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Subnational institutions and outward FDI by Chinese firms
The mediating role of firm-specific advantages

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Abstract

Purpose – The purpose of this study is to extend the classic country-specific advantage (CSA) – firm-specific advantage (FSA) framework by integrating an institution-based view of CSAs into the discussion of FSAs. In his classic CSA – FSA framework, Rugman suggests that successful multi-national enterprises (MNEs) are often built on the interaction between strong FSAs and strong CSAs at home. In the case of emerging market multi-nationals (EMNEs), he argued that strong CSAs were of particular importance in allowing EMNEs to develop FSAs. In particular, we examine CSAs at the sub-national level.

Design/methodology/approach – The authors suggest that sub-national heterogeneity in market-supporting institutions is an important feature of emerging market economies, and that consideration of such heterogeneity contributes to our understanding of firm capabilities and overseas investment behavior of emerging market firms. The authors also identify explicitly the mechanisms through which sub-national institutions at home affect FSAs and, subsequently, the ability of emerging market firms' entry into developed markets. Specifically, the authors argue that strong local institutions that support effective and well-functioning markets create the conditions that induce firms in that location to develop market-related capabilities in R&D and marketing, which, in turn, enable them to expand into developed countries.

Findings – Using a unique data set on overseas investment by Chinese firms and causal mediation analysis, the authors find strong evidence in support of the view that strong sub-national institutions help emerging market firms develop the capabilities to enter developed country markets.

Originality/value – This study extends the classic CSA–FSA framework by integrating an institution-based view of CSAs into the discussion of FSAs. In particular, the authors examine CSAs at the sub-national level.

Keywords Emerging markets, Outward FDI, CSA-FSA, Sub-national

Paper type Research paper

Introduction

One of Alan Rugman's seminal contributions to the international business (IB) literature was his distinction between country-specific advantages (CSAs) and firm-specific advantages (FSAs) in analyzing sources of firms' international competitive advantage (Rugman, 1981, 2006). In applying the classic CSA–FSA framework to understand the nature of emerging market multi-national enterprises (EMNEs), Rugman and coauthors concluded that EMNEs rely on home-market CSAs, such as low labor costs and government support, to develop their FSAs (Rugman and Li, 2007; Rugman, 2010; Rugman and Nguyen, 2014). Our study aims to extend Rugman's research contributions to the IB literature by re-examining the nature of CSAs and their relation to FSAs in an emerging market context and with specific reference to China.

First, we extend the idea of home CSAs to include institutions at the sub-national level. Although institutions have long been understood as an important source of CSAs (Rugman *et al.*, 2011, 2012; Dunning and Lundan, 2008; Narula and Santangelo, 2012), they have seldom been studied at the sub-national level. We therefore look at CSAs through the lens of institutional economics (North, 1990), with a particular focus on market-supporting institutions. Market-supporting institutions are the rules of the game that limit transaction costs and, thus, facilitate market transactions (Acemoglu and Robinson, 2012; McMillan, 2007). Examples of market-supporting institutions include measures of economic liberalization, property rights (PR) protection and effectiveness of legal systems (Acemoglu and Johnson, 2005; Acemoglu and Robinson, 2012). In some emerging market economies, particularly those that are large such as China, there are substantial variations in institutional environments across different regions. That is, some regions have better-developed market-supporting institutions than other regions, even in the face of common national laws and regulations, primarily due to different degrees of enforcement of rules and regulations by local authorities (Chan *et al.*, 2010; Meyer and Nguyen, 2005; Shi *et al.*, 2012). We therefore explore how sub-national institutions in an emerging market affect firms' international investment strategy and specifically whether they invest in developed markets.

Second, we examine explicitly the manner in which such market-supporting institutions at the sub-national level can influence FSAs and, thus, outward foreign direct investment (OFDI). Despite its importance, the relationship between an emerging market firm's home locational characteristics and its capabilities for internationalization remains largely unaddressed (Cuervo-Cazurra and Ramamurti, 2014; Rugman, 2009). We propose that sub-national variations in market-supporting institutional development are a critical source of firm heterogeneity with respect to FSAs, specifically capabilities related to technological and marketing knowledge. We therefore argue that strong market-supporting institutions at the sub-national level contribute to the development of strong market-related capabilities of firms in that region. As market-related capabilities, particularly those related to technology and marketing, are critical to firms' survival and success in developed markets, we expect emerging market firms with such

capabilities to be more inclined to enter those markets. Thus, we propose that market-supporting sub-national institutions can affect firms' international investment strategies through the mediation of firms' market-related capabilities.

Third, we estimate an empirical model that identifies the complex interaction between CSAs and FSAs. Using a unique data set comprising overseas investment information from 2006-2013 for 803 Chinese companies from 94 Chinese cities and using causal mediation analysis (a newly developed technique by Hicks and Tingley (2011)), we find that consistent with our expectations, a large proportion (about 20 per cent) of the effect of city-level institutional development in China on Chinese firms' propensity to invest in developed markets is transmitted through these firms' market-related capabilities. In this way, we contribute an empirical confirmation of the importance and nature of the interaction between locational advantages and FSAs (Rugman *et al.*, 2011).

In summary, our study clearly suggests that it is important to examine the effects of institutions at the sub-national level, because institutional heterogeneity also leads to heterogeneity in capabilities, which in turn leads to different investment strategies. By ignoring the heterogeneity among local firms that arises from these differences, extant studies might underestimate the ability of home firms from emerging markets to invest abroad, particularly in developed countries (Rugman and Nguyen, 2014). In this regard, our study confirms and extends the approach taken by Narula (2015), who argues that by taking a dual economy approach to understanding emerging and developing economies, one can better understand how globally competitive firms can coexist with traditional, locally oriented firms. Our analysis takes a less dichotomous approach, but is in the same spirit.

We proceed as follows. In the next section, we develop our two hypotheses, followed by a description of our data and our method and then our results. A summary and conclusion follow.

Theory and hypothesis development

Institutions, FDI and location

Although there are multiple dimensions that could define CSAs (Rugman *et al.*, 2012), we focus on those related to institutions. We therefore look at CSAs through the lens of institutional studies.

With its roots in economics (North, 1990) and sociology (Scott, 1995), an institution-based view captures the complex relationships between organizations and their institutional environments (Peng *et al.*, 2008, 2009). Institutional environments are bounded by geography and provide an important perspective to explain firms' international investment decisions (Peng *et al.*, 2008, 2009; for a review, see Xu and Meyer, 2012). We therefore explore the channels through which home institutions can provide CSAs that affect firms' international investment behavior. Specifically, we look at the extent to which specific sub-national institutions at home shape emerging market firms' capabilities, which then affect their propensity to invest in developed markets.

Institutions have multiple dimensions, including formal and informal (North, 1990) and regulatory, normative and cognitive (Scott, 1995). In this study, we focus on formal, regulatory institutions that facilitate economic activities, namely, market-supporting institutions, which are arguably the most fundamental components of institutions in the institutional economics literature (Acemoglu and Robinson, 2012; North, 1990). Below, we first introduce the key components of market-supporting institutions and the main

reasons leading to sub-national variations in these institutions. We then develop our hypotheses regarding how the effect of market-supporting institutions on firms' overseas investment activities is mediated through their effect on firms' market-related capabilities.

Market-supporting institutions

Markets, to work effectively, need institutions to support them (Acemoglu and Johnson, 2005; McMillan, 2007, p. 1). Market-supporting institutions are the rules of the game that:

> […] serve to limit transaction costs: the time and money spent locating trading partners, comparing their prices, evaluating the quality of the goods for sale, negotiating agreements, monitoring performance and settling disputes.

There is some evidence to suggest that these institutions are the primary locational determinants of regional differences in economic performance over time (Acemoglu and Robinson, 2012).

Market-supporting institutions include multiple dimensions, but the three key, interrelated dimensions that have been found to be consistently important in supporting economic activity are economic liberalization, PR protection and effectiveness of legal systems (Acemoglu and Johnson, 2005; Acemoglu and Robinson, 2012; Bevan *et al.*, 2004; Furubotn and Pejovich, 1972; Rodrik, 2000). Economic liberalization implies removal of government-imposed constraints that impose transaction costs associated with bureaucracy, corruption and policy uncertainty (Bevan *et al.*, 2004). Economic liberalization also offers free market entry opportunities to all business players, including domestic and foreign firms, and, thus, contributes to a competitive market environment (Acemoglu and Robinson, 2012; Bevan *et al.*, 2004; North, 1990).

PR protection through laws and legal enforcement provides a guarantee against expropriation by any entity, particularly the state, of resources of an individual or organization (Acemoglu and Johnson, 2005). Thus, strong protection of PR provides individuals and organizations with adequate control over the use of their assets, as well as guarantees regarding the returns on their assets (Acemoglu and Robinson, 2012). An effective legal system, the third dimension of strong market-supporting institutions, formalizes rules and regulations that promote transparency in business relationships, reduces transaction uncertainty, limits the incidents of fraudulent or anti-competitive behavior and provides effective enforcement mechanisms through specialized enforcement organizations, such as courts and the police (Rodrik, 2000).

Sub-national variations in market-supporting institutions

Emerging markets with large geographic areas and multiple administrative regions are likely to have different levels of institutional development across the sub-national regions for several reasons. First, in large emerging markets, local administrators typically have considerable authority to introduce localized policies and rules. For instance, municipal governments in China can design fiscal policies and policies for land use, licensing, migration and social welfare (Caulfield, 2006), all of which can impose significant transaction costs on firms. Similarly, the municipalities in India are responsible for fiscal policies, local legislation and policies that affect economic development and social justice (India Code Legislative Department, 1993).

Second, even when formal rules are designed to be common at the national level, enforcement of these rules varies at the local level because of divergence in local norms, cultures, quality of legal and administrative personnel and administrative efficiency (Ostrom, 1998). Local administrators, with different beliefs and experiences, tend to perceive, interpret and implement common formal rules differently (Estrin and Prevezer, 2011; Ostrom, 1998). For instance, although in China protection of PR rights was formalized into a legal document in 2002, the degree of PR protection varies greatly across regions: the Southeast region, with its long tradition of entrepreneurship and private economic activities, offers much better PR protection than other regions in the country (Nee and Opper, 2012; World Bank, 2006). Similarly, although laws and regulations to enforce contracts are set at the national level, the efficiency of courts in enforcing contracts varies significantly across the country; solving a commercial dispute takes 230 days in southeast coastal cities but about 363 days in northeastern China (World Bank, 2008).

Furthermore, unlike developed markets, emerging markets typically lack nationwide competition, which further intensifies sub-national variations in institutional development. With fewer entry barriers across states and a well-established national-level physical and communication infrastructure, developed markets tend to have nationally integrated markets (Chan et al., 2010), which, to some extent, drive the convergence of the key dimensions of market-supporting institutions. Local administrators in developed markets, thus, have an incentive to develop and maintain market-supporting institutions that are comparable to other domestic counterparts to retain businesses and attract new investments.

However, in large emerging markets, regional barriers can be prevalent because of local government protectionism (Chang and Xu, 2008). A survey of 3,500 Chinese firms, for instance, revealed strong local protectionism in legal issues. There is a tendency of courts to favor local firms in judicial proceedings; a passivity of local courts in enforcing judgments against local firms relative to firms from outside the province; and an unwillingness of local authorities to protect the intellectual property of firms from outside the province (Li et al., 2004). Development of modern trucking networks also suffered from local protectionism; as a result, China's costs of logistics per gross domestic product (GDP) reached as high as 18 per cent in 2008, compared to only half of the rate in the most developed markets in the same year (KPMG, 2008). As these tangible and intangible regional barriers effectively reduce mobility of firms across regions, they also reduce the incentives of local administrators in places with weak market-supporting institutions to improve their institutions. As a result, divergence likely persists in institutional development across regions in a large emerging market.

Market-supporting institutions and OFDI

In this section, we examine how institutions at the sub-national level affect emerging market firms' capabilities and, thus, their investments in developed markets. Figure 1
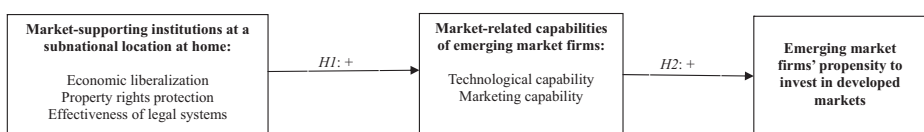
summarizes the two main relationships proposed in our hypotheses. We discuss them in turn.

Market-supporting institutions and market-related firm capabilities
A region's institutions form the incentive system for how business is done in that region and how resources are allocated (Acemoglu and Robinson, 2012; North, 1990), which, in turn, shape the way in which firms develop their capabilities (Cuervo-Cazurra and Genc, 2008; Meyer *et al.*, 2011; Nelson, 1994; Nelson and Winter, 1982). In places with strong market-supporting institutions, firms are motivated to build their market-related capabilities (Cuervo-Cazurra and Genc, 2008), including technological capabilities that enable firms to improve productivity and/or create highly innovative products and services, as well as marketing capabilities that increase firms' brand visibility and their ability to meet or shape customer preferences. There are a number of specific mechanisms through which each dimension of the market-supporting institutions affects the development of market-related capabilities.

First, as a high degree of economic liberalization eliminates local protectionism and entry barriers, it allows firms from other domestic regions and other countries to penetrate the local market and, thus, intensifies the degree of competition (Bevan *et al.*, 2004). Local firms would have to develop both technological and marketing capabilities to compete, particularly with foreign firms that usually possess cutting-edge technologies and global brands. Moreover, as government-imposed restrictions are limited in regions with high economic liberalization, firms in those regions can also devote more resources to market-related activities rather than to non-market activities such as building connections with government agencies and officials (Cai *et al.*, 2011).

Second, strong PR protection ensures appropriate returns on investments in R&D and marketing activities and, thus, motivates firms to invest in these activities. Intellectual properties such as technology, technical knowhow and brands are typically non-rivalrous in the sense that the marginal costs for an additional agent to use them are negligible (Keller and Cunard, 2001). Therefore, without strong protection of intellectual PR, the returns on the investments can be largely public, benefiting unpaid users and discouraging innovators (Keller and Cunard, 2001). Strong PR protection, on the other hand, can address this market failure and stimulate firms' investments in intellectual products. In addition, strong PR protection can, to some extent, alleviate concerns of key resource suppliers such as banks as to whether they will have appropriate returns on their investments, which will increase firms' ability to access critical resources that enable their R&D and marketing activities (Bai *et al.*, 2006).

Third, an effective legal system ensures a fair playing field for market participants, inducing them to build market competitiveness, rather than diverting resources to non-market activities, such as pleasing legal enforcement agencies (Hill, 1995; Rodrik *et al.*, 2004). An effective legal system also reduces business uncertainties (e.g. opportunism, fraud and default) and lowers transaction costs for securing key inputs (e.g. capital and information) from resource providers that facilitate R&D and marketing activities (Hill, 1995). In addition, as firms often collaborate with specialized external partners, such as research institutions and marketing agencies, to conduct R&D and marketing activities, a strong legal system that enforces contracts can protect firms' interests and encourage such

collaborations, which further contribute to the development of firms' market-related capabilities (Williamson, 1985).

To sum up, in locations with a high level of economic liberalization, effective legal systems and strong protection of PR, firms tend to have more resources and stronger incentives to perform market-related activities, which facilitate the development of firms' market-related capabilities. Because these three dimensions of market-supporting institutions are conceptually related (and empirically highly correlated), we do not propose three separate hypotheses but rather offer one hypothesis that summarizes the effect of market-supporting institutions on firms' market-related capabilities:

> *H1.* *Ceteris paribus*, the stronger the development of market-supporting institutions in a given sub-national location in an emerging market, the stronger are the market-related capabilities of firms in that location.

Market-related firm capabilities and OFDI in developed markets
H1 suggests that CSAs, in the form of strong market-supporting sub-national institutions, facilitate the creation and acquisition of FSAs, in the form of market-related capabilities. We now discuss how these market-related capabilities affect emerging market firms' investments in developed markets. Similar to our arguments above, we expect that firms in developed markets are likely to possess strong market-related capabilities in response to well-developed market-supporting institutions in those markets. As such, foreign firms that also have strong market-related capabilities will find a better fit between their capabilities and the institutional environment in a developed market and will thus have a better chance to compete in that market. Consistent with this conclusion, in a meta-analysis of 320 studies grounded primarily in developed markets, Capon *et al.* (1990) found that R&D intensity and advertising intensity are important determinants of firm performance.

Strong market-related capabilities are also important for the success of emerging market firms in developed markets because they often seek advanced technological or marketing knowledge in those markets (Deng, 2007, 2009; Li *et al.*, 2012; Mathews, 2006; Rui and Yip, 2008). However, to identify, assimilate and exploit knowledge in developed markets, emerging market firms need to possess strong absorptive capacity (Cohen and Levinthal, 1990; Lane *et al.*, 2006; Makino and Inkpen, 2003; Makino *et al.*, 2002; Narula and Nguyen, 2011). Firms' absorptive capacity critically depends on their prior experience and knowledge accumulation (Lane *et al.*, 2006). Consequently, firms that have strong market-related capabilities (and, thus, extensive experience in knowledge development) will be in a better position to identify and absorb new knowledge in a foreign market (Narula and Nguyen, 2011).

The above arguments taken together suggest that no matter whether their motivations are to exploit their capabilities or to seek new knowledge to augment their capabilities, emerging market firms with strong market-related capabilities will be more capable of competing in a developed foreign market and will thus be more inclined to invest in that type of market. We thus propose the following hypothesis:

> *H2.* *Ceteris paribus*, the stronger the market-related capabilities of an emerging market firm, the stronger is its propensity to invest in developed markets.

H2, therefore, explicitly links the market-related FSAs of emerging market firms to their ability to invest abroad.

Methods

Data and sample

Our empirical setting is China, the largest emerging market in terms of GDP. China is an appropriate setting to test our hypotheses related to sub-national variations in market-supporting institutions and OFDI. China has become an important source country of FDI since 2004 and has accounted for at least 15 per cent of the annual FDI flows from all emerging markets since 2008 (Sauvant and Chen, 2013). China also has significant heterogeneity in the development of market-supporting institutions across regions and cities (World Bank, 2006).

Our sample combines information from two surveys. As Podsakoff *et al.* (2003) suggested, one major cause of common method variance is obtaining the measures of both dependent and independent variables from the same source, and one way of controlling for it is to collect measures of these variables from different sources. Because our dependent and independent variables are from two different surveys, we are able to reduce common method bias in our study.

First, we retrieved measures for institutional quality in a Chinese city from the World Bank's (2006) report on *China, Governance, Investment Climate and Harmonious Society: Competitiveness Enhancements for 120 Cities in China* (hereafter WB survey). This report contains information on China's institutional quality, including the quality of contract enforcement and protection of PR, in 120 cities in 2005. The cities included in this report accounted for 70-80 per cent of China's total GDP; about 100-200 companies were surveyed in each city, and the survey sample well represents the population of industrial companies in China (World Bank, 2006).

Next, we obtained data on Chinese companies' OFDI in developed markets from the *China Goes Global Survey* (2013), conducted between February and June 2013 jointly by the Asia Pacific Foundation (APF) of Canada and the China Council for the Promotion of International Trade (CCPIT) (hereafter CCPIT survey). APF is a prestigious think tank in Canada that promotes investment and trade between Asia and Canada. CCPIT is one of the oldest and largest business associations in China that promotes international business. It has branches in all provinces and municipalities in China and has more than 68,000 member companies in 20 industries.

The two organizations jointly developed the survey questions, and CCPIT implemented the survey among its member companies in China. The questionnaire contains in-depth questions on each company's financial and operational information, such as size and location choice of its current and projected international investment activities. Several steps were taken to ensure the quality of the questionnaire. First, all survey questions were reviewed by several international business scholars from two premier business schools in China and Canada. Several rounds of reviews led to elimination or modification of questions that were vague or biased and the addition of new questions. Second, to minimize consistency artifacts, the questionnaire was kept short (less than 20 minutes on average for completion) with scale format being varied and same-construct questions being scattered throughout the survey (Bouquet and Birkinshaw, 2008). Third, to maintain confidentiality, serial numbers were used to keep track of respondents and non-respondents (Bouquet and Birkinshaw, 2008).

To select a representative sample to receive the questionnaire, CCPIT first stratified all member firms into 24 categories, based on the 2009 data: total sales (high, moderate, low), industry (mining or not), ownership type (state-owned enterprises or not) and

holding an OFDI license from the Ministry of Commerce of China or not (i.e. already having an overseas investment or not). Firms from each category were then selected in each province. CCPIT essentially oversampled firms with large scale, state-owned, having OFDI experience or in the mining sector to better reflect the characteristics of Chinese firms' outward investment activities. CCPIT used the same method in each province while ensuring that provinces with more firms were more highly sampled. Such a stratified random sampling approach ensures representation of the population (Cochran, 1946). As a result, CCPIT distributed the questionnaire to a sample of 3,000 member firms and received 1,056 responses. CEOs or other senior executives answered the questionnaire.

After removing inconsistent answers to the same-construct questions[1], we had 997 responses. The response rate of nearly 30 per cent is satisfactory for research of this type (Harzing, 2000). We further removed responses of 134 firms that are partially or fully owned by non-Chinese investors because our focus is on Chinese firms' overseas investment activities. In addition, we removed 60 firms that had overseas investments before 2006 because these investments predate our independent variable (the quality of local institutions). This deletion also limits the possibility of reverse causation, as noted below. As a result, the CCPIT survey sample used in our study contains 803 firms in six broad industries, including agriculture, industrial sector (including mining), retail and wholesale, information technology, communications and services (NBSC, 2003), and from 94 cities in 18 provinces, including both coastal and inland areas (e.g. Shangdong, Henan, Shanghai, Guangdong and Jiangxi).

Finally, we merged the data from the CCPIT and WB surveys by matching cities of firms' legal headquarters. We focused on locations of headquarters because strategic decisions, such as R&D, brand building and outward investments, are typically made at the headquarters (Dietz *et al.*, 2008).

Variables and measurement
Dependent variable. Our dependent variable, *DM as a top investment destination*, is coded as 1 if a developed market is one of the top three host countries for a firm's OFDI stock in 2012 and as 0 otherwise. As a robustness check, we also used *investment propensity in a DM*, coded as 1 if a firm is interested in entering a developed market in the immediate future and as 0 otherwise. Both measures are from the CCPIT survey, and they lead to highly consistent results. We define developed markets as high-income OECD countries.

Independent variable. We used the information in the WB survey to construct a composite measure for *city institutional quality* for 120 cities in China. This measure consists of proxies for all three dimensions of market-supporting institutions we identified earlier: economic liberalization (approximated by one minus the rate of effective corporate taxes and fees, one minus the percentage of entertainment spending to total sales and 200 minus the average days per year firms spent with major bureaucracies), PR protection (approximated by the percentage of private firms in number and the percentage of small- and medium-sized private enterprises with bank loans) and an effective legal system (approximated by one minus the percentage of firms reporting a need of informal payment to obtain loans and the percentage of firms reporting confidence in courts).

These indices are highly correlated and, thus, cannot be included simultaneously in regressions (Greene, 2008). To address this issue, we first divided all indices by their standard deviations to make them scale-free and thus inter-comparable and then created a single index of institutional quality based on the normalized values using first principal component analysis (Abdi and Williams, 2010)[2]. We did this before merging this sample with the CCPIT survey sample.

Mediation variable. There are two measures for our mediating variable, a firm's *market-related capability*:

(1) R&D intensity, that is, the percentage of R&D investments in total sales; and

(2) whether firms are active in brand building, a dummy variable coded as 1 if a company has strategies to develop brands and as 0 otherwise.

We expect firms active in R&D and branding activities to have strong technological and marketing capabilities. Because these two indicators are highly correlated and cannot be included simultaneously in a regression, we created a single index *market-related capability* using principle component analysis of the normalized values of both indicators.

Control variables. We included three groups of control variables. The first group deals with firm-level attributes. Research suggests that OFDI location choice can be affected by several firm-specific characteristics, such as age and size (Pradhan, 2004), existing level of internationalization (Globerman and Chen, 2010) and ownership type (Voss *et al.*, 2010). *Firm age* was measured as the logarithm of years between 2013 and the year of incorporation. Firm size was measured in two ways: *firm employment* (the logarithm of total number of employees) and *firm revenue* (the logarithm of total revenue in US dollars). The measure for existing *firm internationalization* is the percentage of overseas assets in total assets. We also included two ownership type dummies: *state-owned enterprise dummy* (1 for yes; 0 for else) and *collectively owned enterprise dummy* (1 for yes; 0 for else), leaving privately owned enterprises as the reference group. Data for these firm-level control variables were retrieved from the CCPIT survey.

Using information from Google Map, we also included firm headquarters' *distance to Beijing* as a proxy for the transaction cost of communicating with state officials. In China, firms regularly mobilize representatives between their headquarters and Beijing to lobby for state funding and policy support, and these may impact their ability to invest abroad. To control for a firm's asset-seeking motivation, we included an *asset-seeking dummy* which takes the value of 1 if the respondent to the CCPIT survey considers seeking foreign technologies or brands as an important motivation for their overseas investment activities and 0 otherwise.

To tease out the effect of local institutional environments on firms' overseas investment activities, we also included several variables from the WB survey to control for the effect of economic and physical environments in a location. Specifically, we included *home market size* (the logarithm of GDP in a firm's home province), *home openness to foreign investors* (the ratio of assets held by foreign-invested enterprises to total assets in the home province) and *home physical infrastructure quality* (one minus the percentage of output losses from power or transport in a firm's home city). Finally, we included six dummy variables to control for industry-specific heterogeneity[3].

Regression strategy

Because our dependent variable, *DM as a top investment destination*, is binary, we adopted two non-linear econometric estimation methods – the probit and logit methods (Greene, 2008). Both methods are based on maximum likelihood estimation (MLE) and allow the dependent variable to be binary, albeit assuming different distribution functions. Probit assumes a probability function, while logit assumes a logistic function. Adopting both methods and comparing their results allow us to test the robustness of our findings.

To test the mediation effect, we used causal mediation analysis, a technique newly developed by Hicks and Tingley (2011). This method builds on Baron and Kenny's (1986) mediation analysis method, which is widely used in social science research (Kline, 2010). Both methods estimate the role of causal mechanisms when the effect of an independent variable on an outcome is transmitted through a mediating variable and provide results for direct and indirect effects (Hicks and Tingley, 2011). The specific advancement made by Hicks and Tingley (2011) is that their method allows non-linear estimations such as probit and logit for categorical dependent variables, whereas Baron and Kenny's (1986) method can be applied to estimations for continuous dependent variables only.

We used the mediation package, developed by Hicks and Tingley (2011) for Stata software, to perform the causal mediation analysis. This package specifies two equations: the first equation uses ordinary least squares (OLS) to regress the continuous mediating variable, *market-related capability*, on the independent variable, *city institutional quality*, and the control variables. The second equation uses probit (and logit as a replication) estimation to regress the binary dependent variable, *DM as a top investment destination*, on the independent variable (*city institutional quality*), the mediating variable (*market-related capability*) and the control variables. Results also show how much of the total effects of *city institutional quality* on the dependent variable are transmitted through the mediating variable.

There are a number of potential concerns regarding our estimation strategy. One is the possibility of reverse causality, that is, firms making investments abroad might be able to lobby local governments in ways that influence the nature and enforcement of rules and regulations. This problem is minimized by the inclusion in our sample only of firms who invested abroad after 2005, the year in which we measure institutional quality. While this does minimize the problem of causality, it does raise the question of the difference in time between our measure of institutions (2005) and OFDI outcomes (measured in 2013). Although the latter does not necessarily measure OFDI in 2013 (it could be earlier), the time difference is a potential concern in a country where institutional change has been rapid and not necessarily equal in all locations. Another concern is self-selection, that is, firms with strong market-related capabilities tend to locate in cities with stronger market-supporting institutions. This is not likely a concern because, as we discussed earlier, Chinese firms seldom relocate their headquarters because of large regional barriers (Chang and Xu, 2008; KPMG, 2008; World Bank, 2006). Finally, our data has a multi-level structure (firm and location levels), but it was not possible to apply multi-level modeling methods using the causal mediation technique.

Results

Table I reports the summary statistics and correlation matrix for the key variables used in this study. The results of the variance inflation factor (VIF) test show that all

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	DM as a top investment destination	1.0000													
(2)	Market-related firm capability	0.1124*	1.0000												
(3)	City institutional quality	0.0397	0.1046*	1.0000											
(4)	Firm age	0.1021*	0.1144*	0.0087	1.0000										
(5)	Firm employment	0.1440*	0.2578*	−0.0503	0.4002*	1.0000									
(6)	Firm revenue	0.1632*	0.1874*	0.0048	0.3518*	0.6597*	1.0000								
(7)	Firm internationalization	0.3375*	0.0227	0.0517	−0.0447	0.0260	0.0717	1.0000							
(8)	State-owned enterprise dummy	0.0325	0.0131	−0.0591	0.2186*	0.2268*	0.2415*	0.0669	1.0000						
(9)	Collectively owned enterprise dummy	−0.0162	−0.0521	0.0328	0.0092	−0.0280	0.0077	−0.0425	−0.0640	1.0000					
(10)	Distance to Beijing	0.0443	−0.0690	−0.0034	−0.0147	−0.1150*	−0.0600	0.0904	−0.0909*	0.0302	1.0000				
(11)	Asset-seeking dummy	0.0201	0.1923*	−0.0799	0.0256	0.1003*	0.1746*	0.0354	0.0958*	0.0060	0.0071	1.0000			
(12)	Home physical infrastructure quality	−0.0049	0.0435	−0.0157	0.0541	−0.0178	−0.0567	−0.0383	−0.0699	−0.0161	0.3705*	−0.0763	1.0000		
(13)	Home market size	0.0737	0.1314*	0.1188*	0.0677	0.1329*	0.1409*	0.0667	−0.1016*	0.0354	−0.0572	0.0557	−0.0589	1.0000	
(14)	Home openness to foreign investors	0.0457	−0.1265*	0.0113	0.0037	−0.1245*	−0.1603*	0.0277	−0.1166*	−0.0257	0.4870*	−0.1588*	0.1515*	0.0613	1.0000
	Number of observations	803	803	803	803	803	803	803	803	803	803	803	803	803	803
	Mean	0.1345	0.0000	0.0000	2.3344	5.7911	4.5155	3.0230	0.1382	0.1382	5336125	0.7846	1.7935	13.7413	0.2677
	Standard deviation	0.3414	1.0881	1.7620	0.8734	1.7827	2.5441	8.0891	0.3454	0.3454	3128543	0.4114	1.2797	0.6036	0.1850

Note: $^* p < 0.01$

Table I.
Correlation matrix and summary statistics

VIF-values are below 2.12, indicating that multicollinearity is not a problem in our regression analysis (Chatterjee and Hadi, 2013).

Tables II and III present the estimation results for our causal mediation analysis. Table II presents the first-step OLS estimation results for the effects of key variables on

Variables	Coefficients
City institutional quality ($H1$: +)	0.0604
	(0.0185)***
Firm age	0.0398
	(0.0451)
Firm employment	0.0860
	(0.0293)***
Firm revenue	0.0054
	(0.0208)
Firm internationalization	0.0003
	(0.0040)
State-owned dummy	−0.0973
	(0.1025)
Collectively owned dummy	−0.4532
	(0.2110)**
Distance to Beijing	0.0000
	(0.0001)
Home physical infrastructure quality	0.0391
	(0.0263)
Home market size	0.1678
	(0.0594)***
Home openness to foreign investors	−0.5963
	(0.2298)
Dummy of agriculture sector	0.7101
	(0.1452)***
Dummy of industrial sector	0.6307
	(0.0921)***
Dummy of retails and wholesales sector	0.2160
	(0.0964)**
Dummy of information technology sector	1.5217
	(0.2693)***
Dummy of communications sector	0.0080
	(0.1801)
Dummy of services sector	0.1497
	(0.0923)
Constant	−3.3170
	(0.8155)***
Statistics	
Number of observations	803
$F_{(17, 785)}$	11.8500***
R^2	0.1939
Root MSE	0.9875

Table II.
Step 1 OLS estimation results for causal mediation analysis on market-related capability

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$; robust standard errors are reported in parentheses

Variables	Probit	Logit	
City institutional quality	0.0084	0.0079	Subnational institutions and outward FDI
	(0.0298)	(0.0525)	
Market-related capability (*H2*: +)	0.1302	0.2346	
	(0.0579)**	(0.1102)**	
Firm age	0.1414	0.3061	267
	(0.0794)*	(0.1525)**	
Firm employment	0.0214	0.0510	
	(0.0488)	(0.0976)	
Firm revenue	0.0709	0.1388	
	(0.0346)**	(0.0694)**	
Firm internationalization	0.0492	0.0862	
	(0.0077)***	(0.0158)***	
State-owned dummy	−0.1309	−0.2613	
	(0.1922)	(0.3657)	
Collectively owned dummy	−0.0365	−0.0321	
	(0.3915)	(0.7965)	
Distance to Beijing	0.0000	0.0001	
	(0.0003)	(0.0005)	
Home physical infrastructure quality	−0.0225	−0.0397	
	(0.0511)	(0.0974)	
Home market size	0.0371	0.0893	
	(0.1158)	(0.2488)	
Home openness to foreign investors	0.4662	0.8577	
	(0.4064)	(0.8033)	
Dummy of agriculture sector	−0.1126	−0.2221	
	(0.3013)	(0.6125)	
Dummy of industrial sector	0.1486	0.2734	
	(0.1802)	(0.3530)	
Dummy of retails and wholesales sector	−0.0470	−0.1077	
	(0.1879)	(0.3687)	
Dummy of information technology sector	0.5196	0.9771	
	(0.3227)	(0.5542)*	
Dummy of communications sector	−0.3969	−1.0287	
	(0.5115)	(0.9401)	
Dummy of services sector	0.0508	0.0405	
	(0.1612)	(0.3081)	
Asset-seeking dummy	−0.0663	−0.1385	
	(0.1541)	(0.2975)	
Constant	−2.7950	−5.5496	
	(1.5931)*	(3.4022)	
Statistics			
Number of observations	803	803	**Table III.**
Wald χ^2 (19)	72.3100***	62.3700***	Step 2 logit and probit estimation
Pseudo R^2	0.1665	0.1647	results for causal mediation analysis
% of total effects mediated	0.1906	0.1929	on DM as a top investment destination

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$; robust standard errors are reported in parentheses

market-related capability and Table III presents the results of the probit or logit estimation in the second step for the effects on *DM as a top investment destination*. Overall, the models in both steps are robust ($p = 0.00$ for the F-test in Step 1 and the chi-square test in Step 2).

H1 suggests that firms located in cities with strong market-supporting institutions are more inclined to have strong market-related capabilities. The results in Table II suggest that *city institutional quality* has a statistically significant, positive effect on firms' *market-related capability* ($p < 0.01$), lending strong support to *H1*.

H2 proposes that firms that have strong market-related capabilities are more likely to invest in developed markets. The results in both the probit and logit models in Table III suggest that *market-related capability* has a significant, positive effect on firms' investments into developed markets ($p < 0.05$), supporting *H2*. In addition, Table III indicates that the percentage of the mediation effect is about 20 per cent, meaning that about 20 per cent of the effects of the independent variable, *city institutional quality* on the dependent variable, *DM as a top investment destination*, are transferred through the mediating variable, *market-related capability*. Therefore, our two hypotheses receive strong empirical support, that is, institutional quality of the home city has a significant effect on firms' propensity to invest into DMs, through the mediating effect of market-related capabilities of firms.

The estimated coefficients for some control variables are also noteworthy. First, Table II suggests that private firms (the reference dummy) have stronger market-related capabilities than collectively owned firms ($p < 0.05$) but have no statistically significant difference from state-owned firms in this regard. This is probably because although private firms are more entrepreneurial and are more active in developing market capabilities than other types of firms, they have fewer resource advantages compared with state-owned firms (Chen *et al.*, 2014). Firms that are larger (in terms of employment) ($p < 0.01$) and are in a larger home market ($p < 0.01$) possess greater market-related capabilities. Firms in the information technology sector tend to have greater market-related capabilities ($p < 0.01$), as this sector is in general more knowledge intensive.

In terms of the determinants of investment propensity into developed markets, the *asset-seeking dummy* in Table III has no significant effect on firms' investments in developed markets, which suggests that motivations themselves are not the sole determinant of firms' overseas investment decisions. Indeed, market-related capabilities are a more important determinant. Also, not surprisingly, firms that are older (and thus more experienced), larger and have more international experiences are more inclined to invest in developed markets.

Robustness checks
Following Hicks and Tingley (2011, p. 2), we conducted a sensitivity analysis, which allows us to test how an estimated quantity would change for different degrees of violation of the "exogeneity" assumption (an assumption that there is no unmeasured determinant of both the mediator and the dependent variable). After lifting this assumption and accepting the possibility that there are confounders of the mediating variable–outcome relationship, we found consistent results, which lend further support to our hypotheses. Specifically, we found that in Step 1, the coefficient of *city institutional quality* is 0.06 ($p < 0.01$) and the $F(17, 785)$ value is 11.11 ($p < 0.01$); in Step 2, the

coefficients of *market-related capability* are 0.13 ($p < 0.1$) in the probit and 0.23 ($p < 0.10$) in the logit models, and the Chi-squared values are 105.56 ($p < 0.01$) and 104.44 ($p < 0.01$), respectively.

We further reran our regression models using an alternative dependent variable, that is, *investment propensity into DM*, a dummy variable coded as 1 if a firm intends to treat a developed market as one of its top three investment destinations in the immediate future and as 0 otherwise. We obtained highly consistent results: in the first step, there is no change, as the regression model remains the same; in the second step, the coefficients for *market-related capability* are 0.15 ($p < 0.01$) in the probit model and 0.24 ($p < 0.01$) in the logit model. Both models are robust with Wald Chi-squared values at 72.31 ($p < 0.01$) and 124.75 ($p < 0.01$). Thus, regardless of using measures for real or intentional investments in developed markets, we found similar results, which lend further support to our hypotheses.

Discussion and conclusion

Our study investigates how home sub-national institutional advantages in emerging markets affect firms' FSAs and their outward investment decisions. We argue that institutional heterogeneity within countries can result in firms developing different capabilities, depending on their location, and that firms located in cities and regions characterized by strong market-supporting institutions are more likely to develop FSAs in the form of marketing and R&D capabilities, which are in turn required to enter developed country markets. We argue that sub-national heterogeneity will be particularly strong in larger emerging markets, such as China. Our empirical analysis suggests that Chinese firms located in cities with better-developed market-supporting institutions tend to have stronger R&D and marketing capabilities, and these firms also have a higher likelihood of investing in developed markets.

Our study enriches the classic CSA-FSA framework that focuses primarily on the resource-based components of CSAs (Rugman, 1981; Rugman and Verbeke, 1992, 2001, 2003) by integrating an institution-based view of CSAs into the discussion of FSAs. We also introduce a sub-national dimension into discussions of CSAs. Prior studies in this area have typically focused on national or supranational institutions (Buckley *et al.*, 2007; Lu *et al.*, 2011; exceptions include Wei *et al.*, 2014; Wu and Chen, 2014). Consideration of sub-national variations is important in an emerging market because nationwide market competition has yet to form, and local administrators are not equally motivated to improve local institutional quality. Our findings suggest that variations in institutional quality across cities can be an important source of FSAs.

Our study also sheds light on prior research that presents mixed evidence regarding the effect of home institutions on firms' outward investment behavior. While some studies have found a positive relationship between institutional quality at home and firms' outward investment propensity or investment amount (Globerman and Shapiro, 2002; Dau, 2012), others have found a negative relationship, that is, perceived high-quality institutions at home encourage firms to stay home rather than expand overseas (Luo and Wang, 2012). Our study suggests that studying only the main effect of home institutions is not sufficient to understand how they affect firms' international investment behavior because a large proportion of the effect (about 20 per cent) is transmitted through firm capabilities.

Our consideration of sub-national variations in institutional quality also contributes to a better understanding of emerging market firms and their ability to invest in developed markets (Ramamurti, 2008). Our analysis suggests that measuring institutional strength at the national level may underestimate the strength of institutions in some locations within a country and, thus, also underestimate the capacity of home firms to develop the FSAs that are required as springboards (Luo and Tung, 2007) for a successful entry into developed countries. Similarly, our results suggest that previous studies may underestimate the capacity of home country firms to acquire knowledge at home unless they consider sub-national institutions (Li *et al.*, 2012).

Thus, our results suggest the importance of recognizing that firms from the same emerging market are not homogenous and that heterogeneity is, in part, defined by sub-national location. Those from sub-national locations with more advanced market-supporting institutions tend to possess stronger market capabilities that enable them to be competitive in developed markets. The rising investments of emerging market firms in developed markets in recent years likely come from firms in these sub-national locations.

Our research has important implications for the locational choices of firms in emerging markets. Emerging market firms aiming to penetrate developed markets may choose to (re)locate themselves in a domestic region with stronger market-supporting institutions. By doing so, they can learn how to build market-related capabilities and improve their absorptive capacity, which would enable them to compete effectively in a developed market as well as to identify and utilize strategic assets available in the overseas markets. If they continue to stay in places with weak market-supporting institutions, then they are likely to devote considerable time and resources to developing connections with non-market players, such as government officials. However, such non-market capabilities are likely location specific and are not easily transferred to more developed markets because of different political systems and norms.

Our study also has important implications for governments in emerging markets. First, while many emerging market governments focus on using fiscal and financial incentives to nurture competitive MNEs (Wang *et al.*, 2012; Sauvant and Chen, 2013), our study suggests a more fundamental task for the home governments, that is, improving market-supporting institutional environments so that firms are induced to build market capabilities that are less government dependent and more transferrable into overseas markets.

Second, although market reform is usually introduced as a national policy by the central government, sub-national governments should make their own efforts to institute local policies, protect PR, enforce laws and regulations and push for openness to fair competition. Better institutional environments can contribute to development of competitive advantages of firms in their regions as well as attract more investment into their regions.

Future research directions

There are at least three potential directions of extension. First, future studies can replicate our findings in other large emerging markets, such as Russia, India, Mexico and Brazil, that share with China some similar characteristics in institutional development. These emerging markets are also undertaking reforms in their

market-supporting institutions. Moreover, with local markets relatively disconnected and disintegrated, these emerging markets also have significant sub-national institutional variations. They might have even greater variations than China because local authorities in these countries have not only enforcement and administrative power (as is the case in China) but also greater degrees of law-making independence and local elections (World Bank, 2012). We expect that firms from different sub-national regions of these countries will have different OFDI strategies.

As a second direction, we suggest that one can extend our efforts to studying non-market dimensions of institutions, such as political regimes and social-cultural characteristics, as well as non-market capabilities of firms, such as corporate political capabilities. We expect that emerging market firms that have developed strong non-market capabilities but weak market capabilities might find it difficult to thrive in developed markets because non-market capabilities in response to weak institutions are likely to be location bound and cannot be transferred to developed markets that have strong institutions. For instance, building relationships with government officials through informal entertaining activities and informal payment – a typical non-market strategy in emerging markets with weak institutions (Cai et al., 2011) – cannot be transferred to or is even viewed as illegal in many developed markets. In developed markets, the political regime is more transparent, and political strategies take different forms; firms tend to rely on more formal and transparent approaches, such as making financial contributions to campaigns and working with lobbyists, to build political connections (Hillman and Hitt, 1999). We thus expect firms that have strong market and non-market capabilities to have different preferences in their overseas location choice (Cuervo-Cazurra and Genc, 2008).

Finally, although we have focused on sub-national institutions, we speculate that national institutions may still play an important role in determining the legitimacy, or perceived legitimacy, of emerging market MNEs operating in developed countries. The experience of Chinese firms attempting to enter the USA and Canada suggests that country-level institutional distance remains important (Globerman and Shapiro, 2009). Future research may seek to better understand the relative importance of national and sub-national institutions as determinants of successful foreign entry.

Notes

1. For instance, we eliminated observations that had inconsistent answers to the following questions: "have you invested abroad as of the end of 2012?", "when did you make your first investment overseas?" and "when did you make your most recent investment overseas?"

2. Principal component analysis (PCA) is an econometric technique to analyze variables that are inter-correlated. This technique extracts the most important information from these variables and expresses this information as a set of new orthogonal (i.e. uncorrelated) variables called principal components. This process generates a new index, that is, a linear combination of the first principal components of all the original variables from the PCA results.

3. All dummies were included in the regression. Because firms can select multiple industries in the CCPIT survey, there is no multi-collinearity problem among these dummies.

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