



# Dual paths to performance: the impact of global pressures on MNC subsidiary conduct and performance

Sunil Venaik<sup>1</sup>,  
David F Midgley<sup>2</sup>,  
Timothy M Devinney<sup>3</sup>

<sup>1</sup>UQ Business School, The University of Queensland, Brisbane, Australia; <sup>2</sup>INSEAD, Boulevard de Constance, Fontainebleau Cedex, France; <sup>3</sup>Australian Graduate School of Management, Sydney, Australia

**Correspondence:**

David F Midgley, INSEAD, Boulevard de Constance, 77305 Fontainebleau Cedex, France.

Tel: +33 1 6072 4000;

Fax: +33 1 6074 5500;

E-mail: david.midgley@insead.edu

**Abstract**

Over the last decade, the international business literature has placed ever-greater emphasis on the role that learning and innovation play in determining multinational and multinational subsidiary performance. The present research seeks to understand the organizational paths leading to such desirable outcomes as greater learning, increased innovation and improved performance. Using a model tested with data collected through a survey of managers in subsidiaries of multinational firms, we find dual, independent paths to improved performance – one through networking and inter-unit learning and the other through subsidiary autonomy and innovation. A particular feature of these findings is that they can be shown to be robust after controlling for a wide range of environmental pressures and firm and industry factors. However, in the absence of environmental controls the dual path finding is rejected. These conflicting findings support the imperative to test models that include a diverse range of environmental pressures so that the true effects of organizational factors on learning, innovation and performance can be identified.

*Journal of International Business Studies* (2005) 36, 655–675.

doi:10.1057/palgrave.jibs.8400164

**Keywords:** learning; innovation; performance

**Introduction**

Few would argue that the pressures of globalization are a dramatic determinant of the strategic posture, organizational structure, and processes and performance of firms, both multinational and domestic. World Trade Organization liberalization, the pervasiveness of communications technology, and the advent of regional trading blocs are just a few of the reasons why the global imperative has become relevant for an increasing number of firms. As firms become integrated into the global economy and expand operations overseas, they seek a deeper understanding of the complexities of managing a global organization effectively.

The present research adds to this understanding by relating the global and local pressures faced by the subsidiaries of a multinational enterprise to the organization's strategy and structure and the resulting performance of its subsidiaries. These *environmental pressures* are often characterized as the forces for global integration (GI) and local responsiveness (LR), although following on from recent research (Venaik *et al.*, 2004a, b) we will take a broader view

Received: 14 May 2004

Revised: 10 January 2005

Accepted: 1 March 2005

Online publication 1 September 2005

of them in what follows. This more comprehensive position will be shown to be important to understanding the dual paths to performance (Nohria and Ghoshal, 1989, 1994).

A number of studies have investigated the characteristics of environmental pressures and the influence they have on firm strategy, structure and performance. However, to our knowledge, these studies do not incorporate the concepts of *learning* and *innovation*, intermediate outcomes that are increasingly regarded as prerequisites for improving a firm's financial and market performance (Anderson and King, 1993). Nor do they take the broader stance to conceptualizing and measuring the pressures operating at the subsidiary level called for by some (Devinney *et al.*, 2000; Venaik *et al.*, 2004a, b). For example, Johansson and Yip (1994) examined the linkages between the globalization drivers, organization structure and decision-making and firm performance, but did not consider the constructs of learning and innovation. Similarly, while investigating the effects of the environmental pressures on firm strategy, structure and performance, Johnson (1995), Roth and Morrison (1990) and Harzing (2002) do not examine the role of the intermediate constructs of learning and innovation, which might mediate the effect of the environmental pressures and organizational activities on business unit performance.

In a similar way, several of the theoretical models that examine the phenomena of organizational learning and innovation also ignore important phenomena – in this case the environmental and organizational antecedents and the performance consequences of learning and innovation. For example, Ghoshal *et al.* (1994) studied the effects of autonomy and networking on inter-unit learning and innovation, but their model did not include environmental pressures, nor did it test the effects of learning and innovation on overall performance. Tsai (2001) examined the linkage between networking, innovation and performance, but did not show how environmental pressures or organizational decision-making influence these outcomes. Schulz (2001) presents a model of knowledge flows within organizations, which, while it does incorporate environmental and organizational determinants, does not include performance, perhaps the most important outcome of any business.

What this short discussion makes clear is that there is a need to develop and test a model that incorporates concepts from both these important

literatures. That is, a model that accounts for the impact of environmental pressures and organization conduct on learning, innovation and financial and market performance. The current research attempts to fill this gap. Our approach is to posit a model of the relationships between our focal constructs and to estimate this model controlling for heterogeneous environmental pressures. The potential benefits of this approach are two-fold. First, it allows the relative importance of various factors to be established. For example, in our data the direct effect of networking on performance is three times stronger than the indirect effect mediated by learning. Second, it reduces the risk of finding spurious relationships due to the omission of environmental pressures – a fact confirmed by our key finding that the impact of learning on innovation is severely attenuated when environmental pressures are incorporated into the analysis correctly.

The paper is organized as follows. The next section outlines the theoretical model, followed by construct definition and the specification of hypotheses. This model integrates both resource-based thinking and the more traditional structure–conduct–performance (SCP) framework and applies them to an international context. We then discuss our methodology, followed by presentation of the empirical findings. In this empirical analysis, we concentrate on one narrow but critical aspect of subsidiary structure and performance, the marketing function. We chose the marketing function because it is generally one of the first functions to be internationalized, and therefore represents the most international aspect of a firm's operations. We conclude the paper with a discussion of these findings and their implications in terms of both empirical modeling and theoretical development.

### Theoretical model

The model proposed here follows from a combination of the industry SCP paradigm and the resource-based view (RBV) of the firm. According to the SCP framework, industry structure influences firms' conduct, which in turn impacts on the performance of the industry (Scherer, 1996), a viewpoint that regards industry factors as having a greater influence on firm performance than organization factors (Porter, 1981). The RBV (Barney, 1991) regards organizational resources, skills and competencies as having a far greater impact on firm performance than industry structure.

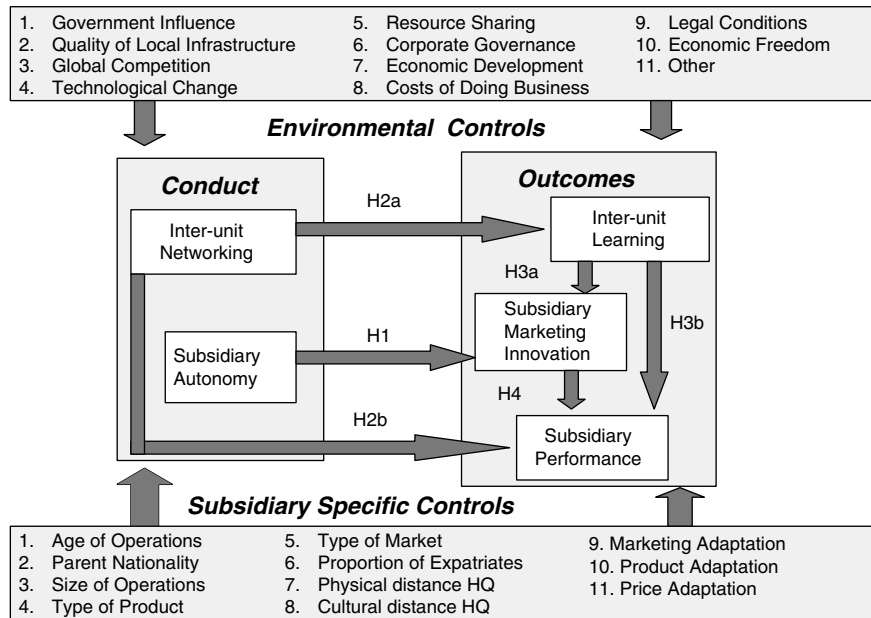


Figure 1 Theoretical model.

Our approach focuses attention on the interaction between the components of the environmental milieu and internal managerial structures as determinants of performance. In this sense, our thinking is a natural extension of both the SCP and the RBV taken down into the functional level of the firm. The firm's environment – represented by the environmental pressures on firms – and structural firm factors – such as industry, age, size, location and nationality – are separated from the more strategic choices of autonomy of decision-making and the extent of networking within the organization. By taking this approach we hope both to address industry- and firm-level influences on performance – a problem in prior studies (e.g., Mauri and Michaels, 1998) – and give equal emphasis to the role of organization-level influences (Bowman and Helfat, 2001). Empirically, such a separation distinguishes clearly between exogenous external factors and past decisions and endogenous current strategic decisions and their outcomes. Our theoretical model is shown in Figure 1 and will be elaborated upon in the next section, where we discuss the specific hypotheses.

The model given in Figure 1 is a natural extension of the earlier work of Johansson and Yip (1994). Like them, we regard environmental pressures as one of the determinants of performance, albeit with a greater number of constructs to represent this environment. Similarly, following the strategic

management literature, two organizational constructs – subsidiary autonomy and inter-unit networking – represent firm conduct. Finally, the firm outcome is conceptualized more broadly, being represented by three constructs: the intermediate outcomes of marketing learning and marketing innovation, and the ultimate performance outcome of market and financial returns.

## Hypothesis development

### Environmental pressures

The importance of environmental and institutional forces on organization structure and decision-making is acknowledged widely in both the organization theory literature (e.g., Lawrence and Lorsch, 1967; Aldrich and Pfeffer, 1976; Rosenzweig and Singh, 1991; Sundaram and Black, 1992) and the international business literature (e.g., Fayerweather, 1969; Prahalad and Doz, 1987; Bartlett and Ghoshal, 1989; Porter, 1990; Venaik *et al.*, 2004a, b). In particular, multinational corporations (MNCs) are confronted with diverse and often conflicting environmental pressures as they expand their activities around the globe. These pressures are often broadly referred to as the pressures of GI and LR (Prahalad and Doz, 1987). The GI pressures force firms to take an integrated approach to their global activities – that is, to coordinate their business units and strategies to attain maximum efficiency and

competitive advantage. These pressures might lead to responses such as producing components in a single location for global use at efficient scale, or mandating global consistency in brand positioning. Concurrently, firms face a countervailing set of pressures to adapt their activities to the unique circumstances of the countries in which they operate. These pressures for LR may prompt responses such as producing components locally to obtain tax incentives or adapting brand positioning to local market circumstances.

Within the marketing function, companies attempt to deal with these conflicting demand and cost pressures in a host of ways. Some firms appear to be able to find common segments across multiple markets and develop truly global brands with underlying production efficiency. Pringles (Pollack, 1999) and Heinz (Neff, 1999) are two brands able to standardize without major internal trade-offs because customer needs vary little across the globe. Other companies give in to the pressure of sacrificing global economies of scale for high levels of local adaptation. However, what is more common is the seeking of a middle ground. For example, Philips attempted to appeal to a global audience through its Olympic advertising (Edy, 1999) by delivering a common message that was tailored to each market, with different actors taking different approaches to the use of different Philips products.

The strategic management literature and the reports by international institutions such as the World Bank emphasize the complexity and diversity of the global business environment, comprising a large number of factors and multiple formative and/or reflective measures underlying each factor. However, much of the international business literature has tended to oversimplify the environment, with the most dominant representation being the well-known two-dimensional typology of global–local. Recently, Venaik *et al.* (2004a), in a comprehensive replication of prior studies, have shown that the diverse pressures confronted by multinational firms are better represented by at least five dimensions:

- (1) local government regulatory influence;
- (2) quality of the local business infrastructure;
- (3) global competition;
- (4) technological change and
- (5) resource sharing.

However, there is no extant literature that indicates how these five pressures impact on various facets of

the firm. Hence, we make no hypotheses about these pressures but rather treat them as control variables that are applied to each construct in our model.

Sundaram and Black (1992), Henisz (2000), Guisinger (2001), Venaik *et al.* (2004a) and others have suggested that the pressures faced by firms are more diverse than those represented in much of the international business literature and have called for a more interdisciplinary perspective. This perspective would integrate measures from economics, political science and the legal domain to develop a deeper understanding of the complex set of external factors confronted by multinational businesses. What this implies is that a large number of factors are required to capture the rich domain and diverse facets of the MNC's environment in order not to sacrifice its complexity and diversity. We follow this approach in the paper to represent comprehensively the international business environment confronted by multinational firms. Taking this perspective, we have added six other potential environmental pressures to the five listed above:

- (6) corporate governance;
- (7) economic development;
- (8) costs of doing business;
- (9) legal conditions;
- (10) economic freedom; and
- (11) country size.

Again, we make no hypotheses about these additional pressures, but treat them as control variables. Pressures (1)–(5) are measured through the opinions of our sample of managers (following the typical approach in the international business literature); pressures (6)–(11) are measured using independent sources (notably the World Bank).<sup>1</sup>

Following the approach common in the international management and strategy literature, we attempt to account for firm and industry heterogeneity by including subsidiary-specific controls such as parent nationality, industry domain, the age of the operation and size of the subsidiary, and physical and cultural distance between the subsidiary and headquarters. The effects of conduct on performance are thus those after controlling for differing firm environments and firm and industry characteristics.

### Conduct

The major dimensions of organization structure are complexity, centralization and formalization (Van

de Ven, 1976). However, most studies concentrate on the issue of centralization vs autonomy, because centralization is regarded as the primary construct in organization design (Egelhoff, 1988). Yet this construct alone may not fully capture the wide range of methods and processes used by firms for taking decisions. For example, taking decisions in multicountry teams and task forces is an important aspect of an MNC's organizational structure and processes (Ghoshal *et al.*, 1994). A network approach to decision-making is thought essential to gain deeper insights into the complexities of the diverse product markets served by large multinational firms, and to sense and respond rapidly to changes in these product markets. The locus of decision-making is an important issue, because the way in which global decisions are implemented within the network of MNC subsidiaries impacts on the performance of multinational firms (Kashani, 1989).

Following Ghoshal *et al.* (1994), we focus on two conduct constructs – centralization and inter-unit networking. We view autonomy as reflecting the degree of decision-making freedom given to the subsidiary by the headquarters, and networking as the degree to which the subsidiary uses, or is used by, other parts of the firm for making key decisions.

### Autonomy

Autonomy is defined as the extent to which the MNC headquarters allocates marketing mix decisions to the local subsidiary. Greater autonomy is likely to motivate the local subsidiary managers to take initiatives, which may result in marketing innovations that are either useful locally or are leveraged by the MNC on a global basis. Bartlett and Ghoshal (1989) found that subsidiary autonomy is associated with higher levels of innovation in multinational firms. Birkinshaw *et al.* (1998) found that autonomy is associated with the subsidiary contributing more towards firm-specific advantages (FSAs) at the global level. This perspective is also supported more broadly in the strategy literature (e.g., Zanfei, 2000; McGrath, 2001). Hence the following hypothesis is proposed:

**H1:** Subsidiary autonomy has a positive effect on marketing innovation in MNC subsidiaries.

### Networking

In the strategic management literature, organizational networks are classified into two broad types – external and internal. External networks are formed

between a number of firms, whereas internal networks are formed between organizational units separated by functions, businesses, or geographic locations (Charan, 1993). We are concerned with internal inter-unit networks as mechanisms for organizational decision-making in MNCs. In comparison with hierarchical organizations, high levels of horizontal information exchange and low levels of vertical information exchange characterize network organizations. Examples of network organizations include the heterarchical MNC of Hedlund (1986) and the transnational firm of Bartlett and Ghoshal (1989).

Owing to widely differing intellectual perspectives on networking, it is important to define precisely what we mean by networking. In this paper, networking is defined as the extent to which the marketing mix decisions in the MNC are taken in groups, such as teams, task forces and committees, comprising managers from the corporate and regional headquarters and country subsidiaries. Owing to rapid technological changes, the knowledge base of most businesses is becoming increasingly complex and widely dispersed. As a result, the sources of expertise reside in a network of firms rather than in individual firms (Powell *et al.*, 1996). MNCs have a globally dispersed knowledge base that, if managed effectively, can be an important source of competitive advantage. Collaboration enhances organizational learning and aids rapid communication of new market opportunities and threats (Powell *et al.*, 1996). MNCs use a network organization structure to facilitate inter-unit learning and communication among their geographically and culturally dispersed units (Ghoshal *et al.*, 1994). Thus, teamwork and collaboration among the geographically dispersed units of MNCs are likely to enhance organizational learning in multinational firms. Hence the following hypothesis is proposed:

**H2a:** Inter-unit networking (through team-based decision-making) has a positive effect on inter-unit learning (of marketing knowledge) in MNCs.

Networks are created out of human interactions in organizations (Salancik, 1995). Collins and Guetzkow (1964) found that, in situations of small group decision-making, group decisions are often better than the individual decision of the best member in the group. However, to realize what is termed the 'assembly bonus', it is important that



the group is composed of members with mutually recognized and complementary domains of expertise (Stasser, 1999). As the managers of parent and subsidiaries work in different customer, competitive and country environments, they bring together a diversity of experiences, resulting in corporate decision-making that is superior to that by any individual country manager. Thus, pooling of MNC managerial skills and capabilities also results in better managerial decisions and improved corporate performance. Hence the following hypothesis is proposed:

**H2b:** Inter-unit networking has a positive effect on MNC subsidiary performance.

### **Outcomes: learning, innovation and performance**

We examine performance not simply in the context of market and financial performance but also through the intermediate outputs of learning and innovation, theoretically critical antecedents to market and financial performance. Despite their importance, there have been few attempts to test the determinants and consequences of these critical antecedents. Although Slater and Narver (1995) proposed such a model, to our knowledge it has not been validated empirically.

### **Learning**

Learning is regarded as an important source of sustainable competitive advantage, and one of the key determinants of organizational effectiveness (Nonaka, 1994). There is an extensive literature in strategic management on *inter-organizational* learning and knowledge transfer as mechanisms for gaining competitive advantage and improving firm performance (e.g., Inkpen and Beamish, 1997). Although the advantages and problems of *inter-firm* knowledge transfer are extensively discussed in the literature, research in MNCs is focused increasingly on *intra-firm* learning and knowledge transfer (e.g., Birkinshaw *et al.*, 1998).

Intra-organizational learning in MNCs involves transfer of proprietary and tacit knowledge and information between the parent and subsidiary companies, and among the country subsidiaries of the multinational firm. The ability to transfer 'best practice' among the globally dispersed units of MNCs is critical for achieving continuous organizational learning, building sustainable competitive advantage and improving corporate performance (Szulanski, 1996). Internalizing knowledge by a

subsidiary from another subsidiary creates opportunities for generating new knowledge that is fed back into the multinational system, creating a 'spiral of knowledge' in the organization (Nonaka and Takeuchi, 1995). Bartlett and Ghoshal (1998) assert that the focus of managers worldwide is increasingly shifting from strategic planning to organizational learning, that is, to the question of 'how to develop the organizational capability to sense and respond rapidly and flexibly to change.'

We operationalize the concept of organizational learning with the construct of inter-unit learning. Inter-unit learning is the process by which knowledge and information is transferred among the units within the same organization (Goodman and Darr, 1998). Although representing only one facet of organizational learning, inter-unit learning is regarded as one of the key sources of organizational learning in large multinational firms (Birkinshaw *et al.*, 1998). Here inter-unit learning refers to the extent to which marketing knowledge and information are shared among the corporate headquarters, regional headquarters and country subsidiaries of a multinational firm. It is important to note the distinction between inter-unit learning and inter-unit networking as discussed previously. Learning is a valuable intermediate output of the firm whereas networking is *one* organizational strategy or conduct that we hypothesize will increase learning. There may well be many other factors that increase learning but these are outside the scope of our study.

Dunning (1988) focuses on the *parent* company creating and possessing the firm specific advantages (FSA) for successful multinationalization. However, in studies on MNCs, the focus has shifted to the MNC *subsidiaries* as sources of FSAs in multinational firms (Gupta and Govindarajan, 1994). In addition to developing inventions and innovations for use in the local subsidiary, the subsidiaries also develop innovations that the MNC can leverage in other markets around the globe. In this way, subsidiary companies contribute to the FSAs of the MNC, and shift the generation of FSAs 'from being the sole concern of the parent company to a collective responsibility for the corporate network' (Birkinshaw *et al.*, 1998). Organizations with a culture of knowledge-sharing and information exchange at all levels are found to be more innovative than firms where the innovative activities are assigned to specialists in the R&D department. Inter-unit learning ensures that the innovations created in one or more units of the

MNC are efficiently adopted and diffused across the entire multinational system (Bartlett and Ghoshal, 1989). Hence the following hypothesis is proposed:

**H3a:** Inter-unit learning has a positive effect on marketing innovation in MNC subsidiaries.

Organizational learning is a fundamental requirement for creating and sustaining competitive advantage. Shortening product life cycles are forcing firms to become learning organizations in order to survive and grow in the increasingly competitive global marketplace (Bartlett and Ghoshal, 1989). Inter-unit learning enables MNCs to 'build competitive advantage through the appropriation of rents from scarce internal knowledge' (Szulanski, 1996). Based on his study, Szulanski (1996) concludes that it might be profitable to develop the learning capacities of organizational units, by fostering closer relationships and developing effective communications among the organizational units. This is especially important for MNCs whose globally dispersed units are separated not only by large geographic distances but also by cultural distances and language barriers. Hence the following hypothesis is proposed:

**H3b:** Inter-unit learning has a positive effect on MNC subsidiary performance.

### **Innovation**

Drucker (1993) regards innovation as abandoning established practices in favor of new and improved organizational processes. Consistent with this perspective, innovation is defined as the extent to which subsidiaries seek new ideas for carrying out their marketing activities and improving their marketing mix, including product and service attributes as well as pricing, promotion and distribution. By focusing on the marketing program and marketing process activities, we incorporate both the technical and the administrative aspects, respectively, of marketing innovations in multinational firms (Damanpour and Evan, 1984).

Innovation has been shown through repeated studies to have a direct effect on firm performance independent of the nature of the performance variable chosen. For example, Banbury and Mitchell (1995) found that the introduction of incremental product innovations strongly influenced the market share and business survival of an industry incumbent. In other studies, innovative

output was shown to improve stock price performance (Chaney *et al.*, 1991) and the persistent profitability of firms (Geroski *et al.*, 1993), even after controlling for factors such as industry differences and the type of innovation. Soni *et al.* (1993) also found a significant positive relationship between innovation and sales growth. Hence the following hypothesis is proposed:

**H4:** Subsidiary marketing innovation has a positive effect on MNC subsidiary performance.

### **Performance**

As 'performance improvement is at the heart of strategic management' (Venkatraman and Ramanujam, 1986), performance is usually the final dependent construct in strategic management models. According to these authors, performance can be studied at three levels: at the narrow level of financial performance, at a broader level of financial and operational (non-financial) performance, or at the most general level of overall organizational effectiveness. Financial performance includes sales growth and profitability, whereas operational (non-financial) performance includes market share, new product introduction, technological efficiency, etc. that improves the firm's financial performance (Venkatraman and Ramanujam, 1986). Finally, performance – in terms of overall organizational effectiveness – is assessed by including the multiple and often conflicting goals of all organizational stakeholders (Cameron and Whetten, 1983). Because of the difficulty in operationalizing organizational effectiveness, most studies, including this one, concentrate on business performance at the level of financial and operational performance (Venkatraman and Ramanujam, 1986).

### **Summary of the theoretical model**

Our central model concerns the effects of subsidiary autonomy and inter-unit networking on inter-unit learning, marketing innovation and subsidiary performance. This model and its six associated hypotheses are embedded within two sets of control variables. The first set comprises the standard, subsidiary-specific variables that control for firm heterogeneity. The second set is the more relevant from an international business perspective, and comprises variables that relate to the global business environment in which the subsidiary operates. If our hypotheses prove to be supported, they have the added robustness of being

validated across a wide range of environments whose influence has been removed from the analysis by this procedure. We would then have confidence that inter-unit networking or subsidiary autonomy were robust strategies that could be recommended in many circumstances. In contrast, if our hypotheses are not supported, we could not recommend these strategies universally and would have to seek the boundary conditions under which they might apply.

**Methodology**

This section is organized as follows. First, we discuss the measures we use to form our constructs and the various tests and procedures we employed to establish their reliability and validity. Second, we discuss our unit of analysis, our sampling procedures and the tests we used to identify any biases or problems with our data. Third, we justify our choice of analysis methodology and outline how we used it for these data.

**Constructs and measures**

**Five main constructs**

The proposed model has five main constructs – subsidiary autonomy, inter-unit networking, inter-unit learning, subsidiary marketing innovation and subsidiary performance. These constructs are rich and complex, embodying multiple facets of multinational organizations. To adequately capture their richness, the constructs are measured with multiple questionnaire items using seven-point Likert scales. Appendix A presents a summary of our constructs and measures.<sup>2</sup>

The five main constructs are measured via a two-stage, component and item approach (Chin et al., 1996). Components are reflective constructs tapping a narrower range of phenomena (e.g., pricing autonomy). The constructs of *autonomy*, *networking* and *marketing innovation* are each measured with the six marketing mix components of price, product, positioning, place, promotion and process, with each component measured with three to six questionnaire items. For example, the price component of the autonomy construct was measured by asking the extent to which decisions pertaining to customer credit, price discounts, retail pricing and wholesale pricing are made at the subsidiary or headquarters level. Similarly, the price component of the networking construct was measured by asking the extent to which decisions about these areas are taken in networks. To distinguish

between the constructs of autonomy and networking adequately, the questions were formulated in the following way for each of the 25 items in the marketing mix:

Please indicate the extent to which the marketing mix decisions for your local subsidiary business unit are centralized or autonomous.

Marketing mix decisions	Centralized (i.e., never taken in the local subsidiary)			Autonomous (i.e., always taken in the local subsidiary)			
Product brand name decisions	1	2	3	4	5	6	7

Please indicate the extent to which the marketing mix decisions for your local subsidiary business unit are taken in networks.

Marketing mix decisions	Never taken in networks (e.g., teams, task forces)			Always taken in networks (e.g., teams, task forces)			
Product brand name decisions	1	2	3	4	5	6	7

The construct of *inter-unit learning* was measured with three components, namely corporate culture, marketing knowledge transfer and marketing information transfer, with each component measured with four items. *Subsidiary performance* was measured with three items: market share, sales growth and return on investment, all averaged over the past 3 years. Relative measures were used, for example return on investment relative to the largest competitor, to obviate the need to control for industry differences in absolute performance. This also facilitated answers by the managers of major product lines within country subsidiaries – for which absolute measures were not always available. Although self-reports of performance may be subject to bias, there is evidence of their general reliability (Venkatraman and Ramanujam, 1986) and they have been widely used in the literature. Overall, these five constructs have composite reliabilities ranging from 0.79 to 0.94, and the average variance they extract ranges from 0.55 to 0.74. They clearly exceed the minimum requirements for adequate measurement (0.70 for relia-



**Table 1** Convergent and discriminant validity

	<i>Autonomy</i>	<i>Networking</i>	<i>Learning</i>	<i>Innovation</i>	<i>Performance</i>
Autonomy	<b>0.78</b>				
Networking	0.16	<b>0.86</b>			
Learning	0.18	0.32	<b>0.81</b>		
Innovation	0.38	0.02	0.10	<b>0.74</b>	
Performance	0.06	0.19	0.20	0.17	<b>0.75</b>
Composite reliability	0.90	0.94	0.85	0.88	0.79

Notes: The bold diagonal figures are the square root of the average variance extracted; the off-diagonal figures are the correlations of the latent constructs. For  $n=163$  absolute correlations greater than 0.15 are significant at the 5% level.

bility and 0.50 for average variance extracted). Moreover, comparison of these reliabilities with inter-construct correlations demonstrates adequate discriminant validity (see Table 1).<sup>3</sup> This is seen in the fact that the square root of the average variance extracted for each construct is much larger than its correlation with any other construct.

#### **Environmental controls**

As noted earlier, the environmental controls fall into two sets. The first five are measured using the same questionnaire items as Venaik *et al.* (2004a) and using our sample of managers. These constructs are *local government regulatory influence on firm decisions*, *the quality of the local business infrastructure*, *the pressures of global competition*, *pressures from technological change* and *pressures for intra-firm sharing of resources*. The first four of these are measured with formative indicators, the fifth is measured reflectively. These questionnaire items are sourced from the existing literature on GI and LR, and are measured using seven-point Likert scales. Venaik *et al.* (2004a) found that many pressures are too diverse to be considered as the typical one-dimensional latent construct that is 'reflected' in the item measures chosen, nor is it possible to reduce this diversity to the two dimensions of GI and LR found in much of the literature. They argue for more pressure dimensions and for measuring these by the formative indexes more typical of the economics literature. They base this conclusion on both theoretical logic and empirical analysis utilizing the tetrad test for reflective vs formative constructs (Bollen and Ting, 2000). It is important when using a formative construct to build the index based on a large number of indicators, thereby ensuring that they have tapped into the multidimensional and multifaceted domain of the construct (Bollen and Lennox, 1991). The standard concept of reliability is not meaningful for formative indexes as they have low

inter-item correlations. Instead, they are judged on content validity (primarily their coverage of the domain of interest) and their usefulness in explaining variance in other constructs.

To capture more adequately the complexity and diversity of the environmental pressures confronted by multinational firms worldwide, we complement our survey measures with a second set of *externally sourced* data, primarily from the World Bank.<sup>4</sup> These include country indicators representing objective economic statistics and validated external self-report measures. These data were factor-analyzed using principal component analysis to identify domains of interest. This resulted in five additional one-dimensional constructs: *corporate governance* (World Bank Governance Indicators), *economic development* (World Bank Development Indicators, first factor extracted), *costs of doing business* (World Bank Doing Business Indices, one of two factors extracted), *legal conditions* (World Bank Doing Business Indices, one of two factors extracted) and *economic freedom* (Heritage Foundation,<sup>5</sup> first factor extracted). Tetrad tests demonstrated that these constructs were best represented by formative indexes. The values of these control factors were then matched with the location of the subsidiaries in our survey.<sup>6</sup>

#### **Subsidiary-specific controls**

Most of the controls for firm and subsidiary heterogeneity are straightforward and are described briefly in Appendix A. Three are dichotomous variables, and the remaining eight are continuous variables. The three dichotomous variables are *parent nationality* – Japanese or non-Japanese (following Johansson and Yip, 1994) and two variables for *type of product* – *durable* or *non-durable* and *consumer* or *business-to-business*. The eight continuous variables are: *age and size of the subsidiary*, *proportion of expatriates*, *physical and cultural distance between headquarters and subsidiary*, and *marketing, product*

*and price adaptation.* The *cultural distance* between headquarters and subsidiary was computed using an extension of the procedure used by Kogut and Singh (1988). They obtained a cultural distance from Hofstede's dimensions of national culture by computing a weighted averaged difference between the scores for the USA and those of their sample of foreign firms entering this market. Here we compute cultural distances using the differences between the country location of the headquarters and that of the subsidiary. For example, a US-owned subsidiary in Australia has a smaller cultural distance to its headquarters whereas a UK-owned subsidiary in France has a larger cultural distance. As this example demonstrates, cultural distance is very different from physical distance.

Finally, *subsidiary marketing, product and price adaptation* were calculated from the degree of adaptation in the subsidiary market for 13 marketing, four product and four price measures, respectively. These data came from our survey and are best represented by reflective constructs that have reliabilities of 0.86, 0.88 and 0.90, and average variances extracted of 0.60, 0.63 and 0.71, respectively. Again, these exceed the minimum requirements for adequate measurement. The discriminant validity of these adaptation measures is also good: the strongest inter-construct correlation is between marketing adaptation and subsidiary autonomy at 0.53, but this is well below the square root of the average variance extracted for these two constructs (both 0.78), demonstrating adequate validity. For the other constructs, these correlations are smaller in magnitude. By including subsidiary marketing, product and price adaptation as additional controls in the model, we further account for the degree of firm heterogeneity due to differences in international marketing strategy, and provide more robust estimates of the effect of organizational variables on learning, innovation and performance in MNC subsidiaries.<sup>7</sup>

### Unit of analysis, sampling and tests of potential biases

#### Unit of analysis

Prahalad and Doz (1987, p. 22) argued persuasively that IR pressures should be different for different divisions of the MNC. Equally, many studies focus on the subsidiary in the local country as the point at which the pressures for integration and responsiveness intersect. Integrating these two views, we chose to focus on a business unit within the

subsidiary as our unit of analysis and the head of the unit as our key informant. A business unit was defined as an organizational unit that has separate and independent marketing and profitability objectives. Within business units, we asked respondents to answer about the product market with the highest annual sales revenue, assuming this to be most representative of the business unit's activities.

#### Sample

A stratified random sample of MNE subsidiaries was selected from the Dun and Bradstreet WorldBase.<sup>8</sup> To ensure sufficient variance, strata included manufacturing and services, consumer and industrial products, and subsidiaries in industrialized and industrializing countries. Questionnaires were mailed to 728 subsidiaries, with a separate questionnaire for each of the business units in the firm. Excluding 70 subsidiaries that returned the questionnaires because of frame errors (non-applicability, mergers, etc.), the net response rate was 18%. This compares favorably with the response rates of between 6 and 16% reported in the literature for international surveys (Harzing, 1997). The responses represented 191 business units from 126 subsidiaries of 119 parent MNCs. Eighty-one percent were engaged in manufacturing and 19% in service sectors. Nearly equal numbers operated in consumer and business-to-business markets. Although the subsidiaries were located in 36 countries, their parent companies were mainly large Japanese, UK and US MNCs with a median of 22,000 employees worldwide and 325 employees in the subsidiary. Respondents had an average of 10 years' experience in their company and averaged 40 years of age. Although 191 questionnaires were returned, the number for analysis is smaller. First, not all business units were willing to provide performance measures. Second, standard methods reveal outlying observations that are excluded from the analyses reported here. It is possible that these outliers represent firms from a different population; however, their small number means that it is not possible to estimate a separate model for them. In the end we had 163 cases for model testing.

#### Potential bias

Although surveys are the standard approach to research in the international business literature, questionnaire surveys inevitably raise concerns about potential bias. Before analyzing our data we examined three such biases: measure equivalence, common method bias and non-response bias.

**Measure equivalence** Whether the same measures could be applied across respondents from different countries would be debatable were we interviewing consumers from different cultures and standards of education. However, as our respondents were senior managers, mostly university educated, spoke English, traveled widely, and had been exposed to the business concepts incorporated in our measures, this issue was of less concern. Nonetheless, we did check the equivalence of our measures. First, for each subsidiary we computed Kogut and Singh's (1988) cultural distance measure (here using the UK as reference point, the questionnaire being in English because of its common use in MNCs and the impracticability of translating the questionnaire into 30+ languages). Second, we ranked our subsidiaries by cultural distance (low, medium and high distance) and compared the means for our measures between the high and low groups. After correcting for the known bias in multiple comparisons, there are no significant differences between these means. Scale equivalence problems in these data are unlikely to have biased our analyses.

**Common method bias** Using a common seven-point scale across all measures can create a response bias. Here this might also be exacerbated as three of our constructs (*autonomy, networking and innovation*) have a similar format because of the use of common underlying components (though the questions asked of these are different). However, factor analyses demonstrate that there is no common factor loading on all measures (the *ex post* one-factor test; Podsakoff and Organ, 1986). Hence common method bias is unlikely in these data. Further, we used two independent sources of data for the environmental pressures, one from our global survey and the other from published secondary sources. This helped to mitigate the potential problem of common method bias in operationalizing the environmental pressures (Podsakoff *et al.*, 2003).

**Non-response bias** To test for non-response bias, the original sample drawn from Dun and Bradstreet and those subsidiaries that responded were compared on three criteria: the number of countries, how long the subsidiary had operated and the number of employees. We received responses from subsidiaries in 60% (36 of 60) of the countries we sampled, so any bias due to the countries included or excluded is likely to be small.

Our data also covered all continents. The median age (i.e., length of operation) and size of the subsidiaries responding was 30 years and 325 employees vs 21 years and 250 employees for the non-respondents. Overall, the final data set is more than adequate for our analyses, especially in terms of the heterogeneity of environments that it covers.

### Analytical methodology

Structural equation modeling combines the econometric perspective focusing on prediction and the psychometric perspective focusing on measuring latent, unobserved variables with multiple observed indicators. This allows us to cope *simultaneously* with the issues of *construct measurement* and the *structural relationships* among the constructs. The issue of simultaneity is especially important, because measures often derive their meaning from the conceptual network within which they are embedded. Structural equation modeling offers greater flexibility in testing theoretical models with empirical data by allowing researchers to handle latent constructs, model relationships among predictor and criterion variables, and incorporate errors in measurement.

For this study, we adopted the partial least squares (PLS) approach to structural equation modeling for the following reasons. First, models and measures in international business are at an early stage of development, and in this situation the regression-based approach of PLS is considered more appropriate than covariance-based methods such as LISREL. Second, our data may not have a multivariate normal distribution, thus violating an important assumption in the estimation method used in LISREL. Third, as the sample size here is less than 200, it may not be adequate for LISREL. Fourth, many of our constructs are measured with formative indicators: therefore they cannot be easily and efficiently modeled with covariance-based approaches where the index often needs to be computed externally to the analysis and then introduced as a single-item measure. Finally, and most importantly, the model proposed and tested in this study is complex. Four of the constructs – subsidiary autonomy, inter-unit networking, inter-unit learning and marketing innovation – are second-order reflective factors measured with 21 first-order component measures. These component measures in turn are measured with 87 questionnaire items. PLS is better suited for explaining complex relationships, because 'it readily accommodates complex theoretical and measurement

models' (Barclay et al., 1995). Further, because PLS estimates parameters in a modular fashion, it is easier to have adequate degrees of freedom with large numbers of measures. Indeed, because of practical limitations on the number of indicators allowed in the current PLS Graph software (Chin, 2001), we performed several of our analyses in such a modular fashion. In the worst case, we estimated 76 parameters from 163 responses, which, for the regression algorithm underlying PLS, represents an adequate number of degrees of freedom. Given its overall suitability to our modeling requirements, we employed PLS here.

Our empirical testing is straightforward. First, we estimated the theoretical model shown in Figure 1. Second, we estimated a model *without* environmental controls as an alternative, naïve model. As it is difficult to evaluate one model in isolation, such a comparison is an important part of theory testing. Finally, we judged the significance of the parameter estimates for both models using t-statistics generated by bootstrapping procedures. Bootstrapping provides extra confidence that our results are not sample specific as it uses repeated random samples

drawn from the data – in this case we drew 200 samples each of size  $N=163$  following the recommendation of Chin (2001).

**Results**

**Theoretical model**

The results of estimating our theoretical model on the data from 163 subsidiary business units are shown in Figure 2. For the sake of simplicity, we have shown only the significant effects in this figure. We show all parameters with a t-statistics of 1.6 or better, corresponding to a two-tailed probability of 10%. This can also be interpreted in a more rigorous, one-tailed sense for those parameters relating to our six hypotheses. The t-statistics are shown in parenthesis after the parameter value. Following the normal convention for causal path models, these parameters correspond to a standardized regression coefficient. The other statistics shown in Figure 2 is the  $R^2$  for the percentage of variance explained in each of our five major constructs. The  $R^2$ 's for the three key dependent constructs in our model are 37% for

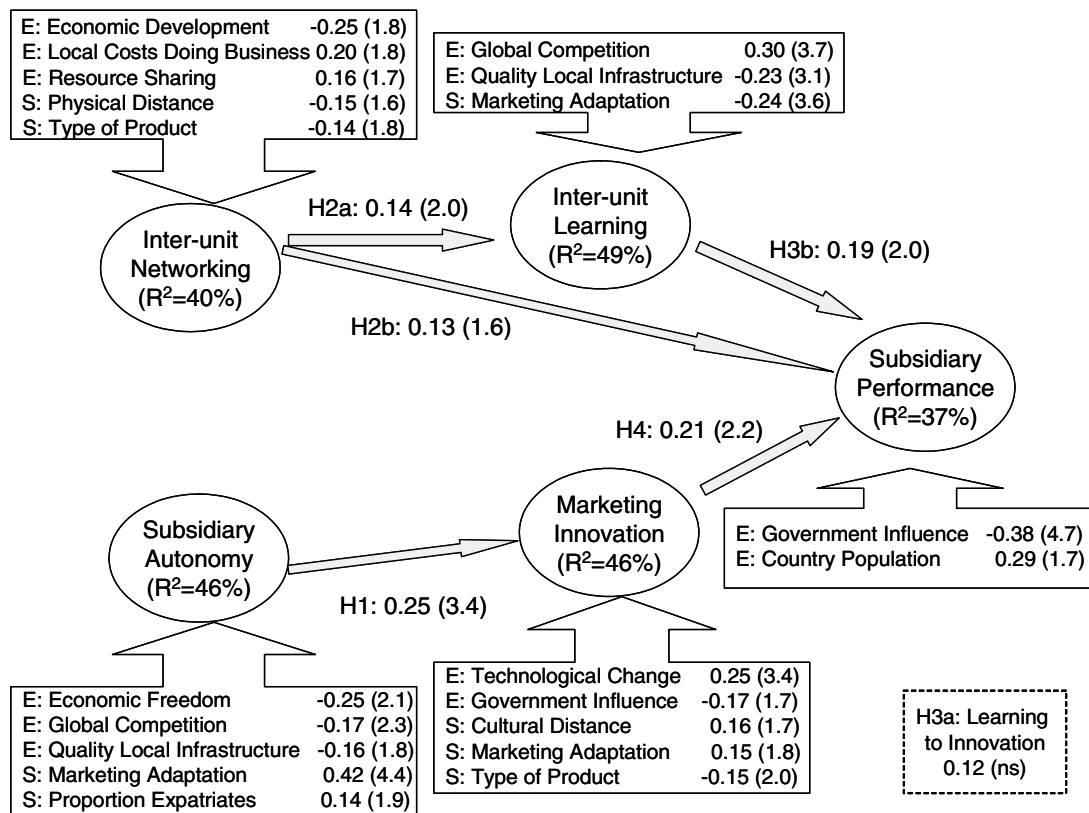


Figure 2 Results of PLS estimation for the theoretical model (including environmental controls, E, and subsidiary-specific controls, S).

subsidiary performance, 46% for marketing innovation and 49% for inter-unit learning. It can be seen that all three dependent constructs are well explained, although it has to be noted that part of this explanation comes from the non-significant effects we do not show in Figure 2. If we were to omit non-significant paths, explanation would fall to 23% for subsidiary performance, 33% for marketing innovation and 34% for inter-unit learning. The corresponding  $R^2$ 's for autonomy are 46 and 40%, and those for networking are 40 and 25%. As will be seen shortly, these numbers are still substantially better than for the naïve model, and are in an absolute sense still good levels of explanation.

Turning to our six hypotheses, four of them get good support. *Subsidiary autonomy* has a significant and sizable positive relationship with *marketing innovation*, with a path coefficient of 0.25 and a t-statistics of 3.4. This supports H1. *Inter-unit networking* has a significant positive relationship with *inter-unit learning*, with a path coefficient of 0.14 and a t-statistics of 2.0. This supports H2a. *Inter-unit learning* has a significant positive relationship with *subsidiary performance* with a path coefficient of 0.19 and a t-statistics of 2.0. This supports H3b. *Marketing innovation* has a significant positive relationship with *subsidiary performance* with a path coefficient of 0.21 and a t-statistics of 2.2. This supports H4. A fifth hypothesis gets weaker sup-

port, namely *inter-unit networking*, which has a smaller and marginally significant positive relationship with *subsidiary performance*, with a path coefficient of 0.13 and a t-statistics of 1.6. This provides some support for H2b.

The biggest surprise, leading to the title of our paper, is that H3a gets no support (a path coefficient of 0.12 and a t-statistics of 1.3, which is not significant at the 5% level, one-tail test). Inter-unit learning has no relationship with marketing innovation. There appear to be dual independent paths to improved subsidiary performance, one through inter-unit networking and inter-unit learning, and one through subsidiary autonomy and marketing innovation. We also estimated two non-hypothesized paths between subsidiary autonomy and inter-unit networking and between subsidiary autonomy and subsidiary performance. This was to guard against incorrect conclusions. Neither path is significant, which adds further support to the idea of dual separate paths.

### Naïve, alternative model

Our naïve alternative model, without environmental controls but including subsidiary-specific controls, performs poorly on some dimensions. This model is shown in Figure 3. Only *marketing innovation* is well explained, with an  $R^2$  of 33%; the other constructs are less well explained, with

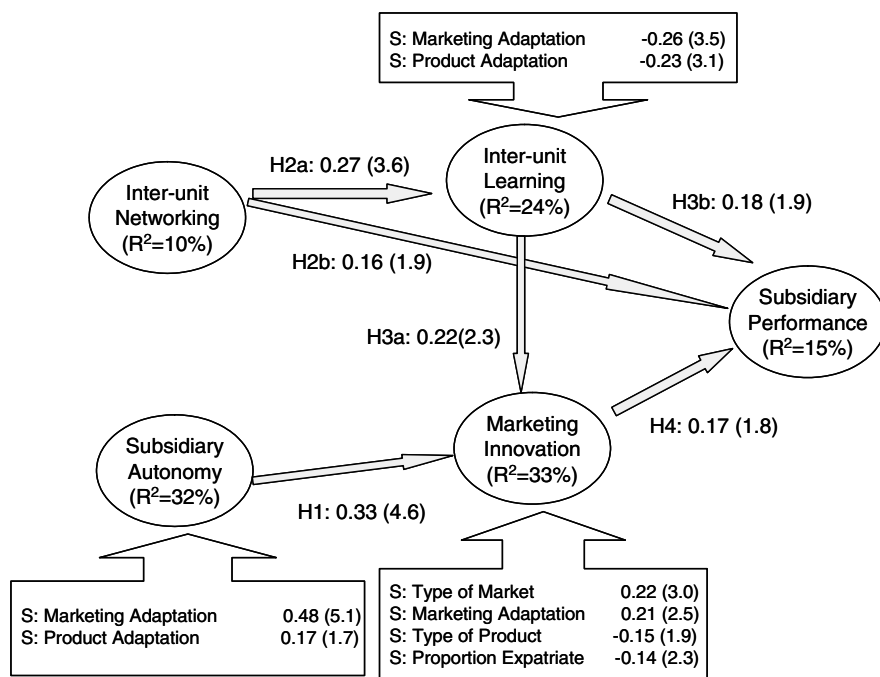


Figure 3 Naïve, alternative model (including subsidiary-specific controls, S only).



performance at 15%, *inter-unit learning* at 24%, and *autonomy* and *networking* at 32 and 10%, respectively.

However, more encouraging is that, with one exception, the main paths continue to be significant, as in the previous full model. *Subsidiary autonomy* has a stronger relationship with *marketing innovation* (a path coefficient of 0.33 vs 0.25), *inter-unit networking* has a stronger relationship with *inter-unit learning* (a path coefficient of 0.27 vs 0.14), *inter-unit networking* has a stronger but similar weak relationship with *subsidiary performance* (a path coefficient of 0.16 vs 0.13), and *inter-unit learning* has a slighter weaker relationship with *subsidiary performance* (a path coefficient of 0.18 vs 0.19), as does *marketing innovation* (a path coefficient of 0.17 vs 0.21).

The exception is that the naïve model has a significant positive path between *inter-unit learning* and *marketing innovation*, with a path coefficient of 0.22 (t-statistics of 2.3). It can thus be seen that introducing environmental controls has two main effects. First, the explanation of all the key constructs rises substantially. Second, the path between *inter-unit learning* and *marketing innovation* disappears. The naïve model would lead us to accept H3a; the full theoretical model leads us to reject this hypothesis. There are other effects, but these are less substantial. The paths between *subsidiary performance* and *inter-unit learning* and *marketing innovation* strengthen slightly in the full model. On the other hand, the paths between *inter-unit networking* and *inter-unit learning*, and between *subsidiary autonomy* and *marketing innovation*, weaken in the full model. The latter effects are, however, of less importance than improved explanation of the key constructs and the rejection of H3a.

## Discussion

### The role of environmental pressures

Our results suggest that the picture of MNC subsidiary conduct and performance that emerges from these data is highly dependent on whether the analysis includes environmental controls or not. Incorporating these controls substantially increases our ability to explain the five main constructs in our model, and it results in the dual path finding – which we consider an important hypothesis for further research.

The fact that incorporating the global business environment changes the picture should not be surprising. There is a strong body of business

literature, both in the organization theory area (e.g., Lawrence and Lorsch, 1967; Aldrich and Pfeffer, 1976; Rosenzweig and Singh, 1991; Sundaram and Black, 1992) and in the international business area (e.g., Fayerweather, 1969; Prahalad and Doz, 1987; Bartlett and Ghoshal, 1989; Porter, 1990; Venaik *et al.*, 2004b), that argues for the critical influence of this environment on the firm's choice of strategy and structure. Rugman and Verbeke (2004) found that most MNCs with dominant market share in their home region are unable to replicate their market share performance in other regions of the triad. The different environment contexts across the triad seemingly play a more critical role than firm strategy in determining MNCs' market outcome. However, there have been few empirical tests of this argument such as the one we present here. Furthermore, to our knowledge, there has been no test that takes such a broad and diverse view of this global environment.

In essence we have been more faithful to the original ideas of Prahalad and Doz (who posited 12 domains of pressures underlying their two dimensional framework) than to the subsequent literature on this topic, which has tended to simplify these ideas (Venaik *et al.*, 2004a). Here we incorporate five environmental dimensions derived from our sample of managers and based on Venaik *et al.* (2004a). All five of these dimensions explain variance in the model, which is an extension of the results of Venaik *et al.* (2004a) from the single validation construct of autonomy that they used to the five constructs we present in this paper. These five dimensions – *government influence*, *quality of the local infrastructure*, *global competition*, *technological change* and *resource sharing* – are clearly useful in describing the global business environment.

To this, we add six other sets of measures derived from independent sources and potentially tapping other domains of the global business environment. Four of these also turn out to be useful in explaining variance in the focal constructs namely: *economic development*, *economic freedom*, *local costs of doing business* and *country size*. Moreover, as they prove significant in a model that includes the first five dimensions, they appear to describe additional phenomena not captured by these dimensions.

All of this suggests that there is merit in international business researchers taking a broader view of the global business environment. Indeed, we would not view this work as finished: for example, if we were studying the supply chain function, rather than the marketing function as here, we might

consider incorporating environmental constructs relating to upstream supply and supplier conditions. Other possibilities can also be envisaged.

### Are there dual paths to performance?

One of the most interesting and counter-intuitive findings of this study is the non-significant path between learning and innovation. In the literature, organization learning and innovation are implicitly regarded as highly interrelated, and therefore have overlapping definitions and measures (e.g., Bartlett and Ghoshal, 1989; Howard, 1993; Hurley and Hult, 1998). However, empirical studies that examine the link between learning and innovation do not control for the differences in MNC subsidiary environments (e.g., Bartlett and Ghoshal, 1989).

Our learning–innovation dichotomy is comparable to March’s (1991) exploration–exploitation duality in learning organizations: inter-unit learning focuses on diffusing marketing knowledge within the MNC network, whereas innovation focuses on exploring new marketing mix initiatives. Therefore, learning and innovation are competing, independent alternatives involving trade-offs rather than complementary, interdependent strategies for improving performance.

There are several plausible explanations for the absence of a significant learning–innovation link in our empirical model. Inter-unit learning arises from knowledge exchange within the internal network of MNC units, whereas innovation arises from knowledge exchange with external networks where the MNC units are located (Zanfei, 2000). As they increasingly source new knowledge from their subsidiaries (Birkinshaw *et al.*, 1998), it becomes necessary for MNCs to ‘intensify their degree of local embeddedness as a means of increasing their overall innovation abilities and competitiveness’ (Zanfei, 2000).

The literature on economic geography also shows that the local agglomeration advantages are critical for supporting innovative activities of firms (e.g., Leamer and Storper, 2001; Howells, 2002). If local agglomeration and external networks are a more important source of innovative ideas than de-agglomeration and internal networks, then the link between external environmental factors and innovation will strengthen, at the cost of the link between internal inter-unit learning and innovation. As we have shown, testing these alternative hypotheses requires a diverse set of environmental controls to disassemble the structural relationship between learning and innovation. Absence of these

controls may lead to overestimation of the true structural links between the model constructs. In contrast, adding these controls leads to a more accurate estimation of the links and to our rejection of H3a – leading to the conclusion that there are two, essentially independent, paths for an MNC subsidiary to improve its performance.

There are some interesting implications of this dual path structure. First, networking is not affected by autonomy, indicating that merely allowing a subsidiary choice is not sufficient to get it to seek out partners in other parts of the organization. Second, encouraging networking does increase performance both directly and indirectly. Firms with greater networking share a stronger corporate culture (as measured by greater cooperation, trust, and common goals and values) and transfer more knowledge and information. This stronger culture and greater knowledge transfer in turn improve subsidiary performance. However, the direct effect of networking on performance is potentially stronger than this mediated effect. In essence, accounting for the effects of learning, there is a direct impact of inter-unit networking on subsidiary performance. Third, and in contrast, autonomy does not affect performance directly. Simply having a federated organizational structure does not guarantee that a subsidiary will do what is best for the MNC, nor is it clear that this is best for its own independent performance. Rather, the impact of increased autonomy on performance is mediated by the subsidiary’s ability to innovate.

From the magnitude of their coefficients, both these paths appear to have modest effects on performance. However, if we contrast a subsidiary with *low* levels of networking and/or autonomy (say two standard deviations below the mean) with one with *high* levels (say two standard deviations above the mean), the effect on performance is substantial. For the upper path, this implies a 0.63 standard deviation improvement in performance for the better-networked subsidiary (direct  $4 \times 0.13$  + indirect  $4 \times 0.14 \times 0.19$ ). For the lower path, this implies a 0.21 standard deviation improvement in performance for the more autonomous subsidiary ( $4 \times 0.25 \times 0.21$ ). Adding the two together implies a 0.84 standard deviation improvement, which could be very valuable, especially if replicated across all the subsidiaries of an MNC. We should also remember that we are talking about changes to just two conduct variables.

These are also robust effects, especially given the range of control variables we have included in the

Marketing Innovation	High	3 Local market is demanding and unique	4 Local market is demanding and universal	7 Local pressures/mandate	8 Global pressures/mandate
	Low	1 Local market is easy and unique	2 Local market is easy and universal	5 Not applicable	6 Not applicable
		Low	High	Low	High
		Inter-unit Learning (Inflow)		Inter-unit Learning (Outflow)	

Figure 4 Subsidiary roles based on their market context.

model. The bootstrap procedure further demonstrates that they are not due to the particular sample we obtained; the results are consistent across 200 replicated samples. This means that we can have some degree of confidence in recommending these strategies in diverse situations – networking and autonomy work.

Nonetheless, we regard this dual path hypothesis as just that, something that needs to be tested in future research using other settings and other functions of the firm such as operations, finance or R&D.

Based on our finding of dual paths to performance, we propose an alternative conceptualization of differentiated subsidiary roles based on their market context. This complements and extends the classifications of MNC subsidiaries in the literature (e.g., White and Poynter, 1984; Bartlett and Ghoshal, 1986; Jarillo and Martinez, 1990; Gupta and Govindarajan, 1994; Birkinshaw and Morrison, 1995; Taggart, 1997, 1998). As shown in Figure 4, subsidiaries may aim for a low or high level of innovation and, for each level of innovation, could have low or high levels of learning inflows or outflows. The desired levels of learning and innovation would depend on the market context. For example, subsidiaries in less demanding markets are likely to have lower levels of innovation than those in more demanding markets (cells 1 and 2 vs 3 and 4). Similarly, subsidiaries with unique local needs would have lower level of learning inflows than subsidiaries with universal local needs (cells 1 and 3 vs 2 and 4). Turning to the question of learning outflows, there is unlikely to be any significant learning outflow from subsidiaries with low levels of innovative activity (cells 5 and 6). Finally, innovative subsidiaries with mainly local

business mandates and/or pressures are likely to provide lower levels of learning outflows to the rest of the MNC network (cell 7) than subsidiaries with global business mandates and/or pressures (cell 8). It is important to note that our proposed classification of subsidiaries is based on our findings, and needs to be validated with additional empirical studies.

### Conclusions on methodology

Our use of formative indicators for most of the environmental constructs is not typical in the international business and strategy literature. However, it has support from many of the leading figures in structural equation modeling, who argue that many phenomena do not fit the usual reflective model derived from psychological testing of narrow phenomena (e.g., Bollen and Lennox, 1991; Jarvis *et al.*, 2003). We also believe it makes sense given the diverse nature of environmental pressures, and the fact that these phenomena represent a force on the organization rather than a latent reflection of some underlying, unobserved construct. For this sample and these measures, our view is also supported by the tetrad test (Bollen and Ting, 2000). The advantage of formative measures is that they allow subtle insights to emerge. The downside of formative indicators is that they are somewhat harder to construct and validate, and their interpretation is also more difficult. Despite this, we would recommend that international business researchers consider the formative model – in a field that studies such broad, diverse and complex phenomena as the global business environment it may make more sense.

### Managerial implications

Few would argue with a conclusion that headquarters and subsidiary strategy requires an integrated approach. Poor choices made at either the headquarters or subsidiary level can result in a loss of competitive advantage, adversely affecting overall MNC performance. Our study shows that, to improve MNC performance, a balanced approach is necessary that allows sufficient autonomy and networking opportunities to subsidiaries for them to achieve the levels of learning and innovation that are necessary to drive performance. As indicated by March (1991), excessive focus on learning (exploitation) alone might undermine the ability of the firm to sustain long-term competitive advantage. Similarly, exploration (innovation) without exploitation might not provide the leverage to exploit the innovation on a global basis. Although both may be essential at the level of the MNC as a whole, it is plausible that, at the level of the individual subsidiaries, the roles could be differentiated depending on the nature of the internal/firm and external/environmental contingencies confronted by different MNC subsidiaries.

Perhaps the key implication of our empirical findings is that even though both inter-unit learning and innovation lead to improved performance, their antecedents are different, with networking having a significant influence on inter-unit learning but not on innovation, and autonomy enhancing innovation but not inter-unit learning. Greater autonomy is likely to motivate and encourage subsidiary managers to seek new and improved ways of carrying out their marketing activities – a finding consistent with Birkinshaw *et al.* (1998) and Taggart (1998). And leveraging subsidiary innovations on a global basis can improve the global competitiveness of the multinational firm. Furthermore, owing to the significant positive effect of group activities on both inter-unit learning and performance, MNCs should increasingly adopt networking – that is, team-based decision-making within the global organization. The need for unique skills and capabilities for effective networking, such as strong interpersonal and team-working skills, would require MNCs to develop these skills in their subsidiary and headquarters managers through HR training and development programs.

Thus, overall, MNCs should aim to achieve networking and autonomy simultaneously in order to enhance, first, learning and innovation, and ultimately financial and market performance. How-

ever, the objective of achieving both simultaneously is going to be both challenging and resource intensive.

### Theoretical and methodological contributions

This study hopefully makes important theoretical and methodological contributions to the international strategy literature. Theoretically, using the concepts from the international marketing, organizational behavior and strategy areas, the study develops a model of subsidiary innovation and performance in multinational firms. The global pressures originally proposed by Prahalad and Doz (1987) are modeled explicitly as environmental constructs, rather than inferred from MNCs' strategic orientation (e.g., Johnson, 1995), and are expanded beyond those of Venaik *et al.* (2004a). The model expands the concept of desirable organizational outcome to include the important strategic management constructs of learning and innovation, in addition to the construct of subsidiary performance.

In sum, the study responds to the challenges and opportunities in strategy research outlined by Bartlett and Ghoshal (1991), namely *cross-disciplinary integration* (by adapting the IR framework, the SCP framework and the RBV of the firm to develop a model of subsidiary innovation and performance); *multi-level research* (by developing a multi-level model and testing it with data from MNC subsidiaries) and *managerial focus* (by explaining the desirable outcomes of learning, innovation and performance with the business environment and organization variables).

### Limitations and further research

As in many studies in this area, we rely on a cross-sectional survey of managers. For unraveling causality longitudinal methodologies are to be preferred, as is the development of methodologies that correct for any potential biases in managerial perceptions, and do so in a more formal manner (e.g., systematically correcting for any distortions introduced by organizational structure or managerial role). However, both of these developments, while highly desirable, represent significant challenges for the field of international business. Our study also suggests that future research efforts might fruitfully extend our approach to other areas of MNC operations (e.g., production, R&D) or investigate the complex links between conduct, learning and innovation in greater detail.



## A final word

We believe our study makes three contributions:

- (1) It supports several authors in arguing for the importance of networking and autonomy in encouraging organizational learning, greater innovation and competitive advantage within MNCs. It provides this support by focusing on an important function within the MNC, and by using an extensive sample of global subsidiaries and a rigorously controlled empirical analysis.
- (2) However, by raising the dual path hypothesis it goes beyond the existing literature. If indeed networking and learning are different and separate activities to autonomy and innovation, then this has important implications for both researchers and managers.
- (3) It shows the impact of global pressures to be complex, which might lead MNCs to adapt their conduct in highly detailed and specific ways. Again, this has important implications for researchers and managers. For researchers there is a need to study these phenomena in greater detail, for managers a need to move beyond simplistic formulas for running MNCs.

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## Acknowledgements

We thank the two anonymous reviewers and Pankaj Ghemawat for comments and suggestions.

## Notes

<sup>1</sup>We are grateful to participants at the IESE Global Conference, Barcelona, 15–16 June 2003, for suggesting these additional environmental controls.

<sup>2</sup>The questionnaire is available from the authors.

<sup>3</sup>We are grateful to a reviewer for suggesting that we present Table 1.

<sup>4</sup>World Bank, [www.worldbank.org](http://www.worldbank.org), for development indicators, governance data and doing business data.

<sup>5</sup>Heritage Foundation, [www.heritage.org](http://www.heritage.org).

<sup>6</sup>Four of the 163 responses in our sample came from countries that were missing from some of these external databases. For these we matched by closest neighbor, for example, Malta was assumed to be similar to Italy, the Seychelles and Bangladesh to India, and Luxembourg to Belgium.

<sup>7</sup>We are grateful to a reviewer for suggesting these additional controls for firm heterogeneity.

<sup>8</sup>Excluding subsidiaries engaged in wholesale/retail trade (for whom the survey issues are less relevant) or with fewer than 50 employees (who are unlikely to have a developed marketing function or adequate resources to respond).

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## Appendix A

### Constructs and measures

#### Conduct constructs

##### Subsidiary autonomy

Reflective, formed from six reflective components: the autonomy of the business unit in making decisions on product (4 items); price (4 items); place (4 items); promotion (4 items); positioning (3 items); and processes (6 items).

##### Inter-unit networking

Reflective, formed from six reflective components: the extent of the use of teams, task forces, etc. composed of managers from corporate and regional headquarters and various country subsidiaries for decisions on product (4 items); price (4 items); place (4 items); promotion (4 items); positioning (3 items); and processes (6 items).

#### Outcome constructs

##### Inter-unit learning

Reflective, formed from three reflective components:

- (1) Corporate culture. The sharing of goals and values, etc. among subsidiaries and corporate and regional headquarters (4 items).
- (2) Marketing knowledge transfer. Extent of transfer of proprietary and tacit knowledge amongst subsidiaries and corporate and regional headquarters (4 items).
- (3) Strategic information transfer. Extent of transfer of strategic information amongst subsidiaries and corporate and regional headquarters (4 items).

##### Subsidiary marketing innovation

Reflective, formed from six reflective components: the extent to which the local business unit seeks new ideas for improving its marketing activities for product (4 items), price (4 items), place (4 items), promotion (4 items), positioning (3 items), and processes (6 items).

##### Subsidiary performance

Reflective, formed from three items, averaged over the last three years, and in comparison with competitors in the local subsidiary market, the performance of the local business unit in:

- (1) Market share
- (2) Sales growth
- (3) Return on investment.

##### Subsidiary-specific controls

###### (Single-item measures)

- (1) Parent nationality (Japanese, not Japanese)
- (2) Length of operations in country (years)
- (3) Size of operations in country (number of employees)
- (4) Type of product (durable, non-durable)
- (5) Type of market (consumer or business-to-business)
- (6) Proportion of managers running the subsidiary who are expatriates (percentage)
- (7) Physical distance from headquarters to subsidiary (kilometers)
- (8) Cultural distance between headquarters and subsidiary (see text for explanation)

- (9) Marketing adaptation (see text for details)
- (10) Product adaptation (see text for details)
- (11) Price adaptation (see text for details)

### Environmental controls

#### Measures derived from our sample of managers

- (1) *Government influence*: Formative index of the extent of local government influence on key decisions (6 items).
- (2) *Quality of the local infrastructure*: Formative index of the quality of the local infrastructure for marketing, distribution and personnel (5 items).
- (3) *Global competition*: Formative index of the extent of global competition and the need for coordination (5 items).
- (4) *Technological change*: Formative index of the rate of technological, product and process innovation in the industry (4 items).
- (5) *Resource sharing*: Reflective construct, namely the extent to which resources are shared across units of the multinational enterprise (3 items).

#### Measures derived from external sources independently of our sample

- (6) *Corporate governance* (World Bank): Formative index of the extent to which good corporate governance is practiced in the local country (6 items).
- (7) *Economic development* (World Bank): Formative index of the level of development of the local economy (8 items).
- (8) *Local costs of doing business* (World Bank): Formative index of various costs of setting

up, running, or closing down a business in the country (6 items).

- (9) *Legal conditions* (World Bank): Formative index of the effectiveness of the legal and regulatory framework in the country (6 items).
- (10) *Economic freedom* (Heritage Foundation): Formative index of the degree to which the country has economic freedom in the capitalist sense (6 items).
- (11) *Other single-item environmental controls* (4 items) (World Bank and others):
  - (a) Country GDP (\$US billions)
  - (b) Country population size (millions)
  - (c) Country surface area (square kilometers)
  - (d) Economic openness (ratio of exports plus imports to GDP, percentage)

### About the authors

**Sunil Venaik** is a Senior Lecturer in Enterprise and International Business at the UQ Business School, The University of Queensland, Australia. His research focuses on the international business environment, strategy, organization and performance of small businesses, multinational firms and SME clusters.

**David Midgley** is Professor of Marketing and Area Coordinator of the Marketing Area at INSEAD, Fontainebleau, France. His research focuses on the diffusion of innovations and marketing strategy.

**Timothy Devinney** is Professor of Strategy and Director of the Centre for Corporate Change at the Australian Graduate School of Management. His research focuses on measurement issues in strategy and international business.

Accepted by Pankaj Ghemawat, Departmental Editor, 1 March 2005. This paper has been with the author for two revisions.

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