Global cities and multinational enterprise location strategy

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Abstract
We combine the concept of location derived by economic geographers with theories of the multinational enterprise (MNE) and the liability of foreignness developed by international business scholars, to examine the factors that propel MNEs toward, or away from, "global cities". We argue that three distinctive characteristics of global cities – global interconnectedness, cosmopolitanism, and abundance of advanced producer services – help MNEs overcome the costs of doing business abroad, and we identify the contingencies under which these characteristics combine with firm attributes to exert their strongest influence. Consistent with these arguments, our analysis of a large sample of MNE location decisions using a multilevel multinomial model suggests not only that MNEs have a strong propensity to locate within global cities, but also that these choices are associated with a nuanced interplay of firm- and subsidiary-level factors, including investment motives, proprietary capabilities, and business strategy. Our study provides important insights for international business scholars by shedding new light on MNE location choices and also contributes to our understanding of economic geography by examining the heterogeneous strategies and capabilities of MNEs – the primary agents of economic globalization – that shape the nature of global cities.
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INTRODUCTION

The concept of location – where and why firms place specific activities in particular areas – is a key area of interest in both international business research (e.g., Alcácer & Chung, 2007; Nachum & Wymbs, 2005; Porter, 2001) and economic geography research (e.g., Krugman, 1991; Lorenzen & Mudambi, 2013; Markusen, 1996). Yet, despite rising interest in location, our current understanding of the geographic aspect of multinational enterprise (MNE) behavior remains underdeveloped (McCann, 2011; Ricart, Enright, Ghemawat, Hart, & Khanna, 2004).

Although scholars have begun to demonstrate how MNE strategies influence their foreign location decisions, there is little theoretical or empirical work on the influence of firm characteristics on the specific location choices of MNE subsidiaries (Beugelsdijk, McCann, & Mudambi, 2010; McCann & Mudambi, 2005). More specifically, the attraction of MNEs to "global cities" has been largely overlooked by international business scholars. By the same

token, while economic geographers have carefully studied the concept of location, one strand of economic geography research has been preoccupied with the propensity of firms and workers to cluster in geographic space as regions become more integrated, whereas another has focused more specifically on the emergence and evolution of global cities (Beaverstock, 2002; Friedmann, 1986; Jacobs, 1984). Much of this work focuses on the characteristics of economic agglomeration, however, with less attention to the behavior of multinational firms (see Beugelsdijk et al., 2010, for an exception), and the way in which their heterogeneous capabilities and strategies interact with location. Therefore, while prior research has examined the pattern of linkages that tie global cities together in the world economy, we still know relatively little about the firms that actually create and exploit those linkages by establishing, for example, channels of communication between dispersed subsidiaries, and by moving goods, people, and information across geographic space. Hence, as suggested by Markusen (1996: 310), "more intensive study of multinational corporations [is necessary] … if a more powerful geographic contribution to progressive strategy is to emerge". Our research, therefore, is designed to improve our understanding of the MNE in geographic space by bridging these diverse streams of thought.

The tradition in international business scholarship, in literatures such as those on geographic scope (Asmussen, 2009; Goerzen & Beamish, 2003), expatriates (Belderbos & Heijltjes, 2005), culture (Makino & Neupert, 2000), and entry mode (Tihanyi, Griffith, & Russell, 2005), to name a few, has been to use the nation-state – defined by national political boundaries – as the basic unit of analysis when examining location. Yet, as argued by previous authors, these large geographical units are often too coarse to provide an accurate picture of the role of MNEs in economic globalization, since the trends of outsourcing and new technologies, as well as economic policies of liberalization, have made nation-states less significant as units of analysis (Brown, Derudder, Parnreiter, Pelupessy, Taylor, & Witlox, 2010; Krugman, 1991). Ultimately, firms choose a specific place within a country as the location for their investments, and at the country or even the regional level of analysis these micro-location decisions are obscured; this warrants a more nuanced examination of specific locational features.

More recent research on MNE location strategy has begun, in fact, to consider the subnational level, including industry clusters (Gordon & McCann, 2000; Porter, 2001; Pouder & St John, 1996) and regions (Ma, Tong, & Fitza, 2012). Yet an important concept that has scarcely received attention by international management scholars is that of "global cities". These cities (of which London, New York, Tokyo, Paris, Chicago, and Frankfurt are prominent examples) are characterized by particularly high degrees of centrality and influence in the world economy, as well as being interconnected in global networks that provide an infrastructure for the global economy (Sassen, 1991, 2012; Wall & van der Knaap, 2011).

As described in more detail below, theory on global cities suggests that their natures are distinct from regions and industry clusters, or even from cities with large populations (i.e., megacities) that do not exhibit global city characteristics (e.g., Coe, Dicken, Hess, & Yeung, 2010; Lüthi, Thierstein, & Goebel, 2010; Markusen, 1996; Scott, 2001). We propose, therefore, that a global city perspective makes possible significant new insights into MNE behavior, since these locations are relevant to MNE location strategy (Nachum & Wymbs, 2005), and are integral to contemporary economic location patterns (Beaverstock, Smith, & Taylor, 1999). At the same time, we suggest that prior literature on global cities has not been concerned with the idiosyncratic nature of the firms that are the *raison d'etre* of global cities; our research therefore also contributes to our understanding of economic geography by examining the internal resources and capabilities of MNEs that influence the establishment and evolution of global cities.

To shed new light on global cities and MNE location strategies – a topic that is relevant to scholars, managers, and policymakers – we first analyze the key contributions in the international business and economic geography literatures. Next, we develop a theoretical argument intended to unpack the conditions under which MNEs are drawn toward, or repelled by, global cities – conditions that relate to the motives, idiosyncratic capabilities, international strategy, and organization of the firm. We then test our hypotheses on a large sample of MNE location choices, providing an analysis and discussion of the results before we conclude with the implications and limitations of our study.

ECONOMIC GEOGRAPHY, GLOBAL CITIES, AND MNE LOCATION STRATEGY

For almost a century, scholars have been interested in the emergence of privileged sites for economic

development. Beginning with Marshall's (1920) seminal work, a prolific and influential literature on the nature of economic agglomeration has come to the fore in research in both international business (e.g., Porter, 1998) and economic geography (e.g., Martin & Sunley, 2003; Scott, 1992), where researchers have examined various types of agglomerations, including industrial districts or clusters, regions, and cities. In the management literature on location strategy, several authors have examined the notion that proximity matters, given that local firms tend to cite each other's patents more frequently (Almeida, 1996; Frost, 2001), and that knowledge moves slowly beyond geographic boundaries (Baum & Haveman, 1997). The positive externalities stemming from co-location, described by Arrow (1962) and Romer (1986), are complemented and intensified by several other interrelated elements, including the dense linkages among co-located buyers, suppliers, and customers (Porter, 1998).

Arguably, the primary perspective of most of these studies[1] has been that of the industrial district, first proposed by Marshall (1920). We propose, however, that a valuable and relatively unexplored research avenue exists in the intersection of MNE location strategy and the economic geography of cities. Among the early theorists to focus specifically on the nature of cities was Jacobs (1969, 1984, 2000), who built on Marshall's (1920) work but attributed the growth of cities to the diverse activities within them that are also subject to economies of scale due to co-location. As analyzed by Brown et al. (2010), a city in Jacobs' view can be understood as an ecosystem that naturally organizes diverse human activities (i.e., the "little movements") to facilitate deliberate as well as incidental learning and innovation within an environment that in turn leads to complex relations with other cities (i.e., the "big wheels" of commerce). While the Marshallian and Jacobean traditions both focus on the concept of geographic proximity, they differ in the sense that "Marshall centres on belonging to a specialized producer community which diffuses the 'secrets' of industry, *not* the kind of cosmopolitan and haphazard city life described by Jacobs" (Storper & Venables, 2004: 353, emphasis added). As we argue below, this distinction in the nature of geographic proximity has important implications for the ways in which firms make specific location choices with respect to their international subsidiaries.

Some observers have suggested that cities are becoming obsolete (see, e.g., Scott, Agnew, Soja, & Storper, 2001, for a discussion). This proposition stems from the observation that MNEs, among the most significant forces in the global economy, are acting as centrifugal forces, "offshoring" their operations (Bhagwati, Panagariya, & Srinivastan, 2004; Harrison & McMillan, 2006), expanding their worldwide networks of alliances and subsidiaries (Goerzen, 2007; Goerzen & Beamish, 2005), and moving their back-office operations from urban centers to outlying suburbs (Sassen, 2001). However, as described by Sassen (1991, 2012), state-of-the-art infrastructure and the specialized managerial expertise required to make international systems and processes function appear to be assembling in "global cities", and these emerging urban phenomena are providing a countering centripetal force in the global economy. Ironically, by enhancing global linkages that tie these cities together, network technologies such as the Internet have only accelerated this force (Sassen, 2002). These observations provide an impetus to re-examine the relationship between global cities and MNE location strategy to shed new light on the MNE in geographic space.

What is a Global City?

Major cities have been of interest to researchers from a variety of disciplines for years, and many labels have been proposed to describe them, including great industrial cities, world cities, imperial cities, global capitalist cities, primate cities, and global cities. Essentially, previous work on cities can be decomposed into two approaches: a demographic and a functional tradition (Beaverstock et al., 1999). Early scholars interested in cities examined them in the context of national urban systems, mostly using demographic data, to develop an understanding of urban primacy or hierarchy. This demographic tradition for urban studies is focused primarily on the human and ecological implications of large human populations, such as "megacities" (Gilbert, 1996). Other researchers, however, reinterpreted the global economic role of cities (e.g., Cohen, 1981; Friedmann, 1986; Sassen, 1991), giving rise to a new literature that focused on their characteristics and interconnections (see, e.g., Brown et al., 2010, for an analysis of this literature). This approach has evolved into a functional tradition in urban studies (e.g., Friedmann, 1986; Sassen, 1994, 2012), examining the activities that go on within cities by virtue of their function in the global economy, and leading to the development of the concept of "global

cities". Our research is firmly situated in the functional tradition (rather than the demographic one[2]), since, as elaborated below, this tradition highlights the connections between geographically separated activities, thereby providing an opportunity to offer new insights into the association between geographic location and international management.

An overarching theme in the functional tradition is the notion of global cities as hubs in a broader web of global linkages, leading to a co-evolution of MNE expansion and global city formation[3] (Jacobs, Ducruet, & De Langen, 2010). Internationalizing firms need a global supply of business services to support their foreign operations; such services, in turn, are based on high information velocity, and consequently tend to be highly localized in their agglomeration patterns (Arzaghi & Henderson, 2008). In particular, Dunning and Norman (1983) found that international business service firms located their European offices in London, Brussels, and Paris in order to be close to their customers (generally MNEs). This means that both MNEs and their business service providers will tend to cluster around narrowly defined points in geographic space. This explanation of global city emergence, pioneered by Sassen (1991, 1994), focuses on the specialization and agglomeration of *advanced producer services* (e.g., finance, law, accounting, and advertising), suggesting that today's global cities – by virtue of being production spaces for the key inputs that complex organizations need for their global operations – are command and control points in the organization of the world economy (Sassen, 2012).

This role in command and control has two other important implications for global cities as well. First, as per the focus of early approaches within the functional tradition (e.g., Hall, 1966), certain cities develop characteristics that emerge from politics, communications, education, culture, and other social factors creating a *cosmopolitan environment*. Such an environment is closely interlinked to the pooling of specialized managerial capabilities required by MNEs (Dunning & Norman, 1983), the use of expatriates as a coordination and control mechanism (Martinez & Jarillo, 1989), and coordination through the intensive "buzz" of face-to-face knowledge exchange (Storper & Venables, 2004). Second, global cities tend to form external global linkages, defined as channels for ingoing and outgoing resource flows (Lorenzen & Mudambi, 2013). The cosmopolitan environment is thus complemented by infrastructures that are conducive to

the inward and outward mobility of human resources (Bel & Fageda, 2008), and to the establishment of personal relationships between them across geographic space (Bathelt, Malmberg, & Maskell, 2004) – infrastructures that may be physical (e.g., ports and airports) as well as informational (e.g., mass media). Friedmann (1986) provided the seminal work on this idea, developing the concept of primary and secondary cities based upon an analysis of several key criteria that related to this extensive *interconnectedness*, including the existence of major financial centers, headquarters for international institutions, the rapid growth of the business services sector, and major transportation nodes.

Taken together, the literature thus suggests that the functional tradition has converged on three key attributes that characterize global cities: a *high degree of interconnectedness* to local and global markets; a *cosmopolitan environment*; and *high levels of advanced producer services*. These characteristics, and their distinct implications for MNE location choice, make global cities distinct from other subcountry units of analysis such as megacities or industrial clusters. Megacities, for instance, are characterized by population size with more than 10 million inhabitants, such as Calcutta, Karachi, and Dhaka, none of which exhibit global city characteristics (Beaverstock et al., 1999). By the same token, industrial clusters are more industry-specific, and offer technological knowledge spillovers and inter-firm industry value chain linkages (Porter, 1990, 1998) of a relatively narrow kind. One example of a global city is Zürich, which is clearly cosmopolitan, extensively interconnected with high levels of advanced producer services – yet it is neither very large in population (less than 350,000 in 1999) nor centered on just one particular industry. Global cities, then, exhibit distinct attributes and, unlike other subnational geographic units, are particularly relevant as pre-eminent cultural, political, economic, and social centers (Derudder, Taylor, Witlox and Catalano, 2003; Short, Breitbach, Buckman and Essex, 2000; Taylor, Walker and Beaverstock, 2002) with emerging global command and control characteristics (Sassen, 2001, 2012).

How many global cities there are and how they fit into an international hierarchy are part of an ongoing debate (Beaverstock et al., 1999; Derudder et al., 2003; Short et al., 2000; Taylor et al., 2002). Nonetheless, a growing consensus is emerging that certain cities are rising in importance as key centers

of economic coordination and control by virtue of their network-enabling characteristics, and this new reality is important for managers and international business scholars to understand. At the same time, it is important also for economic geographers to develop a clearer understanding of the interaction between global cities and MNEs – the key agents of global city formation and evolution – so we now turn to that question.

Global Cities and the Liability of Foreignness (LOF)

Hymer (1976) and Kindleberger (1969) first pointed out that foreign firms in host-country markets face costs over and above those faced by their incumbent competitors, and a number of empirical studies have since provided evidence of such costs (Mezias, 2002; Zaheer, 1995; Zaheer & Mosakowski, 1997). Known as the LOF in the international business literature, these costs are closely related to but more broadly defined than concepts described by economic geographers, such as "border effects" (McCallum, 1995) and the "frictions of distance" (Appold, 1995). Importantly, in the context of MNE strategy, these liabilities are likely to influence both *ex ante* geographic location decisions by MNEs and *ex post* performance implications of such decisions (Asmussen, 2009; Zaheer, 1995).

There has been little attention directed toward subcountry-level determinants of the LOF, however, despite the fact that prior research has begun to show that it varies with the specific investment location (Nachum, 2003). From this perspective, it seems likely that an MNE would not experience the same degree of the LOF when locating in, for example, Shanghai, which has a high degree of integration into the world economy as compared with another less connected, perhaps rural, part of China (Wei & Leung, 2005; Wu, 2000). Thus, as suggested by Nachum (2003: 1202), a global city "gives rise to somewhat different sources of advantages and affects directly the existence and strength of the LOF".

While the LOF is traditionally defined very broadly as comprising any additional costs incurred by the foreign firm, Zaheer (1995) identified several sources as being of prime importance. Specifically:

(1) the challenges directly associated with spatial distance (e.g., travel, transportation) and coordination over distance and across time zones, yielding an overall *complexity* of operations;

(2) firm-specific costs based on a particular company's *uncertainty* due to lack of familiarity within a local environment; and
(3) costs resulting from *discrimination* within the host-country environment stemming from economic nationalism and the lack of legitimacy of foreign firms.

These key sources of the LOF – *complexity*, *uncertainty*, and *discrimination* – differ depending on whether the firm chooses to locate within or outside a global city. In the discussion below, therefore, we elaborate on each of these sources and analyze their connections to global cities.

Complexity captures the idea that MNEs suffer from the geographic separation between corporate headquarters and subsidiaries, a challenge that is not shared by indigenous firms. For example, geographic separation has been shown to inhibit trust and personal relationship-building (Luo, 2001), and to lead to significant problems of information asymmetry (Bergen, Dutta, & Walker, 1992). As a result, MNEs incur higher communication and coordination costs than do domestic firms (Zaheer & Mosakowski, 1997), making it more difficult to control foreign subsidiaries or to avoid moral hazard and agency problems (Gómez-Mejia & Palich, 1997).

Several features of global cities, however, may serve to reduce this complexity. First, the interconnectedness of these cities to the global economy should make the transfer of capital, people, goods, and information to and from local subsidiaries faster, less costly, and more straightforward (Friedmann, 1986).[4] Second, agglomeration of advanced producer services reduces the need to import such services from the home base, and allows the MNE to work with the same service providers across borders. Finally, complexity is easier to manage because the cultural diversity of global cities facilitates the use of expatriates (Edström & Galbraith, 1977; Martinez & Jarillo, 1989). Essentially, the economic and social characteristics of the global city, including its connectivity to local and global markets, help alleviate some of the added complexity costs due to distance.

Uncertainty stems from the foreign firm's unfamiliarity with the host environment, and may lead it to incur additional search costs, as well as costs of mistakes including flawed product launches and the failure to comply with legal and cultural norms

Table 1 Global cities and the liability of foreignness

Properties of global cities	Components of the LOF		
	Uncertainty	*Discrimination*	*Complexity*
International connectedness	Reduces search costs, because information about local environment is widely available and highly codified, and local experts are used to dealing with foreigners	Exposes local population to international stimuli, and ensures government institutions and policies that are conducive to foreign direct investment (FDI)	Makes the transfer of capital, people, goods, and information to and from local subsidiaries faster, less costly, and more accurate
Advanced producer services	Accelerates learning by supplying MNEs with consulting and advice, and allowing MNEs to work with partners that are both locally and globally knowledgeable	Legitimizes foreign firms among service providers who are often global firms themselves and specialize in serving MNEs, and who may in turn lend local credibility to the MNE	Reduces the need to import services from home base, and allows the MNE to work with the same service providers across borders, thus reducing coordination costs
Cosmopolitan environment	Levels the playing field for obtaining information and gaining familiarity, by ensuring a diversity of national cultures	Legitimizes foreign firms in the eyes of customers, prospective employees, partners, and so on – many of whom themselves are foreign or have international experience	Facilitates the use of expatriates, thereby enhancing coordination and control within the MNE

(Kostova & Zaheer, 1999; Mezias, 2002). In global cities, however, availability of global media and an extensive IT infrastructure reduce search costs, because data about the local environment are widely available and highly codified. Local service providers are accustomed to dealing with foreign firms, and in fact are often targeting them, making the host environment easier for the MNE to decipher. Furthermore, the agglomeration of advanced producer services accelerates learning by supplying MNEs with highly expert consulting and advice, enabling them to build their businesses with suppliers who are both locally and globally knowledgeable and connected. Taken together, this reasoning suggests that foreign investment uncertainty may be felt less acutely by MNEs when investing within global cities as compared with other locations.

Discrimination may result from the foreign firm's lack of legitimacy in the local environment, and occurs both formally, such as when foreign firms are subject to different rules and regulations compared with domestic firms (Kostova & Zaheer, 1999), and informally, such as when consumers and employees prefer to deal with domestic firms (Zaheer & Mosakowski, 1997). In global cities, however, local stakeholders tend to be more cosmopolitan, since they are likely to be more exposed to international stimuli – for example, through expatriate or diasporic personal relationships transcending geographic space (Lorenzen & Mudambi, 2013; Sassen, 2002). Riefler, Diamantopoulos, and Siguaw (2011) define and operationalize cosmopolitanism with three second-order factors: open-mindedness to other countries and cultures, appreciation of diversity, and preference for international consumption. Presumably, such attitudes will lead foreign firms to be seen as more legitimate in the eyes of customers, suppliers, prospective employees and so on, many of whom themselves are foreign or have international experience and connections (Beaverstock, 2002). In addition, the MNE deals with service providers (e.g., accountants, lawyers, advertisers, and bankers) who often have global reach, specializing in serving MNEs, and who may, in turn, lend local credibility to the MNE, just as government institutions and policies in global cities may be more conducive to inward investment (e.g., Saito, 2003; Wu, 2000). The three essential global city characteristics are mapped against the key dimensions of the LOF in Table 1.

The implication of our analysis is that the LOF, *ceteris paribus*, would be expected to be lower for MNEs locating foreign subsidiaries within global cities than elsewhere. Since the MNE is under particularly intense and increasing pressure to improve the efficiency of its complex structure to justify the higher transaction costs inherent in operating across sociopolitical and economic borders (Nohria & Ghoshal, 1997), global cities represent particularly attractive locations for MNE foreign subsidiaries. Given that the expansive networks of global cities constitute the economic fabric supporting firm internationalization, we expect MNEs, all else being equal, to gravitate

toward these cities in their location decisions, leading us to our first hypothesis:

> **Hypothesis 1**: An MNE is more likely to locate its foreign subsidiaries within global cities than in other locations.

Global Cities and Investment Motives

While there appear to be clear benefits of locating activities within global cities, there are also downsides. One of these is the risk that, in a high information velocity environment such as a global city, competitors may appropriate knowledge spillovers pertaining to the MNE's sources of competitive advantage (Shaver & Flyer, 2000). Furthermore, scholars have described how the economies of co-location eventually give way to diseconomies caused by congestion and factor price inflation as the density of economic activity increases (e.g., Duranton & Puga, 2003). While global cities vary widely in absolute size, it is likely that some congestion will occur, at least in the city center, as a natural outcome of the high concentration of economic activity, the narrow agglomeration of business services, and the clustering of professional and expatriate labor forces. Hence, even though a Manhattan location may provide an MNE with an unrivaled degree of centrality and visibility, expenses such as rent and salaries may be so high as to render these benefits insufficient. This suggests that only those MNEs that, for various reasons, reap sufficient benefits from global city attributes will be likely to locate in these cities.

One important factor that may lead to these benefits is the motive behind the establishment of the subsidiary (Enright, 2000). Firms such as high-tech businesses, with strong intellectual property and thus concerns over knowledge spill-outs (Gordon & McCann, 2000), may be disinclined to locate in global cities, preferring to settle, instead, in more remote locations where firm activities can take place at lower cost and with fewer space constraints. Conversely, it would be worth locating in a global city if a high priority of the MNE is to use its subsidiary as a beachhead to access host-country markets, since the LOF-reducing benefits of global cities then become highly relevant. Thus an MNE's attraction to global cities may be contingent on its investment motivation (Nachum & Zaheer, 2005), where, in the terminology of Dunning (1993), MNEs that are "market seeking" will be more likely to locate in global cities, whereas the other investment motives (i.e., strategic asset seeking,

resource seeking, and efficiency seeking) might be pursued more efficiently outside global cities, other things being equal. Global city subsidiaries may thus tend to be "competence-exploiting" units that are demand driven with a focus on market servicing, rather than "competence-creating" units, which are supply driven with a focus on enhancing production and research and development competencies (Cantwell & Mudambi, 2005, 2011).

Competence-exploiting activities may take many forms, and be exposed to the LOF in different ways. To the extent that they target host-country consumers or firms, demand-driven subsidiaries are particularly vulnerable to two of the aforementioned components of the LOF: *discrimination* may make indigenous customers less positive toward the MNE's brand; and *uncertainty* reinforces this effect by, for example, making it more difficult for the MNE to identify customer preferences accurately in the host country. As explained above, global cities help MNEs overcome these dimensions of the LOF. For example, an MNE may use the global city as a location for accessing national media and other branding channels, as well as tapping into the physical infrastructure and linkages extending from these cities. This suggests that MNEs that are focused on acquiring access to customers in the host country – henceforth *local market seeking* – will reap particularly high benefits from the aforementioned global city attributes.

Nevertheless, local market seeking is only one type of demand-driven investment motive. Another type occurs when the subsidiary is intended as an initial location from which subsequently to reach an even larger geographic area by acting as a hub for distribution. Such a function, often operationalized as a regional or global mandate (Roth & Morrison, 1992), would require extensive pipelines for people, goods, and information to move both forwards and backwards through the value chain. A good example of this type of strategy is an American firm that locates in London or Paris in order to serve the European market. The interconnectivity and infrastructure of global cities, consisting of both global links to distant locations and national and regional links to more proximate markets, mean that these locations may be particularly attractive to firms that aim to establish distribution networks – henceforth referred to as *global market servicing*. While the motives described above are different in nature, they can both be characterized broadly as demand driven and competence exploiting, and their implications for

global city attraction are similar. We therefore summarize them in the following hypothesis:

Hypothesis 2a: An MNE's propensity to locate its foreign subsidiaries in a global city is greater if its investment motive is demand driven and competence exploiting (local market seeking or global market servicing).

Of these demand-driven motives, targeting local markets is likely the most challenging, since it requires new customers to be won over in direct interaction across cultural and institutional barriers. While the LOF-reducing characteristics of global cities may help MNEs overcome the challenge of locating abroad, the ultimate success of a given firm will depend on its resource base enabling it to use those characteristics to its advantage. Similar to the notion of absorptive capacity (Cohen & Levinthal, 1990), firms that aim to understand and target local customer preferences need high-level knowledge and capabilities to do so. By the same token, working closely with market-oriented producer service providers such as advertising agencies requires an understanding of the products and processes of these firms. Such marketing capabilities are likely to reside at MNE parent level, embedded in previous experiences, such as advertising campaigns and distribution agreements. To the extent that MNEs can leverage these capabilities across foreign markets when establishing new subsidiaries, costs relating to their foreign operations are likely to be lower. Thus, firms reap a higher return on their marketing capabilities if they locate their local-market-seeking subsidiaries in global cities, because they then maximize the fit between their strategies and resources, as reflected by our next hypothesis:

Hypothesis 2b: The positive relationship between an MNE subsidiary's motive for targeting local markets and its propensity to be located in a global city are positively moderated by the parent firm's marketing capabilities.

As opposed to competence-exploiting subsidiaries, competence-creating and supply-driven subsidiaries are less likely to be attracted to the particular properties of global cities, whether they locate in foreign markets in order to establish production or seek inspiration for new product development. Production activities are typically associated with efficiency-seeking motives (Dunning, 1993;

Enright, 2000) related to access to raw materials and particular types of labor. The substantial property costs associated with often large production facilities may, however, deter MNEs from locating their subsidiaries within global cities. Thus the potential LOF-reducing benefits of global cities would play a lesser role as firms focus on development of scale and scope advantages in production rather than servicing a local market via sales or distribution. Therefore, while *complexity* would still arise as a function of the spatial division of labor in production activities, firms would be unlikely to benefit from the availability of advanced producer services. Nor does the attractiveness of global cities to expatriates play a great role, as production efficiency typically is driven by local employment. Moreover, as more firms find that the additional costs of locating within a global city offset the potential advantages, production facilities and adjacent activities (such as R&D) start to gather in the areas outside global cities, thus further increasing the attractiveness of such co-location.

R&D represents another competence-creating activity that can be characterized as a strategic asset, that is, knowledge-seeking motive (Dunning, 1993; Enright, 2000). Since R&D activities are knowledge intensive, firms seek to locate such activities in close geographic proximity to: (1) suppliers of highly skilled knowledge, such as universities; and (2) firms with complementary tacit knowledge that are cognitively distant enough to avoid unintended spillover (Suire & Vicente, 2009). Tellingly, the three most famous examples of US high-tech industrial clusters – Silicon Valley, Route 128, and the Research Triangle – are not located within global cities but rather outside them, suggesting that they benefit from different types of agglomeration economies (Malecki, 1984). In addition, R&D activities are often scale sensitive, leading to MNEs establishing only a few global centers worldwide (Yip, 1995). Consistent with this view, Alcácer (2006) found R&D facilities to be more concentrated than sales and production subsidiaries. Large-scale R&D facilities require space, and the costs and inconveniences of being located within a global city are likely to outweigh any potential benefits. Indeed, many of the very features of a global city that serve to reduce the LOF for demand-driven, competence-exploiting activities may be of less importance or even detrimental (e.g., cost-increasing) to supply-driven, competence-creating activities. Together with the significant cost of the space differential between locating

within or outside a global city, we therefore expect supply-driven activities to be more likely to locate outside the global cities, leading to the following hypothesis:

> **Hypothesis 2c**: An MNE's propensity to locate its foreign subsidiaries outside a global city is greater if its investment motive is supply driven and competence creating (establishing production networks or product development).

Global Cities and MNE integration

While we have argued above that demand-driven motives make MNEs more sensitive to the LOF elements of *discrimination* and *uncertainty* in their external environment, the third component of the LOF – *complexity* – may be subject to different contingencies. As explained above, the added complexity of organizing business internationally forces MNEs to grapple with coordination and control challenges within and among their subsidiaries that are clearly over and above those faced by their indigenous competitors. Part of the attraction of global cities is that they alleviate these LOF problems, as their supply of advanced business services and their extensive interconnectedness to global networks of transportation and communication make it easier for MNEs to monitor their subsidiaries and keep them closely integrated within the corporate network. Global cities are also particularly well suited to the deployment of expatriates, a key coordination and control mechanism in MNEs (Belderbos & Heijltjes, 2005).

These benefits – which have to be weighed against the incremental costs of locating in global cities – may not be equally important to all MNEs. Even within particular industries, there is a significant strategic heterogeneity among firms in the extent to which they prioritize global integration over local responsiveness (Bartlett & Ghoshal, 1989; Prahalad & Doz, 1987). Whereas globally integrated MNEs would be particularly vulnerable to the coordination problems that result from international complexity, locally responsive MNEs would be less so – indeed, too much coordination and control would be detrimental to MNEs following a strategy of local responsiveness. Hence an MNE's international strategy is an important factor in determining its ability to reap the benefits of a global city location, as captured in the following hypothesis:

> **Hypothesis 3**: An MNE's strategy of global integration (vs local responsiveness) is positively

related to the propensity of its subsidiaries to be located within global cities.

Global Cities and MNE Alliance Strategy

Even for a globally integrated MNE, however, some subsidiaries are more likely than others to pose coordination and control challenges (Nohria & Ghoshal, 1994). One element that may play a particularly important role is the presence of a joint venture (JV) partner in the subsidiary. As noted by Geringer and Hebert (1989: 239), "in comparison with wholly owned subsidiaries, the exercise of effective control over international JVs may represent a more difficult proposition for the parent". When MNEs enter foreign markets with JVs, they not only have to control their own country managers, but also need to protect their intellectual property from appropriation, in addition to managing other types of interest conflicts between partner firms. Considering the complexity of "double-layered acculturation" inherent in international JVs (Barkema, Bell, & Pennings, 1996), it is not surprising that high dissolution rates have been reported for these types of operations (e.g., Beamish & Lupton, 2009; Hennart, Roehl, & Zietlow, 1999).

While the literature is rich with analysis of these problems (e.g., Goerzen, 2007; Schilke & Goerzen, 2010; Zollo, Reuer, & Singh, 2002), the geographic location of the JV remains an understudied antecedent (Globerman & Nielsen, 2007). However, the aforementioned unique challenges of the international JV suggest that it would be even more important to place such a subsidiary in a strategic location to reduce the LOF – *complexity* in particular. Global cities constitute such a strategic location where there is easy access to information, a more level playing field between the partners, and global connectivity so that problems can be quickly identified and addressed by geographically distant corporate managers. Moreover, by virtue of their cosmopolitan environment, global cities are culturally diverse, which reduces some of the issues related to cultural distance. Furthermore, since internal JV struggles may otherwise interfere with the global strategy of the MNE, the drive to locate JVs in global cities would be stronger for globally integrated firms than for firms that pursue local responsiveness strategies, and are therefore less attentive to subsidiary control. This is consistent with Kumar and Seth's (1998) finding that the strategic interdependence between JV and parent stimulates the need for coordination

and control mechanisms, leading to our final hypothesis:

Hypothesis 4: The positive relationship between an MNE's strategy of global integration and its propensity to be located within global cities is positively moderated by the presence of local subsidiary JV partners.

METHODS

Data

To assess the extent to which global cities are relevant to MNE location strategy, we compiled a data set on the locational choices of Japanese MNEs. Japan is the world's third largest economy (passed by the Chinese economy only in 2010) and, as such, deserves scholarly attention (Gedajlovic & Shapiro, 2002). Furthermore, according to the World Investment Report (UNCTAD, 2012), Japanese MNEs have long been among the world's largest foreign investors in both developing and developed economies. They are thus ubiquitous in the global economy, have created many highly successful brands, and are well known for their management capability, making their foreign location choices highly relevant. The core of our data was collected in a survey by *Kaigai Shinshutsu Kigyou Souran*, a publication of Toyo Keizai Shinposha (2001). The surveys, which were sent to the subsidiaries through their parent firms, were completed with a response rate of 60% by the subsidiary general managers. The survey requested basic facts such as subsidiary location, foundation date, industry, annual revenue, and capital invested, and our sample consisted of 8541 subsidiaries.

Dependent Variable

City class of subsidiary location

Our data on MNE subsidiaries were coded according to whether or not they were located in a given city. As noted elsewhere, global cities differ widely from megacities, since size is not a determinant of the former, and cosmopolitan and interconnected environment not of the latter. To distinguish global cities from other locations, we therefore adopt Beaverstock et al.'s (1999) theoretically transparent and empirically rigorous classification of world cities, consisting of a hierarchy of 10 α global cities, 10 β, 35 γ, and 67 δ global cities, based on Sassen's (1991) concept of "global capacity". Notable

alternatives to this list have been proposed by MasterCard, Mori, and AT Kearney (to which we return in our discussion below), but, unlike Beaverstock et al. (1999), these other city classifications do not match temporally with our firm-level sample. A full list of the global cities we use is provided in Table 2.

Since there are several classes of global cities, as a robustness test we used two alternative cutoff points to create our list. The first includes cities that Beaverstock et al. (1999: 455) characterize as *bona fide* global cities (i.e., the 55 α, β, and γ cities shown in Table 2) plus those that show "evidence of world city formation processes" (i.e., the 67 δ cities in Table 2), creating a total of 122 cities. As a sensitivity analysis, we also used a more restrictive definition of global cities in which only the 55 α, β, and γ cities are included.

Another empirical question is how fine-grained a classification of location choices to use. We initially used official city boundaries to distinguish between global cities and other locations, based on our belief that the dynamics ascribed to them are highly localized in nature. For example, Gordon and McCann (2000) found that, unlike the surrounding metropolitan area, the inner City of London was characterized by a concentration of finance and media industries, and a high density of regional and domestic headquarters. Nevertheless, previous researchers have made different distinctions between the inner city and its surrounding areas (e.g., Sassen, 2001; Scott, 2001). Friedmann (1986), for example, argued that the territorial basis of world cities comprises not only the central city but also the whole economic space of the surrounding region, whereas Sassen (1991, 2010) suggested that there is a new type of extension of a space of centrality into older social geographies, such as the suburb or the metropolitan area. Therefore, to provide new and more nuanced insights into the association of location and MNE investment, we include the metropolitan city-region as a distinct third category in our empirical analysis. This resulted in three categories for our dependent variable, where the location of each subsidiary is coded as: 0, being within a global city proper; 1, in the metropolitan area surrounding a global city; or 2, in the periphery (i.e., anywhere else).

Independent Variables

Marketing capabilities

As suggested by previous authors, it is important to account for an MNE's proprietary assets (Dess,

Table 2 A roster of world cities

α world cities (n=10)		β world cities (n=10)			γ world cities (n=35)			δ world cities (n=67)		
Group α₁ (n=4)	Group α₂ (n=6)	Group β₁ (n=4)	Group β₂ (n=4)	Group β₃ (n=2)	Group γ₁ (n=15)	Group γ₂ (n=5)	Group γ₃ (n=15)	Group δ₁ (n=11)	Group δ₂ (n=26)	Group δ₃ (n=30)
London	Chicago	San Francisco	Brussels	Moscow	Amsterdam	Bangkok	Atlanta	Auckland	Abu Dhabi	Adelaide
New York	Frankfurt	Sydney	Madrid	Seoul	Boston	Beijing	Barcelona	Dublin	Almaty	Antwerp
Paris	Hong Kong	Toronto	Mexico City		Caracas	Rome	Berlin	Helsinki	Athens	Arhus
Tokyo	Los Angeles	Zürich	Sao Paulo		Dallas	Stockholm	Buenos Aires	Luxembourg	Birmingham	Baltimore
	Milan				Düsseldorf	Warsaw	Budapest	Lyon	Bogotá	Bangalore
	Singapore				Geneva		Copenhagen	Mumbai	Bratislava	Bologna
					Houston		Hamburg	New Delhi	Brisbane	Brasilia
					Jakarta		Istanbul	Philadelphia	Bucharest	Calgary
					Johannesburg		Kuala Lumpur	Rio de Janeiro	Cairo	Cape Town
					Melbourne		Manila	Tel Aviv	Cleveland	Colombo
					Osaka		Miami	Vienna	Cologne	Columbus
					Prague		Minneapolis		Detroit	Dresden
					Santiago		Montreal		Dubai	Edinburgh
					Taipei		Munich		Ho Chi Minh City	Genoa
									Kiev	
					Washington		Shanghai		Lima	Glasgow
									Lisbon	Gothenburg
									Manchester	Guangzhou
									Montevideo	Hanoi
									Oslo	Kansas City
									Rotterdam	Leeds
									Riyadh	Lille
									Seattle	Marseille
									Stuttgart	Richmond
									The Hague	St Petersburg
									Vancouver	Tashkent
										Tehran
										Tijuana
										Turin
										Utrecht
										Wellington

Source: Beaverstock *et al.*, 1999.

Gupta, Hennart, & Hill, 1995). Therefore, following prior research (e.g., Caves, 1996; Kotabe, Srinivasan, & Aulakh, 2002), we have operationalized an MNE's proprietary marketing capabilities using advertising intensity (i.e., advertising spending divided by revenue).

Global integration

The use of expatriates has been linked to the control and coordination capacity of MNEs (Edström & Galbraith, 1977; Martinez & Jarillo, 1989), and thus contains an important signal about firm integration. Therefore we measure global integration by "expatriate intensity", that is, the ratio of expatriates to total MNE employees. This measure, which is normalized for firm size by dividing the number of expatriates by parent employees, is particularly well suited to gauge the global integration of our sample of firms, given that Japanese firms are known to rely heavily on expatriates as the primary means of globally integrating their subsidiaries (Belderbos & Heijltjes, 2005).

Demand-driven motives

Within the survey, each subsidiary was also asked about the original purpose(s) of establishing a given subsidiary. Among the common responses was "access to local markets", which is consistent with Dunning's (1993) typology of internationalization motives, and is considered a demand-driven motive. Another common answer was "establishment of global distribution network", which can also be seen as a demand-driven motive. We use the former item to capture *local market seeking* and the latter to measure *global market servicing*.

Supply-driven motives

Respondents to the survey often indicated "establishment of a global production network" as the motive for establishing a foreign subsidiary, and we used this item to capture *production*-related, supply-driven motives. Similarly, others reported "product development and planning" as a motive behind the subsidiary, and we used this as our measure of *R&D*-related, supply-driven motives.

JV

We operationalized JV as a dummy variable, where subsidiaries with equity JV partners were coded as 1 and wholly owned MNE subsidiaries were coded as 0.

Control Variables

Since certain MNEs are very large, and have access to significant internal pools of managerial expertise, financial capital, and network connections, our model includes *parent size*, defined by the MNE's total number of employees. We also controlled for *international experience*, operationalized as average subsidiary age. This measurement has the advantage that it normalizes for firm size, and therefore is orthogonal to our previous control variable in the sense that it emphasizes the time dimension of experience. We controlled for whether the MNEs operated primarily in high-tech or low-tech industries, given that previous empirical research has found an effect of this distinction on global city location (Gordon & McCann, 2000). Using the main two-digit Standard Industrial Classification (SIC) codes reported by the companies, *high-tech industries* were defined as the computer, electronics, communications, and software industries, consistent with the definition by the American Electronics Association.[5] At the subsidiary level, we believe the investment motive specific to the subsidiary to be a potentially important factor. In addition to the above-mentioned demand- and supply-driven motives, two more items from the survey's list of motives were identified as being relevant to global cities: *information collection* and *following customers/affiliated firms*. Both of these variables were included as dummy variables.[6] In addition, we controlled for a number of other potentially relevant variables, such as the size and regional location of the subsidiary (Arregle, Beamish, & Hébert, 2009). These latter controls, however, were not significant, and were dropped from the final models (Snijders & Bosker, 1999).

Econometric Approach

We tested our Hypotheses 2–4 with a multilevel multinomial logistic regression model. In international business research, the influence of higher-level (firm) factors on subsidiary-level outcomes has typically been investigated based on the principle of disaggregation (for each micro-unit within a macro-unit the higher level factor is recorded repeatedly). The main problem with disaggregation is that it is statistically incorrect, as sample size is dramatically exaggerated (Snijders & Bosker, 1999), and the possibilities of both Type I and Type II errors are elevated (Short, Ketchen, Bennett, & du Toit, 2006). Since the subsidiaries of one of the Japanese MNEs in our sample are likely to share

certain characteristics, such as access to common headquarters managerial resources, the independence assumption underlying multiple regression would be violated, as there would be a correlation between the error terms of subsidiaries from the same MNE. Ignoring the hierarchical nesting may not only pose serious statistical problems but also potentially constrain the conceptual development of more comprehensive models looking at interactions between Level 1 and Level 2 variables (Raudenbush & Bryk, 2002). As noted by Chan, Makino, and Isobe (2006), multilevel modeling is highly recommended to further our understanding of key international business phenomena.

The research design, where subsidiaries are nested within MNEs (i.e., headquarters), resulted in a hierarchical data structure with two levels of random variation: variation between subsidiaries within MNEs (Level 1) and variation between MNEs (Level 2). Data sets with a nested structure are usually not adequately represented by the probability model of ordinary least squares regression analysis. Instead, a hierarchical linear model (HLM), which is an extension of multiple regression to a model that includes nested random coefficients, is recommended (Raudenbush & Bryk, 2002).

Since our dependent variable is categorical with three possibilities, we modeled the choice of location (global city vs metropolitan area vs periphery) for each foreign subsidiary using multinomial HLM (Raudenbush, 2004). This is an extension of the Bernoulli model with more than two possible outcomes. The default estimator in two-level multinomial HLM is the restricted "penalized quasi-likelihood" (PQL) estimation approach. Compared with other potential estimators (e.g., Laplace), PQL is less computationally intensive and gives acceptable estimations (Raudenbush, 2004: 108).

Although some approximation methods for variance partitioning have been suggested for a multilevel logistic analysis, an available method for multilevel multinomial models is yet to be developed. As a result, no study has yet conclusively demonstrated variance partitioning in a multilevel approach with multinomial outcomes (Steele & Goldstein, 2004). Therefore, in the current modeling, the variance component is not quantified.

RESULTS

The final sample for our multilevel models consisted of 6955 subsidiaries nested within 318 MNEs. Table 3 provides means, standard deviations, and correlations for all variables. Our independent

Table 3 Correlations and descriptive statistics

Variable	Mean	Standard Deviation.	1	2	3	4	5	6	7	8	9	10	11	12
1 Location	1.16	0.91	—											
2 Local market seeking	0.38	0.48	0.04*	—										
3 Global market servicing	0.10	0.30	0.06*	0.25*	—									
4 Global production network	0.15	0.36	−0.12*	0.24*	0.07*	—								
5 Product development and planning	0.04	0.21	−0.01	0.10*	0.10*	0.07*	—							
6 Information collection	0.15	0.36	0.08*	0.34*	0.19*	−0.02*	0.17*	—						
7 Following customers	0.03	0.17	−0.03*	0.09*	0.05*	0.09*	0.02*	0.07*	—					
8 JV	0.41	0.49	0.02*	0.08*	−0.02*	0.19*	−0.01	−0.05*	0.06*	—				
9 Parent size (000)	21.91	30.31	0.01	−0.23*	−0.10*	−0.14*	0.06*	−0.12*	−0.04*	0.06*	—			
10 International experience	10.68	2.89	0.01	0.06*	−0.01	−0.03*	−0.02	0.01	−0.02*	−0.07*	−0.04*	—		
11 High-tech industry	0.19	0.39	−0.05*	−0.00	−0.03*	−0.05*	−0.06*	−0.08*	−0.07*	−0.15*	−0.19*	0.10*	—	
12 Marketing capability	0.01	0.02	−0.00	−0.00	0.01	0.01	0.01	−0.03*	−0.04*	−0.09*	−0.24*	−0.01	−0.03*	—
13 Global integration	0.02	0.03	0.08*	0.09*	0.00	−0.04*	0.02*	0.07*	0.02*	−0.05*	−0.17*	−0.04*	0.02	0.05*

$n=6955$ subsidiaries from 318 MNEs; * shows significance at the $p < 0.05$ level.

variables are not highly correlated; indeed, the highest pairwise correlation is between local market seeking and information collection, at 0.34. Moreover, analysis of variance inflation factors of each predictor variable revealed that all were below 2, which is well below the suggested threshold of 10 (Hair, Anderson, Tatham, & Black, 1995) or even the more conservative one of 5. Together, these analyses alleviate any concerns about multicollinearity.

Hypothesis 1 proposes that MNEs are more likely to locate their foreign subsidiaries in global cities than in other locations. To determine whether there is support for this first hypothesis, it is possible to examine a frequency table as shown in Table 4, where it appears that global cities are clearly related to MNE location strategy. The MNEs in our sample located 3010 subsidiaries, or 35% of the total, in the set of 10 α world metropolitan cities alone (i.e., Chicago, Frankfurt, Hong Kong, London, Los Angeles, Milan, New York, Paris, Singapore, and Tokyo). Further, according to Beaverstock et al.'s (1999) definition of *bona fide* global cities (i.e., α, β, and γ cities), the MNEs in our sample located 77% of their subsidiaries (i.e., 6610 sites) in this group of 55 cities, with the remaining 23% of the subsidiaries located in "all other locations" (an infinite list of all possible sites outside global cities including, as shown in Table 4, some megacities that do not possess global city characteristics[7]).

Further, the MNE subsidiaries within global cities contained 66% of the MNEs' foreign employees, with only 34% of these employees working outside global cities. To put this latter distribution into perspective, the same cities contain only 3.4% of the world's population. In other words, MNEs have a disproportionate propensity to locate subsidiaries in global cities, choosing these cities to a much larger extent than would be expected by the combined size of those cities (as shown in Table 4). This is consistent with our theoretical framework, in which the attractiveness of global cities stems not from their size but from their unique attributes, which include local and global linkages and the resulting ability to reduce the LOF.

Another way to provide an objective perspective on this phenomenon is to look at the number of subsidiary employees per capita in each type of location. These figures, which are normalized measures of "relative MNE attraction" to a given location, are reported in the last column in Table 4. Clearly, the global cities have an exceptionally high representation among MNE subsidiary employees, with a score of 4605 vs 239, which is the world average (and we

Table 4 MNE investment location in global cities[a]

	Number of subsidiaries	Percentage	Subsidiary employees (million)	Percentage	City population (million)	Percentage	Employees per capita[b]
α world cities (n=10)[a]	3010	35	0.29	18	48	0.7	6042
β world cities (n=10)[a]	749	9	0.26	16	56	0.8	4643
γ world cities (n=35)[a]	2851	33	0.50	32	125	1.9	4000
Total global cities (n=55)[a]	6610	77	1.05	66	228	3.4	4605
Non-global megacities (n=10)	103	1	0.03	2	140	2.1	209
All other locations (n=∞)	1828	22	0.52	32	6339	94.5	82
Total world	8541	100	1.60	100	6707	100.0	239

[a]On the basis of city proper definitions, excluding metropolitan areas.
[b]Employees per capita=sample subsidiary employees per million inhabitants.

Table 5 Multilevel multinomial logistic regression models of global city location

Model	1	2	3	4	H
Description	Main effects only		Including interactions		
	Periphery vs global city	Metro vs global city	Periphery vs global city	Metro vs global city	
Fixed effects					
Level 1 (subsidiary level):					
Local market seeking (sales)	−0.47***	0.15	−0.50***	0.14	H2a
Global market servicing (distribution)	−0.32**	0.01	−0.32**	0.01	H2a
Global production networks	0.74**	0.57*	0.74***	−0.25	H2c
Product development and planning	0.49**	−0.24	0.50**	0.56*	H2c
Information collection	−0.49***	−0.44**	−0.50***	−0.43**	
Follow customers/affiliated	0.34	−0.38	0.31	−0.36	
JV	0.07	−0.87***	0.06	−0.92***	
Level 2 (parent MNE level):					
Intercept	−0.37***	−1.02***	−0.36***	−1.02***	
Parent size	−0.00	−0.00	−0.00	−0.00	
International experience	−0.03	0.02	−0.02	0.02	
High-tech industry	0.32***	0.48***	0.31***	0.50***	
Marketing capabilities	−3.40	2.79	−0.17	1.19	
Global integration	−6.75***	−2.19	−6.24***	−0.63	H3
Level 2 – Level 1 interactions					
Marketing capabilities × Market-seeking			−16.48**	8.73	H2b
Global integration × JV			−2.39	−8.77*	H4
Random effects					
Variance	0.20***	0.40***	0.19***	0.41***	
Correlation		0.58		0.63	

*, **, *** show significance at the $p < 0.05$, $p < 0.01$, and $p < 0.001$ level, respectively.

can even see the Beaverstock et al., 1999, hierarchy emerge among the global cities, with the α cities on top, followed by the β and the γ cities). Furthermore, a high MNE attraction factor is limited solely to global cities, and does not extend to non-global megacities, which have only 209 subsidiaries per million inhabitants, that is, less than one-twentieth of the score as compared with global cities, and in fact lower than the average MNE attraction of the whole world. Together, these figures reinforce the picture of global cities being highly attractive to MNEs, and thereby lend further credibility to our Hypothesis 1.

To examine the next set of hypotheses it is necessary to analyze two-level multinomial HLM models, as described above. Table 5 reports the results for the inclusive definition of global cities, including the α, β, γ, and δ cities from Beaverstock et al.'s (1999) classification. We estimated the logistical probability that MNEs would locate their subsidiaries in either a metropolitan area or a peripheral area as opposed to within a global city. Models 1 and 2 show the main effects for both categories of locations *vis-à-vis* global cities.

Consistent with Hypothesis 2a, when FDIs are motivated by demand-driven considerations such as local market seeking or global market servicing, subsidiaries are more likely to locate in global cities than in peripheral areas ($b=-0.47$; $p < 0.001$ and $b=-0.32$; $p < 0.01$, respectively). At the same time, demand-driven motives do not significantly influence the relative probability of subsidiaries being located within the metropolitan area vs the global city center, suggesting that even locating near global cities may help to overcome the barriers to market entry associated with discrimination and uncertainty. In addition, our results in Model 1 for the establishment of production network or product development and planning ($b = 0.74$; $p < 0.01$ and $b = 0.49$; $p < 0.01$, respectively) reveal that supply-driven motives are more likely to lead to a subsidiary being located outside the global city, particularly in the peripheral area, thereby supporting Hypothesis 2c. Production networks are sometimes located in the metropolitan areas surrounding a global city, as indicated in Model 2. However, the potential benefits of locating in global cities are seemingly

outweighed by the diseconomies of co-location and the emphasis on sales and services of the city center.

Moreover, we also find support for Hypothesis 3, which points to the important association of MNE organization (i.e., global integration) and subsidiary location. As indicated in Model 1, firms are more likely to locate their foreign subsidiaries in global cities than in other locations when following a global integration strategy ($b=-6.75$; $p < 0.001$). As shown in Model 2, there is no discernible difference between global city and metropolitan area in terms of location associated with a global integration strategy; it thus appears that the metropolitan region is tied closely enough to the global city, as was the case for the demand-driven motives, to convey the benefits discussed in our theory section.

In order to test Hypotheses 2b and 4, we proceeded to add cross-level interactions. Since the location decision of foreign subsidiaries is likely to be influenced by the resources of the parent firm, we first tested the extent to which a match between parent marketing capabilities and subsidiary market-seeking motives influence the location choice. As shown in Model 3, we found support for Hypothesis 2b ($b=-16.48$; $p < 0.01$) that the propensity of market-seeking subsidiaries to locate in global cities as opposed to the peripheral area is higher when the parent firm is in possession of strong marketing capabilities. Once more, the interaction has no explanatory power for the distinction between metropolitan region and city center.

With respect to Hypothesis 4, we find only partial support for the notion that subsidiary JV partners may increase the likelihood of subsidiaries being located within global cities when MNEs are globally integrated. On the one hand, as indicated in Model 2, the likelihood of subsidiaries locating in global cities as opposed to the metropolitan region when JV partners are present is statistically significant ($b=-0.87$; $p < 0.001$ for the main effect), and this effect is reinforced by the MNE's global integration strategy ($b=-8.77$; $p < 0.05$ for the interaction), as shown in Model 4. Yet the main effect of global integration is statistically insignificant for this decision, suggesting that, in the choice between a global city center and the surrounding metropolitan region, global integration is important only in the case of JVs. On the other hand, when considering the choice between the periphery and the global city center (Models 1 and 3), the JV mode and its interaction with global integration become insignificant, while the direct effect of global integration is highly significant. This may suggest that

the types of coordination and control problems that are specific to JVs require the direct connectivity of the global city center, whereas the issues stemming from global integration of wholly owned (i.e., non-JV) subsidiaries can be managed on a geographically more dispersed basis that extends to the metropolitan region.

Meaningful results emerge for the control variables as well. First, an information collection motive is related to the probability that a subsidiary will be located in a global city. The coefficients on this variable suggest that the city center is most strongly related to information collection, and that this motive is associated with the metropolitan region only slightly, if at all, lending further credibility to the notion of global cities as a place to reduce uncertainty and the LOF associated with information asymmetry. Hence the high information velocity in global city centers may benefit not only business service firms (Dunning & Norman, 1983) but also internationalizing firms in a broader array of industries. Second, while some firms may follow their competitors or customers into new markets, this motive surprisingly seems not to relate to the actual location decision of foreign subsidiaries at a subnational level. While parent size and international experience exhibit no consistent relationship with global city location propensity, firms from high-tech industries seem to prefer to cluster outside city centers but, in particular, in metropolitan regions of global cities. This seems to corroborate earlier studies (Gordon & McCann, 2000), and may reflect a compromise by these firms in order to get some of the connectivity benefits of the global city center while avoiding the most severe agglomeration diseconomies.

As described earlier, we also ran our multilevel models with a more restrictive definition of global cities, that is, excluding the δ cities that merely have "global city potential". These results were very similar to the ones we have already reported, with the only substantial change being that local market servicing was not significant in the model with the more restrictive definition. Perhaps this means that the degree of agglomeration taking place in the top global cities is unnecessary, or even counterproductive to the establishing of distribution networks. The significance level of the other variables did not change, but the coefficients on information collection and global integration became stronger with the more restrictive definition. This might reflect the fact that the information velocity in the top global cities is higher, and that the knowledge

found in these cities is more valuable and fungible, and easier to transfer internally within the MNE. Together, our results provide evidence of a complex interaction between parent and subsidiary strategy and resources in determining the micro-location of foreign subsidiaries, underscoring the importance of looking at the interaction between location and firm-specific characteristics when studying MNE locational choice.

DISCUSSION

The dominant choice among the MNEs in our sample (i.e., 77%) was to locate their foreign operations within global cities, clearly pointing to the importance of considering subnational levels when analyzing investment location decisions. Our results show that the MNE in geographic space is clearly attracted toward global cities that provide specific micro-locational advantages that appear to help mitigate the negative effects of the LOF. More specifically, the *international connectedness*, *advanced producer services*, and *cosmopolitan environment* serve to alleviate the incremental costs (i.e., "friction") associated with the *uncertainty*, *discrimination*, and *complexity* of doing business in a foreign environment. That the attraction of global cities arises from their attributes, such as linkages, rather than from their size, is an assertion that is borne out by the disproportionately high number of subsidiary employees per capita we found in those cities, particularly compared with the dramatically lower ratio observed in non-global megacities.

While global city attributes reduce the costs associated with the LOF for MNEs that locate within them, our findings imply that this relationship varies with the underlying motive of the MNE, a result that reinforces Nachum and Zaheer's (2005) conclusions. Further, drawing on Dunning (1993) and Cantwell and Mudambi (2005), we distinguished between demand-driven (competence-exploiting) and supply-driven (competence-creating) activities. Consistent with our theory, the results show that while demand-driven market-seeking and market-serving activities, such as sales and distribution, are more likely to locate in global cities, supply-driven efficiency-seeking and asset-seeking activities, such as production and R&D, are more likely to be located outside the global cities, either in the metropolitan areas surrounding these cities, or in the peripheral rural areas. Together, these findings provide further evidence for the importance of accounting for the nature of activities of subsidiaries in conjunction with locational

attributes when studying subsidiary location, supporting Enright's (2009) contention that MNEs invest on an activity-by-activity basis.

Our results suggest that MNE investment behavior is contingent upon a mixture of micro-locational factors as well as firm-level and subsidiary-level attributes. This is important, because, while economic geographers have highlighted the crucial importance of both place and space alongside explicit notions of distance and connectivity, little attention has been paid in the literature to the role of firm-specific idiosyncrasies that may give rise to – or extinguish – particular locales as primary centers of economic and social activity.

Our findings inform our understanding of global cities as we integrate insights from MNE literature on firm-level heterogeneity in strategies and capabilities with location theory pertaining to the location of economic activities in particular spatial locales. MNE's spatial division of activities results in specific patterns of co-location in and around global cities that, in turn, influence the evolution and development of such localities: that is, MNEs and global cities co-evolve.

While it may be the particular characteristics of global cities that, in the first place, attract MNEs to locate particularly competence-exploiting activities within them, such activities further influence the cosmopolitan and interconnected nature of such cities. At the same time, the surrounding metropolitan and peripheral areas develop in different ways as a result of the migration of demand-driven investments to such areas. Thus, our work builds on Markusen (1996), who highlighted the importance of improving our understanding of the role of individual firms in creating locational characteristics. Our study therefore offers a theoretically distinctive and empirically verified view of the MNE in geographic space that allows for the simultaneous attention to place, space, and organization as well as spatial transaction costs associated with locating specific activities in particular micro-locations (Beugelsdijk et al., 2010).

According to Storper and Scott (2009), the interesting theoretical question about the genesis of cities is not so much where the initial seed of development is planted (e.g., from first-nature resources, via an initial technological/commercial breakthrough, or at random), but how the seed then unfolds in a process of growth and development. Our study points to the co-evolution of MNE location strategies and the emergence of certain locales as centers of particular types of economic

activity. Indeed, our study may inform local policy-makers and city planners about how to attract (or repel) particular types of foreign investment, based on the city's ability to reduce costs of the LOF.

Our finding that parent-marketing capabilities enhance a market-seeking foreign subsidiary's propensity to locate in global cities provides an important insight into the parent role in establishing the geographic configuration of the MNE. Market-seeking foreign subsidiaries are naturally drawn to global cities, owing to the locational advantages of international connectedness, cosmopolitan environment, and essential infrastructure; however, the ability to overcome the often high barriers to entry and compete successfully in such hypercompetitive markets, where the main international competitors are also likely to locate by virtue of the global city attractiveness, is to a large extent contingent upon the existing marketing capabilities of the parent. Hence the extent to which MNE headquarters contribute with positive value-added resources to the subsidiary (Mudambi & Swift, 2011) may impact its ability to overcome location-specific LOFs, thereby putting a premium on parent–subsidiary relations in location decisions (Dellestrand & Kappen, 2012).

Another important finding from our study is the cross-level interaction between parent global integration strategy and the existence of subsidiary foreign JV partners. Our results suggest that globally integrated firms often combine this strategy with local partnering strategies in order to reduce the negative consequences of the LOF. This is in line with the literature on international JVs, suggesting that local JV partners may help reduce uncertainties associated with cultural distance, lack of local market knowledge, and risk of investment (Hennart & Zeng, 2002). The fact that MNEs seemingly combine global integration strategy with local JV partnering in global cities points to a complex set of decisions underlying specific entry modes in specific micro-locations. Clearly, more research is needed to determine how entry mode choice is related to micro-locations, and the cost and benefit consequences thereof. Together, these results point to the importance of simultaneously considering parent-level and subsidiary-level strategies when deciding on investment locations. Such theorizing and analysis respond to recent calls for more consideration of multilevel issues in international business and economic geography research (Arregle et al., 2009).

LIMITATIONS AND FUTURE RESEARCH

Our study has a number of limitations that provide fertile avenues for future theoretical and empirical refinement. First, while our data examine only Japanese MNEs, it may be that firms originating from other countries have varying needs, and therefore may have different responses to the attractions of global cities. Hence, extending our study to a multi-country context would be a particularly fruitful area for future research. Further, our study focuses on only two levels (headquarters and subsidiary), and we acknowledge that MNE activities are often embedded in additional layers of relationships; future research may seek to capture the complexity of subsidiary networks at the global, regional, and local levels. Also, our cross-sectional data does not allow us to investigate the dynamics of subsidiary location choice. For example, the LOF-reducing properties of global cities suggest that an MNE's initial entry into a given host country may be within such a city, whereas subsequent entries, enriched with host-country experience, may take place outside it. Consistent with this idea, we observe in our data that "global-city-centric" MNEs (defined as those that have located more than 75% of their total number of subsidiaries in global cities) tend to have only 1.6 subsidiaries in each country where they operate, whereas non-global-city-centric firms have 2.5 subsidiaries per country. Perhaps this is an indication that firms locate their initial "beachhead" subsidiaries in global cities, and as they add more subsidiaries to their portfolio, move outside those cities. Future studies could provide more direct tests of this portfolio idea with panel data on subsidiary location choices.

Another potential limitation of our study is that we focus on the commonalities between global cities rather than the variance among them. For example, global cities may vary in their industrial traditions, and this may influence their attractiveness to firms from different sectors (Sassen, 2012). We have left this variance for future studies to explore, because we are interested in how global cities, as a phenomenon, influence MNE behavior and because, arguably, the properties we discuss (see, e.g., Table 1) are somewhat fungible (Montgomery & Wernerfelt, 1988; Teece, 1982), in the sense that they may be useful to firms from a variety of industries. Nevertheless, we acknowledge that the extent to which global city networks form along industrial divides is ultimately an empirical question that requires appropriate data to be resolved.

In addition, although the typology of cities provided by Beaverstock et al. (1999) used in this paper is a systematic, multi-sector assessment of cities, this list may be inadequate or incomplete. As mentioned in the methods section, our main impetus was to match the timing of our firm sample with the timing of the global city list, but we also point to the fact that more recent lists are available for MNE managers contemplating international expansion. While a systematic longitudinal study of the evolution of the global city hierarchy is beyond the scope of this paper, our preliminary comparisons suggest that the global city hierarchy does evolve over time, as one would expect, but that these changes are more gradual than abrupt, and reflect general economic development patterns at the macro level[8] (see also Derudder et al., 2010).

There may be other locational attributes that are meaningful to certain MNEs, given their particular needs, and which therefore have a significant effect on MNE location strategy. In some countries, furthermore, government policies and legislation may constrain MNEs in their subcountry location choices, making these attributes less important. It is also possible that MNE choices are driven not only by objective locational attributes but also by legitimacy and uncertainty concerns (Henisz & Delios, 2001; Henisz & Zelner, 2005), so that MNEs may flock to global cities through a process of "mimetic isomorphism" or locational herding behavior (DiMaggio & Powell, 1983; Suire & Vicente, 2009). For example, Bell, Filatotchev, and Rasheed (2012) propose that MNEs choose locations for foreign listings, such as stock markets in Hong Kong, Toronto, New York, and London, in part based on such rationales.

Even if the logic of MNE investment appears to be influenced by the characteristics of locations, it is an empirical question for future research as to the performance benefits for those entities that are willing and able to locate in global cities. In theory, MNEs may receive a performance boost from locating in global cities, not only because these greatly mitigate transactions costs but also because of flexibility and information effects. Also, creativity and innovation in global cities may be enhanced because of the variety and diversity of skills and experiences within the labor force (Feldman & Audretsch, 1999; Feldman & Florida, 1994; Jaffe, Trajtenberg, & Henderson, 1993; Scott et al., 2001). On the other hand, these benefits may come at additional costs, if MNEs' convergence toward global cities leads to increased competition for limited local resources (Stuart & Sorenson, 2003) or inbred knowledge linkages that are insulated from ideas arising outside the global city network (Pouder & St John, 1996). While our study focused on the choice of location, future studies may seek to relate such choices to corporate and subsidiary performance.

Consistent with investment location theories, investors should take into consideration economic, geographic, and institutional factors when deciding on the location of their foreign subsidiaries. Our research focused on the choice between global cities, metropolitan, and peripheral areas as a function of the interplay between parent firm resources and subsidiary characteristics. Future research may seek to add country-level predictors, such as logistical infrastructure, formal and informal institutions, economic development, and production factors.

We note that our findings are based on the direct investment location choices of MNEs; yet MNE subsidiaries are usually prominent firms within their local economies, and through their local and global linkages these firms often form broader hubs of local value creation (Agrawal & Cockburn, 2003). In so doing, MNE subsidiaries generate substantial knowledge spillovers into the local economic environment through the absorption of MNE knowledge by local firms (Lorenzen & Mudambi, 2013). Thus the actual influence of an MNE in a given location is significantly greater than simply the direct investment, or the employment generated by that investment. This suggests that our statistical tests are probably conservative, as we do not account for an MNE's satellite system of buyers and suppliers – an important extension available for future research.

Another significant area for future inquiry relates to the socioeconomic ramifications of the propensity of MNEs to invest in global cities. Whereas the collective location choices of MNEs encourage a process by which favored locations (such as global cities) become ever more favored, alternative locations would fall further behind in a type of "Matthew effect",[9] where the rich get richer and the poor get poorer. Specific centers of business receive massive investments in real estate and telecommunications, while outlying areas are starved of resources. Connected, global enterprises produce abnormal profits, while others barely survive. Highly skilled global city employees see their incomes rise to stratospheric levels, while

others see their wages and opportunities drift downwards. Through this process of unequal economic development fueled by MNEs (first raised by Hymer, 1972), global cities may be disconnecting from their regions as they connect ever more tightly with one another (Sassen, 1997). As a result, Toronto or New York City might have more in common with Tokyo, for example, than with other more proximate communities. Thus, vast territories may become more peripheral, excluded from the processes that are increasingly important in fueling economic growth and global integration. This means that global cities may be bending the fabric of geographic space as it applies to MNEs, warranting new theorizing about the concept of distance itself, as also called for by Zaheer, Schomaker, and Nachum (2012). Also, although there has been an extensive literature on the impact of MNEs on host economies that include employment, training, technology transfer, stimulation of entrepreneurship, and knowledge spillovers (see, e.g., Dunning, 1993), there are untapped opportunities for future research to investigate the connection between public micro-policy (i.e., governance of global cities) and actions of private firms such as MNEs.

CONCLUSION

One of the basic ideas that underpins the global city concept in its functional role in the global economy is that city attributes create forces that encourage (or discourage) the co-location of people, companies, and institutions. Yet, as pointed out at the outset of this paper, previous streams of research on geographic scope have generally used the political boundaries of nations (or regions) as a basic unit of analysis. On the basis of our analysis, however, it appears clear that different echelons of urban agglomerations within countries vary in their impact on MNE location choices. One possible result of the tension between globalization and urban agglomerations such as global cities is that we might end up with firm configurations that include tight coupling across geographically separated agglomerations, so that a few linked locations could dominate the world (Storper, 1991; Zaheer & Manrakhan, 2001). Since the location strategies of MNEs overwhelmingly favor global cities, an empirical question that arises is whether or not MNEs are, in fact, finding ways to connect these cities (Laud, Grein, & Nachum, 2009). Further, our focus on global cities as the unit of analysis for investment location choice contributes to the ongoing debate regarding increasing economic

and geographic embeddedness associated with globalization.

Location has been described as the central question that defines international business research. The results in this paper, coupled with the work of Sassen (1991, 1994, 2001) and others, suggest clearly that urban agglomerations such as global cities have a significant impact on the location strategies of MNEs. Not only does this have a bearing on the global movement of capital; these findings also have implications for the international movement of people. Therefore, it is important, both for MNE managers responsible for the location strategy of their subsidiaries and for scholars interested in international business, to develop a better understanding of the influence of global cities as well as the opportunities to use the micro-locational attributes to advantage. Further, through the process of globalization via cities, the interrelationships between local social issues, such as wage disparity, skill development, and the economic renewal of urban centers to MNE location choice are critical issues to public policymakers. The concept of global cities should therefore be explored further in future research, in order to improve our understanding of the MNE within geographic space.

NOTES

[1]We found that most studies in this literature stream cite Marshall (1920), who centers on specialized producer communities that diffuse the "secrets" of industry, but do not mention Jacobs (1969, 1984, 2000), who describes a cosmopolitan and haphazard city life.

[2]While we do not apply the demographic tradition in this paper, we distinguish between megacities and global cities in the empirical section.

[3]This can be considered a special case of the more general notion of co-evolution between MNEs and their environments (e.g., Cantwell, Dunning, & Lundan, 2009).

[4]For example, Boeh and Beamish (2012) demonstrate that travel time between headquarters and subsidiary is a more powerful predictor of firm governance and location choices than is geographic distance.

[5]For more information, visit http://www.aeanet.org/Publications/IDMK_definition.asp

[6]Note that the investment motives are not mutually exclusive; this enables us to include all dummies without falling into the "dummy variable trap".

[7]These cities, which are included for comparison purposes, are Guangzhou, Lagos, Calcutta, Dhaka, Karachi, Delhi, Mumbai, Cairo, Tehran, and Rio de Janeiro. All of these have more than 10 million inhabitants, yet they are not classified as global cities in the Beaverstock et al. (1999) list.

[8]Specifically, we compared the Beaverstock et al. (1999) list with a 2010 version of the same list, a 2008 list from MasterCard, a 2011 list from the Mori foundation, and a 2012 list from AT Kearney. Out of the top 30 cities in the 1999 list, five did not show up in the top 30 of any of the more recent lists

(i.e., Caracas, Dusseldorf, Johannesburg, Prague, and Santiago). However, all of these five cities did appear below the top 30 in more recent lists, suggesting that they did not cease to be global cities, but perhaps merely have been relegated by other emerging cities to a lower position in the hierarchy. Similarly, relative to the 1999 top 30, there was only one new "new" city that appeared consistently in the more recent lists – that is, Shanghai – which advanced from the 42nd place to the 7th place in the GaWC hierarchy, following the development of the Chinese economy (Guthrie, 2009). Although not yet in the top tier, change of a similar magnitude could be observed for Vienna, which did not appear at all on the 1999 list but was at 38th place in the 2010 GaWC list, most likely reflecting the Austrian capital's development over the previous decade to become a regional hub by virtue of a de facto position as bridgehead between eastern and western Europe (Musil, 2009).

[9]The term "Matthew effect" was coined by Merton (1968), based on the biblical Gospel of Matthew: "For whoever has will be given more, and they will have an abundance. Whoever does not have, even what they have will be taken from them" (Matthew 25:29, New International Version).

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