

BUILDING FIRM-SPECIFIC ADVANTAGES IN MULTINATIONAL CORPORATIONS: THE ROLE OF SUBSIDIARY INITIATIVE

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This paper investigates how subsidiary companies are able to contribute to the firm-specific advantages of the multinational corporation (MNC). Specifically we examine the determinants of the contributory role of the subsidiary and subsidiary initiative. The study reveals the following significant relationships: (a) internal subsidiary resources in combination with initiative have a strong positive impact on the subsidiary's contributory role; (b) subsidiary initiative is strongly associated with the leadership and entrepreneurial culture in the subsidiary; and (c) contributory role is strongly associated with subsidiary autonomy and a low level of local competition. We discuss the implications of these findings and some of the theoretical issues associated with subsidiary initiative. Our provisional conclusion is that MNC subsidiaries can not only contribute to firm-specific advantage creation, they can also drive the process. © 1998 John Wiley & Sons, Ltd.

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INTRODUCTION

A central theme of much of the recent literature on the strategy of the multinational corporation (MNC) is the increasingly important role played by subsidiary companies as contributors to the development of firm-specific advantages. Traditional academic models that viewed subsidiaries as either 'market access' providers or as recipients of the parent company's technology transfers (Vernon, 1966) gave way in the 1980s to richer conceptualizations in which subsidiaries tapped into leading-edge ideas, undertook important research and development work, and became active participants in the formulation and implementation of strategy (Bartlett and Ghoshal, 1986; Gupta and Govindarajan, 1994; Hedlund,

1986). The generation of firm-specific advantages, correspondingly, shifted from being the sole concern of the parent company to a collective responsibility for the corporate network.

This paper investigates *how* subsidiary companies are able to contribute to the firm-specific advantages of the MNC. In one respect the paper is similar to a number of recent articles that have examined the different roles taken by subsidiary companies (Birkinshaw and Morrison, 1996; Ghoshal and Nohria, 1989; Gupta and Govindarajan, 1994; Jarillo and Martinez, 1990; Roth and Morrison, 1992) because we are concerned with understanding those factors that differentiate between high-contributing and low-contributing subsidiaries. However, it is also unique in two important respects. First, we attempt to pry open the 'black box' of the subsidiary by discussing the various activities that occur within it, and the processes that link them. Second, we pick out one key activity, subsidiary initiative, and explore the factors associated with it in detail. Our belief, which this paper provides preliminary evidence

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for, is that the evolution of subsidiary roles can be taken one step further than previously realized. Rather than simply seeing subsidiaries as *contributors* to the development of firm-specific advantages, this paper shows that they can also *drive* the process through their own initiative.

This paper is in five sections. The first section offers a brief survey of the literature on firm-specific advantages and MNC subsidiaries. The second section develops the theoretical concepts of firm-specific advantage in subsidiaries and formally sets out the research propositions. The third section describes the data collection, which was undertaken in a sample of manufacturing subsidiaries in Canada, Scotland and Sweden. The fourth section describes the research findings. Finally, the fifth section offers a discussion of the results from the research and their implications for theory and for practice.

THEORETICAL AND EMPIRICAL BACKGROUND

Researchers have long recognized the centrality of ownership- or firm-specific advantages to an understanding of the *raison d'être* of MNCs. As first shown by Hymer (1976), firms engaging in overseas production must have some form of proprietary advantage to compensate for the natural disadvantage of competing with established firms in a foreign land. As stated by Dunning (1980, 1988) this firm-specific advantage can be subdivided into two distinct types of advantage: asset advantages, that stem from the exclusive privileged possession of income generating assets; and transaction advantages, which reflect the firm's ability to economize on transaction costs as a result of multinational coordination and control of assets. While not a *sufficient* condition for foreign production, there is general agreement that some form of firm-specific advantage is nonetheless *necessary* (Dunning, 1988; Rugman, 1981). Technological resources, in particular, have been the focus of many studies of firm-specific advantage (e.g., Cantwell, 1989; Rugman, 1981; Teece, 1977), though research has also considered manufacturing, marketing, organizational, and human resources (Dunning, 1993: 81).

A major problem, as pointed out by Rugman and Verbeke (1992), is that this research has

tended to assume that the MNC's firm-specific advantages originate in the parent company, whereas the reality is that subsidiaries can play an important part in the creation and maintenance of such advantages. The emerging body of research concerned with subsidiary roles is testament to this shift in the locus of firm-specific advantage creation (see Birkinshaw and Morrison, 1996, for a review). For example, it is reported that subsidiaries can act as contributors to or leaders of innovation projects (Bartlett and Ghoshal, 1986); they can provide major outflows of valued resources to the rest of the corporation (Gupta and Govindarajan, 1994), and they can gain mandates for developing and producing certain product lines on a global basis (Roth and Morrison, 1992). Terms such as *specialized contributor*, *strategic leader*, and *active subsidiary* have been used to refer to those subsidiaries that contribute substantially to firm-specific advantage, while terms such as *implementer* and *branch plant* are used to refer to those that do not contribute significantly to firm-specific advantage.¹

While there is no shortage of typologies suggesting that subsidiaries vary in their contributory role (i.e., in their contribution to firm-specific advantage), there is no definitive evidence for the sources of such variation. A number of studies have looked at the factors associated with differences in contributory role, but they have typically focused on only a subset of the potentially important factors. More specifically, three contrasting perspectives can be discerned from the MNC subsidiary literature. The first perspective is one of *environmental determinism*. Building on the notion that the MNC operates in multiple environments each with its own unique characteristics, the role of each subsidiary is seen in large part as a function of its local environment (Ghoshal and Nohria, 1989; Westney, 1994). Where the local country is strategically important (Bartlett and Ghoshal, 1986) or where the dynamism of local competitors, suppliers and customers is high (Porter, 1990), the expectation is that the subsidiary will have a correspondingly

¹ We should add that we do not see an inexorable trend towards higher value-added in *all* subsidiaries. Many subsidiaries will continue to have simple market exploitation roles; others will take on the higher value-added roles described here.

important role. Industry factors, such as pressure for local responsiveness and global integration (Jarillo and Martinez, 1990), can also be understood within an environmental determinism perspective, in that they represent exogenous factors that the MNC has to adapt to. The second perspective is one of *head office assignment*. This perspective works on the basis that head office management is responsible for defining the strategic imperatives of the whole company, and understands best how subsidiary roles can be assigned to ensure that those imperatives are met. Many studies have concentrated on facets of structural context (Bower, 1970) such as control and coordination mechanisms that can be used to direct the behavior of subsidiary managers, and thus to determine subsidiary role (Birkinshaw and Morrison, 1996; Ghoshal, 1986; Gupta and Govindarajan, 1994; Roth and Morrison, 1992). Others have suggested that subsidiaries can be assigned roles more directly according to their perceived importance or the growth prospects of the market (Bartlett and Ghoshal, 1986). The third perspective is of *subsidiary choice* (cf. Child, 1972), whereby the role of the subsidiary is to a large extent open to subsidiary management to define for themselves. This perspective works on the assumption that subsidiary management understand their local market and their local capabilities better than head office, and that they are in the best position to decide what role the subsidiary should play. Rooted in the work of Canadian scholars such as White and Poynter (1984) and D'Cruz (1986), this perspective focuses on the specific resources and capabilities of the subsidiary, the aspirations of subsidiary management, and the initiative and effort of subsidiary employees as the determinants of subsidiary role (Birkinshaw, 1995; Etemad and Dulude, 1986; Roth and Morrison, 1992; Science Council of Canada, 1980).

Clearly all three perspectives have considerable merit, so for a complete understanding of the phenomenon it would be necessary to consider subsidiary, corporate, industry, and country factors. However, at the same time the three perspectives are competing with one another for relative salience. Is the relation of the subsidiary with its parent company the key determinant of its role? Are the attributes of the subsidiary itself more important? Or is the local industrial environment the most important variable? While this study,

like all others, has its biases and its preconceptions, the relative impact of these three sets of factors will be explicitly assessed.

Management processes inside the subsidiary

Taken as a whole, the body of literature on subsidiary management had done a far better job of understanding aspects of subsidiary context (how the subsidiary relates to its parent, its corporate network, its local environment) than of understanding what actually happens *inside* the subsidiary. If the subsidiary is small, focused primarily on the local market, and wholly dependent on the parent company, the inner workings of the subsidiary are not of great consequence to the MNC as a whole. However, subsidiary growth brings with it an increase in resources and a corresponding reduction in parent control (Prahalad and Doz, 1981), which leads to at least some degree of strategic choice on the part of subsidiary management. At this point, how the subsidiary is managed internally would appear to become a matter of great importance to the corporation as a whole.

A recent study of Canadian subsidiaries by Birkinshaw (1995) provides some insight into the internal workings of the subsidiary. Building on the concept of induced and autonomous action proposed by Burgelman (1983), this study tracked a series of autonomous subsidiary actions, or initiatives, that sought to develop the international value-added scope of the subsidiary. The process model is illustrated in Figure 1. The development of specialized resources was promoted by the vision and actions of subsidiary leadership. These specialized resources provided the opportunity for initiative by subsidiary managers which led to the development of international responsibilities (Crookell, 1986). These responsibilities ranged from just manufacturing (e.g., of a family of chemicals for international sale) to product development, manufacturing, and marketing accountability (e.g., for a new range of computer monitors). The enhanced resources and international responsibilities led both to an increase in subsidiary initiative and to increased visibility in the corporate system. Increased visibility, in turn, represented an affirmation in the ability of subsidiary leadership and a further stimulus for initiative. The case of 3M Canada, in particular, showed how the process of subsidiary develop-

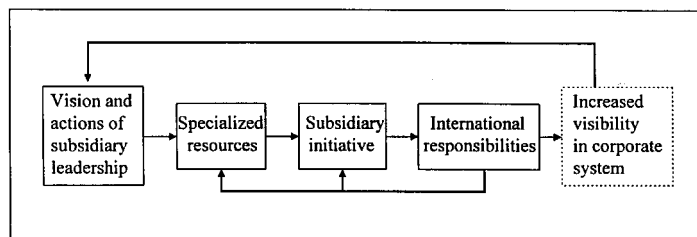


Figure 1. Process model of subsidiary activities and subsidiary resources

ment occurred over a long period of time and almost exclusively through the activities of subsidiary management. The process represented here echoes the work of Ghoshal and Bartlett (1994) in that initiative, resource growth, and visibility form a virtuous circle of development that is invigorated by the actions of top management.

It should be underlined here that initiative appears only to be evident in a subset of the population of subsidiaries. Many subsidiaries exhibit no initiative, in part because such efforts would not be positively received by head office management and in part because management does not have the drive or expertise to pursue initiative. In such cases the development of specialized resources and international responsibilities can still occur, but it rests on the active involvement of parent company managers (Birkinshaw and Hood, 1997). Relatedly, the concept of initiative typically raises some concerns at head office because there are questions over the motivations of the subsidiary manager: is he or she acting in the interests of the subsidiary, the corporation, or the host country? These issues will be revisited in the discussion section of this paper.

THEORETICAL MODEL AND PROPOSITIONS

We are now in a position to specify the model that will be examined in this study. A subsidiary is defined as any operational unit controlled by the MNC and situated outside the home country. In some cases there will be a single subsidiary in the host country; in other cases there will be several. Consistent with the resource-based view of the firm (Barney, 1991; Wernerfelt, 1984), a subsidiary is conceptualized as a heterogeneous

bundle of resources. Some of these resources (e.g., the salesforce) are 'location bound' (Rugman and Verbeke, 1992), meaning that their value is limited to their country or domain of operation. Others are not location bound, and can potentially be leveraged by the corporation in other countries. These are the resources that offer the potential for contributing to the MNC's firm-specific advantage. However, there are three criteria that must be met before this potential is realized.

The first criterion relates to the value of the resources. Using a strict resource-based perspective, resources need to be valuable, rare and imperfectly imitable to offer the potential of competitive advantage (Barney, 1991). Our preference is to use a less strict approach that requires the subsidiary's resources to be *specialized*, which we define as superior to those available elsewhere in the corporation. If the subsidiary's specialized resources are combined with other resources elsewhere in the MNC, we suggest that they then become part of the MNC's firm-specific advantage.²

The second criterion is one of recognition by corporate management. Recognition refers to the widespread understanding and acceptance of the subsidiary's specialized resources in other parts of the MNC. The subsidiary may have expertise in process innovation, for example, but if that expertise remains undiscovered by other parts of the corporation, and focused solely on the local market, it can not become part of the MNC's firm-specific advantage. Corporate recognition can

² Whether that firm-specific advantage also leads to a competitive advantage is a separate question. Firm-specific advantage simply refers to the MNC's ability to overcome its liability of foreignness; competitive advantage represents a sustainable low-cost or differentiated position against competitors.

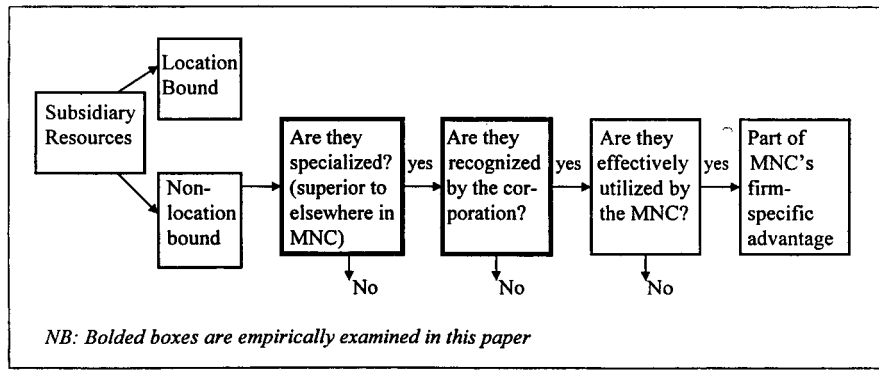


Figure 2. Illustration of link between subsidiary resource and MNC firm-specific advantage

probably be achieved through both top-down and bottom-up mechanisms that are akin to Burgelman's (1983) induced and autonomous strategic processes. The top-down process involves corporate management identifying their leading-edge subsidiaries through informal discussions, productivity measures, and internal benchmarking studies. The bottom-up process consists of entrepreneurial efforts by subsidiary management to demonstrate their expertise and willingness to take on additional responsibilities to head office managers (Birkinshaw and Hood, 1997).

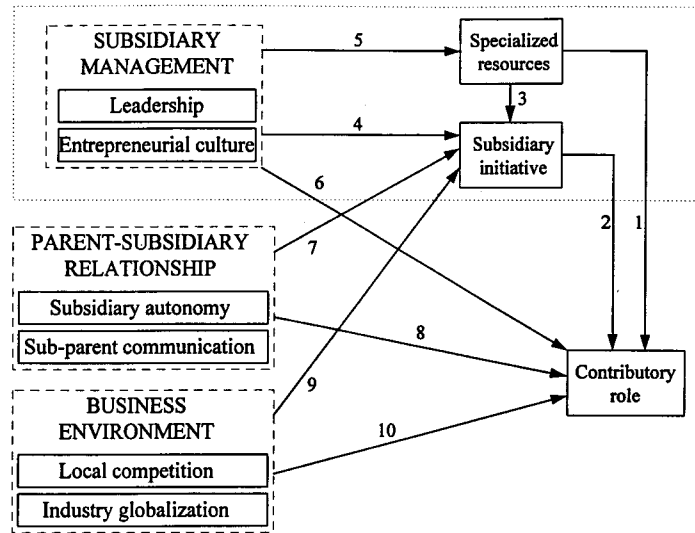
We use the term *contributory role* to refer to the extent to which the subsidiary has specialized resources that are recognized by the corporation as a whole. This term is deliberately broad in scope because the nature of the subsidiary's contribution to firm-specific advantage will vary enormously from case to case. High contributory role subsidiaries include the specialized contributor, strategic leader, and active subsidiary types discussed earlier. Also included are subsidiaries with *world product mandate* and *centre of excellence* designations. The world product mandate terminology has been widely used by Canadian researchers to refer to the subsidiary's responsibility to develop, manufacture, and market a product line worldwide (Rugman and Bennett, 1982; Crookell, 1986). A centre of excellence is usually conceived more broadly as a unit with expertise in a primary or support activity that other parts of the corporation draw on (e.g. Forsgren, 1995). The problem with both these terms is that they suggest a clear-cut division between those subsidiaries with, and those without, recognized spe-

cialized resources, whereas the reality is much less marked. Thus, the term contributory role is preferred because it represents a continuum. Contributory role is the dependent variable in the research model.³

The third criterion by which subsidiary resources are translated into part of the MNC's firm-specific advantage is the effective transfer and/or leverage of the resources in question. This criterion is based on the observation that resources are 'sticky' and often do not get transferred effectively inside the firm (Szulanski, 1995). Indeed, anecdotal evidence suggests that some centers of excellence may be established solely to meet political ends, with no intention of ever transferring the latent expertise to other parts of the corporation, while some world product mandates exist in the mind of the subsidiary manager without ever achieving legitimacy with other parts of the corporation. Unfortunately it is not possible, given the data collected in this study, to examine the resource transfer/leverage process in any detail. To some degree the process is out of the hands of the subsidiary, in that resource transfer depends to a large degree on the willingness of the receptor (Szulanski, 1995). However, it remains a potentially important link that future research should consider in more detail.

The complete model is represented in Figure 2.

³ Though it should be clear that causality does not flow solely in the direction of contributory role. Indeed, as Figure 1 shows, the subsidiary's existing contributory role is one of the major drivers of initiative.



Numbers on paths refer to the hypotheses developed in the text

Figure 3. Theoretical framework and path diagram for PLS analysis

The focus of the empirical part of this research is on the factors associated with the development of specialized resources and contributory role. In particular, we apply the findings from the research quoted earlier (Figure 1) to look at the role of subsidiary initiative in the process. Subsidiary initiative is defined as the entrepreneurial pursuit of international⁴ market opportunities to which the subsidiary can apply its specialized resources.

The remainder of this section will specify the proposed relationships between the independent variables and the two focal constructs (see Figure 3). As suggested by the review of the literature, these propositions represent competing ideas about the drivers of subsidiary development, i.e., whether contributory role is environmentally determined, assigned by the parent company, or a matter of subsidiary choice. It should be observed that the propositions specify *association* between constructs rather than causation. As the discussion so far has shown, causality in many cases is reciprocal, and with cross-sectional data it is impossible to indicate more than association anyway. For the sake of clarity Figure 3 is, nevertheless, drawn with directional arrows.

⁴ The *international* dimension should be emphasized here to distinguish initiatives that offer the potential of enhancing the subsidiary's contributory role from those that are fundamentally local in scope. We are only interested in the former here.

Subsidiary-level factors

The first set of propositions is concerned with relationships *within* the subsidiary unit. Consistent with the earlier discussion and the findings of Roth and Morrison (1992), a positive relationship is anticipated between the subsidiary's specialized resources and its contributory role. Subsidiary initiative, likewise, is proposed to positively influence the subsidiary's contributory role. In theoretical terms this relationship is premised on Burgelman's (1983) analogous argument that autonomous behavior (i.e., initiative) becomes incorporated into a concept of corporate strategy (i.e., the subsidiary's role) through championing efforts and strategic context definition. More specifically, subsidiary research by Birkinshaw (1995), Bishop and Crookell (1986), Ghoshal (1986), and Science Council of Canada (1980) all showed that aspects of subsidiary initiative had an important influence on the role of the subsidiary. Finally, it is also important to specify an anticipated relationship between subsidiary initiative and specialized resources. As suggested earlier, this relationship is expected to be reciprocal in that specialized resources provide the opportunity for initiative, which in turn enhances the subsidiary's resources.

Proposition 1: The level of specialized resources in the subsidiary is positively

associated with the contributory role of the subsidiary.

Proposition 2: Subsidiary initiative is positively associated with the contributory role of the subsidiary.

Proposition 3: The level of specialized resources in the subsidiary is positively associated with subsidiary initiative.

The antecedent conditions for subsidiary initiative and specialized subsidiary resources are anticipated to stem from the efforts of subsidiary management. Following the work of Ghoshal and Bartlett (1994), top management are expected to be instrumental in the development of a supportive behavioral context which in turn fosters initiative among employees. Moreover, to the extent that subsidiary top management has some discretion to directly commit resources to certain projects rather than others, it is anticipated that the strength of top management will be associated with the development of specialized (and potentially valuable) resources. This argument is analogous to Hamel and Prahalad's (1994) thesis that firm competencies should be developed to anticipate or even drive industry evolution. Finally, the strength of top management is also expected to directly influence the subsidiary's contributory role. While specialized resources are the underlying driver of the subsidiary's contributory role, it is typically the championing and sponsoring efforts of top management that trigger the assignment of new international responsibilities or mandates to the subsidiary (Birkinshaw, 1995; Bishop and Crookell, 1986; Burgelman, 1983).

A related aspect of subsidiary top management's role is their responsibility for shaping the development of an entrepreneurial culture in which initiative and risk-taking behavior can thrive (Kanter, 1985; Kuratko, Montagno, and Hornsby, 1990; Peters and Waterman, 1982; Pinchott, 1985). It is intuitively obvious that an entrepreneurial culture is likely to promote initiative.⁵ It is anticipated that an entrepreneurial sub-

sidary culture will also be associated with the development of specialized resources, in much the same way that initiative is seen as a driver of resource development. The implication is that even in the absence of specific initiatives, an entrepreneurial atmosphere should still have a positive impact on the pursuit of new combinations of resources. In summary:

Hypotheses 4a, 4b: The actions of subsidiary management (strong subsidiary leadership; an entrepreneurial subsidiary culture) are positively associated with subsidiary initiative.

Hypotheses 5a, 5b: The actions of subsidiary management (strong subsidiary leadership; an entrepreneurial subsidiary culture) are positively associated with a high level of specialized resources in the subsidiary.

Hypothesis 6: Strong subsidiary leadership is positively associated with a high contributory role for the subsidiary.

Corporate-level factors

The traditional approach to subsidiary management, as exemplified by the process school (Bartlett, 1979; Bower, 1970; Burgelman, 1983; Prahalad, 1976), conceptualized a 'structural context' for the subsidiary which consisted of the various facets of its relationship with the parent company. The subsidiary was controlled, according to this model, through the imposition (by head office managers) of an appropriate structural context that induced managers in the subsidiary to behave in desirable ways. Aspects of context included level of autonomy, formalization of activities, control resources, and social control. In terms of the current study, the suggestion is that by defining an appropriate structural context, corporate management can either promote or inhibit the development of the subsidiary's contributory role.

While there have been a large number of studies of parent-subsidary relationships (e.g., Brandt and Hulbert, 1977; Gates and Egelhoff, 1986; Garnier, 1982; Leksell, 1984; Otterbeck 1981), Ghoshal's (1986) dimensions of structural context were used as the starting point for this study because his study of subsidiary innovations was closest to our concepts of contributory role and

⁵ Though it should be equally clear that they are not the same thing. As defined here, initiatives are discrete cases of entrepreneurship; entrepreneurial culture is an organizational context in which certain behaviors, including initiative, are fostered.

initiative. Ghoshal showed that the creation of innovation in subsidiaries was associated with high autonomy, high parent–subsidiary communication and high normative integration. We therefore predict, in an analogous manner, that decision-making autonomy and high levels of parent–subsidiary communication will be associated with the subsidiary’s contributory role. There is a counter argument to these hypotheses, namely that autonomy can indicate a lack of integration that may limit the chances of gaining recognition for specialized resources. Nonetheless, Ghoshal’s empirical findings form the basis for our hypotheses. Normative integration, that is, the extent to which shared values exist across the corporation, was not specified. In our experience normative integration is very hard to assess at a subsidiary level (Ghoshal polled head office managers) in part because it is a corporate-wide concept.⁶

Hypothesis 7a, 7b: Facets of the parent–subsidiary relationship (subsidiary autonomy; parent–subsidiary communication) are positively associated with a high contributory role for the subsidiary.

Country- and industry-level factors

The final element of the research model is the impact of the business environment (at both a country and industry level) on the subsidiary’s contributory role and its level of initiative. While it is broadly accepted that the nature of the local environment has a bearing on the role the subsidiary plays in the corporation (e.g., Bartlett and Ghoshal, 1986; Ghoshal and Nohria, 1989), our interest in this study was on identifying those aspects of the environment that are salient to the subsidiary’s contributory role. We focused on the level of competitiveness in the local market.⁷ Competition drives the innovation process and the upgrading of capabilities (Porter, 1980, 1990). To the extent that the subsidiary is actively partic-

ipating in its local marketplace, it is anticipated that the level of local competition will have a positive influence on the subsidiary’s own competitiveness, and hence on its contributory role. Porter’s (1990) diamond model, in particular, showed that the presence of clusters of firms in a single location drives the competitiveness of the entire cluster.

There is one caveat in order here, because Porter’s (1990) research did not explicitly consider the impact of cluster development on foreign-owned subsidiaries. Many subsidiaries have limited decision-making autonomy, little opportunity to choose their own suppliers, and limited R&D capacity (Young, Hood, and Peters, 1994). All these constraints impede the subsidiary’s ability to participate effectively in the competitive upgrading process that Porter identified, which suggests that this hypothesis is tentative, given the current state of knowledge.

A second relevant facet of the business environment is its level of globalization. Structural drivers, such as the availability of economies of scale, make certain industries more prone to global integration than others (Kobrin, 1991). At one end of the spectrum are ‘pure global’ industries (Porter, 1986) in which the subsidiary’s activities are integrated with the rest of the corporate network. At the other end of the spectrum are ‘multidomestic’ industries in which competition in one national market is not substantially affected by competition in the next. It is proposed here that the level of subsidiary initiative is directly related to the level of globalization of the industry. Multidomestic industries do not offer much scope for the subsidiary to influence the firm-specific advantage of the corporation, because competition is structured on a local-for-local basis. Global industries, by contrast, require a high level of specialization from subsidiary companies as each focuses on undertaking certain specific activities on behalf of the MNC as a whole. The opportunity for initiative is thus much greater. Once again, it is important to emphasize that this study is concerned with internationally oriented initiatives. It would correspondingly be expected that *locally focused* initiatives are more pervasive in multidomestic industries.

Hypothesis 8: The competitiveness of the local market is positively associated with a high contributory role for the subsidiary.

⁶ Instead of normative integration we attempted to measure the related concept of *credibility*, that is, the extent to which the parent company has confidence that subsidiary management will deliver on their objectives. However, no significant relationships with subsidiary initiative or contributory role were found, so we dropped the construct.

⁷ We also looked into the quality of relationships with local suppliers and customers (Porter, 1990) but no significant relationships were identified.

Hypothesis 9: The level of industry globalization is positively associated with subsidiary initiative.

METHODOLOGY

Empirical data were collected using a mail questionnaire which was completed by top managers in 229 manufacturing subsidiaries of large MNCs in Canada, Scotland, and Sweden. These countries all have substantial populations of foreign-owned subsidiaries with similarities along two dimensions: (a) all three are relatively small countries with high standards of living; and (b) all three are 'peripheral' parts of established trading blocks. In terms of generalizability, it therefore seems likely that the findings of the study will be meaningful to other 'peripheral' countries in developed areas.

Data were gathered during 1995. In each country a slightly different sampling process was used because of the nature of the available data bases. In Canada, the sample was drawn up from a variety of CD-ROM products and directories, including the *Financial Post 500, Report on Business 1000*, and the *Disclosure* data base. In Scotland we used the data base compiled by *Scottish Enterprise*, the inward investment agency, which keeps track of all foreign investors in Scotland. In Sweden we used the data bases of foreign-owned subsidiaries compiled by *Veckans Affarer* and *Compass*.⁸ Using a standard procedure of mailing the questionnaire to the subsidiary CEO and then mailing a remainder 4 weeks later we ended up with 229 responses (34% response rate). Forty-nine subsidiaries were dropped, either because their revenues were below £15 million⁹ or because they had no manufacturing activity, leaving 180 usable responses. The mean annual revenues of the sample were £203 million, with a range from £15 million through to £1.5 billion.

Ninety-nine of the 180 sample subsidiaries reported having some form of international responsibility. The most common parent company nationality by far was the United States (95), followed by Japan, Germany, England, Finland, and Switzerland (each with 10–20 responses). Details of response rates are listed in Table 1.

A test of nonresponse bias was conducted using annual revenues (or number of employees in the case of Scotland) and parent company nationality as dependent variables, and no significant differences were found. We also performed a series of ANOVAs using host country as the independent variable, and again no major differences were uncovered.¹⁰

The questionnaire was developed through a three-stage process. First, the draft questionnaire was reviewed by three academicians, who suggested improvements in wording and advice on layout. Second, following a major revision of the questionnaire, it was sent out to six subsidiary presidents who were involved in an earlier study. They all filled out the questionnaire, while one of the researchers did likewise on the basis of his extensive knowledge of the six companies. Responses were then compared, and where the differences between 'actual' (i.e., from the subsidiary president) and 'expected' (i.e., from the researcher) were substantial amendments to wording were made. In most cases, however, responses were very similar. At the same time, four pairs of subsidiary and head office managers were also asked to fill out the questionnaire, to ensure that the subsidiary's answers were consistent with the perceptions in head office. No significant differences were found. The interrater reliability for these four pairs was 0.65 (using Cohen's kappa),¹¹ an adequate but not exceptionally good result. Finally, once the second round of corrections had been made, the questionnaire was sent to a group of three managers in *another* subsidiary. A researcher met with these individuals to

⁸ The Swedish questionnaire was translated into Swedish and back-translated to verify accuracy. Managers were sent both English and Swedish language versions, with approximately half filling in each version.

⁹ We were unable to achieve complete consistency in subsidiary size across the three countries. In Canada all subsidiaries larger than £40 million were sampled, but in Scotland and Sweden we ended up polling many smaller subsidiaries as well in order to achieve similar numbers of responses. We finally used a cut-off of £15 million, which meant a relative absence of Canadian subsidiaries in the £15–£40 million range.

¹⁰ The one significant difference between host countries was the value-adding scope of the subsidiaries. In Scotland many subsidiaries had either manufacturing only or a predominant export orientation, whereas in Canada and Sweden they typically undertook local marketing and sales activities as well.

¹¹ This is, of course, not as high a coefficient as we would have liked. Our sense from these questionnaires and from talking to the individuals was that head office managers were unable to adequately answer some of the subsidiary-specific questions (e.g., those relating to specialized resources and initiative), which lowered the level of interrater reliability.

Table 1. Sample response rates

	Canada	Scotland	Sweden	Total
Questionnaires sent	270	182	221	673
Returned blank, declined to participate	5	5	18	28
Questionnaires returned complete	87	61	78	226
Response rate	32%	34%	35%	34%
Number used for statistical analysis (i.e., with revenues over £15 million)	78	51	51	180

discuss their responses, which resulted in a few small changes.

Analytical method

The hypotheses were tested using a relatively new multivariate analysis technique known as partial least squares or PLS (Fornell and Bookstein, 1982). PLS, like LISREL, is one of the so-called second-generation multivariate techniques that are increasingly being used to estimate causal models with multiple independent and dependent constructs (e.g., Birkinshaw, Morrison, and Hulland, 1995; Johansson and Yip, 1994; Fornell, Lorange, and Roos, 1990). These techniques allow the researcher to analyze all paths between constructs simultaneously, rather than through a series of discrete regression models. PLS, in contrast to LISREL, has the additional advantage that it makes no assumptions about multivariate normality in the data and it works well with relatively small samples. Generally, PLS is preferred to LISREL in the early stages of theory building and testing, and when the researcher is primarily concerned with the prediction of the dependent variable.

PLS has one further benefit over first-generation techniques. Traditionally the researcher would define a theoretical construct either by summing individual items or by extracting factor scores from a factor analysis. In PLS, however, individual items are kept in their raw form as indicators of the construct,¹² and their loadings on the construct then vary depending on the relationship of that construct to other constructs in the model. This is important because it makes

the use of reliability measures such as Cronbach's alpha redundant. Instead, the choice of which individual items to retain, as measures of a construct, becomes part of the overall model testing. Issues of reliability and validity can then be assessed once the model has been finalized.

Construct measurement

Construct measures were adopted from earlier research where possible, most notably from previous MNC subsidiary studies by Roth and Morrison (1992) and Ghoshal (1986). However, it proved necessary to create new measures for several of the key constructs as they had apparently not been measured before. The complete wording of questions, and the correlations between them, are displayed in the Appendix.

Contributory role was operationalized by asking subsidiary presidents what percentage of their revenues (if any) were gained from 'international responsibilities' such as world mandates or centers of excellence (i.e., activities it undertook on behalf of the corporation as a whole), so that 0 percent would suggest that the subsidiary had no international responsibilities and 100 percent would suggest that all their revenues were gained from their international responsibilities. This measure achieved our intention of recording those activities that were international in scope and recognized by the corporation. However, it focused on physical and technological resource flows which meant that some aspects of the subsidiary's qualitative contribution to firm-specific advantage (e.g., sharing of ideas, knowledge flows) were probably not picked up. Two other measures were also used: a simple measure of international sales as a percentage of the total revenues, and a subjective measure of the subsidiary's value-added contribution to the corporation. Both were significant correlated to the first meas-

¹² All indicators were reflective rather than formative. This means that there is assumed to be an unobservable that 'causes' the observables, rather than vice versa (Fornell, 1984).

ure ($r = 0.55, 0.17$ respectively), but they exhibited very weak loadings in the PLS analysis so they were eventually dropped.

Specialized resources was operationalized using an adapted scale from Roth and Morrison (1992). Respondents were asked to rate five different subsidiary capabilities (R&D, manufacturing, marketing, managing international activities, innovation and entrepreneurship) relative to other subsidiaries in the corporation. While these activities are all very different, we found that they all loaded strongly onto a single construct in the PLS analysis, which we interpreted as representing the subsidiary's aggregate level of specialized resources.

Subsidiary initiative was the most troublesome construct to measure. Questions were worded carefully on the basis of previous studies (Birkinshaw, 1995; Bishop and Crookell, 1986; Science Council of Canada, 1980) to identify the various manifestations of subsidiary initiative, from internal bidding efforts through to skunk-works-like product development. Eight questions were crafted, which were then reworked several times on the basis of discussions in the questionnaire development process. Following the advice of a reviewer, we subsequently dropped three of these questions because of questionable face validity. The remaining five questions all loaded strongly onto a single construct in the PLS analysis.

Following from the study quoted earlier (Birkinshaw (1985)), we also tried splitting the initiative construct into two subconstructs: internal initiative (the pursuit of a market opportunity that arose inside the corporate system) and external initiative (the pursuit of an opportunity that arose outside the corporate system). While factor analysis suggested that these two subconstructs could be distinguished, a provisional PLS analysis showed that discriminant validity between them was poor (the path coefficient from one to the other was 0.71). We therefore chose to view subsidiary initiative as a single construct.

Subsidiary leadership was operationalized using three questions relating to the subsidiary's history of strong, internationally respected leaders, the credibility of the leadership with head office managers, and the leadership's efforts at developing middle management. Unfortunately these measures were only moderately correlated with one another ($r = 0.19$ to 0.59), with the

result that the PLS program put most of the weighting on the first question only. We therefore dropped the latter two from the analysis.

Entrepreneurial culture. The five highest-loading items from Kuratko *et al.*'s (1990) intrapreneurial assessment index were used to measure entrepreneurial culture. These questions were concerned with the openness of the subsidiary's working environment to entrepreneurship, risk-taking and innovation. All five items loaded strongly on a single construct in the PLS analysis.

Subsidiary autonomy. A 7-item scale was taken from Roth and Morrison (1992) that asked subsidiary managers to identify whether certain decisions were made in the subsidiary, divisional level, or head office. During the PLS analysis four of the items were dropped because they loaded very weakly on the construct, leaving three items.

Communication frequency. Ghoshal's (1986) measures of communication were used, specifically frequency of communication, frequency of business trips to head office, strength of working relations, and sharing of information. The latter two items were dropped in the course of the PLS analysis, leaving the former two which reflected the frequency of communication between subsidiary and parent company.

Local competition. Beginning with the 7-item scale developed by Woodcock (1994), we extracted two items, 'domestic competition is intense' and 'competition in this country is extremely high', which were strongly correlated ($r = 0.75$). Both these items loaded strongly onto the same construct, which we interpreted as indicating the perceived level of local competition.

Industry globalization. The scale used by Roth and Morrison (1992) was adopted. A factor analysis revealed one primary factor with eight items which represented the extent to which the industry was global. These eight items were then reduced down to four items during the PLS analysis.

RESEARCH FINDINGS

PLS results are generally presented in two stages. In the first stage the 'measurement model' is presented to show that the measures used as operationalizations of the underlying constructs are reliable and valid. In the second stage, the path coefficients between constructs can be interpreted.

The measurement model was assessed by looking at the internal consistency between items intended to measure the same construct, and the discriminant validity between constructs. Internal consistency was determined using the measure suggested by Fornell and Larcker (1981). This measure is similar to Cronbach's alpha, though more appropriate because it does not assume that each item makes an equal contribution to the construct. As shown in Table 2, all the constructs exceeded the level of 0.7, which is considered good for exploratory research (cf. Nunnally, 1978). The discriminant validity of the model was assessed by calculating the average variance extracted for each construct (Fornell and Larcker, 1981). Table 3 shows the square root of the average variance along the diagonal of the correlation matrix. For acceptable discriminant validity, the diagonal elements should be greater than all other entries in the same row and column, as is the case here.

Tests of hypotheses

The primary output from PLS analysis is the path coefficients between constructs which are equivalent to standardized regression coefficients. The significance of these paths is calculated using a jack-knifing technique (Fornell and Barclay, 1983).¹³ It is unfortunately not possible to test the goodness-of-fit of a PLS model: the nearest approximation is the percentage of variance explained in the endogenous constructs (i.e., their R^2 values).¹⁴ Table 4 indicates the path coefficients and R^2 values for 'Model 1', which is the model displayed in Figure 3.

¹³ We also calculated significance levels using the 'bootstrap' technique offered in the PLS computer package. The jack-knife results were more conservative so they are reported here.

¹⁴ While fit indices are available with PLS, they are of questionable validity because the objective function of PLS is to maximize the explained variance in endogenous constructs, not to optimize the model.

Table 2. Measurement model

Construct	Number of items	Internal consistency
Subsidiary entrepreneurship	5	0.88
Subsidiary leadership	1	1.00
Subsidiary autonomy	3	0.81
Sub-parent communication	2	0.76
Local competition	2	0.81
Global integration	4	0.73
Subsidiary initiative	5	0.92
Specialized resources	5	0.77
Contributory role	1	1.00

Note: Internal consistency for each construct is calculated as: $(\sum \lambda_{yi})^2 / (\sum \lambda_{yi})^2 + \sum \text{Var}(\epsilon_i)$, where λ_{yi} is the loading for each item on the construct and ϵ_i is the measurement error for each item.

The statistical analysis revealed some interesting relationships. As predicted there were strong relationships between specialized resources and initiative and between initiative and contributory role, but contrary to prediction there was essentially no relationship between specialized resources and contributory role (path coefficient = -0.03). While there is a strong correlation between specialized resources and contributory role ($r = 0.29$; see Table 3), the inclusion of subsidiary initiative in the model shows that the relationship is spurious. This finding also has strong face validity. It suggests that specialized resources are not sufficient, in themselves, to build the subsidiary's contributory role. Rather, subsidiary initiative is necessary to make the specialized resources known to head office managers and thereby to gain recognition for them.

The actions of subsidiary management (strength of subsidiary leadership, creation of an entrepreneurial culture) had a strong positive impact on the development of specialized resources (path coefficients 0.31 and 0.35 respectively), as predicted. However, entrepreneurial culture had no discernible impact on subsidiary initiative, while subsidiary leadership showed small but significant relationships with both subsidiary initiative and contributory role.

In terms of the other factors, the level of industry globalization had a significant relationship with subsidiary initiative, indicating that, after specialized resources, the strongest predictor

Table 3. Discriminant validity

Correlations between constructs									
Subsidiary entrepreneurship	0.86								
Subsidiary leadership	0.165	1.00							
Subsidiary autonomy	0.180	0.124	0.79						
Sub-parent communication	0.050	0.021	0.025	0.82					
Local competition	0.038	-0.088	-0.130	-0.032	0.87				
Global integration	0.049	0.188	-0.005	-0.022	-0.001	0.71			
Subsidiary initiative	0.134	0.249	0.193	0.105	-0.233	0.258	0.91		
Specialized resources	0.364	0.369	0.113	0.069	-0.043	0.164	0.401	0.454	
Contributory role	0.053	0.272	0.280	0.141	-0.388	0.227	0.662	0.29	1.00

Diagonals indicate the square root of the average variance extracted for the construct. Off-diagonals indicate the correlations between constructs in the PLS model. Average variance extracted is calculated as $\sum \lambda_{yi}^2/n$ where λ_{yi} is the loading for each item on the construct and n is the number of items.

Table 4. Summary of PLS findings for Models 1 and 2

Hypothesis	Path	Path coefficient in Model 1	Path coefficient in Model 2	Support for hypothesis?
1	Specialized resources—Contributory role	-0.03	-0.04	No
2	Subsidiary initiative—Contributory role	0.56***	0.56***	Yes
3	Specialized resources—Subsidiary initiative	0.42***	0.36***	Yes
4a	Subsidiary leadership—Subsidiary initiative	0.07*	0.19*	Yes
4b	Entrepreneurial culture—Subsidiary initiative	-0.06	0.09*	Some
5a	Subsidiary leadership—Specialized resources	0.31**	0.23*	Yes
5b	Entrepreneurial culture—Specialized resources	0.35**	0.32*	Yes
6	Subsidiary leadership—Contributory role	0.11*	0.11*	Yes
8a	Subsidiary autonomy—Contributory role	0.13*	0.14*	Yes
8b	Parent-sub. communic.—Contributory role	0.07†	0.07†	Some
9	Industry globalization—Subsidiary initiative	0.18**	0.22**	Yes
10	Local competition—Contributory role	-0.23**	-0.23**	Yes
	Variance explained in subsidiary initiative	0.249	0.120	
	Variance explained in specialized resources	0.255	0.373	
	Variance explained in contributory role	0.529	0.529	

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

NB: There is one difference between Models 1 and 2: In Model 1 there is a path from specialized resources to subsidiary initiative, in Model 2 that path is reversed.

of initiative is the extent to which the subsidiary is operating in a global industry. The three remaining variables (subsidiary autonomy, parent–subsidiary communication, and local competition) had significant relationships with contributory role. Of these, all were as predicted except local competition, which had a strong *negative* relationship with contributory role. Simply put, this finding suggested that the lower the level of local competition, the greater the contributory role of the subsidiary. We will discuss possible explanations for this finding in the following section.

Additional analysis

Two additional analyses were undertaken. In the first we simply reversed the line of causality between initiative and specialized resources because, as the discussion earlier indicated, it seems likely that causality flows in both directions. The results from this analysis are listed under ‘Model 2’ in Table 4. As one would predict this reduced the explained variance in subsidiary initiative (R^2 from 0.249 to 0.120) and increased it in specialized resources (R^2 from 0.255 to 0.373). However, it also caused small changes in

the paths throughout the model, making entrepreneurial culture a significant predictor of subsidiary initiative, and reducing the significance level of several other relationships.

In terms of the mechanics of PLS, the change in path direction between initiative and specialized resources resulted in much of the variance between the independent constructs and contributory role being channeled through subsidiary initiative, thus increasing the number of significant predictors of subsidiary initiative and decreasing the significance level of the predictors of contributory role. What this means for subsidiary management is harder to say, because there is no *a priori* reason to prefer one model over the other. Our preference is to concentrate on the strong relationships, i.e., the ones that are significant in both models, and to interpret the others with caution. Table 4 lists the results from both models and summarizes the extent to which each hypothesis was supported.

The second additional analysis focused on the relationship between subsidiary initiative and contributory role. Because our interest in initiative was restricted to internationally focused efforts, it is perhaps not surprising that a strong relationship between the two constructs was obtained. To illustrate this point, Figure 4 is a histogram of the relationship between the two. It shows that the strong correlation is driven primarily by the low level of initiative in subsidiaries with no international responsibilities.

To further understand the relationships between

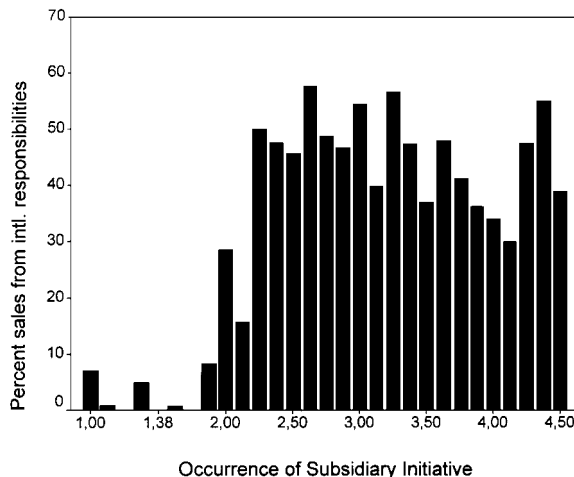


Figure 4. Histogram showing relationship between subsidiary initiative and contributory role

initiative and contributory role, we performed an additional PLS analysis using only the 99 subsidiaries that had international responsibilities (i.e., where contributory role was greater than 0%). This analysis resulted in a nonsignificant path of 0.09 between initiative and contributory role. In other words, *the role of initiative in distinguishing between medium- and high-contributory role subsidiaries is not significant*. Initiative appears to have an important role to play in generating international responsibilities in the first place, but a questionable role in increasing the magnitude of those international responsibilities.¹⁵

DISCUSSION AND CONCLUSIONS

The findings from this research offer a number of important insights into the process through which MNC subsidiaries enhance their contributory role. First, it is clear that the internal workings of the subsidiary matter, though perhaps not quite in the manner we had expected. Subsidiary leadership and an entrepreneurial culture appear to promote the development of specialized resources, which in turn are strongly associated with the existence of subsidiary initiative. However, there is no clear relationship between specialized resources and contributory role except through initiative. This goes somewhat against the findings of a number of prior studies (e.g., Birkinshaw and Morrison, 1996; Roth and Morrison, 1992) that had equated subsidiary resources with the development of world product mandates. Our interpretation suggests that the prior studies had not given due consideration to subsidiary initiative as the means by which specialized resources impact the subsidiary's contributory role. However, as the additional analysis above indicated (Figure 4) the relationship between

¹⁵ One further insight into the relationship between initiative and contributory role was obtained. One question on the questionnaire asked the subsidiary presidents to assess the approximate percentage of their international responsibilities that were 'given' to them by the parent company vs those that were 'earned' by the subsidiary through initiative (cf. Crookell and Morrison, 1990). The mean response was 63 percent earned, 37 percent given. Of course, the danger of socially desirable response here is very great so this finding needs to be interpreted with care, but it suggests that subsidiary managers themselves believe there is an important relationship between initiative and contributory role.

initiative and contributory role is rather complex. It appears that initiative is an important discriminator between high- and low-contributory role subsidiaries, but that the role of initiative may be more critical in the early stages of contributory role development than in its subsequent growth.

The second key observation comes from the surprising relationship between local competition and both contributory role and subsidiary initiative. Simply stated, the survey evidence showed that subsidiaries were more likely to have high contributory roles and undertake initiative if domestic market competition was perceived to be weak. One explanation for this is a simple perceptual bias, in that high-contribution subsidiaries are predominantly exporters and therefore do not think in terms of local competition, but the strength of the relationship suggests this is not sufficient explanation. An alternative explanation is that the original hypothesis was not correctly motivated. We grounded the hypothesis in Porter's (1990) thinking on national competitiveness. Specifically, we argued that the national or local business environment, and in particular the level of competition within it, would drive competitive upgrading by participating firms. To the extent that high-contribution subsidiaries were more competitive than low-contribution subsidiaries, we suggested, one would expect to see a higher level of local competition in high-contribution subsidiaries. In reality we found a strong relationship in the opposite direction.

Porter (1990) did not, however, give explicit consideration to foreign ownership, other than to suggest a process of 'selective tapping' by foreign subsidiaries in leading-edge clusters. It would appear, then, that Porter's study applies primarily to cases where there are clearly defined 'clusters' of related industries that are recognized as world-class, and which MNCs seek access to through their subsidiaries. For the countries in this study, there is little evidence of such clusters: Canada and Sweden both have leading-edge clusters in the natural resource and heavy industry sectors, but these were underrepresented in the subsidiary sample; and Scotland has a cluster of electronics companies in 'Silicon Glen' but this is not a leading-edge cluster in terms of innovation and spin-off companies. Rather than building firm-specific advantages because of the *strength* of the local business environment, the subsidiaries in this study appeared to build them on account

of the industry's relative *weakness*. The high contributory roles appeared to be gained in such instances because the subsidiary was in a relatively protected niche. The suggestion, which cannot be tested here, is that these subsidiaries may make relatively low-quality contributions to the MNC's firm-specific advantage, which are less susceptible to upgrading through local competition.¹⁶

The third important insight is that the parent–subsidiary relationship also had an important role to play in the development of the subsidiary's contributory role and the presence of subsidiary initiative. Subsidiary autonomy, in particular, had an important influence on both initiative and contributory role, while parent–subsidiary communication had a small positive impact on contributory role. When viewed in terms of the 'competing' hypotheses described earlier, it is therefore not possible to choose decisively between environmental determinism, head office assignment, and subsidiary choice. We can clearly state that all three perspectives are important, but because our choice of constructs was not comprehensive it would be inappropriate to indicate that one perspective is more important than the other two.

The role of subsidiary initiative

One of the key objectives of this research was to understand the part played by subsidiary initiative in developing a subsidiary's contributory role. We know from the data presented here and from research interviews that initiative is absent in a large percentage of subsidiaries. Where initiative is present, its relationship to specialized resources and contributory role appears to be positive *but* with a few reservations. The data suggested some of the grounds for these reservations; this discussion will consider some of the theoretical arguments.

Most obviously, initiative is often seen by parent managers as subversive, that is, evidence of subsidiary managers acting in their own or their country's interests rather than in the interests of the MNC as a whole. Moreover, this concern is

¹⁶ In more general terms, it is also possible that Porter's (1990) thinking has relatively less applicability to small peripheral economies such as Canada, Sweden, and Scotland than to those economies with more dynamic clusters and more leading-edge subsidiaries such as Japan or the United States.

not groundless. There are well-known cases of subsidiary managers deliberately building their own 'empires', and there are more ambiguous cases where the entrepreneurial actions of subsidiary management could be interpreted in various ways, depending on one's perceptions. The combination of bounded rationality on the part of parent management and the decreasing dependence of this subsidiary on the parent (Prahalad and Doz, 1981) results in situations where parent company managers have to accept the actions of subsidiary management in good faith, or stifle their ideas through veto.

However, if assumptions of opportunistic behavior are temporarily suspended, subsidiary initiative has a potentially very powerful role to play in the efficiency of the corporate system. Working on the basis that the MNC can be modeled as an internal market (Ghoshal and Bartlett, 1991), it is apparent that some of the inefficiencies in that market arise through the stickiness of existing relationships—retaining the same internal component supplier, for example, just because it has always fulfilled a certain service. Subsidiary initiative provides a means of lubricating the internal market, in that it makes other entities within the market aware of the subsidiary's distinctive capabilities and the uses to which they could be put. In essence, initiative enhances the flow of information which, *ceteris paribus*, improves market efficiency. To some extent this argument is very obvious, but it is nonetheless important because our suspicion is that the resources and capabilities of subsidiary units are very poorly understood by parent and sister company managers around the world. If the MNC is to effectively utilize its far-flung resources (Bartlett and Ghoshal, 1986), it must first understand what those resources are and where they reside. And to the extent that subsidiary managers understand their resources better than anyone else, it is *their* responsibility to proactively seek out ways of utilizing those resources more effectively.

While much of this argument is speculative, it is grounded in the observation that subsidiary initiative is a pervasive phenomenon and tied to the conceptual model of the MNC as an interorganizational network. Much as Kirzner's (1973) entrepreneurs enhanced market efficiency through alertness to new opportunities, the suggestion is that subsidiary units can enhance the distribution of activities within the MNC through

initiative. Whether these benefits are sufficient to counteract the dangers of opportunism and control loss is then a separate question.

A final point that should be made here is that we do *not* see a high level of subsidiary initiative as a driver of product diversification for the MNC. For initiatives to be accepted by the corporate headquarters they must be aligned with the MNC's existing strategic priorities, otherwise they are likely to be viewed as self-interested behavior. We see initiatives, particularly those emanating from peripheral countries like Canada, Scotland, and Sweden, as exploring opportunities at the margins of the corporation's existing product portfolio, by building on existing technologies and competencies rather than creating entirely new ones. As such, this is entirely consistent with the product diversification literature in which a focus on core technologies and/or products is typically associated with high performance (Chatterjee and Wernerfelt, 1991; Markides, 1995).

To conclude, this paper provided support for the emerging view that subsidiaries are significant contributors to the firm-specific advantage of the MNC, though it also raised several additional questions. It was not, of course, possible to demonstrate the link between contributory role and firm-specific advantage. Contributory role represented the extent to which the subsidiary has been assigned responsibility for a value-adding activity on the part of the MNC; the ability of the corporate system to effectively leverage that activity in the global market is what eventually makes the subsidiary's resources part of the firm-specific advantage. Clearly there is scope for future research in examining this link.

This study had a number of significant limitations. Perhaps the most significant was the decision to collect all data from the subsidiary general manager. While this was necessary for certain constructs, it probably created some bias in others. It is therefore recommended for future research that both parent and subsidiary managers are polled where possible. Second, the focus on Canada, Scotland, and Sweden meant that generalizability was limited to peripheral countries in developed regions. We would therefore expect to see rather different relationships exhibited in other settings, such as subsidiaries in large developed countries or subsidiaries in less developed regions.

Finally, the focus on subsidiary initiative provides at least provisional evidence that the subsidiary can *drive* the development of firm-specific advantage creation rather than just be a passive contributor. This finding represents a subtle shift in thinking on the role of the subsidiary in the MNC, because it tips the balance of responsibility for role development towards the subsidiary. It also represents further evidence that the sources of firm-specific advantage in MNCs are increasingly gained outside the home country.

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APPENDIX

Wording of questionnaire items

Contributory Role. Does your subsidiary company have any international responsibilities or world mandates (that is, does it undertake any activity such as manufacturing, R&D or product management on behalf of the corporation as a whole?) If yes, please estimate the approximate percentage of your subsidiary company's revenues that are gained as a result of your international responsibilities. (0 to 100%).

Subsidiary initiative. To what extent have the following activities occurred in your subsidiary over the past 10 years? (1) new products developed in (e.g.) Sweden and then sold internationally; (2) successful bids for corporate investments in Sweden; (3) new international business activities that were first started in Sweden; (4) enhancements to product lines which are already sold internationally; (5) new corporate investments in R&D or manufacturing attracted by Swedish management. 1 = never, 5 = plentifully.

Specialized resources. Indicate your capability or distinctive expertise in the following areas relative to other subsidiaries in the corporation: (1) product or process R&D; (2) manufacturing capability; (3) marketing capability; (4) managing international activities; (5) innovation and entrepreneurship. 1 = far below average, 7 = far above average.

Subsidiary entrepreneurship. Indicate how characteristic each of the following statements is in describing your subsidiary: (1) there is top management support of entrepreneurial activity; (2) top management has experience with innovation; (3) individual risk-takers are recognized whether successful or not; (4) there is encouragement for calculated risks; (5) risk-taker is con-

sidered a positive attribute. 1 = strongly disagree, 7 = strongly agree.

Subsidiary leadership. Indicate how characteristic the following statements are in describing your subsidiary: (1) the subsidiary has a history of strong, internationally respected leaders; (2) the credibility of subsidiary top management is high; (3) the subsidiary CEO or president works with managers to focus their efforts towards the subsidiary's objectives. 1 = strongly disagree, 7 = strongly agree.

Subsidiary autonomy. Which level in your business unit has authority to make the following decisions? Circle the most appropriate decision level based on the following (1, decision made in the subsidiary company; 2, decision made at the sub-corporate level; 3, decision made by corporate headquarters): (1) changes in product design; (2) subcontracting out large portions of the manufacturing instead of expanding the subsidiary's own facilities; (3) switching to a new manufacturing process.

Parent-subsubsidiary communication. How often do senior managers in your subsidiary communicate with their counterparts and bosses in head office (1 = daily, 5 = less than once a month); how often do senior and middle managers in your subsidiary make business trips to head office? 1 = twice a month or more, 5 = less than once a year.

Local competition. Indicate how characteristic each of the following statements is in describing your business environment: (1) competition in this country is extremely intense; (2) domestic competition is intense. 1 = strongly disagree, 7 = strongly agree.

Global integration. Indicate how characteristic each of the following statements is in describing your industry: (1) international competition is intense; (2) business activities are susceptible to global scale economies; (3) product awareness exists worldwide; (4) new product introductions occur in all major markets simultaneously. 1 = strongly disagree, 7 = strongly agree.

Table A1. Person correlations between individual questions

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1. Does your subsidiary have any international responsibilities or mandates?	1																												
2. New products developed in Sweden then sold internationally?	0.56	1																											
3. Successful bids for corporate investment in Sweden?	0.51	0.72	1																										
4. New international business activities first started in Sweden?	0.57	0.82	0.72	1																									
5. Enhancements to product lines which are already sold internationally?	0.70	0.78	0.79	0.82	1																								
6. New corporate investments in R&D or manufacturing started by Swedish mgmt?	0.55	0.68	0.80	0.70	0.79	1																							
7. Capability in product or process R&D?	0.32	0.43	0.36	0.47	0.42	0.43	1																						
8. Capability in manufacturing?	0.06	0.17	0.22	0.26	0.21	0.22	0.36	1																					
9. Capability in marketing?	-0.06	0.01	0.03	0.03	-0.00	0.03	0.22	0.06	1																				
10. Capability in managing international activities?	0.34	0.34	0.28	0.37	0.40	0.29	0.31	0.27	0.29	1																			
11. Capability in managing innovation and entrepreneurship?	0.04	0.16	0.18	0.20	0.10	0.23	0.30	0.09	0.37	0.16	1																		
12. There is top management support of entrepreneurial activity	0.07	0.15	0.09	0.18	0.09	0.12	0.20	0.08	0.18	0.09	0.45	1																	
13. Top management has experience with innovation	0.05	0.13	0.15	0.14	0.08	0.17	0.28	0.23	0.09	0.07	0.44	0.67	1																
14. Individual risk-takers are recognized whether successful or not	0.02	0.06	0.03	0.08	0.00	0.09	0.16	0.08	0.12	-0.03	0.38	0.62	0.61	1															

Table A1. (cont.)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
15. There is encouragement for calculated risk	0.05	0.10	0.09	0.12	0.05	0.11	0.21	0.17	0.14	0.03	0.34	0.64	0.65	0.75	1													
16. Risk-taker is considered a positive attribute	-0.05	0.05	0.05	0.07	0.00	0.04	0.13	0.16	0.09	-0.08	0.37	0.60	0.62	0.72	0.80	1												
17. The subsidiary has a history of strong, internationally respected leaders	0.28	0.25	0.19	0.26	0.30	0.26	0.17	0.14	0.13	0.43	0.13	0.14	0.12	0.09	0.10	0.02	1											
18. Decision to change product design is made at what level?	0.17	0.20	0.08	0.16	0.12	0.12	0.18	0.01	0.06	0.09	0.24	0.20	0.15	0.06	0.03	0.03	0.09	1										
19. Decision to subcontract out portions of manufacturing is what at what level?	0.17	0.12	0.03	0.12	0.10	-0.01	0.10	0.15	0.11	0.07	0.08	0.11	0.15	0.06	0.13	0.12	0.06	0.33	1									
20. Decision to switch to a new manufacturing process is made at what level?	0.32	0.19	0.18	0.21	0.21	0.16	0.25	0.02	0.06	0.17	0.15	0.11	0.18	0.13	0.08	0.09	0.14	0.34	0.38	1								
21. How often do senior managers communicate with others in head office?	-0.06	0.05	0.05	0.04	0.01	0.12	0.03	0.05	0.02	0.07	0.09	0.10	0.12	0.12	0.19	0.14	0.11	-0.18	0.01	-0.01	1							
22. How often do managers in your subsidiary make business trips to HQ?	0.14	0.19	0.12	0.13	0.10	0.09	0.10	0.03	0.00	0.08	0.13	0.12	-0.05	0.03	0.03	0.06	-0.06	-0.01	0.04	-0.10	0.39	1						
23. Competition in this country is extremely intense	-0.25	-1.15	-0.09	-0.06	-0.13	-0.02	-0.01	0.02	0.17	-0.07	0.09	-0.05	0.03	0.06	0.04	0.08	0.03	0.01	-0.03	-0.06	0.10	0.09	1					
24. The level of domestic competition is intense	-0.40	-0.28	-0.15	-0.22	-0.27	-0.19	-0.14	0.02	0.12	-0.12	0.11	0.06	0.05	0.05	0.05	0.11	-0.12	-0.06	-0.09	-0.11	-0.05	0.02	0.57	1				
25. International competition is intense	0.19	0.17	0.20	0.23	0.22	0.26	0.23	0.12	-0.02	0.25	0.04	0.07	0.12	0.05	0.16	0.09	0.26	-0.03	0.10	0.09	0.03	0.01	0.05	0.02	1			
26. Business activities are susceptible to global scale economies	0.14	0.07	0.22	0.16	0.16	0.13	0.06	0.17	0.02	0.07	0.03	-0.04	0.07	-0.04	0.01	0.07	0.06	-0.10	0.07	0.02	-0.09	0.05	-0.02	0.14	0.39	1		
27. Product awareness exists worldwide	0.01	-0.03	0.07	0.06	0.06	0.16	0.14	0.04	0.04	-0.03	0.03	0.05	0.06	0.01	0.06	0.04	0.07	-0.15	-0.08	-0.03	0.01	0.00	0.07	0.05	0.49	0.39	1	
28. New product introductions occur in all major markets simultaneously	0.18	0.03	0.11	0.10	0.13	0.12	0.01	-0.02	-0.10	0.07	-0.01	-0.08	-0.06	-0.02	-0.06	-0.04	0.12	-0.15	-0.22	-0.05	0.05	-0.04	-0.08	-0.12	0.09	0.16	0.27	1

Significance level of correlations can be interpreted using the following critical values: $p = 0.05$, $r = 0.15$; $p = 0.01$, $r = 0.19$; $p = 0.001$, $r = 0.25$.

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