

A Resource-Based Model of Market Learning in the Subsidiary: The Capabilities of Exploration and Exploitation

The literature reflects remarkably little effort to develop a framework for understanding market learning at subsidiaries of multinational corporations. This article develops a model that incorporates exploratory and exploitative learning as two capabilities that need to be effectively nurtured and managed in subsidiaries. The authors integrate the organizational-learning and resource-based view of the firm; present field interviews with managers; and propose that resources derived from the parent, the subsidiary, and the parent–subsidiary relationships are related to the creation of new knowledge and the use of existing knowledge in subsidiaries. The authors develop research propositions that capture the differential impacts of each learning capability on subsidiary performance. It is suggested that the turbulence of subsidiary markets moderates the strength of the relationships between market-learning capabilities and performance.

It is widely and frequently acknowledged that the *raison d'être* of multinational corporations (MNCs) is to capitalize on and maximize learning from local markets (e.g., Bartlett and Ghoshal 1989). To do so requires that MNCs benefit from the creativity and experience of everyone and all units throughout their network. Therefore, the ability of an MNC to leverage the innovative potential dispersed across its country markets is a fundamental strategic imperative (Bartlett and Ghoshal 1989; Birkinshaw 1997).

Although much has been written recently on the transfer of knowledge among units of MNCs (e.g., Kogut and Zander 1993), on the determinants of knowledge flows among subsidiaries (e.g., Ghoshal, Korine, and Szulanski 1994), and on the importance of acquiring local market knowledge during international expansion (e.g., Barkema and Vermeulen 1998; Inkpen and Beamish 1997; Johanson and Vahlne 1977), there is less research on how much and what type of knowledge is created in individual subsidiaries. This lack of interest is notable because for knowledge transfer and exchange to take place, knowledge that is worth sharing needs to exist (Schulz 2001) in MNC units, including its subsidiaries and the head office.

Recent studies on subsidiary entrepreneurship, initiative, and evolution (e.g., Birkinshaw 1997; Birkinshaw and Hood

ABSTRACT

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*Submitted August 2001
Accepted December 2002*

© *Journal of International Marketing*
Vol. 11, No. 3, 2003, pp. 1–29
ISSN 1069-031X

1998; Frost 2001) provide a better understanding of the increasing role of subsidiaries as sources of knowledge production. Many subsidiaries operate in unique markets and often face high turbulence that threatens their survival and prosperity. Such exposure to new experiences enhances the likelihood of producing new knowledge (Huber 1991). Thus, the guiding idea of this article is that subsidiary-learning capabilities affect how much and what kind of knowledge subsidiaries produce, which in turn can stimulate or constrain outflows of knowledge to other MNC units. We develop a subsidiary-level framework for understanding market learning in subsidiaries to complement existing research on knowledge transfer and exchange among MNC units.

In addition to its academic relevance, subsidiary learning is critically more important now than it has been in the past because of the globalization of markets and technologies, higher customer expectations, greater competitive pressures, and shorter cycle times, each of which signals a more rapid pace of change. This ever faster change not only is limited to industrialized markets but also affects emerging markets. It seems timely and relevant to understand how the learning capabilities of organizational units, such as subsidiaries, are developed so that they can be nurtured to achieve the desired performance outcomes. Therefore, we specifically address the phenomenon of market learning in subsidiaries of MNCs by focusing on the conditions that facilitate and lead to subsidiary learning and on the outcomes of different learning capabilities.

The theory we present draws heavily on organizational learning (e.g., Huysman 2000; March 1991; Schulz 2001) and the resource-based view of the firm (see Barney 1991; Dickson 1992; Hunt and Morgan 1995) to identify organizational resources that lead to learning capabilities that help subsidiaries consequently improve their performance. We suggest that three sets of resources derived from different levels of the MNC are especially relevant to the development of learning capabilities in subsidiaries: those derived from (1) the parent, (2) the subsidiary, and (3) the parent–subsidiary relationships. We use all three sets of resources to establish the context necessary for developing the learning capabilities of exploration and exploitation. In turn, head-office and subsidiary managers can manage these learning capabilities to improve subsidiary performance (Figure 1).

The primary purpose of this article is to build on existing research and extend the understanding of subsidiary learning in four ways. First, we discuss the nature of exploratory and exploitative learning and the relationships between these learning capabilities. Second, we integrate organizational-learning theory with the resource-based view of the firm and

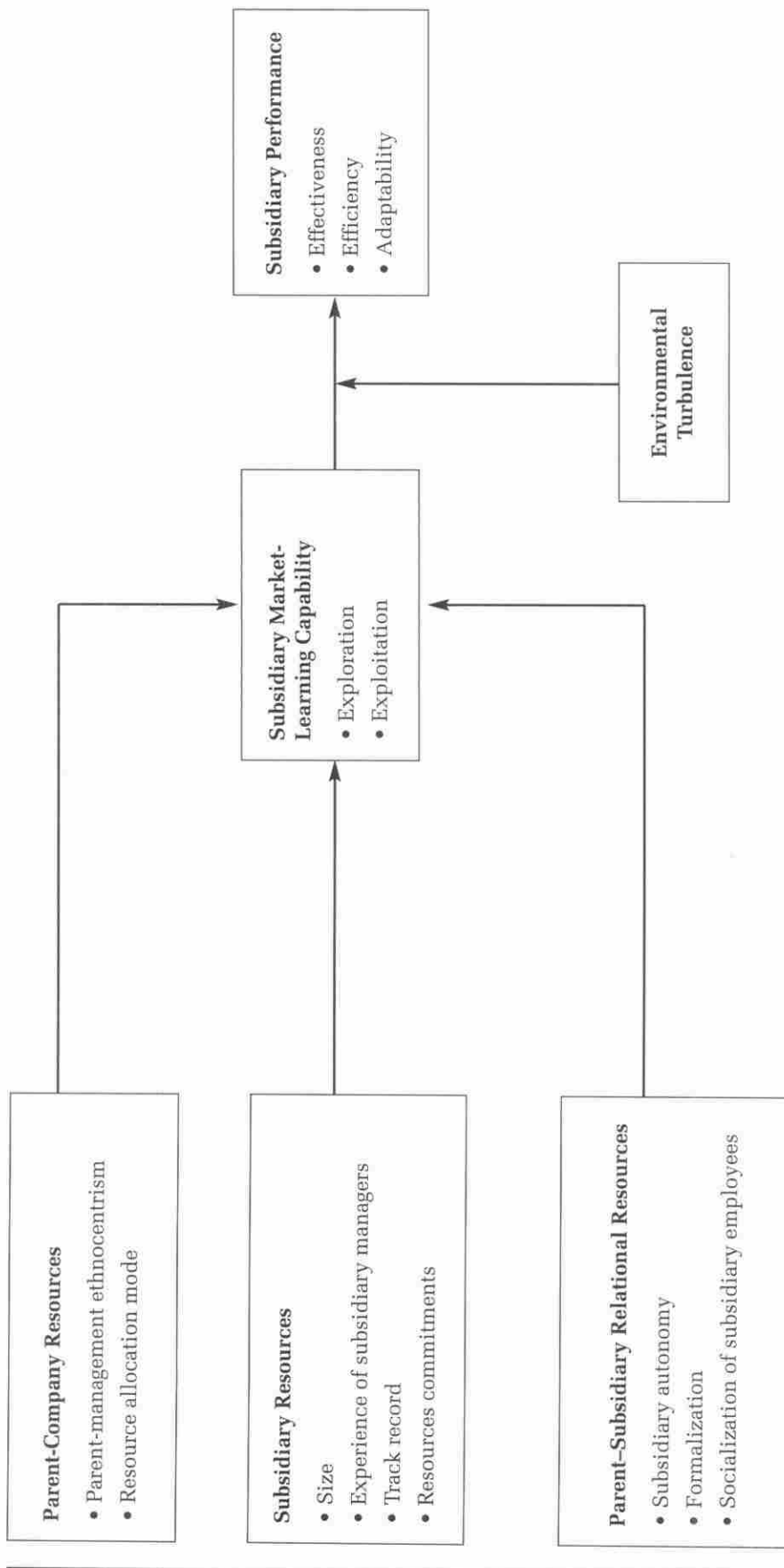


Figure 1.
Antecedents and
Consequences of Subsidiary
Market-Learning Capability

previous research on MNCs to identify the resource contexts that contribute to different learning capabilities. We also supplement these streams of literature with findings from field interviews with regional center and subsidiary managers. Third, we predict that each learning capability has a different impact on subsidiary performance, depending on whether the focus is short-term (efficiency) or long-term (effectiveness and adaptability) financial performance. Fourth, we suggest that the performance impact of market learning is conditional on the level of turbulence in the environment.

THE NATURE OF MARKET LEARNING

Organizational-learning theories provide rich perspectives on the processes and capabilities that generate and change organizational knowledge (Schulz 2001). At a general level, organizational learning is the development of knowledge or insight that facilitates behavioral change and leads to improved performance (DiBella, Nevis, and Gould 1996; Fiol and Lyles 1985; Sinkula 1994; Slater and Narver 1995). According to Huber (1991, p. 89), "An entity learns if, through its processing of information, the range of its potential behaviors is changed." Thus, as Crossan, Lane, and White (1999, p. 522) state, "organizational learning can be conceived of as a principal means of achieving the strategic renewal of an enterprise."

It is commonly perceived that organizations learn through several capabilities that create new knowledge or modify existing knowledge (Easterby-Smith and Araujo 1999; Schulz 2001). Two capabilities have received broad attention in the field of organizational learning and provide the theoretical foundation for this article. The first capability is exploration, which March (1991, p. 71) states captures "search, variation, risk taking, experimentation, play, flexibility, discovery, [and] innovation." The second capability is exploitation, which captures refinement, choice, production, efficiency, implementation, and execution (March 1991).

Exploration and exploitation describe different capabilities for organizational knowledge production. They affect how much and what kind of knowledge is produced. Exploration generates new, unsettled knowledge with potentially high but uncertain returns. Exploitation generates incremental knowledge with moderate but certain, immediate returns (Schulz 2001). According to March (1991, p. 71), "Both exploration and exploitation are essential for organizations, but they compete for scarce resources." This competition for resources creates tension. Recognition and management of the tension between exploitation and exploration are two of the critical challenges of organizational learning and therefore become a central requirement in a framework of subsidiary market learning. Although it may be tempting to equate organizational learning solely with the innovative exploration ca-

pability, it is important to recognize that exploitation as a capability provides the means to benefit from what has already been learned (Crossan, Lane, and White 1999). Thus, both exploration and exploitation are necessary capabilities for enhancing subsidiary performance.

We define *market learning* as the development of new knowledge or the modification of existing knowledge about customers, competitors, suppliers, and other constituents through the capabilities of exploration and exploitation. The focus is on the construction of new knowledge and on the modification and use of existing knowledge and is in line with more recent contributions to organizational-learning research (Crossan, Lane, and White 1999; Easterby-Smith and Araujo 1999; Huysman 2000; Schulz 2001). Thus, market learning occurs as insight, and innovative ideas occur to individual people (Nonaka and Takeuchi 1995) in subsidiaries. As knowledge generated by those individuals is shared, subsidiaries take actions and develop common meaning (Argyris and Schon 1978; Huber 1991). Relationships become structured, and some of the individual learning and shared understandings developed by groups become institutionalized (Crossan, Lane, and White 1999). *Institutionalization* is the process of embedding learning that has occurred by individuals and groups into the organization, and it includes systems, structures, procedures, and strategy. There are three phases in the process of institutionalizing knowledge: (1) externalization of individual knowledge through communication, (2) objectification of this knowledge into organizational knowledge such that knowledge becomes taken for granted, and (3) internalization of this organizational knowledge by members of the organization (Huysman 2000)

Over time, through the reflection of individual and group learning in subsidiary structures, procedures, and strategy, members of the subsidiary collectively share the interpretation of their local market. Thus, in addition to feed-forward learning from individual members and groups to the subsidiary, market learning that has been institutionalized feeds back and affects individual and group learning (Crossan, Lane, and White 1999).

As noted previously, organizational learning is a multilevel phenomenon (Crossan, Lane, and White 1999; Huber 1991; Huysman 2000). In this study, we focus on two levels on which learning occurs: the subsidiary and the knowledge domains in each subsidiary. For example, subsidiary-level learning occurs when subsidiaries learn to cope with local market conditions, extract new knowledge from their local environment, or retrieve and combine knowledge from other subsidiaries and the head office. Within subsidiaries, different domains of knowledge exist. We focus on one domain:

knowledge pertaining to the local subsidiary market, which includes customers, suppliers, competitors, and government agencies. Such a knowledge domain provides a local context for a subsidiary-learning model. Examples of other knowledge domains are knowledge about technologies and knowledge pertaining to human resources (Schulz 2001).

To increase the cumulative amount of market learning, subsidiaries need to have in place resources and mechanisms that facilitate and promote the generation of new knowledge and the modification and use of existing knowledge. New knowledge more likely is created by subsidiaries that deviate from existing market views, initiatives, systems, and rituals of the MNC. Thus, the generation of new knowledge derives from diversity that exists in the MNC network. Diversity is desirable because it facilitates exploration. In contrast, the exploitation of existing knowledge necessitates conformity. Managing the tension between encouraging diversity and maintaining conformity is a major challenge for MNC management. Therefore, our framework explores the resources that enhance the exploration and exploitation capabilities for a better understanding of subsidiary knowledge production.

Generating New Knowledge: Exploration

An important way that subsidiaries learn involves generating new knowledge about their local or regional market (Bartlett and Ghoshal 1989; Birkinshaw 1997). For example, this learning occurs when a subsidiary is exposed to an environment characterized by a high rate of innovation and change or to new and complex situations. Exposure to such experiences stimulates exploration-type learning (Schulz 2001). In a field interview, the marketing director of a snack food producer explained how new knowledge is generated through exploration in the Mexican and Dominican Republic subsidiaries of an MNC.

These subsidiaries operate in a very fragmented and chaotic retail environment where sales to grocery stores are substantial. Merchandising and servicing these groceries is very costly. Our subsidiary in Mexico is very innovative. They experimented with new display boxes for small groceries and developed boxes that cut the store servicing time in half. The new boxes also keep the products looking better and fresher.

Our managers in the Dominican Republic are risk takers. They introduced a garlic- and banana-flavored chip. Can you imagine! Everyone [in the head office] thought no one would buy those. But the product was a huge success. They added dried, fried banana flakes to go with the chips. The Mexicans introduced lemon-flavored chips. Again, a huge, unexpected success. [They] really know their local customers!

Such exploration capabilities of the subsidiary can first benefit local customers by offering more satisfying products and services and can improve subsidiary performance, but as these products and services develop, they open new business opportunities for the MNC as a whole (Birkinshaw 1997). For example, managers from other subsidiaries with similar market conditions (e.g., Saudi Arabia) were sent to Mexico and the Dominican Republic to apply these innovations in similar markets. Such experimentation and risk taking at the subsidiary level provides the variety and diversity from which an MNC's systems can then select (Birkinshaw 1997). Without the diversity of opportunities and ideas that exploration represents, an MNC's ability to exploit its network of differentiated subsidiaries is severely constrained (Bartlett and Ghoshal 1989).

The recombination of existing knowledge is an important capability of subsidiaries. Exploitation is in line with the traditional role of the subsidiary as adapting the MNC's products and technologies to local tastes and trends (Vernon 1966). In contrast with the generation of new knowledge, exploitation of knowledge generally involves modifying existing knowledge that the subsidiary already has or importing knowledge from the head office or other subsidiaries to apply it to local operations or to generate new knowledge from it (Schulz 2001). Internal transfers of best practice within an MNC are an example of exploitation-type learning. The resulting knowledge is usually more settled and less diverse than is the new knowledge. Exploitation capability is exemplified by the following quote from a subsidiary general manager:

We developed an inventory-tracking software that was easy to use [compared with commercially available software].... Plus our software is cheap. I presented it to regional office managers. The managers there really liked our software. So, my team [the developers] is flying to the regional office and then to other subsidiaries to install and teach this software. They will do this for the next two years. In this way, other subsidiaries will exploit our innovation.

In another example, the marketing director of a fast-moving consumer goods (FMCG) company explained how the company selected an existing product and "creatively" exploited it to start a new round of exploitation at other subsidiaries of the MNC:

We took an already existing generic formulation and developed it into a new product as an effective laundry-cleaning agent that protects colors and is gentle on the fabric and skin [a substitute for baking powder]. We not only created a new product category in our lo-

Using Existing Knowledge: Exploitation

cal market, which was quickly entered by [Procter & Gamble's] similar product, but we are still the market leader with an 80% market share after five years of launching the product. I am leaving for Germany [head office] in a couple of months to help other subsidiaries launch our innovation.

These examples demonstrate that subsidiaries are in a special position to benefit from the exploitation of successful exploration of others (Levinthal and March 1993) within the MNC network.

In allocating resources between these two learning capabilities, firms explicitly or implicitly consider the differential outcomes associated with each. The benefits of exploitation have been demonstrated by learning-curve effects. Refinement of existing knowledge and learning from experience reduce transaction costs and thereby expedite decision-making, implementation, and control (Cyert and March 1963). However, the natural, self-reinforcing bias toward exploitation may decrease variation in organizational routines and impair capacity for exploratory learning (Levinthal and March 1993). In this way, refinement and selection could inhibit experimentation and discovery in subsidiaries (March 1991). Companies could easily find themselves trapped in pursuing operational efficiency in an outdated area at the expense of overall effectiveness (Kyriakopoulos and Moorman 1998). Yet organizations that emphasize exploration at the expense of exploitation are likely to suffer the costs of experimentation without gaining its benefits. For long-term survival and success to be feasible, subsidiaries need to manage actively the tension between the strong path dependence of exploitation and the vulnerability of exploration.

CONCEPTUAL MODEL AND HYPOTHESES

Resource-based theory suggests that superior performance originates at the firm level, specifically in the resources and capabilities of the firm (Barney 1991; Conner 1991; Teece, Pisano, and Shuen 1997). This view is based on the assumption that resources are both heterogeneous across firms and imperfectly mobile (Barney 1991; Hunt and Morgan 1995). Consistent with the resource-based theory and the research stream associated with it, we define *resources* as all assets, organizational processes, firm attributes, stocks of knowledge, human capital, and other tangible and intangible factors controlled by a firm that enable it to conceive of and use capabilities that improve its efficiency, effectiveness, and adaptability (Barney 1991; Capron and Hulland 1999; Daft 1983).

Following Day (1994), we make a distinction between resources and capabilities. As glue does, capabilities bind resources together and enable them to be deployed advantageously. Capabilities are repeatable patterns of action in the use of resources

to create, produce, and/or offer value to a market (Capron and Hulland 1999). Capabilities cannot be given a monetary value and are so deeply embedded in the organizational routines and practices that they cannot be traded or imitated easily (Day 1994; Dierickx and Cool 1989). That is, capabilities as unique, repeatable actions enable the subsidiary to use its resources to improve performance.

We define a *subsidiary* as any operational unit controlled by the MNC and situated outside the home country (Birkinshaw 1997). Although our focus is on understanding what actually happens inside the subsidiary, the highly differentiated MNC network in which a subsidiary operates necessitates a multilevel organizational perspective. More specifically, we assert that the capabilities of exploration and exploitation in subsidiaries are often buried in many resources derived from the parent, the subsidiary, and the parent–subsidiary relationship.

Parent-company resources refer to head-office characteristics that are expected to influence subsidiary learning. From recent developments in subsidiary initiative literature (Birkinshaw and Hood 1998), we infer two parent-company resources as relevant to our model. The first, parent-management ethnocentrism, represents a human capital resource defined in terms of top management’s judgment, exposure, training, and insight about foreign activities and operations. The second, the resource allocation method used by the head office, is only implicit in previous research (e.g., an entrepreneurial internal selling of ideas in MNCs; Birkinshaw 1997) and, according to Barney (1991), represents an organizational-capital resource.

Subsidiary resources are characteristics of the subsidiary itself that define its unique role within the MNC network. These include physical capital resources represented by the subsidiary’s size, experience of its managers, track record, and organizational resource commitments.

Parent–subsidiary relational resources are the structural attributes of the parent–subsidiary relationship. As such, these resources constitute an organizational capital resource, which Barney (1991) defines as a firm’s formal reporting structure, controlling and coordination systems, and informal relations among groups within a firm (i.e., parent and subsidiary). On the basis of the literature, the three key parent–subsidiary relational resources we included in this study are subsidiary autonomy, formalization, and socialization of subsidiary employees. Because these resources represent the outcomes of relationships between the subsidiary and the parent, they are also referred to as “relational assets” in the literature (Hunt and Morgan 1995).

Our basic model, depicted in Figure 1, postulates that these three sets of resources, which represent the multilevel organizational context in which a subsidiary operates, together determine the level of exploration and exploitation learning capability in a subsidiary, which consequently affects subsidiary performance both directly and as moderated by environmental turbulence. We summarize the proposed relationships in Table 1.

Parent-Company Resources and Subsidiary Learning

Among the head-office resources, we included parent-management ethnocentrism and management's resource-allocation mode to capture critical head-office-driven resources that influence subsidiary-learning capabilities.

Parent-Management Ethnocentrism. The attitude of parent-company managers toward foreign activities and operations is important in determining the type of knowledge created at the subsidiary. In general, the concept of ethnocentrism represents the universal proclivity of people to view their own group as the center of the universe, to interpret other social

Table 1.
Summary of Proposed Relationships

	Subsidiary Market-Learning Capability		Subsidiary Performance		
	Exploration	Exploitation	Effectiveness	Efficiency	Adaptability
Subsidiary Market-Learning Capability					
Exploration			+	-	+
Exploitation			-	+	-
Parent-Company Resources					
Parent-management ethnocentrism	-	+			
Competitiveness of resource allocation mode	+	-			
Subsidiary Resources					
Size	+	+			
Experience of subsidiary managers	+	+			
Track record	+	-			
Resource commitment level	+	-			
Parent-Subsidiary Relational Resources					
Subsidiary autonomy	+	-			
Formalization	-	+			
Socialization of subsidiary employees	+	+			

units from the perspective of their own group, and to reject people who are culturally dissimilar while blindly accepting those who are culturally like themselves (Shimp and Sharma 1987). The symbols and values of a person's own ethnic or national group become objects of pride and attachment, whereas symbols of other groups may become objects of contempt (Levine and Campbell 1972).

For purposes of this article, we extend our definition of parent-management ethnocentrism (Perlmutter 1969) to a preoccupation with the national identity of the parent company and a belief in its superiority over others, and we expect that this negatively affects the generation of new knowledge. More specifically, an ethnocentric attitude among parent managers limits their receptiveness and responsiveness to subsidiary-generated new ideas or opportunities. Some of the elements of ethnocentrism, such as uncertainty and ignorance about a foreign market, are likely to decrease as the subsidiary matures and legitimizes its existence, but ethnocentric parent management is still likely to be receptive to negative signals from the subsidiary. Therefore, ethnocentrism will not encourage a sufficient willingness on the part of the subsidiary to take risks, experiment, or question long-held assumptions, because explaining these behaviors and generating support at the parent company would be time consuming.

Instead, ethnocentric parent managers are more likely to expect subsidiary managers to exploit existing knowledge, because there is general belief of the parent company's superiority. In field interviews, some subsidiary managers complained about the ethnocentrism of parent managers. Subsidiary managers particularly criticized parent managers for interpreting subsidiary markets from the perspective of their own markets in terms of willingness to take risks, consumer attitudes toward personal debt, consumer hygiene habits, and channel-member attitudes toward profit seeking versus relationship seeking. Consequently, we propose the following:

- P₁: The ethnocentric orientation of parent-company managers is (a) negatively related to the degree of exploratory subsidiary learning and (b) positively related to the degree of exploitative subsidiary learning.

Resource Allocation Mode. We expect that the method the parent company uses to allocate resources in the MNC network has a significant influence because it legitimizes behaviors that may either hinder or promote subsidiary learning. The critical consideration here is the degree to

which the parent company makes use of the internal market mechanisms to foster competitive allocation of resources among MNC units. With a competitive internal resource allocation method, the parent company promotes corporatewide competition, either by allowing bids for new investments or by creating a system through which subsidiaries can challenge existing allocations (Birkinshaw and Hood 1998; Galunic and Eisenhardt 1996). Conversely, in the absence of such a competitive system, head-office decision makers make resource allocation decisions through a central planning process, which typically entails the status quo, or favoring investment locations with which the decision makers are familiar. Accordingly, we expect the competitiveness of resource allocation to motivate subsidiaries to become proactive in their generation of new knowledge.

- P₂: The competitiveness of the parent company's resource allocation mode is (a) positively related to the degree of exploratory subsidiary learning and (b) negatively related to the degree of exploitative subsidiary learning.

Subsidiary Resources and Subsidiary Learning

There is already widespread acknowledgment that resources and capabilities are acquired and developed at the subsidiary level as well. Many subsidiaries have developed specialized resources on which the rest of the MNC depends. Therefore, to some extent, subsidiary resources are distinct from head-office resources. The particular history and experiences of the subsidiary are responsible for defining a setting that is unique to that subsidiary, which in turn results in a unique subsidiary profile of resources (Teece, Pisano, and Shuen 1997). Thus, we expect that autonomous actions and characteristics of the subsidiary itself play an important, distinct role as the driver of subsidiary learning. On the basis of a literature review, the subsidiary resources we consider relevant and important to this study are subsidiary size, experience of subsidiary managers, track record, and resource commitments.

Subsidiary Size. In general, larger firms have more resources (Barkema and Vermeulen 1998). As a subsidiary grows, it increases its stock of distinctive resources (Penrose 1959). For example, during our interviews we realized that a large subsidiary usually had all or many of the following: a research and development (R&D) unit, though one originally established to do adaptation- and exploitation-type work; a marketing research unit and databases on local customer and competitor behavior; a well-informed, sizable sales force; and a human-resource-management unit with a significant training component. By using its distinctive resources, a large subsidiary is more likely to create new knowledge (ex-

ploration). Evidence suggests that as international R&D units of subsidiaries grow, they become active contributors to the MNC's global innovation effort (Ghoshal and Bartlett 1988). In an interview, the marketing director of a Coca-Cola subsidiary reported the following:

In 1996, we went through a major restructuring and bought the previously independently owned local bottling and distribution company. Overnight, we almost tripled in size. Over the next decade, our size enabled us to identify new opportunities, take more and greater risks, and enter new product categories. For example, we entered the packaged fruit juice and the bottled drinking-water markets. Our success in these new markets derives heavily from the large distribution fleet that we have in place.

However, in the organizational-learning literature, organization size is generally believed to induce organizational inertia and thus reduce the likelihood of undertaking substantial change (Lant and Mezias 1992) and creating new knowledge. Given the inconsistencies in the two streams of research, our following propositions are only suggestive:

P₃: The size of the subsidiary is positively related to (a) its degree of exploratory learning and (b) its degree of exploitative learning.

Experience of Subsidiary Managers. Experience is a prime source of learning in organizations (Penrose 1959). Experience can foster learning because it highlights opportunities that can be exploited and threats that must be counteracted. We define *subsidiary manager experience* as two-dimensional: (1) the extent to which the manager has been exposed to diverse country markets and product categories and (2) the extent of a manager's experience in the local market. In terms of the first dimension, operating in diverse markets increases the variety of events and ideas to which the manager is exposed (Huber 1991), leading to a more extensive knowledge base (March 1991). Chief executive officers (CEOs) of internationally diversified firms have richer knowledge structures than do CEOs of domestic firms. Subsidiary managers' exposure to different ways of doing things fosters experimentation, trial, search, and discovery. These managers can spot problems and opportunities they would have missed if their experiences were narrower (Barkema and Vermeulen 1998). For the second dimension, experience in the local market enables a greater understanding of the local subsidiary market (Johanson and Vahlne 1977) in terms of customers, competitors, and suppliers. The two dimensions of experience combine to encourage exploratory learning.

We also predict a positive relationship between experience and exploitation. A manager who has been exposed to diverse national and product markets has a broader repertoire of product-market experiences to draw from, imitate, and exploit (Barkema and Vermeulen 1998). In a field interview, the general manager of another FMCG company explained how experience in other product markets and in the local market facilitated exploitation:

When we entered this market in 1987, we did not know much about our local customers. We hired a market research company to conduct several focus groups to understand consumer attitudes toward shampoos, conditioners, and laundry detergents and tried to assess consumer brand loyalty. Our managers did not benefit from these studies much. They needed to get their hands dirty and their feet wet to really understand local customers. This took time, and some costly mistakes. However, as our experience in the local market increased and as we brought in more experienced managers from other units, we also started noticing opportunities for exploiting existing products developed in other markets. For example, we had developed a detergent with a bluing ingredient in Egypt [Egyptian consumers prefer their whites to be a bluish white]. We introduced the same product in this market successfully.

It should be noted that both dimensions of experience are necessary to encourage exploration and exploitation capabilities. Evidence suggests that experience with only the local market (and lack of diversity of experience) inhibits exploration. Managers who remain in a familiar setting may be blind to opportunities and threats that transcend the specific setting, which leads to rigidities or competency traps (Leonard-Barton 1992; Levinthal and March 1993; Sinkula 1994). Most MNCs prefer to remedy this potential pitfall by assigning promising local managers to other subsidiary markets.

P₄: Experience of subsidiary managers in both diverse country/product markets and the local market is positively related to (a) the degree of exploratory subsidiary learning and (b) the degree of exploitative subsidiary learning.

Track Record. The importance of a subsidiary's track record is consistently mentioned in the literature (e.g., Delaney 1996; Hood, Young, and Lal 1994; Morrison and Crookell 1990). Following Birkinshaw and Hood (1998), we define a subsidiary's track record as the extent to which it has delivered results at or above the expectations of the parent company. Subsidiaries that have already been successful in the past are less likely to

be constrained by the head office's beliefs or actions. In addition, successful subsidiaries may be allowed to question long-held routines, assumptions, and beliefs. This creates a self-reinforcing cycle in which subsidiaries with a strong track record may not wait for directions or a failure on some performance dimension but aggressively seek out new opportunities to explore and develop their capabilities. For example, the Mexican subsidiary of the snack producer mentioned previously entered the biscuit and cracker category (a new product for the MNC) without any resistance from the head office because of the subsidiary's previous success in new product introductions. As a result, such subsidiaries are less likely to engage in exploitation of existing knowledge; they are likely to focus on the creation of new knowledge. Thus:

P₅: A subsidiary's track record is (a) positively related to its degree of exploratory learning and (b) negatively related to its degree of exploitative learning.

Resource Commitments. Following Collis and Montgomery (1995), Menon and colleagues (1999), and Ramanujam, Venkatraman, and Camillus (1986), we define *resource commitments* as the extent to which both tangible (people) and intangible (managerial time) resources owned and controlled by the subsidiary are made available to achieve the unit's goals. Research on organizational slack suggests that the extent of resources committed directly affects the extent of experimentation and the pursuit of nontraditional and radically different alternatives (Bourgeois 1981). Slack allows for actions associated with greater uncertainty and risk (Nohria and Gulati 1996; Singh 1986).

These same authors find an inverted relationship between innovation and organizational slack, which suggests that too little resource commitment is as bad as too much commitment. Thus, resources should not rely on the availability of slack in the form of extra padding or looseness in normal practice (Singh 1986); rather, resources should be deliberately distributed to foster market learning. As the subsidiary increases its stock of resources, it lessens its dependence on other units and takes more complete control of its own destiny (Prahalad and Doz 1981), which greatly enhances the prospects for exploratory learning. Thus, subsidiaries with more slack are more likely to engage in exploratory learning, such as introducing a new product or entering a new market (that is new to the subsidiary and the MNC). In contrast, exploitation generally requires less slack. Subsidiaries with lower levels of slack are more likely to engage in exploitative market learning.

Field interviews led to the development of these propositions. For example, subsidiaries that were required to trans-

fer all or most of their profits back to the parent company were not involved in new knowledge creation. This was mainly because they did not have access to seed money to engage in such activities. Their main focus was on finding ways to exploit existing knowledge. The pursuit of exploratory learning was a time-consuming, frustrating process. Thus, we propose the following:

- P₆: The resource-commitment level of a subsidiary is (a) positively related to its degree of exploratory learning and (b) negatively related to its degree of exploitative learning.

Parent-Subsidiary Relational Resources and Subsidiary Learning

The final set of resources we consider captures the influence of linkages between the subsidiary and the parent. Because the subsidiary is a semiautonomous entity embedded in a differentiated system (Bartlett and Ghoshal 1989), the structure and processes that link the subsidiary and the parent company become an important consideration in determining the type of subsidiary-learning capability developed.

Subsidiary Autonomy. In the MNC research tradition, *autonomy* is defined as the degree to which decision-making authority is delegated to subsidiaries. Thus, autonomy is the opposite of centralization. Autonomy involves lower levels of control by the parent company over the subsidiaries by decentralization of crucial decisions in the differentiated network (Özsomer and Prussia 2000; Sundaram and Black 1992). Previous empirical research has shown autonomy to be associated with creation and innovation in subsidiaries but negatively associated with adoption and diffusion of existing knowledge (Birkinshaw 1997; Birkinshaw, Hood, and Jonsson 1998; Ghoshal and Bartlett 1988). Higher levels of autonomy tend to allow for shifts of beliefs and actions, whereas greater centralization tends to reinforce past behaviors (Fiol and Lyles 1985). Similarly, in the information-use literature, centralization is found to inhibit information utilization (Deshpandé and Zaltman 1982) and to be a barrier to market intelligence generation and dissemination (Jaworski and Kohli 1993). Therefore, we propose the following:

- P₇: Subsidiary autonomy is (a) positively related to its degree of exploratory learning and (b) negatively related to its degree of exploitative learning.

Formalization. Zaltman, Duncan, and Holbek (1973, p. 138) define formalization as “the emphasis placed within the organization on following specific rules and procedures in performing one’s job.” Rather than concentrate decision-making authority at the head office, formalization tends to decrease the authority of both head-office and subsidiary managers by subjecting decision making to an impersonal set of rules and

policies. The routinization of decision making delivers important operating efficiencies that are the hallmarks of a formalized structure. However, formalization has its costs. Most obvious is the high fixed cost of establishing the systems, policies, and rules so that they become reliable surrogates for issue-by-issue decision making (Zaltman, Duncan, and Holbek 1973).

Formalization distracts subsidiary managers from questioning established routines and understanding changing local needs and competitive threats that may require fast, flexible responses. In an internal environment driven by standardization and routinization, subsidiary managers' willingness and ability to be creative and experiment will be surpassed. Research on MNCs' R&D units shows that formalization is related to the exploitation and adaptation of existing products and processes to local demands (Nobel and Birkinshaw 1998). Thus, formalization should encourage exploitative subsidiary learning while greatly reducing prospects for explorative learning.

P₈: The formalization of parent–subsidiary relations is (a) negatively related to the degree of exploratory subsidiary learning and (b) positively related to the degree of exploitative subsidiary learning.

Socialization of Subsidiary Employees. Organizations store knowledge in their procedures, norms, forms, and rules (March 1991). This knowledge is diffused to individuals through various forms of instruction, indoctrination, and exemplification. Through socialization, organization members develop common expectations and shared values that promote like-minded decision making (Nobel and Birkinshaw 1998). Conceptualizations of the MNC as a heterarchy (Hedlund 1986) or a transnational corporation (Bartlett and Ghoshal 1989) have increased interest in socialization as a way to control semiautonomous, differentiated subsidiaries.

Socialization of subsidiary employees facilitates the transfer of knowledge and competence across MNC units. Furthermore, through socialization, existing knowledge is transferred between generations (Van Maanen and Schein 1979) of subsidiary employees, and therefore knowledge is not lost. Thus, socialization not only is related to using knowledge that exists in other units of the MNC but also facilitates benefiting from what has already been learned within the subsidiary.

In terms of exploratory learning, Ghoshal and Bartlett (1988) find an association between the creation of innovation in subsidiaries and high socialization. More recent research on R&D subsidiaries shows that creative units that generate more new knowledge make extensive use of socialization (Nobel and

Birkinshaw 1998). Thus, we propose a positive relationship between socialization and both types of learning.

P₉: The socialization of subsidiary employees is positively related to (a) the degree of exploratory learning and (b) the degree of exploitative learning.

Subsidiary Learning and Performance

What makes exploratory and exploitative learning capabilities valuable to a subsidiary? The literature suggests that asymmetric market learning contributes to the evolution of competition and is a source of competitive advantage (Dickson 1992). In contrast, a subsidiary's performance can be measured and judged on various dimensions. Performance is a joint function of potential return from an activity and an organization's present competence in that activity (Arthur 1984 qtd. in March 1991). Thus, for the purposes of this research, the most relevant measure for subsidiary performance depends on whether there exists a long- or short-term view of the subsidiary outcomes.

In line with Walker and Ruekert's (1987) research, we consider three performance dimensions of primary importance to subsidiary and head-office managers. First, effectiveness captures the success of the subsidiary's products and programs in relation to those of its competitors in the local market. Effectiveness is commonly measured by such items as sales growth compared with that of competitors or changes in market share. Second, efficiency is the outcome of a subsidiary's programs in relation to the resources employed in implementing them. Common measures of efficiency are profitability as a percentage of sales and return on investment. Third, adaptability is the subsidiary's success in responding over time to environmental changes and opportunities. The ability to adapt quickly stems from an ability to learn (Ulrich, Von Glinow, and Jick 1993). Common measures of adaptability are the number of successful new product introductions compared with those of competitors or the percentage of sales accounted for by products introduced in some recent period (often a five-year period). In general, effectiveness and adaptability are longer-term aspects of performance, and efficiency is a short-term dimension.

We expect that subsidiaries differ in these performance dimensions depending on their success in managing the tension between exploration and exploitation as market-learning capabilities. The relationships between exploration and exploitation are implicitly reflected in different outcomes on the three performance dimensions. What is good in the long run is not always or necessarily good in the short run. We expect that exploration has a positive impact on long-term performance of the subsidiary captured by effectiveness and adaptability. This is because returns from exploration are systematically less cer-

tain, less clear, and more remote in time (March 1991) compared with returns from exploitation. The search for new knowledge (e.g., radically new products, new markets, or new marketing programs) has less certain outcomes, longer time horizons, and more diffuse effects than does the exploitation of existing knowledge in subsidiary markets. More time is needed for the benefits of exploration to be observed.

In contrast, positive local feedback at the subsidiary market produces strong path dependence. Organizations exhibit increasing returns to experience in the short run. Learning by doing and imitation in exploitation improve efficiency. Subsidiaries may exploit a single objective with increasing virtuosity. Thus, we propose the following:

- P₁₀: The (a) degree of exploratory learning is positively related to effectiveness, negatively related to efficiency, and positively related to adaptability, and the (b) degree of exploitative learning is negatively related to effectiveness, positively related to efficiency, and negatively related to adaptability.

As mentioned previously, learning involves two twin dimensions: exploration and exploitation. For long-term survival and success, subsidiaries should actively deploy, nurture, and manage a healthy balance of both types of learning reflected by both exploration and exploitation. A subsidiary's (and an MNC's) long-term competitiveness depends on sustaining a reasonable level of exploration while exploiting current knowledge. For example, Motorola emphasizes exploration in its subsidiaries to develop new product lines, but when product lines have been established, the company focuses on exploitation of those products to increase efficiency. Similarly, tendencies to increase exploitation at the expense of exploration can have a negative impact on performance in the long run, particularly in turbulent markets.

The contribution of learning capabilities to performance depends on the amount of turbulence in the subsidiary environment. We focus on technological and market turbulence, defined as the rate of change associated with new product technologies and the composition of customers, customer preferences, and competitor strategies (Jaworski and Kohli 1993). Examples of turbulence in markets are the extraordinary challenges facing a firm in a market that has recently been deregulated (airlines or trucking in the United States in the 1980s), the newly free markets of Eastern Europe, and the markets of recent economic crises in Asia, South America, and Eastern Europe.

We propose that subsidiary performance is contingent on the fit between market learning capabilities and environmental

The Moderating Role of Environmental Turbulence

turbulence in the subsidiary market. The moderating impact of turbulence exists because learning processes involve lags in adjustment to changes in the environment. Because of its reliance on refinement, implementation, and routine, exploitation tends to take place in environments that are well understood and in which management believes it can control situations (Duncan 1974). In contrast, in environments characterized by high turbulence, firms face many diverse situations and invest more in being flexible (Harrigan 1984). The rate of exploration in the subsidiary and the rate of change in the environment must be in line for competitive advantage to develop and be sustained. Thus, in general, turbulence appears to decrease the value of exploitative learning and increase the value of search, flexibility, and experimentation (Levinthal and March 1993).

In a turbulent environment, multiple independent projects may have an advantage over a single, coordinated effort (March 1991). The average result from independent projects is likely to be lower than that realized from a coordinated one, but the variability of projects can compensate for the reduced mean in competition for leadership. For example, after the Asian economic crisis in 1997, many MNC subsidiaries launched or promoted second-tier brands with lower prices to decrease the loss of consumers to cheaper local brands. These second-tier brands were rather unsuccessful when evaluated separately, but such flexibility alleviated cash flow and currency problems at the subsidiary level.

Furthermore, in a turbulent market, the ability of a firm to select and mimic “successful” behaviors correctly is greatly reduced (Dickson 1992). For example, McKee, Varadarajan, and Pride (1989) observe that firms defined as “analyzers” according to Miles and Snow’s (1978) typology outperform other organization types in mildly volatile (turbulent) markets but do not exhibit superior performance in highly turbulent markets. Companies that deal with relatively few competitors and customers in a stable market have a narrower range of experiences and narrower managerial models because they confront a more limited range of challenges. This narrowness hurts performance in the long run if conditions change (Miller and Chen 1996). Even the best marketing planning does not work in turbulent markets. The CEO of a subsidiary operating in a market that was experiencing an economic crisis said that the subsidiary had stopped developing marketing plans in the previous year. Instead, it was focusing its resources on trying to understand the environment to be able to respond quickly. This involved informal lunch meetings with other executives from the same industry, channel members, and suppliers.

In turbulent markets, success depends more on creating new knowledge than on the ability to refine, analyze, plan, and

implement to exploit existing knowledge. That is, the relationship of exploratory learning with effectiveness and adaptability is stronger when turbulence in the subsidiary market is high. Thus:

P₁₁: The (a) positive effect of exploratory learning on both effectiveness and adaptability becomes stronger as environmental turbulence increases, and the (b) positive effect of exploitative learning on efficiency becomes weaker as environmental turbulence increases.

An important antecedent of a firm's performance and competitiveness is its current resources, because resources constrain what is possible (Dickson 1992). However, the capabilities that employ and mobilize firm resources are a more direct determinant of performance (see Chandler 1990; Dickson 1992; Itami and Roehl 1987). In the proposed model, superior performance of MNC subsidiaries is explained by the resource context derived from the parent company, the subsidiary, the parent–subsidiary relationships, and the subsidiary's use of these resources as exploratory and exploitative learning capabilities.

Building on the resource-based view of the firm and viewing MNCs as a differentiated network (Bartlett and Ghoshal 1989; Birkinshaw and Hood 1998), we suggest that learning takes place locally. Therefore, understanding market learning and knowledge production in subsidiaries is a critical first step toward understanding organizational learning in MNCs. Accordingly, our model asserts that the amount and the type of knowledge produced in individual subsidiaries of an MNC are heterogeneous because subsidiaries differ in terms of accessible resources and the extent to which they use those resources.

For example, the subsidiary of a European auto manufacturer lost its long-held market leadership position in a major emerging market as a result of the creative product and marketing strategies of its main competitor, another European auto manufacturer. This track record led head-office managers to replace the CEO with a manager from the head office and to exercise tight control over the subsidiary's activities. Management gave priority to implementing new product and marketing strategies developed in the head office. Thus, the learning capability nurtured in this subsidiary after the unsatisfactory track record was exploitation. Meanwhile, in the South American subsidiaries of the same MNC, exploration was actively developed and emphasized during the same years.

The essence of marketing is learning about market change and building the capabilities that facilitate adapting quickly (Dickson 1992). According to De Geus (1988, p. 70), "The

IMPLICATIONS AND CONCLUSIONS

Implications for Management

only (sustainable) competitive advantage the company of the future will have is its managers' ability to learn faster than their competitors." This could not be truer for managers of MNC subsidiaries operating in diverse and turbulent markets, some of which face economic crises that threaten the subsidiary's viability. These subsidiaries need the ability to learn about their rapidly changing marketplaces, create new knowledge, and simultaneously exploit existing knowledge. Managers need to change their shared interpretations of the marketplace faster than their competitors do, including their view and models of consumer behavior, competitive behavior, and even themselves. For example, after the economic crises in Asia in 1997 and Turkey in 2000, consumers changed their product choices (assortments) quickly. Companies that understood the direction of this change (i.e., which products consumers did buy and which they did not buy anymore) were able to change their positioning to fit consumers' new needs faster than their competitors could.

Thus, the competitive challenge for the subsidiary manager is to outperform rivals in (1) recognizing the internal resource constraints of the subsidiary (parent-company, subsidiary, and parent–subsidiary relational resources), (2) mobilizing these resources to develop the learning capabilities of exploration and exploitation, and (3) ensuring that exploration and exploitation are used to the extent of satisfying the turbulence in the external market environment.

For example, our model supports the adoption of a more decentralized structure in which subsidiaries are autonomous because the structure is best suited to exploratory learning, especially in turbulent markets. Subsidiaries with less autonomy may enhance their exploitative learning capability and flourish in highly stable, predictable markets (Jaworski and Kohli 1993), but sooner or later their markets will be disturbed. Again, after the 1997 economic crisis in Thailand, all major FMCG subsidiaries cut back on advertising spending because they expected lower sales. As advertising prices fell, the FMCG subsidiary of a medium-sized German MNC increased advertising spending, bought much of the unused media time, and launched several advertising campaigns. Even during the crisis, the German MNC's sales increased. When its larger competitors wanted to respond similarly, their centralized decision-making structures did not enable them to act quickly. By the time they increased their advertising budgets, the German subsidiary had stolen significant market share and had emerged from the crisis stronger than before.

The critical challenge for any business is to create a context that maximizes the right type of market-learning capability that is necessary for improving performance. First and fore-

most, this research highlights the importance of viewing this context with all its relevant levels and manifestations. That is, resources of the parent and those of the subsidiary appear to be important, as do organizational capital resources that derive from the nature of parent–subsidiary relations. Those MNCs interested in helping their subsidiaries meet the challenge of an unrelenting need to learn must adopt a multilevel perspective of context and be aware of organizational impediments to learning that can emerge from different levels within the MNC hierarchy.

Second, managers who want to better understand how to maximize subsidiary learning need not only to know how to channel resources that can foster learning but also to understand the learning capability a particular resource encourages. One venue for maximizing learning would be to change the learning capability by changing the resource context that exists. Another option would be to embrace the learning capability that is supported and try to enhance it by improving the existing resource context. For example, management of a subsidiary operating in a turbulent market may decide to encourage exploration and lobby for a competitive resource allocation mode at the head-office level.

Third, as previously mentioned, the two learning capabilities of exploration and exploitation, though distinct, are not mutually exclusive. They are likely to be intertwined and interdependent such that a subsidiary benefits from engaging in both types of learning in an ongoing way, depending on the needs of different situations. In this respect, managers must realize and manage the capabilities of generating new knowledge and exploiting what has already been learned to maximize performance.

As several authors have argued (e.g., Bartlett and Ghoshal 1989; Birkinshaw 1997; Day 1994; Jaworski and Kohli 1993; Sinkula 1994; Slater and Narver 1995), creating new knowledge and capitalizing on what is learned within a hierarchy are among the essential competitive challenges that face all firms today. Given the importance of learning in the new world order, the need to study its antecedents and consequences in subsidiaries so as to improve performance is paramount.

Consistent with its purpose, this study develops a more complex, yet more refined understanding of subsidiary learning and knowledge production in subsidiaries. In particular, this study focuses on a highly differentiated multilevel organizational context in which subsidiary learning takes place. This multilevel perspective of the resource context represents a worthwhile extension of the research published to date.

Implications for Researchers and Future Research Directions

Yet, as is true of any research on subsidiaries and MNCs, this study does not take into account all possible influences. We believe our model presents a parsimonious way of explaining what is in practice a complex phenomenon. Accordingly, we invite efforts to extend the multilevel view of the resource context proposed in this study not only by identifying other relevant resources but also by exploring other contexts and reciprocal, moderating, and mediating effects. For example, it would be helpful to understand theoretically whether other contextual factors influence subsidiary learning, and if so, at what level of analysis they do so. One such factor that may prove critical, yet one we have not included in the proposed model, is the implementation of a global marketing strategy. Examining the influence of a global marketing strategy on exploration and exploitation should prove fruitful in expanding the theoretical scope of our model. Another contextual factor likely to influence subsidiary learning is the pool of proven assets and resources available at the parent company. When the head office has a high level of corporate assets and resources, more efficient deployment of those may be promoted.

Alternatively, contextual factors at the level of the individual manager may prove important for subsidiary market learning. That is, subsidiary learning may occur despite the resource context at the level of the parent, subsidiary, or parent–subsidiary relations only because of the efforts of individual managers. Even when the resource context is configured against learning, knowledge may be created and exploited by managers who value and generate a sense of legitimacy for knowledge production. Therefore, it appears critical to understand if and when the prolearning influence of individual managers is adequate to counter the antilocal learning influences, if any, embedded in the MNC hierarchy.

Similarly, potentially important external contexts not fully incorporated into this study are the micro- and macroenvironments. The role of both host and home-country environment, apart from market turbulence, in restricting or promoting subsidiary market learning and knowledge production would be extremely important to consider in further research.

The framework we develop in this study focuses on how and what type of knowledge pertaining to the local market is created. Thus, to a large extent, we conceptualized local and regional managers' perceptions of parent, subsidiary, and parent–subsidiary relational resources as related to exploration and exploitation capabilities inside the subsidiary. Future theoretical and empirical extensions should also include the head-office managers' perspectives regarding the subsidiary's resources and capabilities. Such a

dyadic focus could reveal perceptual “gaps” as antecedents of subsidiary market learning and would enhance the generalizability of our model.

Finally, research that compares the effects of exploration and exploitation on learning at the MNC level is needed. As the loosely coupled entities in an interorganizational network, subsidiaries must take the lead in promoting learning before MNC-wide learning can take place. Realization of this requirement was the impetus behind this study’s focus on learning capabilities at the subsidiary level; however, not enough is understood about how dissemination of knowledge in the MNC influences systemwide learning. Thus, further research might expand on this study by identifying mechanisms that MNCs can use to exploit and benefit from subsidiary learning. For example, a recent article empirically examines the role of knowledge developed by an MNC’s subsidiaries in similar markets on subsequent foreign-market entries (Mitra and Golder 2002). The concept of “near-market” knowledge provides a suitable setting for applying the capabilities of exploration and exploitation.

In conclusion, we believe that the phenomenon of market learning in subsidiaries has considerable potential for further research. There is a need for empirical tests of subsidiary learning and more detailed examination of the concepts and relationships we present in this article. We hope that this article provides a conceptual model around which subsequent studies can be built.

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ACKNOWLEDGMENTS

The authors thank the anonymous *JIM* reviewers for their valuable comments and suggestions on previous versions of this article.

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