DOES SUBNATIONAL REGION MATTER? FOREIGN AFFILIATE PERFORMANCE IN THE UNITED STATES AND CHINA

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This study examines the extent to which subnational regions can explain foreign affiliate performance in two host country settings, the United States and China, the world’s two largest economies at polar ends of the economic spectrum (i.e., an advanced versus an emerging economy). Our results suggest that the subnational region is significant in explaining foreign affiliate performance, thus confirming its importance as an additional unit of analysis for firm performance. This study also shows that the effects of subnational region are far stronger in China than they are in the United States, thus suggesting that regional differences are more critical in their explanatory power for firm performance in emerging economies than they are in advanced economies. Copyright © 2010 John Wiley & Sons, Ltd.

INTRODUCTION

This study addresses the question of whether subnational regions matter in explaining foreign affiliate performance. The conventional international business literature suggests that foreign direct investment is driven by a number of host country-specific factors, such as factor endowments, cultural and institutional contexts, and government policies (Brewer, 1993; Dunning, 1988; Hofstede, 1991; Kostova and Zaheer, 1999). Recent studies show that differences in these country-specific factors explain a significant portion of the variations in the performance of the foreign affiliates of multinational corporations (MNCs) (Christmann, Day, and Yip, 1999; Makino, Isobe, and Chan, 2004b). A more recent study along the same lines suggests that differences in the level of host country institutional development lead to a variation in foreign affiliate performance across countries (Chan, Isobe, and Makino, 2008). Although these studies examine the influences of between-country differences on such performance in different host countries, little has been revealed about how within-country differences affect that performance in different regions within a host country.

Previous research on subnational regions has provided different theoretical underpinnings for the economic activities of MNCs. These studies suggest that regions within a host country vary because of the geographical concentration of industrial activities (Porter, 1998) and the differences in regional endowments (e.g., market size and factor inputs) (Batıssee, 2002; Venables, 2005; Liu and Li, 2006). The latter constitute sources of comparative advantage across subnational regions and serve as ‘natural’ endowments for foreign direct investment in these regions, whereas the former entails increasing returns to scale through dense interactions among firms and serves as ‘created’ endowments for that investment. Such
within-country differences create unique investment opportunities for MNCs and thus influence their intracountry location choice for their foreign affiliates (Cheng and Stough, 2006; Coughlin, Joseph, and Arromdee, 1991; Dunning, 1998; Enright, 1998; He, 2003; Head, Ries, and Swenson, 1995; Kotabe, 1993; Nachum, 2000). Other studies, drawing upon institutional theory (North, 1990; Scott, 1995), acknowledge the importance of the institutional environment in which a foreign affiliate is embedded (Chan, Makino, and Isobe, 2006; Delios and Henisz, 2003; Kostova and Zaheer, 1999; Peng, 2003) and explore the influence of institutions on the specific location choices for foreign affiliates in different regions within a host country (Meyer and Nguyen, 2005; Zhou, Delios, and Yang, 2002). Although these studies contribute to our understanding of the specific location strategies of MNCs, research has yet to examine foreign affiliate performance in these different subnational regions.

To fill this research gap, our study examines both between- and within-country variations in foreign affiliate performance from an institution-based view (Peng, Wang, and Jiang, 2008). We consider two specific research questions: the extent to which the performance of foreign affiliates varies across regions within a host country, and whether such variation changes between national contexts. To examine these questions, we focus on two country settings (i.e., states in the United States and provinces in China) that are representative of the two most important advanced and emerging economies. We make two main arguments. First, we argue that the subnational regions in which foreign affiliates are embedded constitute relatively homogeneous institutional environments. We regard these regions as territorial entities (i.e., states or provinces) whose political boundaries coincide with their institutional boundaries. They serve as primary political jurisdictions and shape the development of the regional institutional environment in three ways. First, local governments play a pivotal role in shaping both the institutional structures (e.g., legislative processes, law enforcement, and property rights protection) and infrastructures (e.g., transportation, power supply, education, and other public services) in a subnational region (Porter, 1990; Oi, 1992). Second, they provide a wide variety of policies for the region’s economic development with the aim of promoting inward investment, trade, new business creation, and cluster upgrading (Tiebout, 1956; Kotabe 1993; Malecki, 1994; Oi, 1995; Porter 1998, 2000; Oman, 2000). Third, local governments preserve the historical and cultural heritage of the state or province and thus foster residents’ sense of belonging and identity, networks of individuals and organizations, and social capital (Putnam, 1993; Evans, 1996; Amin, 1999; Wallis and Dollery, 2002).

Our second argument is that within-country regional institutions create unique opportunities and challenges for foreign affiliates that, in turn, influence their performance. These institutions affect the productivity of economic activities (Hall and Jones, 1999), firm strategic choices (Peng, 2003; Griffiths and Zammuto, 2005), and firm profitability (Khanna and Rivkin, 2001; North, 1990). They also form location-specific conditions that entail the formation of routines of economic behavior (Storper 1995; Scott and Storper, 2003). Such routines are developed in a path-dependent manner, are strongly culturally rooted, and are not transferable from one subnational region to another (Amin, 1999; Storper, 1995). Subnational regional institutions thus have a persistent influence on firm behavior and performance.

Our study differs from previous work in two ways. First, it examines the within-country variation in foreign affiliate performance. Previous studies have examined the influence of differences among host countries on the variation in such performance and the relative importance of host country effects relative to industry, parent firm, and foreign affiliate effects. federal government. In China, following a series of political reforms and decentralization measures, provincial governments enjoy a wide range of authority with regard to economic development (Montinola, Qian, and Weingast, 1995; Qian and Weingast, 1997; Young, 2000).
Second, it compares the magnitude of the subnational regional variation in foreign affiliate performance between emerging and advanced economies. Although previous research has recognized the increasing importance of large emerging economies (e.g., Brazil, Russia, India, and China), little is known about whether, and the extent to which, the regional variation in performance in emerging economies differs from that in large advanced economies. By focusing on two large economies at opposite ends of the economic scale (i.e., the United States and China), our study explores the cross-country differences in subnational regional variation in foreign affiliate performance between emerging and advanced economies.

In the next section, we briefly review the literature on the influences of host country institutions on firm (foreign affiliate) performance, discuss why subnational institutions have explanatory power for the variation in foreign affiliate performance, and formulate our hypotheses. In the section that follows, we discuss our sample, measures, and the empirical model used in our analyses. In the final section, we present our results, discuss their implications for MNCs, policy makers, and further theoretical development, note the study’s limitations, and suggest directions for future research.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Host country institutions

Institutions are defined as the rules of the game, both formal (e.g., regulations and laws) and informal (e.g., codes of conduct and norms), that structure the economic, political, and social relationships within a society or country (North, 1990; Scott, 1995). A host country’s economic, political, and social institutions, together with its level of technology, determine the transaction and transformation costs of production and thus the profitability of the firms embedded within it (Khanna and Rivkin, 2001; North, 1990).

Economic institutions involve market intermediaries (e.g., auditors, brokers, consultants, solicitors, and traders) that communicate information between transaction parties (Akerlof, 1970; Diamond, 1984; Khanna and Palepu, 1997, 2000; Khanna and Rivkin, 2001) and the suppliers of physical, human, and technological infrastructure that support economic transactions (Porter, 1990; Saxenian, 1991; Teece, 1986). Political institutions include governments and other political actors that set and enforce the rule of law (Rodriguez, Uhlenbruck, and Eden, 2005) and determine foreign direct investment policies (Boddewyn, 1988; Contractor, 1990; Gomes-Casseres, 1990; Globerman and Shapiro, 2009; Henisz, 2000). Social institutions are derived from the country’s populace, which develops its own distinct practices and acceptable types of behavior (Berger and Luckmann, 1966; Giddens, 1984; March and Olsen, 1989; Scott, 2001; Searle, 1995).

Chan et al. (2008) argue that countries vary in their levels of institutional development, but also find that the performance of foreign affiliates within host countries with a low level of institutional development varies greatly. Although host country institutions influence such performance, these institutions not only vary markedly between countries (Ghemawat, 2001; Kostova and Zaheer, 1999; Lin et al., 2009; Makino, Beamish, and Zhao, 2004a; Miller and Eden, 2006; Rosenzweig and Singh, 1991; Westney, 1993; Yiu and Makino, 2002; Zaheer, 1995), but also within them (Luo, 2001; Meyer and Nguyen, 2005; Nee and Matthews, 1996; Wright et al., 2005). In the following section, we argue that foreign affiliate performance is also influenced by subnational institutions (the economic, political, and social institutions in different regions within the host country).

Subnational institutions

The economic institutions within a subnational region involve intermediaries (or locally oriented organizations) that provide support services to firms and the common infrastructure that supports regional economic transactions (Best, 1990; Maarten de Vet and Scott, 1992; McEvily and Zaheer, 1999; Porter, 1990; Saxenian, 1994). These intermediaries include universities, research institutes, regional trade associations, and technical assistance centers; whereas common infrastructure includes qualified suppliers, skilled labor, established innovations, and available capital (Best, 1990; McEvily and Zaheer, 1999; Saxenian, 1994). The development of economic institutions varies across the subnational regions within a host country (Chung and Alcacer, 2002; Schlevogt, 2002). Regions with underdeveloped economic institutions may pose challenges for foreign affiliates.
(Lockett, 1987), whereas those with well-established such institutions may facilitate the development of these affiliates’ competitive capabilities (McEvily and Zaheer, 1999). As repositories of knowledge, well-established regional economic institutions serve to compile and disseminate information about how to acquire new, or extend existing, such capabilities (McEvily and Zaheer, 1999). Foreign firms that locate in these regions are able to benefit from access to the human capital and technologies and skills of the other firms within them (Almeida, 1996; Chung and Alcacer, 2002; Nachum, 2000; Shaver and Flyer, 2000).

Regional economic institutions also serve as intermediaries that link firms with complementary interests and provide them with information about potential exchange parties (McEvily and Zaheer, 1999). Foreign firms that enter a subnational region to exploit unique capabilities may have to rely on the supply of goods and services from local firms (Nachum, 2000). As these foreign firms may not be familiar with the local environment, linkages with regional economic institutions not only allow them to gain access to favorable transactions with potential exchange parties (Nachum, 2000) but also serve to reduce the information and search costs associated with locating the resources that are critical to operational success (He, 2002).

The political institutions in different subnational regions may also vary in their formal rules or foreign direct investment policies. They may change such rules or policies at a different pace (Peng, 2003; Ruef and Scott, 1998). The governments in some countries may alter their foreign direct investment policies by allowing certain subnational regions to open to foreign investors first, and/or by offering different forms of preferential treatment to foreign firms that locate in different regions (Cheng and Kwan, 2000; Ma and Delios, 2007; Meyer and Nguyen, 2005; Zhou et al., 2002). Others may afford regional authorities autonomy in setting certain laws and tax rates for foreign firms (Coughlin et al., 1991; Hines, 1996; Meyer and Nguyen, 2005).

Within-country variation in foreign direct investment policies may also result from differences in the implementation of state rules or policies across subnational regions. Although these polices are set at the host country level, their implementation often takes place at the regional level (Meyer and Nguyen, 2005). In competing for a share of foreign direct investment inflows, regional governments differ in the way they implement policies to attract these inflows, such as tax breaks, tariff reductions, and fiscal incentives (Luo, 2001; Ma and Delios, 2007; Nguyen and Meyer, 2004; Oman, 2000; Zhou et al., 2002). This within-country regional policy variation not only affects foreign direct investment inflows, but also the costs of doing business in different regions (Meyer and Nguyen, 2005).

Social institutions are derived from the populace (Berger and Luckmann, 1966; Giddens, 1984; March and Olsen, 1989; Scott, 2001; Searle, 1995), and the informal frameworks that determine acceptable behavior vary from region to region (Meyer and Nguyen, 2005; Putnam, 1993). These regional differences within a country can be attributed to distinct local traditions and the cultural values shared by the members of the locality (Cooke, Urgang, and Etxebarria, 1997; Tung, 2008). As these local traditions and cultural values differentiate one institution from another, regional social institutions influence interpersonal trust (Johnston and Soroka, 2001; Tung, Worm, and Fang, 2008), work values (Kanungo and Bhatnagar, 1978), attitudes toward work (Tung et al., 2008), political trust (Johnston and Soroka, 2001), and social capital (Putnam, 1993), all of which, in turn, affect the cost of engaging in business activities. For example, differences in social capital across subnational regions have been found to affect the performance of local governments (Putnam, 1993). Differences in the level of trust and reciprocity among firms in these different regions have also been found to explain differences in economic performance (Locke, 1995), because trust enables people to produce socially efficient outcomes and avoid falling into inefficient, noncooperative traps (Coleman, 1990; Fukuyama, 1995).

In sum, economic, political, and social institutions vary across regions within host countries. Such differences in subnational institutions create opportunities and challenges for foreign affiliates and thus affect their performance, which leads us to the following hypothesis.

Hypothesis1: Foreign affiliate performance varies across subnational regions within a host country.

Although we have argued that there are considerable variations in foreign affiliate performance across subnational regions, the extent to which
that performance varies is different in emerging and advanced economies. We argue that it is more likely to vary greatly in the former than in the latter and that the large regional variation in emerging economies stems from three sources: discontinuous and incremental institutional change, uneven economic development, and cultural and ethnic diversity.

Institutional change in emerging economies may be discontinuous because of frequent changes in the policies, rules, and regulations that govern the operation of foreign firms (Child and Tse, 2001; Meyer and Nguyen, 2005; Nee, 1992) and may also be incremental because of a gradual shift from a command economy to a market-based economy (Meyer and Nguyen, 2005; Murtha and Lenway, 1994). Such a gradual shift results in the decentralization of authority and grants regional governments the autonomy and responsibility for regional economic development (Montinola et al., 1995; Qian and Weingast, 1997; Young, 2000). In China, for example, regional governments have policy making discretion with regard to expenditures on technology and physical and human capital (Liu and Li, 2006), public finance, tax exemptions and subsidies (Remick, 2002), and the creation of a favorable investment environment in which firms can improve production efficiency (He et al., 2008). Differences in subnational regional policies and practices would thus not only affect state-building strategies but also the priority of economic development.

The process of economic transition in emerging economies is often ‘spatially and structurally uneven’ (He, Wei, and Xie, 2008). Some subnational regions attract foreign direct investment earlier and thus change faster than others (Démurger, 2001; Dicken, 2003; He et al., 2008; Luo, 2000). For example, government policies in China tend to favor rapid growth in urban areas including mega cities, special economic zones, and coastal cities rather than in rural areas including inner areas and small submarkets (Fujita and Hu, 2001). Urban areas differ from rural areas in institutional structure, language, and culture (Scott et al., 2001). The disparity between them has been further widened by globalization and economic liberalization, which have accelerated the economic development of urban areas relative to their rural counterparts (Fujita and Hu, 2001; Scott et al. 2001).

Such uneven economic development is more likely to exist in emerging economies than in advanced economies. The former tend to have more disconnected economies across subnational regions because of a lack of national markets, efficient market intermediaries, and infrastructure (Prahalad and Lieberthal, 1998; Cui and Liu, 2000; Chang and Xu, 2008). Démurger (2001), for example, finds that the unevenly developed infrastructure (e.g., transport facilities and telecommunications) across subnational regions in China accounts for the differences in regional economic growth to a significant degree. The differences in economic performance between urban and rural areas are found to widen over time in emerging economies, such as China (Williamson, 1965; Fujita and Hu, 2001), and to converge over time in advanced economies, such as the United States, Japan, and European countries (Barro and Sala-i-Martin, 1992, 1995).

The subnational regions in emerging economies also tend to be more culturally and ethnically diverse than those in advanced economies. For example, China has more than 50 officially recognized ethnic minorities, and Russia comprises more than 80 federal subjects (regions, republics, and cities). India has at least 10 major languages and numerous minor ones and vast regional cultural differences (Prahalad and Lieberthal, 1998). Fearon (2003) finds the degree of both ethnic diversity (ethnic fractionalization) and cultural diversity (cultural fractionalization) to be lowest in Western countries (including Western Europe, the United States and Canada, and Australia and New Zealand), followed by Eastern Europe/the former Soviet Union, Asia (excluding Japan), Latin America/the Caribbean, North Africa/the Middle East, and the Sub-Saharan African countries.

An understanding of cultural, ethnic, and social diversity is also of particular importance to the successful operation of MNCs in emerging economies. Prahalad and Lieberthal (1998) argue that the consumer base in these economies is far more diversified than that in advanced economies in terms of size, income structure, and cultural background, which suggests that MNCs should rethink every element of their business models when doing business in such economies.² London and Hart (2004) also emphasize within-country differences in social relations in the business environments.

² Cui and Liu (2000) investigated consumer behavior in China and found that consumers’ attitudes and behavior differed significantly across provinces.
of emerging economies, noting that the successful MNCs in these economies tend to have strong capability in social embeddedness—the ability to ‘create competitive advantage based on a deep understanding of and integration with the local environment’ (London and Hart, 2004: 15). Furthermore, Luo and Park (2001) find that MNCs whose strategies are appropriately aligned with distinct local environments are more likely to achieve superior performance in emerging economies, such as China. More recently, Lin et al. (2009) find that network and learning effects on foreign firms’ M&A activities significantly vary between China and the United States due to the difference in the level of institutional development.

As these large subnational regional differences in the extent of institutional change, the process of economic transition, and cultural and ethnic diversity in emerging economies are likely to lead to a wide variation in foreign affiliate performance, we expect the regional variation in that performance to be greater in these economies than in advanced economies. Thus, we posit the following hypothesis.

Hypothesis 2: The variation in foreign affiliate performance across subnational regions is larger in emerging economies than it is in advanced economies.

METHODOLOGY

Our data are derived from the Trend Survey of Overseas Business Activities (hereafter the Trend Survey), which has been conducted annually by the Japanese Ministry of Economics, Trade, and Industry (METI) since 1971. The Ministry sends survey forms, including one for the parent firm and one for each of its foreign affiliates, to all Japanese corporations, apart from those in the real estate, financial, and insurance industries, to gather information about their business activities in overseas markets. The foreign affiliates are of three types: (1) those in which a Japanese corporation has invested capital of 10 percent or more (a subsidiary), (2) those in which a subsidiary that is more than 50 percent funded by a Japanese corporation has invested capital of more than 50 percent in total (a subsubsidiary), and (3) those in which a Japanese corporation and a subsubsidiary that is more than 50 percent funded by a Japanese corporation have invested capital of more than 50 percent in total.

We used 10 annual reports from the Trend Survey for the 1996–2005 period to compile our panel dataset. The average response rate to the survey during the observation period was 60.9 percent. Our panel dataset contains a sample of more than 45,000 foreign affiliate-year cases that include 4,931 foreign affiliates formed by 1,842 parent firms in 34 states in the United States and 21 cities and provinces in China.

We focus on subnational regions in the United States and China for two reasons. First, both countries have a large number of such regions (cities, provinces, and states), which makes our regional comparisons of foreign affiliate performance more comprehensive and systematic. Second, the United States is one of the largest advanced economies in the world, whereas China is one of the world’s largest emerging economies. These two representative nations with distinct types of economies therefore provide an interesting research setting in which to examine how within-country differences in foreign affiliate performance vary between advanced and emerging economies.

Variables

We used six independent, categorical variables in our analyses. The industry effect variable denotes the differences among the 75 industries in which the foreign affiliates operate. We classify industries based on the list of industries reported in the Trend Survey. The corporate (parent firm) effect variable denotes the differences among the 1,842 parent firms (MNCs), and the foreign affiliate effect variable the differences among the 4,931 foreign affiliates. The region effect variable denotes the differences among the 55 regions (i.e., 34 states in the United States and 21 major cities and

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1 This database has been used in the studies of Chan et al. (2008), Kiyota et al. (2005), and Makino et al. (2004b). Detailed information on the Trend Survey of Overseas Business Activities can be found on the METI Web site at http://www.meti.go.jp/english/statistics/data/h2c4tope.html.

4 China has a total of 34 provincial-level administrative areas, including 23 provinces, five autonomous regions, four municipalities, and two special administrative regions. The United States comprises 50 states and one federal district. To run our panel data analysis, we selected states, cities, and provinces that had 30 or more foreign affiliates throughout the observation period.
provinces in China), and the year effect variable the differences over the 10-year observation period (1996–2005). Finally, we also included a region-industry interaction effect variable in our models. We did so because foreign affiliates in different industries can operate at the regional level, and industry and region may jointly influence performance.

The study has two dependent variables. The first performance measure is the return on sales (ROS) of the foreign affiliates. We use ROS as our measure because foreign affiliates, especially strategic alliances, focus on ongoing business activities, and sales (the numerator of ROS) can better reflect performance in a dynamic business climate than can fixed assets (Christmann et al., 1999). In addition, ROS is regarded as a superior measure to return on assets (ROA) in the global environment (Lincoln, Gerlach, and Ahmadjian, 1996), as asset turnover may vary significantly among host countries because of differences in the market value of assets across countries.

Our second performance measure is ROS deviation, which is measured by the absolute value of the deviation in a foreign affiliate’s ROS from the regional mean. A low value for such deviation indicates that the foreign affiliate’s performance is close to the regional ROS mean, whereas a high value indicates that it has deviated from the regional ROS mean, whether negatively or positively.

The operational definitions of ROS and ROS deviation are expressed in the following equations.

\[
\text{ROS}_{i,t} = \frac{\text{Net profit}_{i,t}}{\text{Sales}_{i,t}}
\]

\[
\text{ROS deviation}_{i,t} = \sqrt{\left(\text{ROS}_{i,t} - \text{ROS}_{\bar{i}}\right)^2},
\]

where \(\text{ROS}_{i,t}\) is the net profit over total sales of the \(i^{th}\) foreign affiliate in the \(t^{th}\) year, and \(\text{ROS deviation}_{i,t}\) is the absolute value of the deviation between the ROS of the \(i^{th}\) foreign affiliate in the \(t^{th}\) year and the mean of the ROS of foreign affiliates in the \(r^{th}\) subnational region in the \(t^{th}\) year (\(\text{ROS}_{r,t}\)).

These two performance measures capture different aspects of foreign affiliate performance. Analysis of the average ROS across subnational regions shows the extent to which the average foreign affiliate performance in one such region varies from that in others, whereas analysis of ROS deviation examines the extent to which the variation in foreign affiliate performance differs across these regions. Chan et al. (2008) use these performance measures at the host country level and regard the former as a measure of the ‘level’ of performance, which represents the return on foreign investment, and the latter as the ‘variation’ in performance, which represents the risk of foreign investment. Their study suggests that analysis of both the return on and risk of foreign investment allows a more comprehensive understanding of foreign affiliate performance.

Analysis

The current study offers two types of analyses to examine such performance. First, we present descriptive analysis of the patterns of two performance measures, ROS and ROS deviation, across subnational regions in the United States and China. Second, we employ variance component analysis to examine the sources of that performance. The following equation shows the operational definitions of the variance components of foreign affiliate performance.

\[
\eta_{ijkt} = \mu + \alpha_i + \beta_j + \gamma_k + \lambda_t + \eta_{ijkt},
\]

where \(\eta_{ijkt}\) denotes the performance of the \(i^{th}\) foreign affiliate in the \(j^{th}\) industry in the \(k^{th}\) subnational region that is affiliated with the \(l^{th}\) MNC (parent firm). \(\eta_{ijkt}\) is a linear combination of grand mean \(\mu\), foreign affiliate effects \(\alpha_i\), industry effects \(\beta_j\), region effects \(\gamma_k\), corporate (MNC) effects \(\lambda_t\), the interaction between industry and region effects \(\beta_{j}\gamma\), year effects \(\tau_t\), and the error term \(\epsilon_{ijkt}\). All of the independent variables and the error term are treated as random effect variables. The variance component of foreign affiliate performance is decomposed as follows.

\[
\sigma^2 = \sigma^2 + \sigma^2 + \sigma^2 + \sigma^2 + \sigma^2 + \sigma^2 + \sigma^2.
\]

\footnote{Following previous studies (e.g., Rumelt, 1991; McGahan and Porter, 1997), we employed a variance component analysis to examine the sources of foreign affiliate performance.}
Table 1. Variance components—dependent variable: ROS per foreign affiliate

<table>
<thead>
<tr>
<th>Category</th>
<th>Model 1 (United States)</th>
<th>Model 2 (China)</th>
<th>Model 3 (United States)</th>
<th>Model 4 (China)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate % Sig.</td>
<td>Estimate % Sig.</td>
<td>Estimate % Sig.</td>
<td>Estimate % Sig.</td>
</tr>
<tr>
<td>Year</td>
<td>0.36 0.2 ***</td>
<td>4.29 2.2</td>
<td>0.34 0.3 ***</td>
<td>5.32 2.6</td>
</tr>
<tr>
<td>Foreign affiliate</td>
<td>24.73 17.5 ***</td>
<td>30.61 15.8 ***</td>
<td>29.93 16.8 ***</td>
<td>29.09 14.4 ***</td>
</tr>
<tr>
<td>Corporate</td>
<td>27.14 19.2 ***</td>
<td>40.37 20.8 ***</td>
<td>26.92 18.8 ***</td>
<td>39.48 19.5 ***</td>
</tr>
<tr>
<td>Industry</td>
<td>19.23 13.6 ***</td>
<td>20.31 10.5 ***</td>
<td>18.34 12.8 ***</td>
<td>11.96 5.9 **</td>
</tr>
<tr>
<td>Region</td>
<td>1.94 1.4 ***</td>
<td>12.94 6.7 **</td>
<td>5.05 2.1 *</td>
<td>2.80 1.4</td>
</tr>
<tr>
<td>Region × industry</td>
<td>3.24 2.3 ***</td>
<td>32.61 16.1 ***</td>
<td>81.17 40.1 ***</td>
<td>32.61 16.1 ***</td>
</tr>
<tr>
<td>Error</td>
<td>68.01 48.1 ***</td>
<td>85.51 44.0 ***</td>
<td>81.08 46.9 ***</td>
<td>81.17 40.1 ***</td>
</tr>
<tr>
<td>Total</td>
<td>141.40 100.0</td>
<td>194.04 100.0</td>
<td>142.90 100.0</td>
<td>202.42 100.0</td>
</tr>
<tr>
<td>n</td>
<td>16,277 13,051</td>
<td>13,051</td>
<td>16,277 13,051</td>
<td>13,051</td>
</tr>
</tbody>
</table>

* p < 0.01; ** p < 0.001; *** p < 0.0001.

Table 2. Variance components—dependent variable: ROS deviation per foreign affiliate

<table>
<thead>
<tr>
<th>Category</th>
<th>Model 1 (United States)</th>
<th>Model 2 (China)</th>
<th>Model 3 (United States)</th>
<th>Model 4 (China)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate % Sig.</td>
<td>Estimate % Sig.</td>
<td>Estimate % Sig.</td>
<td>Estimate % Sig.</td>
</tr>
<tr>
<td>Year</td>
<td>0.01 0.0</td>
<td>0.96 1.0</td>
<td>0.00 0.0</td>
<td>0.76 0.8</td>
</tr>
<tr>
<td>Foreign affiliate</td>
<td>15.30 16.1 ***</td>
<td>13.56 14.5 ***</td>
<td>14.54 15.1 ***</td>
<td>12.78 13.4 ***</td>
</tr>
<tr>
<td>Corporate</td>
<td>17.43 18.4 ***</td>
<td>14.74 15.8 ***</td>
<td>17.27 17.9 ***</td>
<td>11.97 12.6 ***</td>
</tr>
<tr>
<td>Industry</td>
<td>13.98 14.8 ***</td>
<td>9.32 10.0 ***</td>
<td>12.93 13.4 ***</td>
<td>4.83 5.1 **</td>
</tr>
<tr>
<td>Region</td>
<td>3.35 3.5 **</td>
<td>12.91 13.8 **</td>
<td>5.27 5.5 **</td>
<td>0.77 0.8</td>
</tr>
<tr>
<td>Region × industry</td>
<td>2.16 2.3 ***</td>
<td>14.22 15.0 ***</td>
<td>49.66 52.3 ***</td>
<td>49.66 52.3 ***</td>
</tr>
<tr>
<td>Error</td>
<td>44.78 47.2 ***</td>
<td>42.05 44.9 ***</td>
<td>44.15 45.8 ***</td>
<td>49.66 52.3 ***</td>
</tr>
<tr>
<td>Total</td>
<td>94.85 100.0</td>
<td>93.53 100.0</td>
<td>96.33 100.0</td>
<td>94.98 100.0</td>
</tr>
<tr>
<td>n</td>
<td>16,277 13,051</td>
<td>13,051</td>
<td>16,277 13,051</td>
<td>13,051</td>
</tr>
</tbody>
</table>

* p < 0.01; ** p < 0.001; *** p < 0.0001.

We use the MIXED procedure in the SAS program to analyze this model, which was estimated via the restricted maximum likelihood method.6

RESULTS

Tables 1 and 2 provide variance component estimates for the independent effects and the percentages of ROS and ROS deviation that can be explained by these effects. Model 1 shows the region, industry, corporate, foreign affiliate, and year effects on the performance of foreign affiliates in the United States. The results indicate that corporate effects are the most important determinants of both ROS and ROS deviation in the United States (19.2% for ROS and 18.4% for ROS deviation), followed by foreign affiliate effects (17.5% and 16.1%, respectively), industry effects (13.6% and 14.8%), region effects (1.4% and 3.5%), and year effects (0.2% and 0.0%). Model 2 shows the independent effects on the performance of foreign affiliates in China, with the results indicating that corporate effects are also the most important determinants of both ROS and ROS deviation in this country (20.8% for ROS and 15.8% for ROS deviation), followed by foreign affiliate effects (15.8% and 14.5%, respectively), industry effects (10.5% and 10.0%), region effects (6.7% and 13.8%), and year effects (2.2% and 1.0%). The results of our variance component

6We employed the mixed model approach because it has two major advantages over variance component analysis using traditional univariate and multivariate approaches. First, it produces estimates of covariate effects for hypotheses testing. Second, it provides a larger class of covariance structures and a better mechanism for handling missing values (Wolfinger and Chang, 1995).
analyses show consistent patterns in the relative importance of corporate, foreign affiliate, industry, and region effects in foreign affiliate performance in both the United States and China. All of the independent effects variables, except for those for the year effect, are statistically significant.

Figure 1 presents a scatter plot of the average ROS and ROS deviation across subnational regions in the United States and China (see Appendix for a list of the average ROS and ROS deviations in these regions), from which it can be seen that they vary widely in both countries. Hainan in China and Kansas in the United States show a very high rate of ROS deviation (16.566 in the former and 12.466 in the latter), but a very low average ROS (−6.089 and −4.296, respectively), whereas the U.S. state of Iowa has a relatively low degree of average ROS deviation (6.638), but a high average ROS (4.208). Taken together, these findings provide support for Hypothesis 1, which states that foreign affiliate performance varies across regions within a host country.

Our analysis also reveals that the region effects vary noticeably between the two countries. Whereas these effects account for 6.7 percent of ROS in China, they account for only 1.4 percent of that in the United States. The same pattern is found for ROS deviation: they account for 13.8 percent of such deviation in the former and 3.5 percent of that in the latter. These findings indicate that the region effects on average ROS and ROS deviation are greater in China than they are in the United States (see Appendix). Figure 1 also shows that the range of ROS is much wider in China (ranging from −6.089 in Hainan to 12.413 in Henan) than in the United States (from −4.296 in Kansas to 4.208 in Iowa) and the ROS deviation, on average, is greater in China (15.539) than in the United States (10.281).

Figure 2 shows the top 20 subnational regions measured by ROS and ROS deviation (mean), from which it can be seen that there are some interesting contrasts between the two countries in the distribution of foreign affiliate performance. Panel (a) shows that the distribution of ROS in China is characterized by a curve with a short ‘head’ comprising a small number of provinces with very high ROS means and a long ‘tail’ of a larger number of provinces and cities with low ROS means, whereas...
Does Subnational Region Matter?

Figure 2. Top 20 subnational regions by foreign affiliate performance

(a) ROS (mean)

(b) ROS deviation (mean)

that in the United States exhibits a relatively stable curve. Panel (b) shows that ROS deviation in the former is consistently greater than that in the latter among the top 20 cities, provinces, and states. Thus, it is indicative that the variation in ROS

8 This evidence implies the presence of ‘power law’ in performance distributions across subnational regions in emerging economies. As advocated by Andriani and McKelvey (2007), researchers who study performance implications of location choice might examine the sources of ‘extreme’—as opposed to the ‘average’—values in the distribution of foreign affiliate performance across these regions. Our analysis of ROS deviation intends to address this issue.

both between and within subnational regions tends to be greater in China than in the United States, providing additional evidence for the presence of between-country variations in foreign affiliate performance across subnational regions and support for Hypothesis 2, which states that the within-country variation in that performance is greater in emerging economies than in advanced economies.

Models 3 and 4 in Tables 1 and 2 add the interaction effects of industry and region to the independent effects models. These region-industry effects account for 2.3 percent of ROS and 2.3 per-

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percent of ROS deviation in the United States and 16.1 percent and 15.0 percent, respectively, in China. They clearly have a stronger impact on both ROS and ROS deviation in the latter than in the former. In China, the interaction effects are noticeably greater than the independent effects of industry and region. When they are added to the analysis, the separate effects of both industry and region became remarkably weak: the industry effects drop from 10.5 percent to 5.9 percent for ROS and from 10.0 percent to 5.1 percent for ROS deviation, and the region effects drop from 6.7 percent to 1.4 percent and from 13.8 percent to 0.8 percent, respectively. In the United States, in contrast, neither industry nor region effects change much when the interaction effects are added to the analysis. This evidence suggests that industry effects are highly region bound in China relative to the United States.

DISCUSSION

The key motivation of the study reported herein was to examine whether and to what extent subnational regions have explanatory power with regard to the performance of foreign affiliates. The results of our analyses clearly show that these regions have significant such explanatory power and that their effects are greater in emerging economies than in advanced economies.

Our evidence demonstrates that the subnational region represents an additional level of analysis for firm performance. Conventional strategic management research has long been dominated by the industrial organization economics perspective and the resource-based view of the firm, which suggest that industry structure and firm resources and capabilities are the primary determinants of firm performance. Traditional international business research that draws on trade and economic geography theories advocates host country-specific factors as the critical determinants of this performance. These studies generally suggest that the differences in country, industry, and firm attributes explain the variation in firm behavior and performance. Although a number of recent international business scholars have contributed to the identification of within-country differences in regional endowments and industrial agglomeration, they fail to investigate the extent to which subnational regional effects, rather than country, industry, and firm effects, can explain the variation in foreign affiliate performance. The findings of our study clearly show that these region effects have an impact on such performance. They therefore complement and advance the strategic management and international business literature by showing the subnational region to be a key unit of analysis for the determinants of firm (foreign affiliate) performance.

The results of this study further show consistent patterns in the relative importance of the internal and external effects on foreign affiliate performance. Consistent with previous findings indicating that internal effects (corporate and foreign affiliate effects) tend to play a more salient role than external effects (country and industry effects) in explaining the variation in foreign affiliate performance (Makino et al., 2004b), our study shows that corporate and foreign affiliate effects have the greatest impact on such performance, followed by industry effects. By focusing on two of the world’s large economies at polar ends of the economic spectrum (i.e., the United States and China), this study reveals that regional effects are more important in emerging economies than in developed economies and that the regional variation in foreign affiliate performance tends to be greater in the former than in the latter. We argue that this large variation exists because the extent of institutional change differs more widely across subnational regions, the process of economic transition is more spatially and structurally uneven, and these regions are more culturally and ethnically diverse in emerging economies. One interesting extension of this study would be to identify the key constituents of subnational institutions and explore which of these institutions is more (or less) likely to contribute to a large variation in foreign affiliate performance in emerging economies.

Our findings indicate that the interaction effects between region and industry have a far greater impact on foreign affiliate performance than either effect has independently in China, whereas there is little difference between these effects in the United States. These findings suggest that, in general, the relative importance of industry (region) effects varies across subnational regions (industries) in China. One possible explanation is that the extent of an industry’s comparative advantages varies across regions in this country. For example, previous studies have shown that China’s coastal regions have comparative advantages for some
industries (e.g., electronic and telecommunications equipment, clothing and other fiber products, and leather and fur products) because of region-bound industrial policies (e.g., favorable policy treatment) (He et al., 2008). Another possible explanation is that the decentralization policy provides some regional governments with the incentive to protect local industries from competition across subnational regions, which, in turn, affects the structure and profitability of these industries (Young, 2000).

To better understand the determinants of foreign affiliate performance, future research should examine both the location-specific and non-location specific effects on industries across subnational regions.

This study has several implications for theory building. First, researchers can develop a more robust assessment of foreign affiliate performance. Conventional international business research generally examines the influence of between-country differences on foreign affiliate performance and compares the average level of such performance in different host countries. These studies, however, ignore the influences of within-country differences on this performance and the importance of business extremes in the return on and risk of investment (Andriani and McKelvey, 2007). Our findings clearly reveal that the average performance of these affiliates (return on investment as measured by ROS) varies greatly across regions within a country. In addition, the actual performance of a foreign affiliate in a particular subnational region may deviate significantly from the average foreign affiliate performance in that region (investment risk as measured by ROS deviation). Our results also show that the variation in return on investment and investment risk are larger in China than in the United States. Many subnational regions in the former (e.g., Heilongjiang, Hunan, and Jilin) fall into the ‘high risk-low return’ category, with only a few (e.g., Inner Mongolia and Jiangxi) falling into the ‘low risk-high return’ category. To accurately assess foreign affiliate performance, future research could incorporate an assessment of both the return on and risk of investment and explore why many of the subnational regions in emerging economies fall into the ‘high risk-low return’ category.

Second, further research is needed to identify the boundaries of organizational fields in emerging economies. Neoinstitutional theorists suggest that these fields consist of organizations that ‘in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products’ (DiMaggio and Powell, 1983: 148). As an organizational field is made up of competing organizations and interorganizational relationships of a market-, hierarchy-, or network-like character (Perrow, 1991), it is often defined as synonymous with an ‘industry’ (Windeler and Sydow, 2001). Traditional strategic management research also regards an industry as a key explanatory factor of firm performance. However, the evidence presented here shows that the joint effects of industry and region on ROS appear to be greater than the independent effects of either and that these joint effects are more noticeable in China than in the United States. These findings suggest that industry effects may not have an independent and homogeneous influence on firm performance across subnational regions, especially in large emerging economies such as China, as these effects tend to be region bound. Future research should therefore develop a theoretical argument about the way in which an organizational field can be defined and explain how region- and industry-specific factors jointly influence the strategic behavior and performance of firms (foreign affiliates). Given the popular claim that the globalization of business is blurring the regional boundaries between industrial activities (e.g., Friedman, 2005), it might also be interesting to examine how industry-region relationships evolve over time as a result of such globalization.

Our findings also have several implications for managers and policy makers. MNCs need to formulate distinct regional foreign direct investment strategies in emerging economies. Strategic management researchers have suggested that firms with firm-specific competitive advantages tend to outcompete their rivals in any host country market. They generally assume that institutional environments are homogeneous in advanced economies. However, this assumption may not hold in emerging economies that consist of a large number of subnational regions (e.g., Brazil, Russia, India, and China), as the institutional environments of these regions may vary (Chung and Alcacer, 2002; Meyer and Nguyen, 2005). This within-country difference creates unique challenges for foreign affiliates, as our findings reveal that their performance varies greatly by region in emerging economies.
economies. Thus, firm-specific competitive advantages may constitute a necessary, but not sufficient, condition for success in these economies. Instead, foreign affiliates need to have the ability to handle the institutional idiosyncrasies of different regions. MNC managers, therefore, need to develop a clear understanding of the rules of the game in each subnational region to formulate appropriate regional location strategies.

This study also has important implications for policy makers who are concerned with regional promotion. First, foreign direct investment is known to be one way of increasing productivity and creating new jobs. It is essential that policy makers have information about which subnational regions are characterized by better foreign affiliate performance and why. Such information would allow them to identify which regions require additional investments to improve their attractiveness to foreign investors. Second, policy makers require information that allows them to evaluate the effectiveness of existing regional policies. Our evidence shows that industry-specific factors may have heterogeneous influences on foreign affiliate performance across subnational regions, a finding that may lead policy makers to reconsider whether they should allow a particular industry to be concentrated in one region or integrated across regions. As the direction and scope of policy change will eventually influence the overall economic growth of a country’s subnational regions, future research should make a detailed assessment of these two models of regional industry policy and investigate which provides for the sounder development of an institutional environment suitable for foreign investors.

Finally, on a methodological note, this study used variance component analysis with a mixed model approach to evaluate the foreign affiliate, corporate, industry, region, and year effects on foreign affiliate performance. However, such analysis has several limitations (Bowman and Helfat, 2001; Brush and Bromiley, 1997; Brush, Bromiley, and Hendricks, 1999; Misangyi et al., 2006). First, it captures categorical effects and is unable to identify the specific institutional and strategic factors within each effect; second, it is unable to examine the complex cross-level effects on firm performance; and third, it may underestimate smaller, but still substantial, effects. Future research should, therefore, incorporate insights from regional studies in other disciplines (e.g., urban and regional sociology, development economics, economic geography, and comparative politics) and develop more specific, fine-grained, and theory-grounded measures of regional effects.

ACKNOWLEDGEMENTS

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## APPENDIX

ROS and ROS deviation by subnational region

<table>
<thead>
<tr>
<th>Subnational regions in United States (states)</th>
<th>Number of affiliates</th>
<th>ROS (mean)</th>
<th>ROS deviation (mean)</th>
<th>Subnational regions in China (provinces and cities)</th>
<th>Number of affiliates</th>
<th>ROS (mean)</th>
<th>ROS deviation (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Hampshire</td>
<td>33</td>
<td>1.434</td>
<td>5.514</td>
<td>Inner Mongolia (内蒙古自治区)</td>
<td>40</td>
<td>6.699</td>
<td>11.274</td>
</tr>
<tr>
<td>Iowa</td>
<td>34</td>
<td>4.208</td>
<td>6.638</td>
<td>Jiangxi (江西省)</td>
<td>43</td>
<td>4.830</td>
<td>11.863</td>
</tr>
<tr>
<td>Indiana</td>
<td>393</td>
<td>0.462</td>
<td>7.228</td>
<td>Guangdong (广东省)</td>
<td>1755</td>
<td>0.694</td>
<td>12.967</td>
</tr>
<tr>
<td>Kentucky</td>
<td>469</td>
<td>0.932</td>
<td>8.117</td>
<td>Hubei (湖北省)</td>
<td>74</td>
<td>0.693</td>
<td>13.236</td>
</tr>
<tr>
<td>Illinois</td>
<td>1268</td>
<td>1.626</td>
<td>8.187</td>
<td>Anhui (安徽省)</td>
<td>89</td>
<td>4.810</td>
<td>14.026</td>
</tr>
<tr>
<td>Tennessee</td>
<td>391</td>
<td>1.131</td>
<td>8.248</td>
<td>Sichuan (四川省)</td>
<td>233</td>
<td>1.948</td>
<td>14.821</td>
</tr>
<tr>
<td>Louisiana</td>
<td>31</td>
<td>3.822</td>
<td>8.356</td>
<td>Hebei (河北省)</td>
<td>167</td>
<td>1.521</td>
<td>15.006</td>
</tr>
<tr>
<td>Virginia</td>
<td>107</td>
<td>1.749</td>
<td>8.378</td>
<td>Shandong (山东省)</td>
<td>743</td>
<td>0.606</td>
<td>15.035</td>
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<tr>
<td>Michigan</td>
<td>888</td>
<td>1.664</td>
<td>8.397</td>
<td>Shanghai (上海市)</td>
<td>3713</td>
<td>0.802</td>
<td>15.223</td>
</tr>
<tr>
<td>New Jersey</td>
<td>998</td>
<td>0.127</td>
<td>8.793</td>
<td>Liaoning (遼寧省)</td>
<td>1284</td>
<td>1.057</td>
<td>15.250</td>
</tr>
<tr>
<td>Florida</td>
<td>154</td>
<td>−0.303</td>
<td>9.110</td>
<td>Zhejiang (浙江省)</td>
<td>512</td>
<td>1.361</td>
<td>15.400</td>
</tr>
<tr>
<td>Ohio</td>
<td>698</td>
<td>1.417</td>
<td>9.350</td>
<td>Jiangsu (江蘇省)</td>
<td>1732</td>
<td>1.043</td>
<td>15.799</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>189</td>
<td>1.484</td>
<td>9.361</td>
<td>Tianjin (天津市)</td>
<td>773</td>
<td>0.390</td>
<td>15.916</td>
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<td>111</td>
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<td>9.743</td>
<td>Shaanxi (陝西省)</td>
<td>74</td>
<td>3.037</td>
<td>16.374</td>
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<tr>
<td>Colorado</td>
<td>82</td>
<td>−3.035</td>
<td>9.821</td>
<td>Fujian (福建省)</td>
<td>240</td>
<td>3.427</td>
<td>16.476</td>
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<td>New York</td>
<td>2035</td>
<td>0.918</td>
<td>9.905</td>
<td>Hainan (海南省)</td>
<td>34</td>
<td>−6.089</td>
<td>16.566</td>
</tr>
<tr>
<td>North Carolina</td>
<td>355</td>
<td>0.201</td>
<td>10.019</td>
<td>Beijing (北京市)</td>
<td>958</td>
<td>1.872</td>
<td>16.908</td>
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<td>Missouri</td>
<td>80</td>
<td>1.124</td>
<td>10.143</td>
<td>Henan (河南省)</td>
<td>42</td>
<td>12.413</td>
<td>17.300</td>
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<td>4937</td>
<td>0.706</td>
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<td>Heilongjiang (黑龍江省)</td>
<td>40</td>
<td>−2.729</td>
<td>18.715</td>
</tr>
<tr>
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<td>−1.215</td>
<td>10.156</td>
<td>Jilin (吉林省)</td>
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<td>18.885</td>
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<td>10.731</td>
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<td>Standard deviation</td>
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<td>−4.30</td>
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