

A coevolutionary theory of the multinational firm[☆]

Anoop Madhok^{a,*}, Carl Liu^b

^a *Schulich School of Business, York University, 4700 Keele St, Toronto, ON, Canada M3J 1P3*

^b *Department of Management, David Eccles School of Business, University of Utah, 1645 E Campus Center Dr Rm 104, Salt Lake City, UT 84112, United States*

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Abstract

We examine the multinational firm from the lens of coevolutionary theory. Coevolutionary theory encompasses both macroevolution with the external (local) environment and microevolution within the internal environment, i.e. among the MNC's parts (subsidiaries) and the whole, and the relations between the two. In making our argument, we distinguish the coevolutionary process (what happens) from coevolutionary capabilities (what is manageable and how), and then resort to the specific motors of causal ambiguity and absorptive capacity to link the two together. In this context, we argue more specifically that coevolution at different levels tends to occur at different speeds. The speed differential creates what we term a dis-synchronization effect in the coevolution of the MNC, which potentially impacts firm performance. In making our argument, we also show how a coevolutionary lens sheds novel light on the functioning of the MNC as an internal knowledge sub-economy and the advantage of hierarchies over markets in this regard. Constructively managing the tension between the macro and micro aspects of coevolution due to respective differences in coevolutionary pressures has direct implications for competitive advantage and is a critical challenge faced by managers.

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In the international management literature, Bartlett and Ghoshal's (1989) work on the transnational – emphasizing a more 'enlightened' view of the multinational corporation (MNC) as a differentiated but integrated network of subsidiaries with differing roles and responsibilities

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* Corresponding author. Tel.: +1 416 736 2100x20578.

E-mail address: amadhok@schulich.yorku.ca (A. Madhok).

¹ Visiting Professor, Department of Public Administration and Organization Science, Vrije University, Amsterdam.

– has been among the more insightful and influential investigations into the inner workings of MNCs in recent years, and has instigated much of the subsequent development (e.g., Birkinshaw, 2000; Gupta and Govindarajan, 2000). Yet, as pointed out by Zaheer (2002), the theoretical linkages between much of the international strategic management literature and mainstream strategy scholarship have not been so well drawn out. This is reflected in international business scholars citing strategy research far more often than the other way around. Arguably, such a situation has arisen because much of Bartlett and Ghoshal's work was largely descriptive and case-driven, and its theoretical link to competitive advantage was not thoroughly articulated, a situation now attracting the attention of international management scholars (Zaheer, 2002).

The purpose of this paper is twofold. Primarily, we seek to build the 'missing bridges' and provide a deeper theoretical basis for understanding the functioning of multinational corporations (MNCs), one that integrates relevant literature from strategic management, organization theory and international management. We do so by applying the lens of coevolutionary theory – in its bare essence that firms (or units) and their environments mutually coevolve – to the analysis of multinational firms. Second, in extending coevolutionary theory to the multinational domain, we seek to enhance and enrich current understanding of the coevolutionary stream of work. We do so by distinguishing the coevolutionary process from coevolutionary capabilities, and then resort to the specific motors of causal ambiguity and absorptive capacity to link the two together. This brings our understanding down from the level of 'grand movements and processes' to more specific mechanisms impacting how organizations evolve.

In this context, we argue more specifically that coevolution at different levels tends to occur at different speeds. The speed differential creates what we term a dis-synchronization effect in the coevolution of the MNC. We discuss how the speed differential can potentially impact MNC performance. Effectively, in an overarching sense, we propose a more complete causal logic to understand how multinational firms coevolve with their environments. In making our argument, we also show how a coevolutionary lens sheds some novel light on the functioning of the MNC as an internal knowledge sub-economy and the advantage of hierarchies over markets in this regard. As an additional contribution and as a logical extension of our argument, we point out that an important, and hitherto unrecognized, source of competitive advantage lies in how firms manage the coevolutionary process. Through this 'coevolutionary advantage', the coevolutionary framework extends our understanding of sustainable competitive advantage in the field of the MNC.

The paper is organized in the following manner. In the next section, we briefly introduce the coevolutionary perspective, why it is particularly suitable to the multinational firm² and why causal ambiguity and absorptive capacity matter. In Section 2, we discuss the MNC within the coevolutionary framework more systematically, in particular the macro and micro dimensions underlying the coevolutionary process. We advance our argument of speed differential toward the latter part of this section. Section 3 examines the coevolutionary motors of causal ambiguity and absorptive capacity, which together inform coevolutionary capabilities, in more detail. Section 4 discusses some of the implications and contributions, especially the notion of internal knowledge markets. The final section presents some concluding remarks.

² We acknowledge that coevolutionary theory is, with minor adaptations, equally suited to multi-unit firms in general. Nevertheless, for our purpose, we are mainly interested in the special case of the multinational firm.

1. Setting the context: the coevolutionary perspective and the MNC

Coevolutionary theory has recently become more prominent in the management and organization theory literature (Lewin and Volberda, 1999; Baum, 1999). It adds a fresh lens to the age-old debate in organization theory whether environmental selection (Hannan and Freeman, 1977) or managerial adaptation (Child, 1972) is the primary driver behind organizational evolution, to which Bourgeois (1984) submitted a rejoinder that change is the joint outcome of both managerial adaptation and environmental selection and not of one or the other. Besides encompassing the notions of both adaptation and selection, coevolutionary theory introduces to this debate the additional notions of ‘multi-levelness’ and ‘hierarchical nestedness’, wherein it argues that evolution occurs at multiple distinct levels, with the units of evolution being nested within one another (March, 1994; Baum and Singh, 1994). Basically, wholes are both comprised of parts as well as are themselves parts of wholes, with each level being discrete and independent of other levels, yet shaping and being shaped by other levels through the structure and processes of interaction. The emphasis is on the simultaneous evolution of organizations (or the unit of evolution) and their environments – comprising other organizations and entities – where the former influences the latter as well as vice versa in a continual and interactive process.

The MNC provides an ideal arena for application of the coevolutionary perspective because of its unique organizational configuration of a set of subsidiaries located in a variety of distinct environments. The MNC is both one organization and at the same time constitutes a population of organizations (i.e., its subsidiaries) which, even if legally distinct entities, are umbilically tied together through the common bond of ownership. Broadly, in the context of the MNC, the coevolutionary process refers to the coevolution that occurs at the macro level, or macrocoevolution (McKelvey, 1997) – representing the coevolution between the different parts of the MNC (i.e. its subsidiaries) and their respective external environments (i.e., the host country) – and the coevolution that occurs at the micro level, or microcoevolution (McKelvey, 1997) – representing the coevolution among the constituent parts within the MNC that occurs through the interaction of subsidiaries with each other and with headquarters.^{3,4} Being situated at the intersection, each subsidiary contributes to and is influenced by both the external environment (i.e., its local geographical context) and the internal firm environment (Birkinshaw, 2000; Andersson et al., 2002).

In essence, the subsidiary simultaneously co-exists and competes with other firms and entities in its external environment as well as with other subsidiaries within the MNC’s internal environment. At the external macro level, the MNC (subsidiary) is an identifiable organization acquiring, exchanging and competing for resources with other organizations in its host environment (i.e. external exchange). In contrast, the micro level is comprised of the resource production, allocation and exchange process that occurs among the constituent units of the MNC and that binds them to one another through the structure and processes of interaction within the

³ We refer to the two levels as external macrocoevolution and internal microcoevolution in the rest of the paper.

⁴ We do not single out the headquarters as a separate level. From our point of view, even though distinct, the HQ is one of the entities comprising the MNC network. It is worth noting that by and large the HQ does not interact directly with local environments except through its local unit. For instance, the HQ of major firms like Nestle or Unilever constitutes of a small number of persons primarily setting overall policy or centralizing some support functions. Even if Nestle and Unilever were to compete against one another as a whole, the competition is played out in the local arena through local subsidiaries. In essence, the HQ is one of the internal firm entities that a subsidiary needs to deal with.

multinational firm (i.e. internal exchange). Accordingly, factors at both these levels impact the overall evolutionary trajectory of the MNC, with any change at one level constituting only a subset of the overall coevolutionary process (Baum and Singh, 1994).

However, before delineating the processes underlying coevolution, we introduce the motors of causal ambiguity and absorptive capacity and their links to the coevolutionary process in the context of managing knowledge. These two notions are examined in more detail later.

1.1. Causal ambiguity and absorptive capacity

Reflecting the shift in attention from the internationalized to the internationalized firm, issues to do with innovation and knowledge transfer have increasingly come onto center-stage in the study of the multinational firm. Accordingly, there is a growing interest in the organizational features and capabilities that underlie and enable multinational knowledge flows, in the link between this and the external competitive and institutional context, as well as in integrating the internal and external drivers of change (Zaheer and Westney, 2001). In the context of our paper, as both external macro and internal micro level coevolutionary processes transform the MNC, they drive the developmental trajectory of the firm's knowledge and capabilities. Given that knowledge, both embodied and tacit, is increasingly the important resource that flows across subsidiaries in the modern multinational, two particular challenges faced by the firm are the causal ambiguity and absorptive capacity that act as accelerators or decelerators in the knowledge creation, transfer and absorption process.

Broadly speaking, both causal ambiguity and absorptive capacity directly impact the speed, scope and effectiveness of knowledge transfer across subsidiaries. Causal ambiguity is defined as the “basic ambiguity concerning the nature of the causal connections between actions and results” (Lippman and Rumelt, 1982, p. 420). Causal ambiguity impedes the knowledge transfer process. To the extent that the knowledge is created by a subsidiary through interaction with its external environment, there are often location-specific elements which cannot always be easily identified or specified. This may cause stickiness in transfer due to local embeddedness (Bartholomew, 1997; Madhok, 1997). If it were a leading edge environment that could foreshadow or help anticipate future events for the multinational as a whole, e.g. Silicon Valley in electronics, such causal ambiguity would slow down the MNC's global response to external changes.

There are two issues here. First, the unclear causality underlying capabilities of a subsidiary, or between capabilities and their outcomes, makes it difficult to identify or evaluate focal capabilities correctly. Second, even when recognized as useful, stickiness would impede efforts to mobilize such knowledge within the MNC network (Szulanski, 1996), thus preventing its global potential from being realized fully.

As regards absorptive capacity, Zahra and George (2002, p. 185) conceptualize the phenomenon as “a dynamic capability pertaining to knowledge creation and utilization that enhances a firm's ability to gain and sustain competitive advantage”. Absorptive capacity also entails the ability to adjust the firm's systems of coordination and control to match new opportunities that become available (Mudambi, 2002). Through its absorptive capacity, the subsidiary identifies and evaluates the knowledge, both external and internal, selects the knowledge that is valuable and then integrates it into its functioning. However, a high level of outward-looking or macro level absorptive capacity may help assimilate knowledge from the local environment but its impact may remain localized without internal knowledge transfer within the MNC, which requires a high level of inward-looking or micro level absorptive

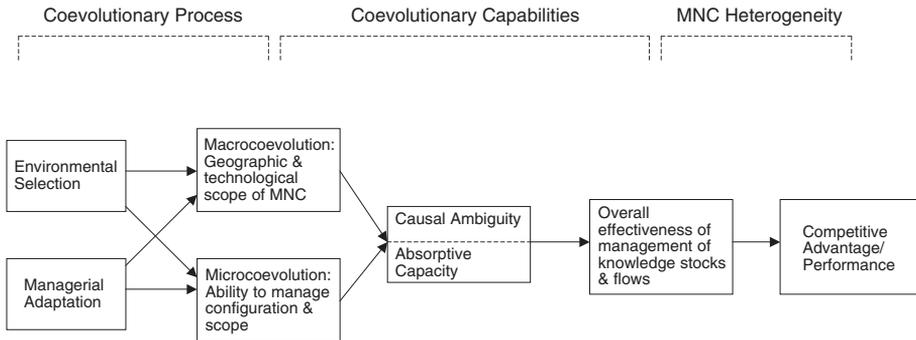


Fig. 1. A coevolutionary perspective of the MNC.

capacity. In other words, it is the ability of the management of the multinational firm to tap into relevant location-bound knowledge held by the subsidiary and make it non location-bound, and thus available to the rest of the firm through various organizational mechanisms, that is critical. From our definition, such capability is more microevolutionary in nature.

Whereas at the external macro level absorptive capacity enables a subsidiary to compete more effectively in its local environment, causal ambiguity impedes internal micro level absorptive capacity, which in turn limits transfer across network members. The ability to generate diverse knowledge through operations in multiple environments and simultaneously utilize firm mechanisms and routines to cross-pollinate and disseminate such knowledge globally throughout the firm is a particular advantage of the multinational firm (Dunning, 1988). Whereas in the short run it may seem more imperative to be in tune with the local environment, poor micro level routines firm-wide would impede the ability to utilize and leverage its global knowledge base to compete in local markets, ultimately affecting the MNC's competitiveness as a whole.

The argument above complements recent work establishing a shift in the root of multinational firm advantage from mainly the traditional home country (i.e., HQ) advantage to a more dispersed one situated across different subsidiaries within the multinational system (Birkinshaw, 2000; Rugman and Verbeke, 2001). This occurs due to different external pressures faced by different subsidiaries. Yet, as mentioned, one of the characteristics of such subsidiary-specific advantage is a certain amount of stickiness and specificity at the subsidiary level since their advantage is often embedded in the particular location and reflects historical processes shaped by the characteristics of subsidiaries and local markets and their interaction over time. Here, a particular subsidiary's role governs the nature and density of its linkages to other units. Such role is shaped by a combination of the resources in its local environment, its own capabilities, both in and of itself and relative to other subsidiaries, and the decision-making processes of the MNC as a whole (Zaheer and Westney, 2001).

The above fits well into our coevolutionary framework, the underlying process and dynamics of which we spell out in more detail in the rest of the paper. Fig. 1 broadly captures the general framework of the paper.

2. The coevolutionary process: macro and microevolution

In this section, we show how the evolutionary trajectory of the MNC is driven by the simultaneous interplay of external macroevolution and internal microevolution, and the

resultant influence on its knowledge generation, transfer and absorption capabilities. Environmental selection and managerial adaptation forces are present at both these levels. The MNC management's capabilities to manage the coevolutionary process are important on two dimensions: to enable each subsidiary to survive and thrive in the local niche, and to maintain and enhance the cohesion and integrity of the MNC network.

2.1. *Macrocoevolution*

With respect to external macrocoevolution, each subsidiary occupies a particular niche, for instance a geographic or product specialization (or both), both in the host environment and within the multinational firm. Some subsidiaries acquire knowledge from local environments or regional clusters (Birkinshaw and Hood, 2000), some generate innovations tailored for the local market (Lord and Ranft, 2000), and yet others do both. As a member of the host technological and social community, subsidiaries either come up with their own variations or watch the environmental dynamics and absorb the successful variations, or both, thus enriching their own specialized knowledge stock and potentially that of the MNC as a whole. Effectiveness at the external interface is reflected in success at eventual delivery of products and services to the market.

Note that it is not only the knowledge stock of the subsidiary but also that of the local environment that changes. As firms participate in local environments and attempt to remain competitive, they introduce variations—reflected in product, service and knowledge stocks and flows—into these environments. As various participants respond to moves by each other, be they local or global firms or governmental entities, the host environment also evolves. Such pressures exerted by other firms/entities drive environmental changes, which in turn put selection pressure on the focal MNC's subsidiary in the given market.

As its local geographic niche decays or expands due to environmental changes, a subsidiary may find itself becoming more or less important to the MNC, with respect to the size and significance of the external exchange, as it coevolves with the niche. Macrocoevolution is reflected by changes in subsidiaries in response to changes in their niche and by changes in the charters or mandates granted to them by HQ in response to such changes in both their environment and their capabilities. This combines both environmental selection and managerial adaptation. For instance, consider that liberalization policies of the Government of India, both generally and particularly with respect to IT, coupled with other factors such as a ready supply of IT-qualified engineers at reasonable wages, make India a much more pivotal player in the global IT industry. If the Indian subsidiary does not respond while other firms are doing so, it would become weaker. On the other hand, if the Indian affiliate is able to respond to this effectively, then the Indian affiliate of IT multinationals would (potentially) become more critical to the firm and would (potentially) play a larger role in the firm's IT strategy and operations worldwide.

Of course, firms (and their units) are not always reacting to environmental changes but also proactively drive such changes. In this sense, dynamic firms can be ahead of their environment. To take the IT example above, a particular subsidiary may sense and envision a much more significant participation of India post-liberalization in the upper echelons of the global IT industry, i.e. platform development, system integration, chip design, etc. Accordingly, it may deepen its operations and embark on local initiatives (e.g., advanced training facilities) that are far beyond current needs or capabilities as well as may educate and lobby governments to take matching initiatives. This would eventually benefit both parties—one through superior skills and product development and the other through greater exports (say). On its part, partly as a result of the subsidiary's initiatives, the headquarters could increase its commitment to the Indian

operations as well as expand the subsidiary's mandate ahead of what may be merited on the basis of its current significance and contribution to the firm as a whole. Moreover, besides augmenting the resources available to the unit, the HQ could further enable this process by providing the subsidiary with more autonomy and voice. Of course, this requires the HQ to become informed and buy into its Indian subsidiary's vision.

Macrocoevolution would therefore be determined by location-specific advantages in a dynamic way. External macrocoevolutionary processes, reflecting environmental selection pressures, and the initiatives of local subsidiaries (often with additional support by HQ), reflecting adaptation, influence the resources available to the subsidiary and the capabilities of the subsidiary occupying that niche. MNCs that are better able to direct the macrocoevolutionary process, both through anticipation of the forces of environmental selection as well as through managerial adaptation, will tend to create organizational structures and processes that allow subsidiaries to target and fit better into their niches in the environment. This results in each subsidiary being unique and distinctive.

In other words, macrocoevolution results in a differentiated network.

2.2. *Microcoevolution*

Internal microcoevolution reflects the coevolution of intrafirm resources, capabilities and competencies (Lewin and Volberda, 1999). The parts of the MNC coevolve with the whole (Baum, 1999), transforming one another. Depending on the particular set of resources at hand, itself partly a result of external macrocoevolution at the subsidiary level, the locus of competence—and internal competitive advantage—may be located in different parts of the firm and constantly shifts among the subsidiaries, or between the subsidiaries and the headquarters. The roles of subsidiaries change in a dynamic way from recipients of the MNC knowledge stock to senders of knowledge, and vice versa, depending upon the relative and relevant knowledge stock of each unit. This creates an internal exchange. At the internal micro level therefore, coevolution within the MNC leads to changes in roles assumed by its constituents in terms of sender or recipient, as well as concomitant changes in various routines, systems, mechanisms, etc., that support this process.

Part of this microcoevolutionary process is driven by practices favoring certain routines and capabilities over others. Again, selection and adaptation aspects are involved. Whereas selection has often tended to be treated through a Darwinian lens (Hannan and Freeman, 1977), yet where human agency is involved, selective breeding is perhaps a more appropriate analogy than natural selection (Galunic and Weeks, 2002). In other words, various kinds of search and selection rules may be operational within firms. For instance, in routine competition selection may be more Darwinian and dominated by an economic calculus where a higher-performing routine may displace another. On the other hand, there may exist routine complementarity where the presence of one routine (or set of routines) enhances the effectiveness of another or simply makes it easier to absorb and adapt. In the latter case, selection is based on fit with surrounding routines.

Besides natural selection, the microcoevolutionary process occurs in part through managerial adaptation as a result of interaction among the constituent parts of the firm, especially with respect to knowledge assets and routines that are created, diffused, absorbed, transformed and deployed over time. Once again, to take the IT example above in a microcoevolutionary sense, once the Indian subsidiary establishes its reputation internally and earns an extra-local mandate, other subsidiaries may not only be more willing and keen to draw on its resources but may also be willing to contribute to its development with complementary inputs as it becomes an in-house

global expert and leader. Drawing on such multiple contributions and combining these with its own expertise—which in itself is often a fusion of its own with other local expertise—the subsidiary could take initiatives locally that it may not have been able to take otherwise and that shape the evolution of other relevant subsidiaries. In addition, its routines may diffuse more readily across other subsidiaries for various reasons such as benchmarking/best practices, receptiveness, etc. In other words, even if the Indian subsidiary were to obtain an extra-local mandate based on a competitive internal selection rule, the other subsidiaries change subsequently from being competitors to complementors. This is important when firms are trying to create synergy through interweaving routines (Galunic and Weeks, 2002).

Bartlett and Ghoshals's (1993) study of ABB, a Swiss–Swedish multinational, is a useful illustration of the internal microcoevolutionary process. Basically, at the internal micro level, a critical role of the management within the MNC is to coordinate the internal resource and knowledge flows, a process which involves both the selection and adaptation of routines, resources and capabilities within the firm. This occurs and evolves through a mutual interactive process that is resident at the internal micro level and entails a combination of idiosyncratic sets of resources/capabilities along with a common set of roles and routines. Therefore, while on one hand an important part of the management's role is to encourage and nurture requisite variety through encouraging diverse subsidiary initiatives and the like, an equally important role with respect to internal microcoevolution is to ensure coordination within the social community of the MNC that then maintains the identity and integrity of the MNC.

In sum then, microcoevolution enables the differentiated network to maintain a common and cohesive identity.

2.3. Macro and microcoevolution: the dis-synchronization effect

As both external macro and internal microcoevolutionary processes transform the MNC, they drive the developmental trajectory of the firm's knowledge and capabilities. Underlying this is an interplay between the local geographic context, subsidiary capabilities and trajectories, and headquarter influence. Although each subsidiary differs as it strives to be competitive within its local context, the common sharing of key resources, technologies, systems, processes, etc., greatly smoothens information and knowledge transfer and facilitates recombinations.

Macrocoevolution, driven by environmental selection of specific products/technologies and geographic niches as well as by managerial adaptation through change in subsidiary charters, roles and initiatives, determines the configuration and scope of the multinational firm. Microcoevolution, due to selection of different types of routines under various procedures and to managerial adaptation of organizational structure and processes that enhance knowledge transfer and absorption, determines the firm's ability to manage the configuration and scope. In this process, the role played by each subsidiary is partly determined by environmental selection—the value ascribed to the knowledge stock of the subsidiary (by both local and internal MNC environments)—and partly by managerial adaptation, through attempts to align the subsidiary's trajectory so that it meshes with its host environment as well as with other parts of the MNC.

In sum, the evolution of firm knowledge and capabilities as a whole is a joint outcome of the external macro level and internal micro level coevolutionary processes. Together, macro and micro coevolution jointly influence competitive advantage.

Apart from being at distinct levels, microcoevolution is nested within macrocoevolution. Internal microcoevolutionary mechanisms emerge within the context of external macrocoevolution and are set up under the principle of facilitating the attainment of the external fitness

(McKelvey, 1997). At the external macro level, firms compete against one another with their products and services. The environment selects firms through the selection of specific products, services and technologies. However, on close examination, as we elaborate below, the target of selection at the internal micro level is not so much the end product in and of itself but, rather, the internal routines and organizational processes that can best facilitate microevolution.

The difference in the object of selection—products, innovations, etc., that best facilitate macroevolution on one hand and routines, structures, processes, etc., that best facilitate microevolution on the other—has implications for speed of selection and speed differences between macro and microevolution. At the macro level, the external environmental selection forces on product/technology variations are more direct whereas at the micro level the internal selection pressures, for instance on the routine or organizational structure variations, are not as accurate or intense, often for reasons to do with inertia, bounded rationality, managerial slack, path-dependence, sequential decision making, etc. (Cyert and March, 1963).

It is worth examining this difference further. External selection can be quickly reflected in the increase or decrease of performance measures, such as sales volumes or profit levels of the subsidiary. The MNC management can identify its level of ‘fitness’ with the external environment in a relatively accurate way. Yet recognizing the resources or routines that cause the ‘fit’ or ‘misfit’ can be a more demanding task, and even a causally ambiguous process (Barney, 2001; Priem and Butler, 2001a,b). Recognizing the key resources takes time, slowing down internal selection. The recognition can be inaccurate or even incorrect because managers’ perception can be biased. Transferring the best practices and routines takes extra effort in order to minimize the location-specific elements and overcome the stickiness in the transfer process (Szulanski, 1996). Adapting the routines to the recipient subsidiaries can be difficult due to internal factors such as the cognitive receptiveness of the local managers (Szulanski, 1996). The difficulty can also arise from other factors such as the institutional distance between the sender and the recipient (Kostova, 1999).

Moreover, changes at the external macro level come from various sources such as competitors, local government institutions and foreign customers. Such changes are incessant and macroevolution happens continually. In contrast, internal changes are infrequent and punctuated because an organization cannot constantly change its internal structure, routines and charters (Hannan and Freeman, 1984). After the MNC takes internal initiatives, the MNC needs time to readjust assignments to different subsidiaries, and coordinate the flow of resources and information to suit new charters of the subsidiaries (Birkinshaw, 1997; Birkinshaw, 2000). During such time intervals, external changes may accumulate and new corresponding internal changes are needed again. Although internal initiatives aimed at speeding up microevolution can be salient and desirable for improving performance, internal initiatives tend to be less frequent than external changes and often struggle to cope with the latter.

As a result of all of the above, products are more vigorously selected than the underlying capabilities, routines and structures that support them. Whereas the environment may directly select a specific product or service, it cannot so directly select the mindsets, routines, structures, and knowledge transmission channels and mechanisms (Gupta and Govindarajan, 2000) since the latter lies more in the domain of the management than of the market. As a result, confronted with stronger (market) forces, there is a danger that the speed of external macroevolution would outpace that of internal microevolution, which has implications for overall firm performance.

However, microevolution can outpace macroevolution as well. For instance, when the MNC can transfer some unique capability to other overseas subsidiaries and continue to

update this capability prior to, or faster than the local competitors, the MNC has a competitive advantage in the local environment. For example, in the automobile industry, Toyota and Honda have superior capabilities in new product development (Clark and Fujimoto, 1991). The Japanese firms have a short vehicle development cycle of five years whereas their U.S. competitors redesign their cars every seven years. Such fast internal variation and retention by the Japanese automakers enables them to flood the U.S. car markets with their continuous product offerings. When internal microevolution is faster, the MNC has a higher chance of shaping the competitive landscape rather than being shaped by external forces.

Nevertheless, such optimism needs to be taken with caution. Fast microevolution may work only when the different environments in which the MNC operates have a high degree of similarity. High efficiency of internal transfer of capabilities, routines, knowledge and best practices depends on the assumption of generating relatively similar or identical products and serving relatively similar consumer needs. When the foreign market is not receptive to the MNC's product offering or the local consumers have a strongly local taste, it may make more sense to focus in the immediate term on the local, external adaptation rather than internal integration and transfer. Take for example the hybrid cars Toyota offers to the North American market. Such cars can find a good niche in the fuel- or environment-conscious segment of the North America market but, however, may not be appropriate for some emerging markets such as China, where people think of cars as a luxury and value status over economic utility or environmental concerns. In reality, hybrid cars such as Prius are not in Toyota's product list prepared for China.

We focus in particular on the problems created by macroevolution outpacing microevolution because this type of dis-synchronization effect is more likely to occur, as explained above, and it poses a more significant challenge to the MNC managers.

Within the context of the MNC, a faster pace of external macro level coevolution relative to the internal micro level can result in what may be considered as a *coevolutionary imbalance*, which in turn can have negative effects. Given multilevelness and nestedness in a system of interacting units, what may be optimal at the level of the subsidiary may be suboptimal for the firm overall. For instance, Bartlett and Ghoshal (1989) found that Philips was suffering in the global competitive arena as the local initiatives of various subsidiaries had begun to manifest centrifugal tendencies and erode cohesiveness, which resulted in the firm being unable to benefit as a whole from various subsidiary initiatives. To counter this, top management introduced various new initiatives to change internal decision-making processes, rules and routines that were designed to bind the firm together without compromising the initiatives of the local subsidiaries. Yet Philips struggled for years in implementing these changes effectively while its performance suffered. This is a situation of external macroevolution outpacing internal microevolution.

In other words, too large a coevolutionary imbalance compromises firm performance and competitive advantage at the global level. As the Philips case shows, managerial agency plays an important role in managing the tension between external macro and internal microevolution. Similarly, in a different arena, Burgelman (1994) found in his study of Intel that the internal selection mechanisms, by mimicking market mechanisms and allocating the manufacturing resources according to sales margins, played the key role in the evolution of Intel from a poorly performing DRAM memory company to an astoundingly successful microprocessor company. Here, internal selection rules were based on indirect competition and Darwinism through attrition. On the other hand, in another case study (Galunic and Eisenhardt, 2001), the

management balanced social and economic considerations in allocating charters across divisions and selection was based on routine complementarity.

It can be seen from the above that selection mechanisms at the internal micro level can become part of managerial adaptation efforts at the external macro level. While management may institute selection rules and then internally select among competing product initiatives, talents, routines and structures based on the designated selection criteria, these ultimately are manifest in the products and services offered in the market. In this way, they become part of adaptation efforts in a changing external environment.

In sum, both the external macro level and the internal micro level undergo change as a result of selection and adaptation processes, and evolve simultaneously. Taken together, this comprises the coevolutionary process. The process occurs within a dynamic framework that includes the ongoing iteration of variation, selection, retention and transfer. Coevolutionary capabilities refer to the MNC management's capabilities to manage the dual coevolutionary process simultaneously, comprising both the external macro and internal micro levels as well as capabilities in meshing the two together. In general, in order to benefit from its multinationality, it is important for a firm to manage the tensions between the two levels and match the rates of coevolution constructively. Causal ambiguity and absorptive capacity play an important role in this regard.

3. Coevolutionary motors and capabilities

In this section, we elaborate on the two coevolutionary motors identified earlier, namely causal ambiguity and absorptive capacity, and the challenges they provide to the MNC. Coevolutionary capabilities emerge from the successful management of the challenges that arise in the coevolutionary process.

3.1. Causal ambiguity

Causal ambiguity impedes the knowledge transfer process since, when the causal connections underlying the knowledge are ambiguous, the effectiveness of the transfer and the usefulness of the knowledge transferred is undermined, with implications for competitive advantage. [Reed and DeFillippi \(1990\)](#) identify and expand on three antecedents of causal ambiguity: tacitness, specificity and complexity. From a macrocoevolutionary perspective, activities aimed at generating locally fit knowledge can result in causal ambiguity, often as a result of locational embeddedness. Created in different environments and targeted at specific purposes, knowledge is frequently embedded in local social and technological environments ([Bartholomew, 1997](#); [Porter, 1990](#)). For example, a subsidiary may collaborate with some universities or research institutions in the host environment. Social and technical elements unique to the host environment are incorporated into the final products and technologies. Since actors in the particular host environment may not be able to fully articulate the uniqueness of these elements and take certain (tacit) aspects for granted, the related knowledge becomes somewhat intractable to others in different host environments. The environment-specific component in the knowledge also makes it difficult for the knowledge to be generalized and applied in other environments that are too different without loss in value ([Madhok, 1996, 1997](#)).

Furthermore, especially when different knowledge fragments are combined together, the often resultant complexity compounds the difficulty created by tacitness and specificity. In her discussion on causal ambiguity, [Mosakowski \(1997\)](#) delves more deeply into the complexity dimension. Adapting her argument to our context, the complexity within a particular unit's

(subsidiary's) boundaries, although salient, may be less critical than the overall complexity within the external interdependent system (i.e., the local environment) within which it participates. Moreover, this is combined with information asymmetries since the subsidiary uniquely participates within this complex system (i.e., relative to other subsidiaries of the firm) and thus understands the causal structure better, even if imperfectly so, than other subsidiaries that do not.

In general, when the articulated and environment-insensitive components of knowledge are transferred without the tacit and environment-specific components, the knowledge transfer is no longer so effective or useful due to transmission losses (Kogut and Zander, 1993; Madhok, 1996, 1997). Moreover, the extra time taken to decode the knowledge and/or to adapt to it makes it hard to transfer it quickly. As a result, causal ambiguity about knowledge tends to restrict the internal flow of knowledge to and from the various subsidiaries. For instance, due to causal ambiguity, a particular set of knowledge may not only fail to be properly identified or valued by the MNC's (or other subsidiaries') management but, even if it were, may receive lesser preference to that housed in another subsidiary which is more readily accessible and adaptable by others. This amounts to a selection effect. One way for a subsidiary to limit the selection effect would be to actively and consciously seek to reduce the level of causal ambiguity and make it more tractable and hence appealing to other units.

In sum, taken together the three antecedents of causal ambiguity–tacitness, specificity and complexity–limit the speed, scope and effectiveness of knowledge transfer across the subsidiaries. Selection mechanisms and managerial adaptations work to reduce causal ambiguity so as to facilitate microevolution. Absorptive capacity is critical in this regard.

3.2. *Absorptive capacity*

Defining absorptive capacity as the ability conferred by prior related knowledge to “recognize the value of new information, assimilate it, and apply it to commercial ends” (p. 128), Cohen and Levinthal (1990) argue that a firm's absorptive capacity depends in an important way on the gatekeepers who stand either at the interface of the firm and the external environment or at the interface between subunits within the firm. This maps on well to the coevolutionary argument. Absorptive capacities at these two interfaces, in their terminology “outward-looking” and “inward-looking” absorptive capacity (Cohen and Levinthal, 1990, p. 133), capture the boundary-spanning functions of absorptive capacity at the external macroevolutionary level and the internal microevolutionary level respectively. Coevolution between a subsidiary unit and its external and internal environments increases the absorptive capacity of the unit for knowledge from each such environment.

Unlike causal ambiguity that produces negative effects on knowledge transfer, absorptive capacity can positively affect knowledge transfer. But, as we explain below, the simultaneous effect at the two levels–macro and micro–implies a tradeoff, leading to mixed effects in general.

Clearly, with each subsidiary operating in two environments–the macro or host environment and the micro or internal MNC environment–subsidiary-level knowledge accordingly has both external and internal components. The external component at the macro level pertains to how to cope with local conditions, including government agencies, suppliers, competitors, etc., and how to source new knowledge from the environment. In a dynamic sense, when assimilating new external knowledge, the absorptive capacity of the unit also changes simultaneously. Besides, the process of importing, melding and exporting knowledge to and from the local environment by various local actors can also add to the resident capabilities of the local environment through

intended and unintended transfers, which adds a dynamic dimension to the process. Overall, subsidiary entrepreneurship can result in new initiatives in the local market, as well as within the firm. Outward-looking absorptive capacity facilitates the fitness in macroevolution and constitutes the variation to the MNC's knowledge source. It also has positive effects on the speed and scope of transfer *between* the subsidiary and the local environment.

The micro level, in contrast, is concerned with internal firm conditions and how to transmit, retrieve and combine knowledge from peer units. Recent research informs us of the difficulties and imperfections inherent in this process, whether in the case of interfirm absorptive capacity (Lane and Lubatkin, 1998), intrafirm absorptive capacity across different divisions (Galunic and Eisenhardt, 2001) or across different subsidiaries of a multinational firm (Szulanski, 1996). The dependence of inward-looking absorptive capacity on similar or compatible knowledge bases, organizational structures, routines, and socially embedded norms suggests that constant attention to and continuous investment in inward-looking absorptive capacity can facilitate microevolution, and vice versa. In effect, inward-looking absorptive capacity has positive effects on the speed and scope of knowledge transfer *within* the MNC.

However, if coevolution at the external macro level is prone to evolving faster than at the internal micro level, for reasons explained earlier, then differences in their respective external environments would tend to pull each subsidiary apart from others more forcefully as a result of macroevolutionary pressures than the microevolution that tends to hold the subsidiaries together. The net effects are reflected in the heterogeneity of subsidiaries. Along similar lines, Baum and McKelvey (1999) argue that evolution is faster at sub-unit levels than at higher levels of the organization, the logic being that sub-system level activity has fewer complexities and that variation, selection and retention processes tend to unfold more quickly than at the overall system level. In the context of the MNC, this would manifest itself in subsidiaries (the part or sub-system level in our case) tending to evolve, and coevolve with their local environment, at a faster pace than the overall MNC network as a whole, since external macroevolutionary pressures tend to be stronger and are felt most directly by the subsidiary, and since intrasubsidiary routines can be coordinated and can change with greater ease than intersubsidiary ones.

Heterogeneity has both drawbacks and strengths. Differences in host environments are opportunities for firms to learn and to introduce new variations, both within the external and internal MNC environment. When subsidiaries in different environments evolve in different ways as a result of the macroevolutionary process, increased variety augments the probability that new knowledge or capabilities demanded by external environmental shifts can be found somewhere within the MNC network. At the same time, however, one of the most prominent drawbacks is the difficulty that heterogeneity creates in knowledge transfer, which is a sticky and imperfect process (Szulanski, 1996; Gupta and Govindarajan, 2000). When the subsidiary develops a high level of outward-looking absorptive capacity, this facilitates assimilation of knowledge from the host environment but does not directly contribute to internal knowledge transfer in the MNC. A smooth knowledge transfer within the internal micro level environment requires a high level of inward-looking absorptive capacity.

Similarly, homogeneity has its drawbacks and strengths. Greater similarity in routines, processes, etc., facilitates internal flows of knowledge but if overdone can compromise the multinational firm's ability to benefit from participation in multiple external markets.

In other words, the MNC's knowledge base becomes more robust as a result of outward-looking absorptive capacity and potentially offers a competitive advantage to the MNC as a whole, but such potential can be realized only if complemented by internal absorptive capacity.

The argument above complements [Zahra and George's \(2002\)](#) distinction between potential and realized absorptive capacity. Absorptive capacity offers opportunities and simultaneously poses challenges to management. While the heterogeneity of knowledge stock among subsidiaries of an MNC may be inevitable and even desirable, excessive dominance of either one type of absorptive capacity is dysfunctional. Effective absorptive capacity implies a balance (and sometimes a tradeoff) between inward-looking absorptive capacity and outward-looking absorptive capacity, the former focusing on internal microcoevolution and the latter on external macrocoevolution. Investment in outward-looking absorptive capacity keeps the subsidiaries viable in their respective host environments, yet would not be so valuable for the firm as a whole without simultaneous microevolutionary absorptive capacity. Adequate inward-looking absorptive capacity makes the favorable variations in some subsidiaries accessible to other subsidiaries within the MNC network. Managerial efforts are needed to achieve the ideal balance.

To sum up, outward-looking absorptive capacity has positive effects on the speed and scope of transfer between the subsidiary and the local environment and negative effects on the speed and scope of knowledge transfer within the MNC. On the other hand, inward-looking absorptive capacity has positive effects on the speed and scope of knowledge transfer within the MNC and negative effects on the speed and scope of transfer between the subsidiary and the local environment. Moreover, too great a difference between the external and internal absorptive capacity of a firm would hinder the effective management of the coevolutionary process and potentially have an adverse impact on the competitive advantage of the firm as a whole due to the coevolutionary imbalance. In coevolution therefore, the key to managing the tension between heterogeneity and homogeneity lies in absorptive capacity. Causal ambiguity, as explained earlier, is inherently tied closely with and adds further complications to this process at both the internal and external levels.

4. Discussion

Our paper employs the coevolutionary lens to focus on the dynamic aspects of managing a multinational corporation in its totality. Subsidiary and firm evolution is a consequence of subsidiaries' resource exchanges, both with their external host environment and within the internal MNC environment. Yet, in spite of its potential to shed fresh light on the function of the modern multinational, the coevolutionary framework has not been explicitly extended into the research of the multinational corporations as such. We have argued that the firm's ability to manage subsidiaries in a macroevolutionary way, reflecting their ebb and flow with respect to their respective niches, cemented with the ability to manage them in a microevolutionary way so that the entire firm benefits from various subsidiary initiatives can be a distinctive feature underlining firm advantage. We go beyond extant research conceptualizing the MNC as the outcome of internalization drivers and mechanisms ([Buckley and Casson, 1976](#)), which neglects the constantly changing dynamics within the MNC, or conceptualizing it more through a configurational lens, such as strategic flexibility and options ([Kogut, 1985](#)), strategic presence to cross-subsidize operations ([Hamel and Prahalad, 1985](#)), or follow the competitor ([Knickerbocker, 1973](#)). Instead we conceptualize it as a potential reservoir of knowledge, and accordingly conceptualize managing the MNC as a dynamic process of creating, diffusing, absorbing, transforming and deploying knowledge and capabilities externally and internally. This comprises both external macro and internal micro level issues.

4.1. *Coevolution and the MNC as an internal knowledge sub-economy*

From the lens of firms as repositories of knowledge (Winter, 1988), the global firm can be viewed as a portfolio of knowledge centers (Gupta and Govindarajan, 2000), with each subsidiary envisioned as a bundle of routines, knowledge and capabilities. Each member of this portfolio exists within, draws upon and contributes to the internal knowledge base of the firm (Mudambi, 2002). It is both a consumer as well as a producer of knowledge, part of which is unique – such uniqueness arising from the process of exploring and exploiting opportunities in local environments that are heterogeneous in nature (the main variation source)–and part of which is related, such relatedness arising through the process of transferring, receiving, and adapting knowledge from other parts of the firm. The former pertains more to the external macroevolutionary aspects and the latter to the more internal microevolutionary aspects.

Clearly, to distill the essential point from the arguments made above in the paper, the two markets in which subsidiaries operate—external and internal—while distinct are certainly not unrelated. Often, prosperity in a subsidiary's local geographic niche requires inflows from the rest of the firm. Often, it is these inflows that enable the subsidiary's knowledge and product offerings to be differentiated in the local market from those of other firms, including other multinationals. This increases the subsidiary's attractiveness to others in the environment as a candidate with whom to interact and conduct exchange, including knowledge, which in turn further strengthens its own capabilities and potentially makes it more attractive to other parts of the firm. At the same time, the subsidiary's niche within the MNC may not prosper unless the local capabilities generated, whether in the form of knowledge or products, can be made available to and adapted and leveraged by other entities within the multinational system. However, whereas the value of the knowledge produced by the subsidiaries would be limited if it were not shared by other members, yet not all knowledge is worth sharing. Sorting mechanisms are required.

Hierarchies can play an important role in this regard. Knowledge transfer in the MNC requires the presence and interaction of three actors: source, recipient and a higher level (regional/headquarters) intermediary (Gupta and Govindarajan, 2000; Doz et al., 2001). The intermediary has an important role to recognize the existence of unique knowledge in the source, to combine knowledge from different sources where beneficial, to assess the potential value to prospective users and to mobilize the knowledge flow between producer and user.

In their analysis of the 'metanational' firm, Doz et al. (2001) found evidence of strong vertical links (i.e. HQ-subunit) for sensing and exploring and more lateral links (across subunits) for mobilizing knowledge. Schulz (2001) found a similar pattern and speculated that the reason for such a pattern of flows was the uncertain relevance of new knowledge for other units. This could be due to both causal ambiguity and absorptive capacity-related reasons. In our context, if the MNC (the HQ and its parts) was unable to ensure both quickness and comprehensiveness in discovering new knowledge and its implications, it would be burdened by potentially high costs (of exploration) as well as the inability to take full advantage of new opportunities (through exploitation). From this line of thinking, "hierarchies can serve as efficient clearing houses for new knowledge with uncertain relevance" (Schulz, 2001, p. 677). By pooling together the knowledge from the various initiatives of distinct subunits across its system, the firm is able to (a) test, evaluate and select the respective initiatives for their value to the firm as a whole, and (b) discover and disseminate opportunities that may arise through selective combination.

From a coevolutionary lens, such a procedure is basically one of internal selection. To test the (uncertain) relevance of new inputs and innovations, such knowledge is sent to a higher level,

where it is then ‘tested’ in a relative sense among competing initiatives (i.e., variations) and selected in or out, whether in combination with other initiatives or not. In other words, this internal selection is a critical testing ground so that the MNC can discover and disseminate new opportunities across its system. In contrast to new knowledge, older knowledge is recombined through more horizontal flows since the relevance of knowledge is more certain and the issue is more one of adaptation and exploitation (Schulz, 2001). Microcoevolution therefore leads to the creation of mechanisms that enable the firm to engage in effective and efficient knowledge exchange and transfer, thereby creating an internal market that is more functional than external markets. At the same time, as a result of the internal selection processes, certain initiatives gather momentum and ultimately culminate in certain products and technologies in local environments, which can be considered as an adaptation at the external macro level.

From the coevolutionary perspective therefore, an MNC can commensurately also be understood as a sub-economy—for products, services, charters, (Galunic and Eisenhardt, 1996; Birkinshaw and Hood, 1998), manufacturing capacity (Burgelman, 1994), trading knowledge resources, etc.—in its own right. Accordingly, firm decisions can also be understood in light of how they support both the external economy as well as the internal sub-economy of the firm. With respect to knowledge, to the extent that the MNC (and its subsidiaries) can create and leverage resident knowledge throughout the internal economy via various coordinative mechanisms that span both selection and adaptation, such knowledge ultimately culminating in product/service offerings in the market, the firm has an advantage over markets. In this regard, the hierarchy plays the role of ‘clearing house’ (Schulz, 2001) and connector of knowledge and enables the discovery of new resource combinations through exposure to, and commingling with, diverse related knowledge, both new and existing, in a manner that markets cannot. In other words, effective coevolution, and coevolutionary capability, creates and maintains the mechanisms to promote and coordinate such ‘encounters’ between knowledge assets that are often too dispersed to ‘meet’ in the free market.

4.2. Implications for managers: guided coevolution

The role of the MNC management from a coevolutionary lens is to create and shape the appropriate context for the coevolutionary processes to unfold. The speed differential between external macrocoevolution and internal microcoevolution, augmented by the associated complexities posed by causal ambiguity and absorptive capacity, creates a particular challenge to the managers of the MNC. Accordingly, we identify the key issue for managers of the MNC as one of managing the dynamic imbalance, or the dis-synchronization effect, that arises from the simultaneous coevolution at both the external and internal levels.

Our theory, revolving around notions of a dynamic fit both internally and externally, puts managers at the central role of achieving such fit. Managers are central in three ways. At the macro level, managers scan the environment to detect external changes that may present a challenge or an opportunity. Internally, managers motivate units to send and absorb knowledge from one another. Most importantly, managers at the intermediary level above subsidiaries, such as at the regional level or at headquarters, are critical mediators between the external and internal aspects who help generate, filter and mobilize knowledge firm-wide.

More generally, management can create a dynamic advantage for the multinational firm by actively directing, mediating and coordinating the coevolutionary process. Managers help bridge external macro and internal microcoevolution, thus becoming catalysts and coordinators of resource and knowledge flows across the dynamic network of subsidiaries. By shaping

contextual mechanisms through their activities, managers influence how the coevolutionary processes unfold, thus participating in what may be termed more appropriately as ‘guided coevolution’. Differently put, the role of managers is to influence internal micro level evolutionary processes as well as adjust the organization’s relationship to external macro level evolutionary processes, i.e., to ensure requisite variety as well as consistency between internal and external selection mechanisms (Miner, 1994). By trying to match the unit to both the external economy and the internal sub-economy, and balance the selection and adaptation pressures at both levels, our theory also marries the visible hand of the hierarchy with the invisible hand of the market.

Arguably, firms are differentiated on their respective capabilities to manage the coevolutionary process, with such capability being embedded in a firm’s administrative heritage (Bartlett and Ghoshal, 1989) and routines. This can be viewed as the *coevolutionary advantage*, which is ‘owned’ by the firm and yields ‘coevolutionary rents’, both in the local and global arena. Since the source of coevolutionary rents is ‘fuzzy’, i.e. tacit, causally ambiguous, socially complex, etc., it can serve as an important source of sustainable competitive advantage (Barney, 1991).

4.3. *Limitations and implications for future research*

The paper is of course not without its limitations. For one, it addresses a ‘prototype’ MNC comprised of a number of (semi)-independent subsidiaries embedded in their host environments. Yet, depending on the type of the firm and its strategy, the role of the HQ differs (e.g., in the case of global accounts) and additionally macro and micro coevolution may mean different things. For instance, for a firm following a transnational strategy, global interactions with their world competitors would play a more important role in macrocoevolution and diffusing ‘best practices’ a more important role in microcoevolution, relative to a less transnational firm. Along similar lines, the paper treats subsidiaries as embedded in their local environments, yet subsidiaries can be more or less embedded, depending on their role in firm strategy. At times they also service other foreign environments and may well have direct external customers or suppliers outside the host country (Birkinshaw, 2000). Of course, one would expect in most cases that a subsidiary’s energy and output would be mostly locally oriented. We would contend, however, that the various scenarios above are all variations to the basic model.

Also, while the paper has used biological metaphors, clearly the human and social world is more complex and adds complications that (co)evolutionary theories cannot adequately explain easily. This is a problem that management research will continue to face till the discipline is able to come up with theories and concepts, and associated tools and techniques, that are unique and relevant. An important issue and necessary step forward is how to operationalize some of the key concepts. Lack of such operationalization due to the level of abstraction would thwart subsequent progress. Even though it is a theoretical piece, by coming down from the level of ‘grand movements’ that characterize coevolutionary theory and linking it to specific anchors like causal ambiguity and absorptive capacity, our paper takes a step forward in this regard.

From a research standpoint, inter-subsidiary relationships are a function of the overall strategy being followed. As mentioned above, some inter-subsidiary relationships are close and highly dependent (e.g., for those MNCs following a transnational strategy), while for others the relationships among subsidiaries are relatively independent and autonomous (e.g. the traditional multinational strategy). As a corollary, one could envisage that geographic country-based

structures would tend to facilitate macrocoevolution and global product division structures would tend to facilitate microcoevolution. Yet, as they spread their wings, MNCs are increasingly seeking a balance between the two through regional intermediary divisional structures. For instance, Singapore may become the regional center for Asia. Perhaps such structures might help facilitate a greater 'balance' and better integration between the micro and macro levels of coevolution.

Consequently, the coevolutionary framework in the MNC context would depend on the strategy being followed. Yet of course strategies do evolve at both the subsidiary and the firm level. From a coevolutionary standpoint, there lies a rich research agenda ahead, both at the external macro and internal micro levels. In a general sense, it is important to understand not just whether but also how organizations coevolve with the environment. This includes issues like: how do the environmental selection forces interact with managerial adaptation; how does the interaction between these take place at multiple levels; under what conditions should the firm let one level or the other dominate and how does one calibrate the relationship between the two? At a more specific level, examples of questions at the external macro level would include, for instance: In distributing its activities across subsidiaries, what explains the role of the subsidiary and that of the local environment, and what is the interaction between the two and the implications of this for the global firm? Examples of questions at the micro level could include: How exactly does the firm transfer, adapt and leverage the products and resources generated from the current distribution of activities across its subsidiaries worldwide? What are the mechanisms involved? What are the sorting mechanisms to find a balance between uniqueness and relatedness? And, in a dynamic sense, how do the latter processes impact subsequent distribution of activities? Additionally, an important issue worthy of more careful scrutiny and development is that of the speed difference in macro and microcoevolution. How do firms manage the resultant tension? Besides, we have not addressed issues concerning alliances, which are an increasingly important part of the modern multinational's activities. How do these affect the coevolutionary process? These are all important questions for research.

5. Concluding remarks

In our introduction, we mentioned, citing [Zaheer \(2002\)](#), that there is more scope for much of the work in international management, such as [Prahalad and Doz \(1987\)](#) and [Bartlett and Ghoshal \(1989\)](#), to become better integrated into mainstream strategy research and scholarship. That this has not been fully realized, in spite of insightful contributions such as the configuration-coordination or the global integration-national responsiveness framework, is mainly because of a gap in theoretical grounding ([Zaheer, 2002](#)). The coevolutionary framework that we have presented in this paper is not only comprehensive and integrative but also contains clear theoretical linkages to many of the areas, such as the resource/capability-based view of the firm, theories of knowledge creation and retention (in particular variation, selection and retention as well as exploration and exploitation at different levels), and the interaction of location with organization, that Zaheer identifies as particularly ripe for building bridges. Our paper is not so much intended to provide penetrating new insights as to embrace extant insights and couch them within a more cogent theoretical structure. This then advances its appeal to mainstream strategic management and organization theory. For instance, the case studies in [Bartlett and Ghoshal's \(1989\)](#) discussion of the transnational firm dealt with balancing the imperatives of efficiency, responsiveness and learning, and the difficulty of doing so. This is akin to saying from the coevolutionary perspective that multinational firms need to maintain a healthy and constructive

balance between the external macro and internal microevolutionary forces, which is a dynamic and continuous process.

Through the coevolutionary perspective on MNCs, the paper addresses some important issues that are central to strategy and management. First, the perspective brings a more rigorous framework into the research of MNCs, answering the call previous research has made that more attention needs to be paid to both the subfirm level and firm level simultaneously (Birkinshaw and Hood, 1998). Moreover, the attempt to integrate different levels of research within the area of management is significant since the discipline suffers enormously from fragmentation and a certain degree of incoherence. Second, the difference in intensity of coevolutionary pressures at the external macro and internal micro levels and the importance of a constructive tension between the two links up the external market and intrafirm resources, which has been suggested as an important research agenda in strategy research (Priem and Butler, 2001a,b; Barney, 2001). Third, with regard to the theory of the firm, the perspective infuses certain additional aspects to the advantage of hierarchies over markets, namely the hierarchy as an internal ‘clearing house’ (of knowledge).

Last but not least, a coevolutionary approach in understanding organizations provides an additional and potentially useful insight into why and how organizations differ, the central issue for strategic management scholars. In a nutshell, firms differ in their ability to manage the coevolutionary process. Besides contributing to the international management literature by presenting a theoretically more comprehensive and robust way to analyze the functioning of the MNC, the paper also presents a reconfiguration of coevolution that is in a sense more strategic in nature. In doing so, it instills the notion of competitive advantage, central to strategy research, into the relevant aspects of organization theory, which is traditionally more concerned with fit (e.g. contingency theory). By the same token, it introduces the notion of ‘coevolutionary advantage’, a hitherto ‘unearthed’ concept, into strategic management theory and through this extends our understanding of sustainable competitive advantage in MNCs. By drawing the link between coevolutionary theory and competitive advantage, this paper becomes more central to both strategy and organization theory researchers.

In concluding, through the coevolutionary perspective on the MNCs, our theory departs significantly from extant research of multinational firms in important ways. First, we embrace the dynamics in managing the MNC. Our theory revolves around the assumption that the environment in which the MNC operates is constantly changing as well as the MNC itself, and the two are constantly changing one another. The dynamics involved are multi-level, multi-faceted, and simultaneous. Second, we advance the notion of a dis-synchronization effect and highlight the dynamic imbalance or the speed differential between macroevolution and microevolution as well as the challenges posed by causal ambiguity and absorptive capacity in this regard. This notion of speed differential is a novel approach to conceptualize complex issues in the MNC such as integration, differentiation, knowledge transfer, etc., and can be useful for further strengthening the theoretical grounding of MNC research. Managers can approach the prospect of managing the speed differential, and attaining a dynamic fit between both external and internal aspects, as both a challenge and an opportunity.

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