than the square root of the constructs' 'Average Variance Extracted' index. Moreover, following Chin (1998), we also evaluated the standardized cross-[factor] loadings to determine whether a given item loaded 'strongly' on the construct it was supposed to load on and 'weakly' on those that it was not. Although we do not report these results due to space restrictions, we can confirm that Chin's (1998) condition was satisfied in our data. Thus, we also infer high discriminant validity for our study's constructs.

3.4.2. Common-method bias

To minimize bias arising from construct measurement (as opposed to constructs themselves), we took additional precautions. In the questionnaire design stage, we put items referring to our study's constructs in different sections. As mentioned previously, we also relied on different response formats and scales to measure these constructs. In the

post-survey stage, we made phone calls to 35 randomly-selected original respondents to evaluate the accuracy of their responses. The results showed high consistency between these individuals' telephone responses and their respective survey responses. Moreover, we (favorably) conducted Harman's one-factor test to check for biases that were not minimized by the research design. According to Podsakoff and Organ (1986), if common-method variance is a serious problem, factor analysis results in a single factor. This problem did not occur in our data. As a final check on common-method variance, we conducted additional analyses following Lindell and Whitney's (2001: p. 118) guidelines for dealing with such variance. Due to space constraints, we refer readers to their manuscript for details. The favorable results of this analysis (not reported due to space constraints) reinforced our conclusion that common-method bias was also not an issue for our study.

3.5. Statistical technique

We performed our analysis with the Partial Least Squares (PLS) regression technique (Ringle, Wende, & Will, 2005; Wold, 1986) using the SMART PLS 2.0 tool. PLS is an extension of the multiple linear regression model that takes into account the latent structure of dependent as well as independent variables. It is a variance-based structural equation modeling technique that makes minimal demands in terms of measurement scales, sample size, and residual distributions (Hair, Ringle, & Sarstedt, 2012), and therefore has more flexibility in terms of estimating beta coefficients in the proposed model. Essentially, PLS iteratively decomposes the matrices for dependent and independent variables into their latent structures such that the latent structure of independent variables extracts the maximum variation in the dependent variable in the best possible statistical sense. Moreover, we applied the PLS technique due to its ability to estimate complex predictive path that have a large number of indicators relative to the sample size (Chin & Newstead, 1999; Garthwaite, 1994; Ringle et al., 2005).

4. Empirical results

Fig. 3 offers an overview of our study's findings and Table 4 provides additional details about them. Specifically, Fig. 3 identifies three sets of findings: (1) standardized factor loadings of scale items on the

Table 4
Summary of results.

Hypothesis	Expected Sign	Standardized Coefficient	T-Statistic	Supported
Hypothesis 1: Guanxi → Improvisation Capability	+	0.194	2.53 **	Yes
Hypothesis 2: Guanxi → Learning Capability	+	0.114	1.69 *	Yes
Hypothesis 3: Government Support → Improvisation Capability	+	0.224	3.38 **	Yes
Hypothesis 4: Government Support → Learning Capability	+	0.359	5.37 ****	Yes
Hypothesis 5: Learning Capability → Innovation Capability	+	0.368	3.96 ****	Yes
Hypothesis 6: Improvisation Capability → Innovation Capability	+	0.118	2.00 ***	Yes

**** $p < 0.00$.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.10$.

construct(s) these items represent (i.e., scale validation), (2) the proportion of variation in a construct explained by ‘incoming’ variables (i.e., the number shown in a oval), and (3) relationships among the constructs themselves (i.e., the hypotheses). In the following paragraphs, we only focus on the last set of findings; recall that Table 2 previously reported the first two sets of findings. As shown in Table 4, we found statistical support for all six hypotheses, albeit one of these hypotheses was significant at the 10% level.

Drawing on *guanxi*’s intrinsic character, we argued this construct positively affected CSMEs’ *Improvisation Capability* by serving as a ‘resource attractor’ as well as a ‘risk minimizer.’ These mechanisms enabled CSMEs’ to call upon their (managers’) personal relationships to help recombine firms’ existing capabilities in ways which allowed these firms to better respond to new market conditions. Thus, hypothesis 1 proposed a positive relationship between *Guanxi* and the *Improvisation Capability* of CSMEs. Our findings support this relationship (beta = 0.194; $p < 0.05$) and reflect favorably on the above-mentioned mechanisms vis-à-vis their role on the improvisation proficiency of CSMEs. Also rooted in *guanxi*’s fundamental qualities, we argued for a positive relationship between *Guanxi* and *Learning Capability* (i.e., hypothesis 2). However, we submitted that a different set of mechanisms are at work: CSMEs’ *guanxi* networks enabled these firms to provide/share (quasi) private information as well as access tacit knowledge embedded within these networks. Our study also found support for these arguments: the relationship between these two constructs was positive and significant (beta = 0.114; $p < 0.10$). Thus, our study found support for both hypotheses 1 and 2, albeit marginally so for hypothesis 2.

As with *Guanxi*, we argued a positive relationship between *Government Support* and firms’ organizational proficiencies, namely, firms’ improvisation as well as learning capabilities. However, we contended that government support underscored a ‘push’ effect (unlike the ‘pull’ effect that *guanxi* exerted). We argued the ‘push’ effect augmented CSMEs’ improvisation proficiency by casting the government in ‘resource provider’ and ‘market-maker’ roles. In the former role, government provided both basic and specialized resources to CSMEs, and in the latter role, it created a market for organizational action by designing the “right” policy-based incentive structures. Thus, *Government Support* nurtured the *Improvisation Capability* of CSMEs (i.e., hypothesis 3). Moreover, we argued, such support favorably influenced CSMEs’ *Learning Capability* (i.e., hypothesis 4) in that government not only served as the dominant supplier of (reliable) institutional knowledge but also lent government’s ‘interpretive’ competence to CSMEs. Our results substantiated both above-mentioned causal linkages, i.e., the relationship between *Government Support* and *Improvisation Capability* (beta = 0.224; $p < 0.05$) as well as between *Government Support* and *Learning Capability* (beta = 0.359; $p < 0.00$). Thus, we also confirmed support for hypotheses 3 and 4.

Moreover, we found significant support for hypotheses 5 and 6. These hypotheses derived from our reasoning that the positive relationship between *Learning Capability* and *Innovation Capability* of

CSMEs (i.e., hypothesis 5) was driven primarily by the process of knowledge sharing/diffusion. Similarly, the positive link between CSMEs’ *Improvisation Capability* and their *Innovation Capability* (i.e., hypothesis 6) was due to the process of ‘experimentation.’ Without these processes, we argued, organizational proficiencies could not impact CSMEs’ innovation capability development. The findings of our study support our arguments in that both above-mentioned relationships were significant (both $p < 0.01$) and positive (beta = 0.368 and beta = 0.118 respectively).

5. Discussion and conclusions

Our findings offer at least three interesting insights about factors that augment CSMEs’ innovation capability. One, despite ample conventional wisdom about the substantial favorable effects of local Chinese institutions (here, personal connections and perceptions of government backing to domestic firms), *Guanxi* and *Government Support* collectively explained merely 10% to 15% of the variance in relation to firms’ improvisation and learning capabilities (refer to the two ovals in Fig. 3). This suggests that other factors—likely firm-specific factors (Petti et al., 2017)—play a more important role in developing these capabilities. Such a conjecture should not imply that the above-mentioned institutional-level variables are unimportant; they are not. Rather, it is conceivable that *Guanxi* and perceptions of *Government Support* play a crucial role in capability development in the early stages of such development cycles. After such an initial seeding, firm-specific considerations would amplify CSMEs’ capability development processes. Stated differently, CSMEs ought not to view *Guanxi* and/or *Government Support* as omnipotent causal influences. Instead, our findings suggest these influences only be viewed as important *catalysts* for developing CSMEs’ capability platforms. Thus, CSMEs ought to step away from an exaggerated and deceptive sense of security arising from personal connections and (perceived) government support. Instead, CSMEs should focus on firm-level engines for developing their long-term innovation prowess.

Two, as reported in Table 4, *Guanxi* and *Government Support* have differing effects vis-à-vis their influence on *Improvisation Capability* and *Learning Capability*. The impact of personal connections on CSMEs’ proficiency to reconfigure their existing capabilities exceeds that of its impact on the proficiency to acquire information (standardized betas of 0.194 versus 0.114). However, this hierarchy is reversed in the case of perceived *Government Support* (standardized betas of 0.22 versus 0.36). Thus, we can conclude that *Guanxi* and *Government Support* play a complementary role—not an interchangeable role—in relation to CSMEs’ innovation capability. Personal connections may be more valuable to CSMEs in reconfiguring their existing capabilities and relatively less so in helping these firms to learn. Stated differently, *guanxi* facilitates new ways of thinking but not new ways of information gathering. In contrast, our findings indicate that *Government Support* augments CSMEs’ information gathering (i.e., learning capability) more (0.359 versus 0.224) than it augments their recombinatory proficiency

(i.e., improvisation capability). Given this reversal, CSMEs need not only discern between the opposite effects of the two institutional-level factors but also seek the appropriate institutional support depending upon the specific capability they intend to augment.

Finally, in conjunction with the two control variables, *Improvisation Capability* and *Learning Capability* collectively explain almost 45% of the variance in *Innovation Capability*, our dependent variable. Interestingly, *Learning Capability* influences the *Innovation Capability* almost 3 times as much as *Improvisation Capability* (standardized betas of 0.368 versus 0.112). Thus, learning—not reconfiguration of existing capabilities—seems to be the dominant driver of CSMEs' innovation capability. Although not of direct interest to our study, *Experience* (one of our two control variables) lacked a statistically significant effect on this capability whereas *Market Proactiveness* (the other control variable) has a positive (beta = 0.35; $p < .00$) effect. Interestingly, CSMEs' proactiveness in the market is significantly correlated with *Learning Capability* ($r = 0.47$; $p < 0.01$), i.e., the more proactive these firms are, the more they seem to 'learn' from the market, and vice versa. Although not of direct interest to our study, this linkage might be interesting to causally investigate: Do market-proactive firms learn more, or are learning firms more proactive in the market? Does the directionality of this relationship matter to firm performance (broadly defined) and, if so, when, how, how much, and to which types of firms?

All said, our study attempted to causally uncover the role of macro- and micro-level institutional influences on the innovation capability of Chinese SMEs. Relying on three theoretical literatures, we argued that these influences worked *through* firm-level channels to favorably influence the innovation capability of Chinese SMEs. Our findings supported our thesis that while both types of local institutions "matter," they do so in different ways and to different degrees. There are no uniform effects on CSMEs' at least insofar as the two above-mentioned institutional stimuli are concerned. Thus, we believe our study contributes to ongoing narratives about the role of institutions vis-à-vis-the performance of domestic firms.

Despite the merits of our study, at least three caveats are in order. One, given our sample, our findings can be generalized only to contexts with similar types of institutional structures. However, our focus on China is not too limiting because although *guanxi* is a distinctly Chinese concept firms in other emerging markets also enjoy similar relationship-

based emoluments. Yet, future studies should strive to be more comprehensive. Stated differently, one extension would be to include other (China) domestic and/or national sample(s). Two, researchers should investigate other relevant aspects of local institutions. We focused on two of these institutions, a macro-level and another micro-level institution, but recognize several other institutional factors also support development of organizational proficiencies related to improvisation and learning and, ultimately, organizational innovation in CSMEs (Zhu et al., 2012). We could not include some of these other dimensions due to existing data constraints.

Finally, we treated *guanxi* and (perceptions of) government support coarsely, i.e., we did not consider the types/levels/intensity of these constructs. Thus, a reductionist view of *guanxi* and/or government support may also be useful extensions of our study. To illustrate, future studies could explore the role of *guanxi* in relation to, say, 'product' versus 'process' innovations. We could not pursue such extensions due to data constraints, but do not believe this limitation jeopardizes the essence of our findings. Likewise, since innovation varies across industries,⁸ we urge future researchers to bifurcate their sample along relevant dimensions of interest (e.g., high-tech CSMEs versus low-tech CSMEs, and so on). At the firm-level, we urge researchers to further investigate the role of organizational variables on innovation capability development. For example, how do firm- as well as micro-level influences nurture (or retard) innovation capabilities? What is the role of organizational culture in relation to innovation capability development? How do organizational incentive structures promote/hinder the organizational propensity to innovate? What role, if any, do top-management characteristics play vis-à-vis innovation capability development? Indeed, we believe there is still much we can learn about the direct and/or indirect influence of institutional contexts and organizational processes on the 'innovation' performance of firms, both large firms as well as SMEs, in China and elsewhere throughout the world. Studies that pursue this line of inquiry would help to build more robust narratives vis-à-vis the development of firms' innovation capabilities.

Acknowledgement

Both authors contributed equally to the development of this manuscript.

Appendix A. Questions used to conduct structured interviews

Could you please tell us...

- 1 What prompted your firm to pursue international markets?
- 2 What you consider to be the most challenging factors when entering international markets?
- 3 How do you compete with your competitors to acquire limited resources [for undertaking innovation activities]?
- 4 What strategies have you adopted to acquire resources and market information [for undertaking innovation activities]?
- 5 What types of [strategic and operational] capabilities has your company developed to be more competitive?
- 6 Have you adopted any interpersonal influence strategies (e.g. *guanxi*)? How did such strategies benefit or hurt your company in the long run?
- 7 How would the strategies you adopted help you with development of innovation capability of your firm?

Appendix B. Scale items and their descriptive statistics

Constructs and Scale Items	Mean	SD
Guanxi		
I and our company managers have good personal <i>guanxi</i> with...		
GXa ... the managers of key suppliers	5.67	1.06
GXb ... the managers of key buyer/customers	5.84	0.96
GXc ... the managers of key distributors	5.69	1.02
GXd ... relevant key government officials	5.47	1.13
Government Support		
In supporting of local business, the government and its agencies have...		

⁸ We are grateful to an anonymous reviewer for suggesting this extension.

GSa	...provided needed technology information and other technical support.	5.54	0.91
GSb	...provided important market information.	5.42	1.02
GSc	...played a significant role in providing financial support.	5.32	1.09
GSd	...helped firms obtain licenses for import of technology, manufacturing and raw material, and other equipment.	5.39	1.06
Improvisation Capability			
IMPCa	Figured out action as we went along/ Action followed a strict plan as it was taken.	1.27	1.36
IMPCb	Improvised in carrying out this action/ Strictly followed our plan in carrying out this action.	1.17	1.23
IMPCc	Ad-libbed (unprepared action)/ Not an ad-libbed (unprepared action).	0.83	1.63
Learning capability			
LCa	Our company collects information about foreign markets.	5.09	1.39
LCb	Our company searches for innovative ideas through international market information.	4.82	1.36
LCc	Our company has knowledge about foreign market segments.	4.82	1.44
Innovation Capability			
INVCa	Our firm uses knowledge from different resources for product development activities efficiently and rapidly.	5.09	1.26
INVCb	Our firm supports and encourages workers to participate in activities such as product development, innovation process improvement, and idea generations.	5.34	1.28
INVCc	Our firm continuously evaluates new ideas that come from customers, suppliers, etc. and include them into product development activities	5.44	1.14
INVCd	Our firm can adapt to environmental changes easily by making suitable improvements and innovations in a short time.	5.29	1.27
Market Proactiveness			
MPROa	Our company generally favors a strong emphasis on research & development, technological leadership and innovation.	5.63	1.09
MPROb	Our company has marketed a large variety of new lines of products or services in the past 5 years.	5.49	1.08

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