Strategic Management Journal
Strat. Mgmt. J., **29**: 495–518 (2008)
Published online 22 February 2008 in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/smj.674
Received 12 May 2006; *Final revision received 22 November 2007*

SPILLOVERS AND COMPETITION AMONG FOREIGN AND LOCAL FIRMS IN CHINA

SEA JIN CHANG[1]* and DEAN XU[2]**
[1] *School of Business Administration, Korea University, Seoul, Korea*
[2] *School of Business, The University of Hong Kong, Pokfulam, Hong Kong*

Combining the FDI spillover literature with a competitor analysis framework, we examine the relative size of spillover and competition effects in China between foreign entrants and local firms, among foreign entrants, and among local firms. Our results show that the increased presence of foreign entrants has generally benefited local firms nationally, but has negatively affected the survival rates of local firms in regional markets. Surprisingly, foreign entrants are crowded out not only by their peers, but also by reformed local firms at both the national and regional levels.

INTRODUCTION

Foreign direct investment (FDI) is critical to a multinational firm's global strategy. Research in strategic management has long studied multinationals' strategies and performance in overseas markets. It has examined such firms' entry mode decisions (Kogut, 1983; Chang, 1995), their interactions with other multinationals (Henisz and Delios, 2001; Chang and Park, 2005; Miller and Eden, 2006), and their ability to cope with the socioeconomic environments of the host countries they enter (Rosenzweig and Singh, 1991; Ghoshal and Westney, 1993; Kostova and Zaheer, 1999). Yet it has typically studied these phenomena only from the perspective of multinational firms. Except for studies on joint ventures, it has paid little attention to local firms, which compete with multinationals in local markets (Meyer, 2004).

In contrast, economists have long considered how local firms can benefit from foreign entrants' technology spillovers and thereby improve their own technological efficiency (Caves, 1974; Blomstrom, 1986; Hejazi and Safarian, 1999; Sinai and Meyer; 2004). Yet for the most part, economists have also neglected host countries' competitive environments, in which local firms are integral, and have viewed local firms, especially those in emerging and developing economies, as passive recipients of technology spillovers.

One possible reason that strategy and economics research has marginalized local firms and characterized them as passive may be attributable to one of FDI theory's underlying assumptions, namely that foreign entrants' advantage over local firms is sufficiently large to compensate for their liability of foreignness and to limit competition from local firms (Hymer, 1960; Caves, 1971). This assumption may no longer be valid, however, as some local firms in developing countries are successfully challenging foreign entrants (Dawar and Frost, 1999; Zeng and Williamson, 2003). For instance, in the Chinese mobile handset sector, foreign multinationals such as Motorola and Nokia had more than 95 percent market share until 1999.

Keywords: spillover effects; competition effects; foreign direct investments; competitor analysis; China
*Correspondence to: Sea Jin Chang, School of Business Administration, Korea University, Sungbukku Anamdong 5-1, Seoul, KOREA 136-701. E-mail: schang@korea.ac.kr
** The authors are listed alphabetically; each contributed equally.

By 2003, local firms represented by Bird and TCL had captured over 60 percent market share (Luo, 2005). In the Chinese fresh milk industry, six domestic firms have shut out multinationals such as Kraft and Danone by securing exclusive access to high-quality dairy farms and tightly controlling distribution channels. Anecdotal accounts further suggest that competition is intensifying not only between foreign and local firms but also among foreign entrants and among local firms themselves, a possibility overlooked by prior studies.

In this study, we examine these multiple forms of competition in an emerging market context. Our point of departure is the literature on FDI spillovers to local firms, which we believe has generally neglected the possibility of such competition. In order to overcome this shortcoming, it is necessary to adopt a theoretical framework that explains competition among firms. We therefore draw insights from the literature on competitor analysis and competitive dynamics to guide our study. Specifically, Chen (1996) proposes two factors—market commonality and resource similarity—as antecedents of interfirm rivalry. Although Chen uses this framework to analyze pair-wise rivalry, tension, and competitive interaction, we extend it to the study of competition among various groups of firms, so that we can account for both the positive and negative effects between foreign and local firms, and among foreign and local firms themselves.

The empirical analysis in this study is based on panel data for more than 200,000 firms in China from 1998 to 2005. China is the largest emerging market and the largest annual recipient of FDI in the world. It is an ideal setting to observe spillovers and competition between and among foreign entrants and local incumbents because it comprises vast regional markets, and economic and social reforms have created competing firms with heterogeneous resources. Our findings provide a relatively complete picture of the mutual benefits and costs of competition among foreign and local firms in China.

SPILLOVERS AND COMPETITION AMONG FOREIGN AND LOCAL FIRMS

FDI and the spillover effects

Spillovers denote the transfer of resources, such as technological knowledge, between organizations (e.g., from foreign entrants to local firms) without a contractual relationship (Meyer, 2004). Caves (1974) suggests that foreign entrants can increase the speed of technology spillovers to host industries by demonstrating their technological superiority, and by competing and transacting with domestic firms. He tested for these effects with a sample of 22 Australian manufacturing sectors, and found a positive relationship between local firms' labor productivity (value-added per worker) and the share of foreign firms' employment in an industry. This finding provided early evidence for FDI's positive impact on domestic firms. Several subsequent studies corroborated Caves's results. For instance, Globerman (1979) found a positive relationship in Canadian industries between labor productivity and several measures for foreign presence, including the proportion of value-added produced in foreign-owned plants. Blomstrom and Persson (1983) and Blomstrom (1986) found a positive relationship for Mexican industries between foreign participation in an industry and the relative changes in labor productivity.

Since the 1990s, however, research on this topic has yielded a confusing jumble of results. On the one hand, some of this work has confirmed the findings of earlier studies. For example, Hejazi and Safarian (1999) found that FDI stocks positively influenced the total factor productivity of 22 OECD (Organisation for Economic Co-operation and Development) countries. Driffield and Munday (2000) observed a positive relationship between industry comparative advantage, reflected in the export/import ratio, and foreign firms' employment shares in U.K. manufacturing industries. Liu *et al.* (2000) confirmed a positive relationship between labor productivity and two measures of foreign presence—the share of employment attributable to foreign firms and the share of foreign capital stock in U.K. manufacturing industries. Buckley, Clegg, and Wang (2002) concluded that foreign firms that invested in China could generate technological and international market access spillover benefits for local firms. Sinai and Meyer (2004) found that the share of foreign employment in an industry strongly predicted spillovers in Estonia.

In contrast, other studies have found no evidence, or contradictory evidence, of technology spillovers from multinationals to local firms. Haddad and Harrison (1993), perhaps the first study to employ a firm-level dataset, found foreign firms did not affect the productivity of local firms in

DOI: 10.1002/smj

the Moroccan manufacturing sector. Using a large sample of Venezuelan plants, Aitken and Harrison (1999) found the level of foreign ownership depressed local firms' productivity, except for joint ventures. Konings (2001), again with firm-level data, found FDI had a negative impact on local firms' productivity in Bulgaria and Romania. Furthermore, this negative effect might also be present in developed markets. De Backer and Sleuwaegen (2003), for example, found new foreign entrants and the total number of foreign firms in the Belgian manufacturing sectors decreased the founding rate and increased the exit rate of domestic firms.

Underlying these mixed results are major conceptual and technical problems. First, this research has studied only the impact of foreign entrants on local incumbents. It has neglected not only the competition that local firms might pose to foreign entrants, but also the possibility that spillovers and competition can occur among local firms and among foreign entrants. Foreign entrants might possess strong technological and brand advantages, but they also face liabilities of foreignness because of cultural differences and underdeveloped social, economic, and political infrastructures in host countries (Hymer, 1960; Khanna *et al*., 2005). In addition, local firms may possess local knowledge that is not immediately accessible to foreign firms, or may be able to benefit from government policies and social networks that are locally embedded (Makino and Delios, 1996; Lu and Xu, 2006).

Second, most of this research has used the industry, not the firm, as the unit of analysis. Thus, it has not gauged whether individual firms' productivity improved. Further, because many inefficient local firms might have exited an industry, the productivity of surviving local firms, reflected in industry-level productivity, might be biased upward.

Most significantly, this research has lacked a theoretical framework to explain the negative FDI spillover effects (or competition effects) that have been observed in both developed and developing markets. The positive FDI spillover effects are well documented, and their mechanisms are relatively easy to understand. For example, spillovers can occur when a technological gap exists between foreign and local firms (Gerschenkron, 1962; Meyer, 2004). This gap should not be so large that recipients of spillovers lack the capacity to absorb the technology received (Kokko, 1994; Kokko, Tasini, and Zejan, 1996). We believe, however, that spillover theory is not complete if it does not account for competition effects, and that it is necessary to identify the contexts in which competition effects may dominate positive spillover effects, or vice versa. A competition-based theory could help identify such contexts and may offer a possible explanation for negative spillovers.

Competitor analysis and the competition effects

Competition has been one of the central themes of the strategy field. Originally, competitive analysis was conducted at the industry level, with insights drawn from industrial organization economics (Bain, 1956; Porter, 1980). Rivalry inside an industry was recognized as a key component of the five forces that determine firm performance (Porter, 1980). Quickly, however, strategy researchers started looking for more precise ways to identify competitors at a subindustry level, namely the strategic group. This approach views firms within a strategic group as a focal company's most direct competitors (McGee and Thomas, 1986; Barney and Hoskisson, 1990).

As the strategy field became increasingly interested in firm-specific factors that contribute to competitive advantage, there arose a need to analyze individual competitors of a focal company, and to predict the rivalry and interaction between a pair of competitors. Chen (1996) integrates the related literatures in competitor analysis and interfirm rivalry (Chen and MacMillan, 1992; Ferrier, 2001) to derive a framework for this purpose. He synthesizes the market-focused perspective (Porter, 1980; Gimeno and Woo, 1994) and the resource-based view (Barney, 1986; Conner, 1994) to propose that two constructs, market commonality and resource similarity, are antecedents of interfirm rivalry. These constructs influence the drivers of competitive behavior, awareness, motivation, and capability, which in turn influence the likelihood of competitive attack and response between two rivals (Chen, 1996; Yu and Cannella, 2007; Chen, Su, and Tsai, 2007). More specifically, he predicts that greater market commonality and increased resource similarity will lead to mutual forbearance, but provoke retaliation once an attack has been launched.

Although this framework was developed to analyze the competitive dynamics between two individual firms, it can be extended beyond the dyad

DOI: 10.1002/smj

level. Market commonality refers to the extent of market overlap among competitors, and the concept of market is broad enough to encompass geographic market, market segment, and brand; resource similarity indicates the extent to which competitors possess comparable types and levels of strategic endowments (Chen, 1996). Companies targeting the same, single geographic market have chosen the same niche based on location (Porter, 1980, 1998). Baum and Mezias (1992) demonstrated that similar organizations located in the same region competed more intensely and reduced each other's chance of survival. On the other hand, companies that have similar 'sticky' and immobile resources may be constrained to develop similar capabilities and take similar strategic positions (Collis, 1991; Teece, Pisano, and Shuen, 1997), thus becoming direct competitors.

We apply this framework to examine group-level influences.[1] While this scaling-up makes it difficult to observe details of interfirm rivalry and interactions, it increases the model's predictability in a way. Chen's (1996) framework contains a mutual forbearance hypothesis and an escalating retaliation hypothesis: a pair of direct competitors might refrain from acting against each other, and will likely retaliate when acted upon. But the framework does not predict when an initial attack will be launched. The prospect that an attack would almost certainly invite retaliation from direct competitors perhaps suggests that mutual forbearance is more likely to be observed in a duopoly or an oligopoly situation. When there are large groups of firms in an industry, however, it is much more likely that some firms will initiate an attack in order to achieve first-mover advantage (Lieberman and Montgomery, 1988) with the hope that their competitors will not respond to this (Chen and MacMillan, 1992). Furthermore, some firms might act first to gain such first-mover advantage because they think their competitors might eventually initiate attacks. Thus, with large groups of firms, initial attacks would be more frequent and more certain. Once an attack has been launched, firms in the same market and with similar resource types will react, consistent with Chen's (1996) prediction of escalating retaliation. Consequently, industry rivalry will become more intense. Market commonality and resource similarity should thus be positively related to the level of competition for groups of firms. The value of Chen's framework, therefore, can be enhanced by applying it to examine competition among large groups of firms along some market and resource dimensions.

Spillovers and competition: the hypotheses

The combination of the FDI literature with the competitor analysis framework should provide a more complete picture that includes both the positive effects of spillovers and the negative effects of competition, with respect to both foreign and local firms, and better predict when one effect will dominate the other. We define spillover effects as the positive influences caused by the presence of a group of firms on members of another group, which enhance the latter's chances of survival. Competition effects, on the other hand, are the negative influences caused by the presence of a group of firms on members of another group, which decrease the latter's chances of survival. In fact, spillover and competition effects are two sides of the same coin. A firm is simultaneously a source of knowledge spillovers and a source of competition to other firms in the same industry. Thus, when competition is moderate, spillover effects are more likely to dominate; otherwise competition effects will prevail. We rely on the dimensions of market commonality and resource similarity to gauge the level of competition among firms, and hence the relative size of spillover and competition effects.

Market commonality

The distinction between regional and national markets significantly determines market commonality. Firms in the same region typically share a common geographic market. They are also subject to the same set of subnational institutional environments, which constrain their choices and force them to develop similar market strategies (DiMaggio and Powell, 1983; Oliver, 1991). Thus, firms may have more market commonality with firms in the same regional market than they do with those situated in different regions. A regional market can be based on physical access, such as the Manhattan hotel industry (Baum and Mezias, 1992); on unique

[1] Scaling up the competitor analysis framework from a dyadic level to groups of firms is equivalent to changing an individual-level theory to a group-level theory, according to Klein, Dansereau, and Hall's (1994) terminology. Our underlying assumption is that foreign entrants and local firms differ markedly from each other in their capabilities and strategies, and that they impact other firms as distinctive groups.

DOI: 10.1002/smj

sociocultural characteristics, such as Quebec in Canada; or on administrative divisions, such as the Chinese provinces (Vanhonacker, 1997). When a multinational firm enters an overseas market, it must choose a specific location for its foreign subsidiary. Traditionally, researchers have examined the location strategies of multinational firms as a function of ownership and location advantages (Dunning, 1981; Buckley and Ghauri, 2004), and have not paid much attention to the market competition factors in the host country. Recently, however, researchers have started to consider the challenges that local firms exert on foreign entrants in regional markets. Miller and Eden (2006), for instance, found that U.S. subsidiaries of foreign commercial banks had a higher exit rate in regions with higher local density.

A domestic incumbent is likely to see the entry of foreign firms as a serious threat, especially when it is locally bound (Dawar and Frost, 1999). Multinational firms typically enjoy technological superiority and strong brand loyalty. They are highly visible, and can secure preferential treatment from local governments due to their strong bargaining power (Moran, 1985; Kim, 1988). As a result, their entry into a host market will often bring shock and disequilibrium to a local industry, heightening the awareness of local firms (Chen, 1996), and the entrants will be seen as aggressive intruders. Under such circumstances, forbearance is unlikely, and attacks and counterattacks will be frequent, causing industry rivalry to intensify.

The resultant competitive tension (Chen *et al*., 2007) can be particularly salient in emerging markets, which often comprise many regional markets that have significantly different income levels and customer demands. National markets typically have not been established for most industries in such countries, and in the absence of national economic drivers, such as a national distribution system, most of the domestic firms compete regionally (Prahalad and Lieberthal, 1998; Peng, Tan, and Tong, 2004). Correspondingly, the competition effects between foreign entrants and local incumbents will also be stronger in a regional market than it is in the national market, because, when faced with foreign entrants, the regionally bound incumbents have no other means but to respond to the intruders in their regions by direct retaliation.

The spillover effect, on the other hand, can be a more universal phenomenon. Although the agglomeration literature may suggest that firms can benefit from being proximate to each other within certain geographic boundaries (Krugman, 1991; Saxenian, 1994; Chang and Park, 2005), there are many reasons to believe that spillover effects can go beyond narrowly defined local boundaries and become more pronounced at the country level (Keller, 2002). First, through one major mechanism of FDI spillovers—the demonstration effect (Caves, 1974)—spillovers can take place across regions within a nation. This effect occurs when the introduction of new foreign technologies and products inspires domestic entrepreneurs and innovators to develop these goods for their home markets. National boundaries, not regional ones, presumably limit domestic entrepreneurs' access to information about foreign technologies and products.

Second, the spillover of advanced knowledge and technologies across regions may be facilitated by the higher mobility of better educated employees, who are less bound to local job markets (Ahn, de la Rica, and Ugidos, 1999). For example, local firms that do not compete directly with foreign firms in their own regional markets can learn from foreign or other local firms by hiring managers and engineers from them.

Third, local governments in many countries have encouraged greenfield investments and 'friendly' mergers and acquisitions as a way to reach economic growth targets. In China, for instance, an important promotion criterion for local government officials is the amount of investment they attract to the region. Knowledge spillovers are facilitated by cross-regional investments and can easily be used nationwide.

Summarizing the above arguments, we expect the strong presence of foreign firms or local firms in a regional market exerts competition effects on both their peers and other firms that compete directly with them in the same regional market. The presence of those firms in a national market does not, however, pose direct competition to firms in other regions, and thus allows the positive spillover effects to dominate nationally.

Hypothesis 1. Spillover effects are more evident in a national market, and competition effects are more evident in a regional market, among different groups of firms.

DOI: 10.1002/smj

Resource similarity

Foreign entrants and local firms have different resource profiles. In analyzing how local companies in emerging markets can compete with multinational 'giants,' Dawar and Frost (1999) note that it is important to consider the type of strategic assets each has accumulated: those that are transferable abroad versus those that are customized to a specific home market. Relative to local competitors, multinational firms possess proprietary assets, often in the form of advanced technologies, brand names, and managerial know-how that they can transfer to their foreign subsidiaries (Buckley and Casson, 1976; Dunning, 1988; Hitt *et al*., 2000). They also have abundant capital and experienced expatriate managers who can be assigned to many sites worldwide.

In contrast, domestic incumbents typically enjoy locally embedded advantages such as marketing and distribution channels, access to information, and network connections (Beamish, 1988; Lu and Xu, 2006). Their managers have usually been educated and trained domestically and thoroughly know their home market. Multinational firms value the assets and resources that local firms possess, and local firms lack the transferable assets that multinational firms possess.

Yet although multinational and local firms each possess distinct types of organizational, financial, and human resources, there are variations within each group. Some multinational firms have acquired host-country-specific assets because they are culturally and ethnically proximate to a host country, have prior operational experience, or have internalized certain local knowledge through their joint venture partners (Makino and Delios, 1996; Luo, 1997). Conversely, some local firms have developed transferable assets by restructuring, innovating, and internationalizing, and they employ these assets to compete with foreign entrants (Dawar and Frost, 1999; Zeng and Williamson, 2003).

Thus, in terms of strategic resources, different types of foreign and local firms may be more or less dissimilar to each other. Among foreign and local firms, foreign firms that have no local ties and conventional local firms that have no transferable assets lie at the extremes of the transferable assets—locally embedded resources dimension—and thus have the most dissimilar resource profiles. Given their distinct competitive advantages, each group is likely to take very different strategic positions in an industry: multinational firms probably enjoy greater operating efficiency and market power, and conventional local firms capitalize on their better regional networks and knowledge. Such differences make it less likely these groups will compete directly, and thus facilitate cooperation and knowledge spillovers between them. On the other hand, more localized foreign firms that have acquired country-specific assets will compete more directly with local firms, and threaten the latter's survival. Their entries into local markets will more likely be seen as aggressive attacks, and local firms are more likely to retaliate. Similarly, reformed or internationalized local firms that have developed assets comparable to those of multinationals will more likely challenge foreign entrants, compete directly with them, and crowd them out of the country.[2]

Hypothesis 2. Spillover effects are more evident among groups of firms with dissimilar resource profiles, and competition effects are more evident among groups of firms with similar resource profiles.

EMPIRICAL CONTEXT AND RESEARCH DESIGN

Research setting

China provides an ideal setting for our research. First, it has recently liberalized its economy. As a consequence, there are many local firms with varying resource profiles and capabilities. Second, the Chinese government has encouraged FDI in order to modernize its backward industries. There are numerous multinationals that operate in a full range of industries in China. Third, competition between foreign entrants and local firms, among foreign firms, and among local firms has intensified in recent years; thus providing an interesting

[2] One might argue that spillover effects could also be greater among groups of firms with similar resource profiles, because similar resource profiles might suggest higher absorptive capacity among these groups. Nonetheless, the absorptive capacity argument and its counterargument, the technological gap hypothesis, are more associated with the level of resources than they are with the type of resources (Cantwell, 1989; Meyer, 2004). Because our concept of resource similarity is based on the type of resource, we make no inferences from the absorptive capacity argument.

DOI: 10.1002/smj

setting in which to examine the mutual influences among the players. Finally, because China comprises many large, heterogeneous regional markets, it is an interesting setting in which to observe spillover and competition effects along a geographic-market dimension.

The most important event contributing to China's progress in the past quarter century is the 'reform and open-door policy,' which the Communist government adopted in 1978. Through reform, many traditional state-owned enterprises (SOEs) that had monopolies were dismantled and transformed into shareholding or limited liability enterprises with a modern ownership structure, or privatized. The number of collectives also decreased. Overall, the number of 'conventional local firms,' namely SOEs and collectives, declined, and the number of 'reformed local firms,' including private firms, shareholding firms, and limited liability firms, increased rapidly. As a group, 'reformed local firms' comprise the modernized and restructured Chinese companies.

In the meantime, the open-door policy led to increasing amounts of FDI, first in the coastal regions, and subsequently in the inland, rural areas. The first foreign investments established in the special economic zones (SEZs) were a showcase of modern technology and management practices, which quickly disseminated to other regions—a perfect example of the demonstration effect.

An important dimension of competition in China is the geographic market. China is a collection of regional markets with enormous differences in income levels, consumer tastes, and subcultures. Roughly speaking, each Chinese province is a regional market; over time, China developed a system of de facto 'federalism' and regional decentralization at the provincial level (Jin, Qian, and Weingast, 2005). Differences in governmental policies between provinces effectively segmented regional markets (Vanhonacker, 1997). The operations of multinational firms in China have been bound by these regional boundaries (Prahalad and Lieberthal, 1998).

Another important aspect of competition in China is the different resource endowments firms possess (Peng and Luo, 2000; Peng *et al*., 2004; Ralston *et al*., 2006). Foreign firms, like multinational firms in other emerging markets, have the most liquid and transferable assets. In contrast, the SOEs have monopolies over state-controlled resources such as land and oil. They are embedded in a bureaucratic network because their managers are often former party or governmental officials. Other local firms, which lack the advantages possessed by multinationals and SOEs, have had to develop their own transferable assets in order to compete. Some of them, such as Lenovo, Huawei, and Baidu, have accumulated enough skills and resources to achieve competitive advantages over their multinational competitors, conventional SOEs, and collectives.

Foreign entrants in China can be classified into two large categories. Much inward FDI in China comes from Hong Kong, Macau, and Taiwan (HMT). Because of the unique historical and social linkages between these regions and mainland China, multinational firms from these Greater China areas (hereafter HMT firms) share many Chinese characteristics and differ substantially from the non-Chinese multinationals (hereafter non-HMT foreign firms). Because of their cultural origin, HMT firms enjoy some access to local knowledge and locally embedded resources, and therefore may constitute a serious threat to local firms. On the other hand, although non-HMT foreign firms are from a wide range of countries and may each have distinctive resources of their own, they share some common characteristics. Most possess transferable proprietary assets that local firms cannot access, but lack the locally embedded resource advantages enjoyed by indigenous firms and, to some extent, by the HMT firms. In this sense, they can be considered a distinctive group.

Although spillover effects have benefited Chinese companies since the early 1980s, the large scale entry of multinational firms with superior capabilities has often been interpreted as a collective attack on local incumbents that merits retaliation. In the meantime, although both non-HMT foreign firms and HMT firms might generate spillover effects for local firms, because HMT firms have resources that are more similar to local firms than non-HMT firms do, their spillover effects may be substantially offset by the stronger competition effects they exert on local firms. Conversely, among local firms, effective competitive responses to entry by multinationals is more likely to come from reformed local firms than it is from conventional local firms because the former have done more to imitate the assets, resources, ownership

DOI: 10.1002/smj

structures, and incentive schemes of multinational entrants.

Sample

This study used the *Annual Industrial Survey Database* (1998–2005) of the Chinese National Bureau of Statistics (NBS). The NBS collects financial information on industrial firms and publishes aggregated information in the official *China Statistics Yearbooks*. By law, all firms in China are required to cooperate with the survey and to submit financial information. Prior to 1998, the NBS collected information only from firms above the township administrative level,[3] so this database did not include information from private firms. In 1998, the NBS expanded its database coverage to include 1) all SOEs, and 2) all non-SOE firms, including foreign firms, with annual sales of at least 5 million RMB (roughly, $600,000 US, according to the official 2005 exchange rate) in the year prior to the survey. Foreign firms are legally defined by various relevant laws. In cases for which there are equity joint ventures or foreign-invested shareholding enterprises (including those from Hong Kong, Macao, and Taiwan), the laws normally require the foreign or HMT partner to hold at least a 25 percent share of the registered capital.[4] The number of firms included in this database ranged from 162,033 to 280,188. These numbers are consistent with those reported in the official *Yearbooks* published by the NBS. Chow (1993) confirmed that the NBS statistics are largely accurate and internally consistent for empirical analysis. Several prior studies have used the NBS databases, including Pan, Li, and Tse (1999), Buckley *et al.* (2002), and Park, Li, and Tse (2006).

The annual survey database contains key financial indicators as well as demographic information such as the firm's name, manager's name, year of establishment, address, ownership, and level of governmental control. For this study, we assembled a panel database by matching yearly data with a unique company identifier. There were many cases in which the same firms with exactly the same names and the same addresses had different firm identifiers in different years because significant changes in ownership, such as joint ventures and mergers and acquisitions, occurred. We therefore developed a detailed software algorithm to assess whether firms' demographic information matched with the same firms' observations across years. For each year, 11–19 percent of the sample firms exited the database, and 11–22 percent of the firms that appeared in the database were new.[5]

Figure 1 shows the percentages of firms as classified by ownership type. It shows that the proportion of conventional local firms (i.e., SOEs and collectively-owned firms) declined from more than 70 percent in 1998 to less than 16 percent in 2005. These firms were replaced by reformed local firms (i.e., private firms, shareholding firms, and limited liability companies). At the same time, the share of multinational firms increased from 16 percent to more than 21 percent. For the early years of our sample, slightly more than half of these multinationals were from Hong Kong, Macao, and

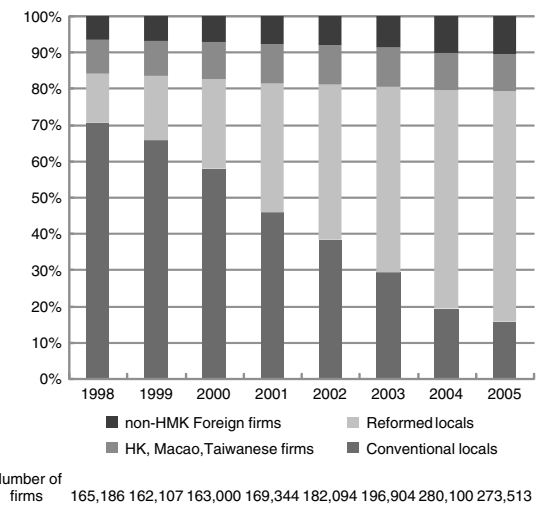

Figure 1. Distribution of firms according to ownership type

[3] Administratively, all non-private Chinese firms correspond to a level in the governmental hierarchy. Some large SOEs function at the level of central ministries (their managers are ministry-level officials), and other firms correspond to regional or sub-regional hierarchies. These levels of hierarchy include: central, provincial, regional, county, district/township, and street/village.

[4] Huang (2003 : 37–41) notes cases of 'round-trip foreign direct investments,' for which Chinese firms or individuals invested in China under disguised foreign identities either to launder money or to exploit subsidies to foreign firms. We explored the possible bias introduced by these firms by dropping foreign direct investments from Hong Kong and the Cayman Islands. Our results do not vary.

[5] The percentages of firms entered were based on 1998–2005, except for 2003–2004. Between 2003 and 2004, the number of firms in the annual survey increased sharply due to the Chinese government's effort to identify potential tax payers. As a consequence, 127,738 firms were added in 2004.

DOI: 10.1002/smj

Taiwan. By 2005, the proportions of non-HMT foreign firms and HMT firms were roughly equal.

Measurements

In order to avoid survivor bias, we used firm survival as the criterion for assessing the effects of spillovers and competition. Several works have examined the survival/exit of incumbent domestic businesses (Duhaime and Grant, 1984; Chang, 1996; Sharma and Kesner, 1996). Shaver, Mitchell, and Yeung (1997) demonstrated that foreign entrants enhanced their survival by learning from earlier entrants' success/failure. We treat *Survival* as a dichotomous variable that notes survival/exit. Exit occurs when a valid observation at time t does not show up in the database at time t + 1, after it has matched with various demographic information in several instances. Firms that exited might have closed down or been sold, or their sales might have dipped below 5 million RMB in the case of non-SOEs. In order to ensure that we did not falsely identify exit in cases for which firms used inconsistent identifiers, we used the algorithm described above. For some questionable cases, we checked firms' identities more closely by reading their self-descriptions.

Prior work on FDI spillovers has used several variables to reflect foreign firms' presence in an industry. For instance, Aitken and Harrison (1999) used the employment-weighted percentage of equity owned by foreign firms. Javorcik (2004) measured foreign firms' presence as the share of firm's total equity owned by foreign investors. Most studies, however, have used foreign employment shares to predict positive spillover effects (Caves, 1974; Driffield and Munday, 2000; Liu *et al*., 2000; Buckley *et al*., 2002; Kosova, 2005). We used the employment shares of various groups of firms to measure their presence. These groups include non-HMT foreign firms, HMT firms, reformed locals (private, shareholding, and limited liability companies), and conventional locals (SOEs and collectives). We defined an industry with the three-digit Chinese Standard Industry Classification and measured the aggregated shares of employment for three types of firms at time t: *National non-HMT Foreign Firms' Employment, National HMT Firms' Employment*, and *National Reformed Local Firms' Employment*. The *National Conventional Local Firms' Employment* was treated as the base group in all our analyses. We also measured *Regional non-HMT Foreign Firms' Employment, Regional HMT Firms' Employment*, and *Regional Reformed Local Firm's Employment* with the share of employment of each type of firm in an industry in a region. We defined regions using two-digit area codes for provinces, autonomous regions, and centrally administered cities (Beijing, Chongqing, Shanghai, and Tianjin).

We used these measures to gauge the net of spillover and competition effects[6] as determined by the market commonality and resource similarity dimensions. Consistent with our market commonality hypothesis (Hypothesis 1), we expect the regional market-level employment share variables to have a more negative effect than the corresponding national market-level variables do. Applying our resource similarity hypothesis (Hypothesis 2) to the Chinese context, we expect to see, for example, that HMT firms' employment affects local firm survival more negatively than non-HMT foreign firms' employment does, and that reformed local firms' employment affects foreign firm survival more negatively than conventional local firms' employment does.

We included several firm characteristics as control variables. We measured *Firm Size* with a firm's sales at time t, which we log-transformed. We measured *Firm Age* from the years of establishment to time t. We measured *Profitability* with return on assets. We measured the degree of decentralized control for local firms with *Decentralized Control*, which ranges from 1 (central government) and 2 (province) to 10 (privately owned) (Park *et al*., 2006). We also included a dichotomous variable, *Reformed Local Firms,* to differentiate reformed local firms (coded 1) from conventional locals (coded 0). For foreign firms, we used a dichotomous variable, *HMT Firms*, to separate HMT firms (coded 1) from non-HMT foreign firms. We also measured ownership control by denoting whether foreign operations were created from scratch or were formed by either acquiring or creating joint ventures with local firms. We measured *Foreign JV & Acquisition* as a dichotomous variable, for

[6] Kosova (2005) modeled competition effects (which she referred to as crowding-out effects) as a function of year-to-year sales growth by foreign firms. Conversely, she used foreign employment share to predict positive spillover effects. We do not believe that any measure can easily separate spillover effects from competition effects because multinationals can be both the source of spillovers and competitors that drive other firms out of business.

DOI: 10.1002/smj

which we defined foreign greenfield investment as the baseline.

Methods

We assembled a panel dataset consisting of both foreign and local firms in China during 1998–2005. Because we wanted to observe firms' survival chances, we needed to have a one-year lag, and thus lost observations for 2005. Using a one-year lag between explanatory variables and dependent variables also helped us control for reverse causality. Thus, we had seven years of firm-level data points, for a total of 1,318,823 firm-year observations. We had 35,648 observations with missing information on key variables and unrealistic numbers that were possibly due to data entry errors. After removing those observations, we had 1,273,175 valid firm-year observations, which consisted of 1,032,106 local firm-years, including both conventional local firms and reformed local firms, and 241,069 foreign firm-years, including both non-HMT foreign firms and HMT firms.

For both samples, we employed a discrete time logit specification (Allison, 1984) to estimate models with survival/exit as the dependent variable. We used virtually the same set of independent variables for both samples, except for some control variables (i.e., *Level of Control* and *Reformed Local Firms* for local firm analysis, and *Foreign JV and Acquisition* and *HMT Firms* for foreign firm analysis). The unit of analysis in these models is the firm-year. Each calendar year, starting from 1998 to a firm's year of exit or the censoring year (i.e., 2005), constitutes a valid observation. The estimated coefficients provide the changes in the log-odds of survival for each one-unit increase in the independent variables. Our inclusion of the industry, area, and year fixed effects allows the baseline hazard rate (i.e., the intercept) to vary across possible combinations of industry, region, and year. By design, both the dependent variable (a zero/one dichotomous variable that indicates survival/exit of each firm at time $t + 1$) and independent variables (measured at time t) are time-varying. We used full samples of local and foreign firms, including those that exited at time $t + 1$, in the survival models, which means these models are not subject to survivor bias. We also calculated clustered robust standard errors by allowing 'clustering' of error terms to correlate among the same firms.

RESULTS

Table 1 shows descriptive statistics and correlations, and Tables 2 and 3 show results for local firm survival and foreign firm survival, respectively. The descriptive statistics suggest that employment shares defined at the national market and regional market are highly correlated. In Tables 2 and 3, we entered employment share variables defined at the national market level and at the regional market level sequentially in a set of three models to detect changes in signs when we added new sets of variables. In all models, the coefficients of the conventional local firms in national and regional markets were set to zero as the reference group.[7]

Hypothesis 1 predicts a positive spillover effect on all local firms, including conventional local firms and reformed local firms, from non-HMT foreign firms, HMT firms, and the reformed locals, in the national market. In Table 2, national non-HMT foreign firm share and national reformed local firm share are positively significant for local firm survival in Model 1, suggesting spillover effects from non-HMT foreign firms and reformed local firms to other local firms in the national market. Hypothesis 1 also predicts a stronger competition effect in regional markets. In Model 2, the regional employment shares of HMT firms and reformed local firms are significantly negative for the survival of local firms in their own regional markets. When we include the employment shares for both national and regional markets, Model 3 confirms Hypothesis 1: competition effects are more likely to outweigh spillover effects in a regional market than they are in a national market.

Hypothesis 2 explores whether resource similarity among different types of firms causes more severe competition and leads to lower survival rates. We examine Hypothesis 2 by comparing

[7] The employment shares of these four types of firms are summed to be one. Thus, we need to choose one type of firm as a reference group (e.g., conventional local firms), and interpret coefficients with respect to those of the reference group. Doing so is equivalent to setting the coefficients of the conventional local firms to zero and interpreting other groups' coefficients as the differences from those of conventional local firms.

DOI: 10.1002/smj

Table 1. Descriptive statistics

a) local firms (N = 1, 032, 106)

	Mean	Std. Dev	Mini	Max
(1) Survival (t + 1) (= 1)	0.85	0.36	0.00	1.00
(2) National non-HMT foreign firm's employment (t)	0.08	0.07	0.00	0.59
(3) National HMT firm's employment (t)	0.10	0.10	0.00	0.73
(4) National reformed local firm's employment (t)	0.38	0.18	0.00	1.00
(5) Regional non-HMT foreign firm's employment (t)	0.08	0.11	0.00	1.00
(6) Regional HMT firm's employment (t)	0.09	0.13	0.00	1.00
(7) Regional reformed local firm's employment (t)	0.39	0.25	0.00	1.00
(8) Firm size (t)	9.41	1.54	0.00	18.54
(9) Firm age (t)	15.55	15.01	0.00	184.00
(10) Firm ROA (t)	5.99	20.75	−199.50	989.10
(11) Level of control (t)	6.31	2.21	0.00	10.00
(12) Reformed local firm (t) (vs. conventional local firms)	0.48	0.50	0.00	1.00

Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11
2	−0.02***										
3	−0.03***	0.73***									
4	0.00	0.02***	−0.12***								
5	−0.02***	0.59***	0.45***	0.02***							
6	−0.02***	0.40***	0.52***	−0.04***	0.30***						
7	0.01***	0.11***	0.01***	0.71***	−0.09***	−0.17***					
8	0.17***	0.02***	−0.01***	0.18***	0.03***	0.04***	0.18***				
9	0.05***	−0.16***	−0.16***	−0.15***	−0.12***	−0.15***	−0.17***	0.00			
10	0.01***	0.03***	0.03***	0.04***	0.03***	0.00	0.04***	0.15***	−0.14***		
11	0.00	0.22***	0.20***	0.33***	0.14***	0.18***	0.34***	0.06***	−0.44***	0.16***	
12	0.04***	0.24***	0.18***	0.40***	0.14***	0.13***	0.44***	0.21***	−0.32***	0.05***	0.51***

b) foreign firms (N = 241, 069)

	Mean	Std. Dev	Mini	Max
(1) Survival (t + 1) (= 1)	0.90	0.30	0.00	1.00
(2) National non-HMT foreign firm's employment (t)	0.14	0.09	0.00	0.59
(3) National HMT firm's employment (t)	0.19	0.13	0.00	1.00
(4) National reformed local firm's employment (t)	0.35	0.16	0.00	0.84
(5) Regional non-HMT foreign firm's employment (t)	0.17	0.16	0.00	1.00
(6) Regional HMT firm's employment (t)	0.25	0.22	0.00	1.00
(7) Regional reformed local Firm's employment (t)	0.30	0.21	0.00	1.00
(8) Firm size (t)	10.19	1.29	0.00	18.09
(9) Firm age (t)	7.18	5.77	0.00	126.00
(10) Firm ROA (t)	4.29	15.51	−197.80	968.17
(11) Foreign joint ventures & acquisition (vs. greenfield invst) (t)	0.47	0.50	0.00	1.00
(12) HK, Macao, Taiwanese firm (t) (vs. non-HMT foreign firm)	0.56	0.50	0.00	1.00

the coefficients associated with the employment shares of various groups of firms in Table 2. As discussed earlier, HMT firms' resource profiles are more similar to those of local firms than non-HMT foreign firms are. Any spillover effects from HMT firms are therefore likely to be offset by the strong competition effects they exhibit on local firm survival. Indeed, HMT firms' employment share in a national market is insignificant, but non-HMT foreign firms' employment share is positively significant. Conversely, regional HMT firms' share negatively affects local firm survival,

DOI: 10.1002/smj

Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11
2	0.00										
3	−0.01***	0.62***									
4	0.00	−0.23***	−0.39***								
5	0.02***	0.56***	0.29***	−0.10***							
6	0.01†	0.26***	0.52***	−0.24***	−0.11***						
7	−0.02***	−0.15***	−0.26***	0.67***	−0.24***	−0.48***					
8	0.21***	0.06***	−0.05***	0.08***	0.09***	−0.01**	0.02***				
9	0.01**	−0.03***	−0.01***	0.08***	−0.03***	0.02***	0.03***	0.11***			
10	0.07***	0.02***	−0.02***	0.05***	0.03***	−0.07***	0.07***	0.19***	−0.01***		
11	−0.04***	0.16***	0.06***	0.37***	0.07***	−0.01***	0.29***	−0.12***	−0.18***	0.04***	
12	−0.03***	−0.03***	0.11***	−0.08***	−0.22***	0.36***	−0.13***	−0.09***	0.07***	−0.06***	−0.04***

Note; *** : $p < 0.001$, ** : $p < 0.01$, * : $p < 0.05$, † : $p < 0.10$

but the effect of regional non-HMT foreign firms' share is insignificant. Overall, the results suggest that HMT firms pose greater threats to local firms than non-HMT foreign firms do, lending support for Hypothesis 2.

The effects of reformed local firms on other local firms present somewhat conflicting results. The coefficients for employment shares of reformed local firms in the national market have positively significant effects on the survival of local firms, but those for regional markets have negatively significant effects. The positive impact of reformed local firms on other local firms in the national market, although consistent with Hypothesis 1, seems contradictory to Hypothesis 2, which predicts more severe competition among similar types of firms. On the other hand, the reformed local firms' share in regional markets is negatively significant, consistent with both Hypotheses 1 and 2, suggesting that reformed local firms tend to crowd out other local firms in the same regional market.

In order to resolve these conflicting results, we ran separate models for reformed local firms and conventional local firms in Models 4 and 5, respectively. In general, conventional local firms enjoy more positive spillover effects than reformed local firms do, from the presence of both reformed local firms and foreign firms. The positive spillover effects from non-HMT firms at the national level, observed in Model 3 with a sample of all local firms, seem to be driven by conventional local firms. Conventional local firms are being crowded out only by the presence of reformed local firms in the same regional market. On the other hand, reformed local firms, whose resource profiles are somewhat similar to foreign firms, are crowded out by non-HMT foreign firms and HMT firms at the national level as well as at the regional level. These additional models provide strong support for Hypothesis 2, which proposes spillover effects are greater among groups with more heterogeneous resource profiles and competition effects are greater among groups with more homogenous resource profiles.[8]

Various firm-level controls suggest that the larger and the older local firms are, the more likely they are to survive. Our models show profitability at time t is negatively associated with survival, which might reflect the government's unwillingness to divest unprofitable SOEs. The results show that the decentralization of government control has no effect on local firms' survival. Between two types of local firms, reformed local firms have higher survival rates than conventional local firms do.

Table 3 shows regression results for the survival of foreign entrants, including non-HMT foreign firms and HMT firms. The employment shares of non-HMT foreign firms, HMT firms, and reformed local firms in the national market were negatively significant for foreign firm survival in Model 1, indicating competition was so severe that foreign firms were crowded out of the national market both by other foreign firms and by reformed local firms. Model 2 shows that employment shares of these three groups in regional markets were negatively significant for foreign firm survival, which suggests foreign firms were also crowded out of

[8] While the purpose of this study is to examine intergroup influences, the positive intragroup effect of reformed local firms at the national level remains a puzzle. A possible explanation is that a large presence of reformed local firms, as a new organizational form, causes strong legitimating effects on themselves—an institutional process identified in previous research (Li, Yang, and Yue, 2007).

DOI: 10.1002/smj

Table 2. Survival of local firms at time t + 1 during 1998–2005

Variable		All local firms			Reformed local firms	Conventional local firms
		(1)	(2)	(3)	(4)	(5)
Employment share of firms in national markets	National non-HMT foreign firm share(t)	0.51 (0.17)**		0.54 (0.17)**	−0.55 (0.35)*	1.06 (0.24)***
	National HMT firm share (t)	−0.12 (0.15)		−0.05 (0.15)	−0.86 (0.22)***	0.27 (0.21)
	National reformed local firm share (t)	0.44 (0.07)***		0.50 (0.07)***	0.27 (0.11)*	0.50 (0.09)***
	National conventional local firm share (t)	0		0	0	0
Employment share of firms in regional markets	Regional non-HMT foreign firm share(t)		−0.03 (0.04)	−0.05 (0.04)	−0.19 (0.06)**	0.06 (0.06)
	Regional HMT firm share (t)		−0.11 (0.04)**	−0.13 (0.04)**	−0.37 (0.06)***	-0.43×10^{-2} (0.05)
	Regional reformed local firm share (t)		−0.05 (0.02)*	−0.08 (0.02)***	−0.12 (0.04)**	−0.06 (0.03)*
	Regional conventional local firm share (t)		0	0	0	0
Firm characteristics	Firm size(t)	0.34 (0.24×10^{-2})***	0.34 (0.24×10^{-2})***	0.34 (0.24×10^{-2})***	0.51 (0.52×10^{-2})***	0.31 (0.28×10^{-2})***
	Firm age(t)	0.01 (0.26×10^{-3})***	0.01 (0.26×10^{-3})***	0.01 (0.26×10^{-3})***	0.01 (0.46×10^{-3})***	0.01 (0.31×10^{-3})***
	Firm profitability (t)	-0.13×10^{-2} (0.15×10^{-3})***	-0.13×10^{-2} (0.15×10^{-3})***	-0.13×10^{-2} (0.15×10^{-3})***	-0.16×10^{-2} (0.27×10^{-3})***	-0.85×10^{-3} (0.18×10^{-3})***

DOI: 10.1002/smj

Table 2. (*Continued*)

Variable	All local firms			Reformed local firms	Conventional local firms
	(1)	(2)	(3)	(4)	(5)
Level of control	0.47×10^{-3}	0.65×10^{-3}	0.59×10^{-3}	0.03	−0.05
	(0.19×10^{-2})	(0.19×10^{-2})	(0.19×10^{-2})	(0.27×10^{-2})	$(0.28 \times 10^{-2})^{***}$
Reformed local firms (vs. conventional locals)	0.30	0.30	0.30		
	$(0.01)^{***}$	$(0.01)^{***}$	$(0.01)^{***}$		
Intercept	−1.43	−1.35	−1.44	−3.41	−0.74
	$(0.04)^{***}$	$(0.04)^{***}$	$(0.04)^{***}$	$(0.08)^{***}$	$(0.05)^{***}$
N	1,032,106	1,032,106	1,032,106	493,287	538,817
Wald chi-sq (d.f.)	42327.7	42235.4	42358.6	19194.0	42358.6
	$(243)^{***}$	$(243)^{***}$	$(246)^{***}$	$(244)^{***}$	$(246)^{***}$

Note; *** : $p < 0.001$, ** : $p < 0.01$, * : $p < 0.05$, † : $p < 0.10$. 198 industry dummies, 30 region dummies, and 6 year dummies are not shown. Numbers in parentheses are robust standard errors adjusted for clustering on individual firms. In case all firms in our sample exit an industry in a year, the industry dummy perfectly explains the exit likelihood and therefore those observations are dropped in the estimation. When we break up samples to conventional and reformed local firms, we tend to find more such cases. Thus, the number of observations in Models 4 and 5 do not add up to that of a model using all local firms.

DOI: 10.1002/smj

Table 3. Survival of foreign firms at time t + 1 during 1998–2005

Variable		All foreign firms			Non-HMT foreign firms	HMT foreign firms
		(1)	(2)	(3)	(4)	(5)
Employment share of firms in national markets	National non-HMT foreign firm share(t)	−1.66 (0.32)***		−1.61 (0.33)***	−1.30 (0.51)*	−1.59 (0.44)***
	National HMT firm share (t)	−1.19 (0.29)***		−0.74 (0.29)*	−1.04 (0.47)*	−0.72 (0.37)†
	National reformed local firm share (t)	−1.18 (0.16)***		−0.78 (0.17)***	−0.76 (0.27)**	−0.71 (0.22)**
	National conventional local firm share (t)	0		0	0	0
Employment share of firms in regional markets	Regional non-HMT foreign firm share(t)		−0.32 (0.08)***	−0.23 (0.08)**	−0.15 (0.11)	−0.26 (0.12)*
	Regional HMT firm share (t)		−0.68 (0.08)***	−0.61 (0.08)***	−0.48 (0.14)**	−0.68 (0.10)***
	Regional reformed local firm share (t)		−0.55 (0.07)***	−0.48 (0.07)***	−0.21 (0.11)†	−0.65 (0.10)***
	Regional conventional local firm share (t)		0	0	0	0
Firm characteristics	Firm size(t)	0.69 (0.01)***	0.70 (0.01)***	0.70 (0.01)***	0.71 (0.01)***	0.70 (0.01)***
	Firm age(t)	−0.01 (0.13×10^{-2})***	−0.01 (0.13×10^{-2})***	−0.01 (0.13×10^{-2})***	−0.01 (0.20×10^{-2})***	−0.01 (0.17×10^{-2})***

DOI: 10.1002/smj

Table 3. (*Continued*)

Variable	All foreign firms			Non-HMT foreign firms	HMT foreign firms
	(1)	(2)	(3)	(4)	(5)
Firm profitability (t)	0.01	0.01	0.01	0.01	0.01
	$(0.73 \times 10^{-3})^{***}$	$(0.73 \times 10^{-3})^{***}$	$(0.73 \times 10^{-3})^{***}$	$(0.11 \times 10^{-2})^{***}$	$(0.10 \times 10^{-2})^{***}$
Foreign JV & acquisition (vs. greenfield investment)	−0.13	−0.13	−0.13	−0.17	−0.09
	$(0.02)^{***}$	$(0.02)^{***}$	$(0.02)^{***}$	$(0.03)^{***}$	$(0.02)^{***}$
HK, Macao, Taiwanese firms (vs. other foreign firms)	−0.17	−0.16	−0.16		
	$(0.02)^{***}$	$(0.02)^{***}$	$(0.02)^{***}$		
Intercept	11.76	11.53	11.91	−4.65	11.60
	$(1.06)^{***}$	$(1.08)^{***}$	$(1.05)^{***}$	$(1.03)^{***}$	$(0.30)^{***}$
N	241,069	241,069	241,069	106,961	134,024
Wald chi-sq (d.f.)	9,038.7	9,046.8	9,097.0	5561.1	7129.3
	$(229)^{***}$	$(229)^{***}$	$(232)^{***}$	$(224)^{***}$	$(224)^{***}$

Note; *** : $p < 0.001$, ** : $p < 0.01$, * : $p < 0.05$, † : $p < 0.10$. 182 industry dummies, 30 region dummies, and 6 year dummies are not shown. Numbers in parentheses are robust standard errors adjusted for clustering on individual firms. In case all firms in our sample exit an industry in a year, the industry dummy perfectly explains the exit likelihood and therefore those observations are dropped in the estimation. When we break up samples to HMT and non-HMT foreign firms, we tend to find more such cases. Thus, the number of observations in Models 4 and 5 do not add up to that of a model using all foreign firms.

DOI: 10.1002/smj

Chinese regional markets. When we include the employment shares for both national and regional markets in Model 3, Hypothesis 1—which argues that competition effects are more likely to outweigh spillover effects in regional markets than in national markets—is not supported in the foreign firm sample, because foreign firms face intense competition in both national and regional markets. This result suggests that in China, foreign firms do not benefit from other firms' spillovers. Most foreign entrants in China might rely on the proprietary assets of their own multinational operations. Whatever knowledge spillovers there are from other companies in China might be completely offset by competition from these same companies.

We test Hypothesis 2 in the foreign firm sample by comparing the coefficients of reformed local firms and those of conventional local firms. The negative signs for national reformed local firm share and regional reformed local firm share indicate that, compared to conventional local firms, whose coefficients are set to zero, reformed local firms impose stronger competition effects on foreign entrants in both the national and regional markets. The negative signs of non-HMT foreign firm and HMT firm groups at both the national and regional levels in Model 3 are also consistent with Hypothesis 2, suggesting there is intense competition among foreign firms because these firms' resource profiles are similar. Overall, foreign firms appear more likely to be crowded out by HMT firms and by reformed local firms that emulate their resources profiles than they are by conventional locals that rely on completely different resource endowments. Hypothesis 2 is thus supported in the foreign firm sample.

We perform separate analyses for non-HMT foreign firms and HMT firms, in Models 4 and 5 of Table 3. Both non-HMT foreign firms and HMT firms show somewhat similar patterns, although the significance levels for negative competition effects at the regional level seem stronger for HMT firms than they do for non-HMT firms.

Our various firm-level controls suggest that the larger, the younger, and the more profitable foreign firms are, the more likely they are to survive. Foreign firms that were formed by joint ventures or acquisitions have lower survival rates than foreign greenfield investments do. Between the two types of foreign firms, HMT firms have lower survival rates than non-HMT foreign firms do.

In order to check the robustness of our results, we implemented a longer time lag for measuring the presence of foreign and local firms in determining their likelihood of survival. A longer time lag can make spillover effects more pronounced and negatively bias competition effects, because more recent entries exert immediate competition effects, and spillover effects may take longer to materialize. To illustrate this potential bias with a longer time lag, we ran separate regressions in Tables 4 and 5 with two sets of variables: employment shares measured at time $t-1$ (two-year lag), which reflects the accumulated entries (presence) of different types of firms up until time $t-1$; and the change of employment shares from time $t-1$ to time t, which reflects changes (increase/decrease) in employment shares of different types of firm from time $t-1$ to time t. Note that there were fewer observations in the models in Tables 4 and 5 because we lost observations for one year for each additional time lag. In general, employment shares at time $t-1$ tend to be positive and significant, showing more spillover effects than they do competition effects. For instance, the regional employment share variables of HMT firms and reformed local firms in local firm regressions (see Model 2 of Table 4) suggest positive spillover effects, contrary to the results based on a one-year lag (see Table 2). On the other hand, the changes of employment shares from time $t-1$ to time t tend to be negative. For instance, the change of HMT firms' share in a national market is strongly negative, and the changes in HMT firms' share and reformed local firms' share in a regional market are negative and significant, suggesting that the increased presence of HMT firms and reformed local firms from time $t-1$ to time t exhibits strong competitive pressures.

Similarly, the models for the foreign firms sample in Table 5, using a two-year lag, show again that the employment shares with a two-year lag tend to soften the negative competition effects—the regional non-HMT foreign firms and regional reformed local firms shares, that were negative and significant in the one-year lag model in Table 3, were insignificant. The changes of the employment shares from time $t-1$ to time t reflect negative competition effects. To sum up, a longer time lag tends to create upward bias for spillover effects and downward bias for competition effects.

DOI: 10.1002/smj

Table 4. Survival of local firms at time t + 1 during 1998–2005 with a two-year lag

	Variable	(1)	(2)	(3)
Employment share of firms in National markets at time t − 1	National non-HMT foreign firm share(t − 1)	0.50 (0.23)*		0.45 (0.24)†
	National HMT firm share (t − 1)	0.44 (0.24)*		0.34 (0.20)†
	National reformed local firm share (t − 1)	0.86 (0.09)***		0.76 (0.09)***
	National conventional local Firm share (t − 1)	0		0
Employment share of firms in Regional markets at time t − 1	Regional non-HMT foreign firm share(t − 1)		0.01 (0.04)	−0.001 (0.04)
	Regional HMT firm share (t − 1)		0.14 (0.04)**	0.12 (0.04)**
	Regional reformed local firm share (t − 1)		0.17 (0.02)***	0.13 (0.02)***
	Regional conventional local firm share (t − 1)		0	0
Change of employment share of firms in national markets between time t − 1 and t	National non-HMT foreign firm share(Δt)	0.15 (0.20)		0.09 (0.20)
	National HMT firm share (Δt)	−0.97 (0.18)***		−0.93 (0.18)***
	National reformed local firm share (Δt)	0.14 (0.09)		0.16 (0.09)†
	National conventional local firm share (Δt)	0		0
Change of employment share of firms in regional markets between time t − 1 and t	Regional non-HMT foreign firm share(Δt)		−0.01 (0.06)	−0.01 (0.06)
	Regional HMT firm share (Δt)		−0.17 (0.06)**	−0.10 (0.07)
	Regional reformed local firm share (Δt)		−0.08 (0.02)**	−0.09 (0.03)**
	Regional conventional local firm share (Δt)		0	0
Firm characteristics	Firm size(t − 1)	0.30 (0.25×10^{-2})***	0.30 (0.25×10^{-2})***	0.30 (0.25×10^{-2})***
	Firm age(t − 1)	0.01 (0.26×10^{-3})***	0.01 (0.26×10^{-3})***	0.01 (0.26×10^{-3})***
	Firm profitability (t − 1)	0.61×10^{-2} (0.18×10^{-3})***	0.61×10^{-2} (0.18×10^{-3})***	0.61×10^{-2} (0.18×10^{-3})***
	Level of control	0.04 (0.19×10^{-2})	0.04 (0.19×10^{-2})	0.04 (0.19×10^{-2})
	Reformed local firms (vs. conventional locals)	0.33 (0.01)***	0.32 (0.01)***	0.32 (0.01)***
	Intercept	−2.00 (0.26)***	−1.65 (0.03)***	−1.95 (0.05)***
	N	899,947	899,947	899,947
	Wald chi-sq (d.f.)	27574.2 (244)***	37305.2 (244)***	37391.8 (250)***

Note; *** : $p < 0.001$, ** : $p < 0.01$, * : $p < 0.05$, † : $p < 0.10$. 196 industry dummies, 30 region dummies, and 6 year dummies are not shown. Numbers in parentheses are robust standard errors adjusted for clustering on individual firms.

DISCUSSION AND CONCLUSION

This study combines the FDI spillover literature and a competitor analysis framework to examine spillovers and competition among foreign entrants and local firms. Our findings suggest that both spillover and competition effects from various groups of firms affect firms in other groups in

DOI: 10.1002/smj

Table 5. Survival of foreign firms at time t + 1 during 1998–2005 with a two-year lag

	Variable	(1)	(2)	(3)
Employment share of firms in National markets at time t − 1	National non-HMT foreign firm share(t − 1)	−1.99 (0.50)***		−2.21 (0.47)***
	National HMT firm share (t − 1)	−1.09 (0.40)**		−1.09 (0.40)**
	National reformed local firm share (t − 1)	−0.62 (0.21)**		−0.60 (0.23)**
	National conventional local Firm share (t − 1)	0		0
Employment share of firms in Regional markets at time t − 1	Regional non-HMT foreign firm share(t − 1)		0.12 (0.09)	0.22 (0.09)*
	Regional HMT firm share (t − 1)		−0.15 (0.09)†	−0.07 (0.09)
	Regional reformed local firm share (t − 1)		−0.06 (0.08)	-0.03×10^{-2} (0.08)
	Regional conventional local firm share (t − 1)		0	0
Change of employment share of firms in national markets between time t − 1 and t	National non-HMT foreign firm share(Δt)	−2.04 (0.42)***		−2.17 (0.44)***
	National HMT firm share (Δt)	−1.86 (0.36)***		−1.85 (0.38)***
	National reformed local firm share (Δt)	−0.83 (0.25)***		−0.86 (0.26)***
	National conventional local Firm share (Δt)	0		0
Change of employment share of firms in regional markets between time t − 1 and t	Regional non-HMT foreign firm share(Δt)		−0.08 (0.13)	0.07 (0.13)
	Regional HMT firm share (Δt)		−0.21 (0.13)†	−0.06 (0.13)
	Regional reformed local firm share (Δt)		−0.02 (0.10)	0.07 (0.10)
	Regional conventional local firm share (Δt)		0	0
Firm characteristics	Firm size(t − 1)	0.44 (0.01)***	0.44 (0.01)***	0.44 (0.01)***
	Firm age(t − 1)	−0.01 (0.12×10^{-2})***	−0.01 (0.12×10^{-2})***	−0.01 (0.12×10^{-2})***
	Firm profitability (t − 1)	0.02 (0.52×10^{-3})***	0.02 (0.52×10^{-3})***	0.02 (0.52×10^{-3})***
	Foreign JV & acquisition (vs. greenfield investment)	−0.20 (0.02)***	−0.20 (0.02)***	−0.20 (0.02)***
	HK, Macao, Taiwanese firms (vs. foreign firms)	−0.19 (0.02)***	−0.18 (0.02)***	−0.18 (0.02)***
	Intercept	−0.93 (4.86)	−1.48 (5.05)†	−0.96 (5.05)
	N	215,251	215,251	215,251
	Wald chi-sq (d.f.)	8286.9 (232)***	8266.1 (232)***	8306.6 (238)***

Note; *** : $p < 0.001$, ** : $p < 0.01$, * : $p < 0.05$, † : $p < 0.10$. 182 industry dummies, 30 region dummies, and 6 year dummies are not shown. Numbers in parentheses are robust standard errors adjusted for clustering on individual firms.

China. They also indicate that competition effects are more likely to outweigh spillover effects in regional markets than they are in national markets. Further, competition effects are more likely to outweigh spillover effects among firms of similar resource types than they are among firms of distinct resource profiles. This study has several important theoretical contributions.

DOI: 10.1002/smj

First, this study contributes to the FDI spillover literature. In contrast to prior work that has generally assumed spillovers go only from foreign firms to local firms, we model spillovers as occurring between foreign firms and local firms, among foreign firms, and among local firms. Further, unlike research that has focused only on the conditions that contribute to spillovers, we introduce competition effects by incorporating a framework that is built on the market and resource configurations of relevant competitors. Thus, we have added a strategic dimension to the spillover literature and generated new insights into the net effect of spillovers and competition among firms. By doing so, this study recasts the existing spillover literature into a more general framework that accommodates both positive and negative effects among different types of foreign and local firms.

Second, this study also contributes to competitor analysis research in several ways. Although in the past this line of inquiry has done an excellent job in examining rivalry between firms, it has focused only on competition and largely ignored the positive side of interfirm relations, such as industry clustering, network externalities, and possible spillover effects (Porter, 1998; Chung and Alcacer, 2002; Chang and Park, 2005). By combining this research with the FDI literature, this study helps bring a more balanced view in studying interfirm effects. Moreover, the empirical context of the competitor analysis research has often been a single domestic industry (Baum and Korn, 1996, 1999; Chen *et al*., 2007). In contrast, this study considers multiple industries and an international setting, and it therefore widens the application of the competitor analysis framework. This study also explicitly considers the rivalry between multinational firms and local firms, which has not yet been studied in extant research. Another contribution to the competitor analysis literature is the reconceptualization of market commonality, which has been narrowly defined in terms of multi-market contact between large firms such as airlines and automakers (Smith *et al*., 1991; Gimeno, 1999; Yu and Cannella, 2007). By applying this concept in terms of firms that compete in the same regional markets, this study has improved its applicability.

Third, this study highlights a major opportunity for strategy research. We conceptualize local firms not just as recipients of technology spillovers, or merely as subject to competition; instead, we see them as competent learning organizations with heterogeneous resource profiles. We have thus shed some light on how local firms have begun to compete against powerful multinational firms. In particular, we show that the presence of reformed local firms has had a strong competition effect on all foreign firms. In contrast, conventional local firms do not exhibit such an effect, because they rely on exclusive networks or policy benefits, and do not compete directly with foreign entrants. This general finding should direct future research to explore further the strategies and performance of different groups of local companies that compete with multinational firms.

Finally, this study helps resolve some conflicting findings from extant research. It is challenging to separate spillover effects from competition effects empirically, but our theoretical framework and research design identified contexts in which one effect might be stronger or weaker than the other. Foreign firms' employment share in national markets have positive spillover effects on local firm survival, confirming previous research that showed a similar positive *net* effect at the country level (Buckley *et al*., 2002; Caves, 1974; Driffield and Munday, 2000; Liu *et al*., 2000; Sinai and Meyer, 2004). At the same time, we find both foreign and local firms crowd out each other as well as their own peers. Our results for HMT firm share in regional markets point to the moderating effect of the geographic market dimension in determining the relative size of FDI's spillover and competition effects, which existing research has overlooked. Further, the strong competition effect imposed by reformed local firms on foreign entrants has not been found in earlier studies, especially in the context of emerging markets. Previously, only two FDI studies, both with samples from the United Kingdom, have considered the possibility of 'reverse spillovers' of local industries onto foreign-owned sectors (Driffield and Munday, 2000; Liu *et al*., 2000). Our findings suggest foreign entrants face a strong liability of foreignness despite their superior technological capabilities. These findings, although perplexing from the perspective of traditional FDI literature, are consistent with our theoretical framework.

This study has several limitations and provokes questions that merit further research. First, we examined a context in which the net of spillover and competition effects may be positive or negative, instead of trying to separate these effects. Future studies should find better measures and

DOI: 10.1002/smj

more appropriate empirical contexts that may help separate these two effects. Second, our sample consisted of relatively large firms by Chinese standards. If small local firms did not have enough resources and market power to compete against foreign firms and reformed local firms, competition effects could have been greater if we had included these firms. Third, the degree of spillover effects might be related to the share of foreign ownership in a firm because foreign multinationals are more likely to transfer advanced technology to their wholly owned subsidiaries than they are to joint ventures in order to avoid involuntary spillovers. Fourth, the degree of spillover effects might be contingent upon the recipients' absorptive capacity. Future studies should consider how the degree of spillover varies according to a firm's ownership structure, technological sophistication, and the recipients' absorptive capacity.

Some of our measures are specific to the empirical domain of this study, but our theories and hypotheses are generalizable to other contexts. Although our proxy of market commonality with provincial versus national markets might be China-specific, we believe the idea of regionalized competition and nationwide spillovers is applicable to other countries. It is reasonable to expect, however, that the lower the regional barriers in a country are, the smaller the difference in spillover and competition effects will be between the national and regional levels. Similarly, although our classification of firms is based on our empirical setting and may be somewhat simplistic, it is likely that, regardless of the context, some multinational firms are more localized than others, and the resource endowments of some local firms resemble those of foreign firms. Overall, China is not fundamentally different from other emerging markets, except that its markets are perhaps bigger and more heterogeneous. Future research can validate our findings in other contexts by defining markets and classifying resource profiles in other ways.

This study has several practical implications. In contrast to their earlier obsession with inward FDI and GDP growth, Chinese policy makers and the public are currently concerned with how FDI might negatively affect domestic companies' survival (Huang, 2003). Our results depict FDI as a double-edged sword: Chinese firms have benefited from, and been negatively affected by, foreign entrants, and this impact can be delineated largely in terms of geographic location and the resource profiles of both foreign and local firms. The biggest beneficiaries of spillover effects might be local firms located in inland areas, which can benefit from spillovers from both foreign multinationals and reformed local firms that compete with each other in the coastal regions, while avoiding direct competition with either group. In the meantime, host-country governments may improve local firms' survival chances by restructuring them in such a way that they can develop their own distinctive resources. Governments can also facilitate spillovers among local firms by encouraging mergers and acquisitions across regions. On the other hand, foreign firms' survival is negatively affected by competition from both other multinationals and strong local competitors within the same region, as well as from the rest of the nation. This result is similar to Shaver and Flyer's (2000) finding that firms with strong competitive advantages avoid agglomeration because they would stand to lose more than they would gain. Thus, multinational firms need to choose their competitors and partners more carefully. Because most Chinese firms, especially private firms, shareholding firms, and limited liability firms, can compete vigorously against foreign entrants and crowd them out of the domestic market, it might be risky for multinationals to allow further spillovers of advanced technologies to these reformed local firms.

Our approach is useful for evaluating the relative performance of foreign and local firms. Our findings suggest that emerging markets are imperfectly competitive, and strong local firms eventually emerge. The more heterogeneous local markets and local resources are, the more chances local contenders have to survive and succeed. Overall, this study enhances our understanding of how local firms arise and compete with multinationals in emerging markets.

ACKNOWLEDGEMENTS

We appreciate helpful comments and suggestions from two anonymous reviewers; Theresa Cho; Renata Kosova; John Lafkas; and seminar participants at Peking University, Korea University, INSEAD, the Wharton School, and Harvard Business School. We thank Yuping Zeng for her excellent research assistance. This paper was largely completed while Dean Xu was at Guanghua School of Management, Peking University. Sea Jin Chang

appreciates the research grant from the Korea Research Foundation, KRF-2007-342-B00016.

REFERENCES

Ahn N, de la Rica S, Ugidos A. 1999. Willingness to move for work and unemployment duration in Spain. *Economica* **66**: 335–357.

Aitken BJ, Harrison AE. 1999. Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. *The American Economic Review* **89**(3): 605–618.

Allison PD. 1984. *Event History Analysis: Regression for Longitudinal Event Data*. Sage: Beverly Hills, CA.

Bain J. 1956. *Barriers to New Competition*. Harvard University Press: Cambridge, MA.

Barney JB. 1986. Strategic factor markets: expectations, luck, and business strategy. *Management Science* **32**: 1230–1241.

Barney JB, Hoskisson RE. 1990. Strategic groups: untested assertions and research proposals. *Managerial and Decision Economics* **11**: 187–198.

Baum JAC, Korn HJ. 1996. Competitive dynamics of interfirm rivalry. *Academy of Management Journal* **39**(2): 255–291.

Baum JAC, Korn HJ. 1999. Dynamics of dyadic competitive interaction. *Strategic Management Journal* **20**(3): 251–278.

Baum JAC, Mezias SJ. 1992. Localized competition and organizational failure in the Manhattan hotel industry: 1898–1990. *Administrative Science Quarterly* **37**: 580–604.

Beamish PW. 1988. *Multinational Joint Ventures in Developing Countries*. Routledge: London, UK.

Blomstrom M. 1986. Foreign investment and productive efficiency: the case of Mexico. *The Journal of Industrial Economics* **35**(1): 97–110.

Blomstrom M, Persson H. 1983. Foreign investment and spillover efficiency in an underdeveloped economy: evidence from the Mexican manufacturing industry. *World Development* **11**: 493–501.

Buckley PJ, Casson MC. 1976. *The Future of the Multinational Enterprise*. Macmillan Press: London, UK.

Buckley PJ, Clegg J, Wang CQ. 2002. The impact of inward FDI on the performance of Chinese manufacturing firms. *Journal of International Business Studies* **33**(4): 637–655.

Buckley PJ, Ghauri PN. 2004. Globalisation, economic geography, and the strategy of multinational enterprises. *Journal of International Business Studies* **35**(2): 81–98.

Cantwell J. 1989. *Technical Innovation and Multinational Corporations*. Basil Blackwell: Oxford, UK.

Caves RE. 1971. International corporations: the industrial economics of foreign investment. *Economica* **38**: 1–27.

Caves RE. 1974. Multinational firms, competition, and productivity in host-country markets. *Economica* **41**: 176–193.

Chang SJ. 1995. International expansion strategy of Japanese firms: capability building through sequential entry. *Academy of Management Journal* **38**(2): 383–407.

Chang SJ. 1996. An evolutionary perspective on diversification and corporate restructuring: entry, exit and economic performance during 1981–89. *Strategic Management Journal* **17**(8): 587–611.

Chang SJ, Park S. 2005. Types of firms generating network externalities and MNCs' co-location decisions. *Strategic Management Journal* **26**(7): 595–615.

Chen MJ. 1996. Competitor analysis and interfirm rivalry: toward a theoretical integration. *Academy of Management Review* **21**(1): 100–134.

Chen MJ, MacMillan IC. 1992. Nonresponse and delayed response to competitive moves: the roles of competitor dependence and action irreversibility. *Academy of Management Journal* **35**(3): 539–570.

Chen MJ, Su KH, Tsai W. 2007. Competitive tension: the awareness-motivation-capability perspective. *Academy of Management Journal* **50**(1): 101–118.

Chow GC. 1993. Capital formation and economic growth in China. *Quarterly Journal of Economics* **108**(3): 809–842.

Chung W, Alcacer J. 2002. Knowledge seeking and location choice of foreign direct investment in the United States. *Management Science* **48**(12): 1534–1554.

Collis DJ. 1991. A resource-based analysis of global competition: the case of the bearings industry. *Strategic Management Journal*, Summer Special Issue **12**: 49–68.

Conner KR. 1994. The resource-based challenge to the industry-structure perspective In *Best Paper Proceedings of the 54th Annual Academy of Management Conference*, Moore D (ed).: 17–21.

Dawar N, Frost T. 1999. Competing with giants: survival strategies for local companies in emerging markets. *Harvard Business Review* **77**(2): 119–129.

De Backer K, Sleuwaegen L. 2003. Does foreign direct investment crowd out domestic entrepreneurship? *Review of Industrial Organization* **22**(1): 67–84.

DiMaggio PJ, Powell WW. 1983. The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. *American Sociological Review* **48**: 147–160.

Driffield N, Munday M. 2000. Industrial performance, agglomeration, and foreign manufacturing investment in the UK. *Journal of International Business Studies* **31**(1): 21–37.

Duhaime IM, Grant JM. 1984. Factors influencing divestment decision-making: evidence from a field study. *Strategic Management Journal* **5**(4): 301–318.

Dunning JH. 1981. *International Production and the Multinational Enterprise*. Allen and Unwin: London, UK.

Dunning JH. 1988. The eclectic paradigm of international production: a restatement and some possible extensions. *Journal of International Business Studies* **19**(1): 1–31.

Ferrier WJ. 2001. Navigating the competitive landscape: the drivers and consequences of competitive

aggressiveness. *Academy of Management Journal* **44**: 858–877.

Gimeno J. 1999. Reciprocal threats in multimarket rivalry: staking out 'spheres of influence' in the U.S. airlines industry. *Strategic Management Journal* **20**(2): 101–128.

Gimeno J, Woo CY. 1994. Multipoint competition, market rivalry and firm performance: a test of the complete mediation model. In *Best Paper Proceedings of the 54th Annual Academy of Management Conference*, Moore D (ed).: 32–36.

Gerschenkron A. 1962. *Economic Backwardness in Historical Perspective: A Book of Essays*. Belknap Press of Harvard University Press: Cambridge, MA.

Ghoshal S, Westney ED. 1993. Introduction and overview. In *Organization Theory and the Multinational Corporation*, Ghoshal S, Westney ED (eds). St Martin's Press: New York; 1–23.

Globerman S. 1979. Foreign direct investment and 'spillover' efficiency benefits in Canadian manufacturing industries. *The Canadian Journal of Economics* **12**(1): 42–56.

Haddad M, Harrison A. 1993. Are there positive spillovers from direct foreign investment? Evidence from panel data for Morocco. *Journal of Development Economics* **42**(1): 51–74.

Hejazi W, Safarian AE. 1999. Trade, foreign direct investment, and R&D spillovers. *Journal of International Business Studies* **30**(3): 491–511.

Henisz WJ, Delios A. 2001. Uncertainty, imitation, and plant location: Japanese multinational corporations, 1990–1996. *Administrative Science Quarterly* **46**(3): 443–475.

Hitt MA, Dacin MT, Levitas E, Arregle JL, Borza A. 2000. Partner selection in emerging and developed market contexts: resource-based and organizational learning perspectives. *Academy of Management Journal* **43**(3): 449–467.

Huang Y. 2003. *Selling China: Foreign Direct Investment During the Reform Era*. Cambridge University Press: Cambridge, UK.

Hymer SH. 1960. The international operation of national firms: a study of direct foreign investment. Ph.D. diss. Massachusetts Institute of Technology, Boston, MA.

Javorcik BS. 2004. Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages. *The American Economic Review* **94**(3): 605–627.

Jin HH, Qian YY, Weingast BR. 2005. Regional decentralization and fiscal incentives: Federalism, Chinese style. *Journal of Public Economics* **89**(9–10): 1719–1742.

Keller W. 2002. Geographical localization and international technology diffusion. *The American Economic Review* **92**(1): 120–142.

Khanna T, Palepu KG, Sinha J, Klump A, Kaji N, Sanchez L,Yacoub, M. 2005. Strategies that fit emerging markets. *Harvard Business Review* **83**(6): 63–76.

Kim WC. 1988. The effects of competition and corporate political responsiveness on multinational bargaining power. *Strategic Management Journal* **9**(3): 289–295.

Klein KJ, Dansereau F, Hall RJ. 1994. Levels issues in theory development, data collection, and analysis. *Academy of Management Review* **19**(2): 195–229.

Kogut B. 1983. Foreign direct investment as a sequential process. In *The Multinational Corporation in the 1980s*, Kindleberger C, Audretsch D (eds). MIT Press: Cambridge, MA; 38–56.

Kokko A. 1994. Technology, market characteristics, and spillovers. *Journal of Development Economics* **43**: 279–293.

Kokko A, Tasini R, Zejan M. 1996. Local technological capability and productivity spillover from FDI in the Uruguayan manufacturing sector, *Journal of Development Studies* **32**: 602–611.

Konings J. 2001. The effects of foreign direct investment on domestic firms: evidence from firm-level panel data in emerging economics. *Economics of Transition* **9**(3): 619–633.

Kosova R. 2005. Do foreign firms crowd out domestic firms? Evidence from the Czech Republic. Working paper, George Washington University, Washington, D.C.

Kostova T, Zaheer S. 1999. Organizational legitimacy under conditions of complexity: the case of the multinational enterprise. *Academy of Management Review* **24**(1): 64–81.

Krugman P. 1991. Increasing returns and economic geography. *Journal of Political Economy* **99**: 483–499.

Li J, Yang JY, Yue DR. 2007. Identity, community, and audience: how wholly owned foreign subsidiaries gain legitimacy in China. *Academy of Management Journal* **50**(1): 175–190.

Lieberman MB, Montgomery DB. 1988. First-mover advantages. *Strategic Management Journal*, Summer Special Issue **9**: 41–58.

Liu XM, Siler P, Wang CQ, Wei YQ. 2000. Productivity spillovers from foreign direct investment: evidence from UK industrial level panel data. *Journal of International Business Studies* **31**(3): 407–425.

Lu JW, Xu D. 2006. Growth and survival of international joint ventures: an external-internal legitimacy perspective. *Journal of Management* **32**(3): 427–448.

Luo Y. 1997. Partner selection and venturing success: the case of joint ventures with firms in the People's Republic of China. *Organization Science* **8**(6): 648–662.

Luo Y. 2005. Selling China: foreign direct investment during the reform era. (Book Review). *Academy of Management Review* **30**(1): 200–203.

Makino S, Delios A. 1996. Local knowledge transfer and performance: implications for alliance formation in Asia. *Journal of International Business Studies* **27**(5): 905–927.

McGee J, Thomas H. 1986. Strategic groups: theory, research and taxonomy. *Strategic Management Journal* **7**(2): 141–160.

Meyer KE. 2004. Perspectives on multinational enterprises in emerging economies. *Journal of International Business Studies* **35**: 259–276.

Miller SR, Eden L. 2006. Local density and foreign subsidiary performance. *Academy of Management Journal* **49**(2): 341–355.

DOI: 10.1002/smj

Moran TH. 1985. *Multinational Corporations: The Political Economy of Foreign Direct Investment*. Lexington Books: Lexington, MA.

Oliver C. 1991. Strategic responses to institutional processes. *Academy of Management Review* **16**(1): 145–179.

Pan Y, Li S, Tse DK. 1999. The impact of order and mode of market entry on profitability and market share. *Journal of International Business Studies* **30**(1): 81–103.

Park SH, Li S, Tse DK. 2006. Market liberalization and firm performance during China's economic transition. *Journal of International Business Studies* **37**: 127–147.

Peng MW, Luo YD. 2000. Managerial ties and firm performance in a transition economy: the nature of a micro-macro link. *Academy of Management Journal* **43**(3): 486–501.

Peng MW, Tan J, Tong TW. 2004. Ownership types and strategic groups in an emerging economy. *Journal of Management Studies* **41**(7): 1105–1129.

Porter ME. 1980. *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Free Press: New York.

Porter ME. 1998. Clustering and the new economics of competition. *Harvard Business Review* **76**(6): 77–90.

Prahalad CK, Lieberthal K. 1998. The end of corporate imperialism. *Harvard Business Review* **76**(4): 68–79.

Ralston DA, Terpstra-Tong J, Terpstra RH, Wang X, Egri C. 2006. Today's state-owned enterprises of China: are they dying dinosaurs or dynamic dynamos? *Strategic Management Journal* **27**(9): 825–843.

Rosenzweig PM, Singh JV. 1991. Organizational environments and the multinational enterprise. *Academy of Management Review* **16**: 340–361.

Saxenian A. 1994. *Regional Advantage*. Harvard University Press: Cambridge, MA.

Sharma A, Kesner IF. 1996. Diversifying entry: some *ex ante* explanations for postentry survival and growth. *Academy of Management Journal* **39**(3): 635–677.

Shaver JM, Flyer F. 2000. Agglomeration economies, firm heterogeneity, and foreign direct investment in the United States. *Strategic Management Journal* **21**(12): 1175–1193.

Shaver JM, Mitchell W, Yeung B. 1997. The effect of own-firm and other-firm experience on foreign direct investment survival in the United States, 1987–92. *Strategic Management Journal* **18**(10): 811–824.

Sinai E, Meyer KE. 2004. Identifying spillovers of technology transfer: the case of Estonia. *Journal of Comparative Economics* **32**(3): 445–466.

Smith KG, Grimm CM, Gannon MJ, Chen MJ. 1991. Organizational information processing, competitive responses, and performance in the U.S. domestic airline industry. *Academy of Management Journal* **34**: 1–26.

Teece DJ, Pisano G, Shuen A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal* **18**(7): 509–533.

Vanhonacker W. 1997. Entering China: an unconventional approach. *Harvard Business Review* **75**(2): 130–136.

Yu T, Cannella AA. 2007. Rivalry between multinational enterprises: an event history approach. *Academy of Management Journal* **50**(3): 663–684.

Zeng M, Williamson PJ. 2003. The hidden dragons. *Harvard Business Review* **81**(10): 92–99.

DOI: 10.1002/smj