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Subsidiary Impact on MNC Competitive Advantage

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Competence Development through Business Relationships or Competitive Environment? – Subsidiary Impact on MNC Competitive Advantage

Abstract

- This paper examines the question as to whether two alternate environmental factors – competence development in subsidiary business relationships and competitive pressure of the subsidiary business environment – relate to the impact of subsidiaries on the competence development and performance of the larger MNC organisation. Using data from 501 foreign-owned MNC subsidiaries in three Nordic countries; Sweden, Finland and Denmark, the paper develops and tests four hypotheses using the Lisrel package.

Key Results

- The results show that the competitive pressure of the subsidiary environment is a strong driver of competence development in business relationships. Subsidiary competence development in business relationships is also involved in competence development in the larger MNC organisation, which strengthens the subsidiary's impact on MNC performance.

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Introduction

The need for studies of how MNCs make extensive use of the knowledge of subsidiaries is stressed in the literature. The relevance of such studies has its origins in the belief that an MNC is a knowledge-seeking organisation and that knowledge transfer between its separate units leads to competitive advantage (Cantwell 1990, Kogut/Chang 1991, Madhok 1997, Teece/Pisno/Shuen 1997, Frost 2001). An important condition, though, is that subsidiaries actually do develop unique knowledge, a “fact” confirmed in several studies which partly has been explained by the characteristics of subsidiary environments (Bartlett/Ghoshal 1986, Andersson, Forsgren, and Holm 2002, Foss/Pedersen 2002). For instance, besides other explanations, such as the internal co-ordination of resources and the entrepreneurship of individual managers, the environment is assumed to contribute to the development of corporate “strategic leaders” (Bartlett/Ghoshal 1989), “centers of competences” (Sölvell/Zander/Porter 1991), and “centers of excellence” (Forsgren/Johanson/Sharma 2000, Holm/Pedersen 2000) and, thus, competitive advantages for the MNC (Cohen/Levinthal 1990, Dunning 1998, Nobel/Birkinshaw 1998).

The characteristics of the environment and the mechanisms of knowledge creation have been variously described. This study concentrates on two environmental perspectives.¹ The first perspective concerns the environment as constituting an *aggregated force* manifested as the degree of competition, rivalry, pressure from customers, and quality of suppliers. For instance, it is sometimes argued that intensive competition or customer pressure provides incentive for innovation (Porter 1980, Scherer/Ross 1990). The competitive advantage of firms is associated with competitive pressure from environmental actors, implying that firms should seek dynamic and competitive environments as they create pressures to innovate (Porter 1990). This environmental perspective also typifies contingency theory (Lawrence/Lorsch 1967, Stopford/Wells 1972), and has often been applied in studies of MNCs (Prahalad/Doz 1987, Hedlund 1986, Nohria/Goshal 1997).

The second, somewhat emergent perspective is built on the idea that each MNC subsidiary is embedded in *specific* business relationships (Johanson/Mattsson 1987, Anderson/Håkansson/Johanson 1994). According to this “relational view”, knowledge develops from the relationship-specific investments and adaptations in technology and business practices (c.f. Dyer/Singh 1998, Andersson/Forsgren/Holm 2002). The external network is not “faceless” and the analytical focus deals with the impacts of specific relationships (Björkman/Forsgren 1997, Håkansson/Johanson 2001).

In the present study, a composite model is developed to investigate the effect of the two environmental perspectives on the impact of subsidiaries on MNC competence development and performance. The rationale for developing the

model is based on the increasing acceptance by researchers that persistent superior performance is feasible when firms possess superior positioning in the environment and when they possess superior competence. We argue that these two perspectives are complementary in that they seek to explain the same phenomena. This might provide an extended understanding of the sources of sustainable competitive advantage. We have developed hypotheses and organised them into a structural model that includes four constructs: competitive environment, competence development through business relationships, and subsidiary impact on MNC competence development and on MNC performance. The model focuses on the subsidiary level and on the impact that subsidiaries have on MNC competitive advantage.

The rest of the paper is organised as follows. In section two we discuss the relationship between competence and performance: first we provide background information, and then more specifically we discuss the impact of the two environmental perspectives on MNC competence development and performance. This generates four hypotheses that are organised and illustrated in a structural model. In a subsequent section, we discuss methods and data collection. The results of testing the model with the LISREL package are presented, followed by an analysis and concluding remarks.

Competence and Performance

Research into MNCs has stressed the importance of firm-specific assets (Hymer 1976, Caves 1996). Dunning (1988) and Buckley and Casson (1976) argue that MNCs possess superior resources and have a competitive advantage compared to their local competitors. These advantages evolve at the head office and are transferred successively to overseas subsidiaries. However, evidence increasingly shows that foreign subsidiaries are themselves important sources of competence (technical, marketing, and/or organisational) for the MNC. This means that subsidiaries develop and possess knowledge of their own and they may develop their knowledge with or without the formal consent of their head offices. Consistently, it has been argued that the competitive advantage possessed by MNCs lies in the reverse flow of competencies from foreign subsidiaries to the head office (Ghoshal 1987). Here competence implies the ability to generate and take advantage of business opportunities. Related to this proposal, Teece (1986) and Madhok (1997) state that higher rents and better performance arise from complementary firm-specific competencies that enable exploitation of those resources. Argyris and Schon (1978), Wernerfeldt (1984), and Wernerfeldt and Montgomery (1986) put forth a similar argument.

Along with the search for explanations of firm performance within the field of strategy, scholars have suggested several views of the source of firm competitive advantage, of which three well-known perspectives can be distinguished. First is research drawing on the IO tradition (Porter 1980). According to this perspective, the firm's competitive environment has been emphasised and the sustainability of rents depends on the relative influence of competitive forces encountered by the firm (Henderson/Mitchell 1997, McGahan/Porter 1997). Second, within the resource-based view, it is argued that the firm's internal environment drives competitive advantage and that performance differences arise from the firm's development and accumulation of rare, valuable, and inimitable resources and capabilities (Wenerfeldt 1984, Barney 1991). Third, a network-based view of how firms get access to rent-generating resources and capabilities is emerging. For instance, in this "relational view" of competitive advantage, Dyer and Singh (1998), and Andersson, Forsgren, and Holm (2002) argue that critical resources and competencies extend firm boundaries and derive from idiosyncratic inter-firm relationships. Consequently, as a subsidiary invests in relation-specific assets and knowledge-sharing routines with other firms, it can gain access to rare and inimitable resources and capabilities.

Thus, whether using an "environmental force" or a "business network" perspective, we can assume that the ability of foreign subsidiaries to generate valuable competencies is associated with their interface with the environment external to the legal border of the firm. In the following sections we first discuss the impact of the competitive environment and business relationships on competence development within the MNC. Next we discuss the relationship between competitive environment and competence development in business relationships. This is followed by a discussion of the relationship between subsidiary impact on MNC competence development and impact on MNC performance.

Competitive Environment and Subsidiary Impact on MNC Competence Development

The relationship between competitive business environments and the configuration of the MNC organisation has been deemed important in explaining MNC competitiveness (Porter 1986). This issue has been treated from various perspectives. For instance, in a study of structural fit, Egelhoff (1988) discusses how the information processing structure can be organised within the divisionalised MNC in order to handle the requirements of the environment. Bartlett and Ghoshal (1989) discuss the importance of the local environment and the level of local subsidiary resources for the evolution and organising of subsidiary roles. Nohria

and Ghoshal (1994) related the impact of environmental complexity (competition and technological dynamism) to centralisation and formalisation in the HQ-sub-sidiary relationship and found that “differentiated fit” and shared values positively affected firm performance. In our study, we assume that the degree of competition in the specific MNC subsidiary environment has an impact on the competence development of the same subsidiary.² Porter (1986, 1990) and Bartlett and Ghoshal (1989) argue that an important task of the MNC is to get involved in environments suitable for certain activities and to co-ordinate these activities within the global organisation. This assumption rests on the fact that the qualities of the business environments – specialisation, competitiveness, and dynamics – differ between the industries of different countries, despite the homogenising effects of globalisation (Kogut 1983). In this IO tradition, it is argued that the characteristics of the business and institutional environment influence the strategy pursued by a firm and its position in the surrounding industry environment. The development of a subsidiary’s position in an environment requires the accumulation of competence in firms, manifested through innovation in new products and processes. The offensive or defensive strategy pursued by the firm, in turn, affects the degree of innovativeness and the competitive strength of firms in a given industry. The level of competition in the environment pressures MNC units to be innovative and to upgrade their competencies (Holm/Malmberg/Sölvell 2003). Customer pressure, for instance, might drive an MNC subsidiary to pursue an offensive strategy and to secure the competence to develop or maintain its technical lead.

Firms can develop these competencies either internally, by reinvestment through continuously performing business activities (Spanos/Lioukas 2001, p. 910), and/or externally, by obtaining them from the outside environment. Almeida (1996) thus notes that foreign subsidiaries located in the United States draw on local competence. For instance, customers may influence a subsidiary by putting stringent demands on it, forcing the firm to be more offensive. Similarly, exposure to competitors may influence a subsidiary through mimicry. In other words, a competitive environment affects performance and the need for the continuous upgrading of competencies to sustain a firm’s competitive advantage. Depending on the subsidiary’s success in competence development and the potential use of a competence by other MNC units, transfer of knowledge to others will be a possible issue.

Assuming that subsidiaries located abroad may acquire specific competencies that make them competitive and different from the rest of the MNC, we would expect such competencies to be attractive to other MNC units. Through various transfer mechanisms, the competitive pressure within the subsidiary’s business environment becomes positively related to the competence development of the larger MNC (cf. Sölvell/Zander/Porter 1991). We must bear in mind, however, that though intangible assets such as experiential knowledge are important for a

firm's competitiveness, they are at the same time rather tacit and subsidiary-specific, and hence difficult to transfer (Zander/Kogut 1995, Gulati 1999, Gulati/Nohria/Zaheer 2000). Nonetheless, although the transfer of subsidiary knowledge can be problematic, it is not isolated from the rest of the MNC. To the extent that subsidiary-specific knowledge is attractive and recognised by other corporate actors, transfer within the MNC is likely, although the extent of the transfer might be circumscribed and the knowledge might be modified to fit recipients' needs. Therefore, the more that an MNC subsidiary is exposed to competition in its environment, the more the subsidiary will upgrade its competencies. These competencies, in turn, will be attractive to the entire MNC and its other units located abroad. Thus:

Hypothesis 1. There is a positive relationship between competitive pressure in the subsidiary environment and the subsidiary impact on MNC competence development.

Business Relationships and Subsidiary Impact on MNC Competence Development

The second perspective does not identify aggregated forces from the external environment of the firm. Rather, the external impact is specifically created and mediated through exchange in specific relationships between the subsidiary and external actors. The MNC consists of several subsidiaries, all embedded in different networks (Ghoshal/Nohria 1997, Andersson/Forsgren/Holm 2002). This means that competence development will vary and be specific to each relationship. These networks supply subsidiaries with resources and competencies so they can compete in markets, and develop products and services to satisfy the needs of their customers. Among a subsidiary's business relationships, a limited number will be highly co-operative and result in interdependencies arising from specific resource investments between counterparts. The benefits from the creation of such embeddedness concern efficiency of exchange and improved comprehension of counterpart capability (see Andersson, Forsgren, and Holm 2002, for a review). Thus, Dyer and Singh (1998) argue that competitive advantage can be gained by building relationships with other firms. Insofar as the MNC constitutes a network of internationally dispersed units, each subsidiary sustains unique business relationships and is exposed to new knowledge and opportunities (McEvily/Zaheer 1999). Together, the variation in network characteristics between MNC units creates a competitive advantage because it increases the breadth of the MNC's network resources (Malnight 1996).

We must stress that the legal boundary of the firm does not establish the limits of the subsidiary network. Thus, the subsidiary often maintains business relationship-like contacts with sister units as well as with external counterparts. These counterparts are interdependent and belong to the same network in which the subsidiaries constitute the bridging links. Because of interdependencies, business relationships are interconnected, and a change in one relationship may cause a change in another relationship (Cook/Emerson 1984, Blankenburg/Johanson 1992). Such interdependence can make knowledge development in a particular subsidiary relevant for several corporate units. The impact on other MNC units' levels of knowledge occurs through the transfer of codified knowledge through various links and mechanisms in the MNC (Nonaka 1994, Kogut/Zander 1992, Grant 1996) *or* through interactive problem solving involving both the subsidiary and its counterparts. In the latter process, knowledge is not diffused between MNC units through "sending and receiving" but from cooperation around relational issues, such as product or process development.

The external embeddedness of subsidiaries has been shown to influence their capacities for innovation and to be a decisive factor in explaining which subsidiaries will contribute to competence development at the corporate level (Anderson/Forsgren/Holm 2002). We can therefore expect that the more that external relationships impact the competence development of the subsidiary, the greater the impact of the subsidiary on knowledge development in the MNC. Differences in subsidiary relationships will create differences in the level and kind of competence existing among subsidiaries. The ability to develop relationships that spur competence affects a subsidiary's possibility of being a potential sender of knowledge or a competent "problem solver" in the MNC. Therefore, we formulate the following hypothesis:

Hypothesis 2. There is a positive relationship between competence development in subsidiary business relationships and subsidiary impact on MNC competence development.

Competitive Environment and Competence Development in Business Relationships

A considerable amount of research documents the importance of inter-organisational relationships for firm growth and performance (Powell/Koput/Smith-Doerr 1996, Uzzi 1997, Zaheer/McEvily/Perrone 1998) and the importance of contacts between companies that develop over time into close business relationships (e.g. Frazier/Spelman/O'Neal 1988, Morgan/Hunt 1994) in which knowledge development is an important element. Nevertheless, seemingly few, if any, such models explicitly deal with the connection between the location of subsidiaries in competitive environments and the development of such knowledge-sharing relationships.

An environment characterised by increasing turbulence and competitive rivalry constitutes a threat to the survival of the firm (Lefebvre/Mason/Lefebvre 1997). The more turbulent and uncertain the environment becomes, the more firms move toward maximising co-operation (c.f. Emery/Trist 1965). For instance, in many industries, sophisticated and demanding customers put pressures on the subsidiary to develop cutting-edge knowledge (von Hippel 1988), and local suppliers pressure selling firms to develop and improve product quality (Dosi et al. 1988). If a subsidiary faces high customer pressures and minimal information exchange and non-specific asset investments characterise the relationships with these customers, the customers can easily switch trading partners. For a subsidiary, such uncertainties are best handled through mutual adaptation and reciprocity, which create expectations of future business exchange, reduced uncertainty resulting in better control, and lower costs on both sides (Trevelen 1987).

Development from arm's-length market relationships into close business relationships implies that the customer firms and the subsidiary adapt their resources and routines to each other, thus building mutual commitment and trust. A competitive advantage is thus unlikely to be achieved from a partnership as long as the partners do not invest in relationship-specific assets, knowledge-sharing routines, or the combining of complementary resources.

Investing in and developing learning networks and knowledge-sharing routines that permit the transfer, recombination, or creation of specialised knowledge, puts subsidiaries at a competitive advantage. Such investments increase co-specialisation, which results in fewer communication errors and, over time, increasing speed to market (Dyer 1996). The firm's critical competence is also largely tacit – embedded in inter-firm routines and processes. To increase the absorptive capacity, that is, the ability to recognise the value of new, external information, to assimilate it, and to apply it to commercial ends (Cohen/Levinthal 1990), it is important for the subsidiary to develop relationships with counterparts that possess expertise which may decrease the impact of buyer power, as suggested by Douglas and Ryman (2003).

Assuming that acquiring tacit and inimitable knowledge is critical for the competitiveness of the subsidiary, then only through active learning in a relationship (e.g. Lane/Lubatkin 1998) can the subsidiary (1) acquire and exploit knowledge developed by others, (2) respond more quickly to market changes than can rivals, and (3) protect itself against unfavourable environmental impact (cf. Baum/Calabrese/Silverman 2000). Furthermore, "a network serves as a locus of innovation because it provides timely access to knowledge and resources that are otherwise unavailable" (Powell/Koput/Smith-Doerr 1996, p. 119). Business relationships, consequently, enable the subsidiary to develop products and production processes and to detect business opportunities. The greater the competitive pressure within the subsidiary environment, the greater the tendency for subsidiaries to encounter and deal with the resulting uncertain environment, through conduct-

ing competence development activities in relationships with important counterparts in the business environment. This leads to the following hypothesis:

Hypothesis 3. There is a positive relationship between competitive pressure in the subsidiary environment and competence development in subsidiary business relationships.

Subsidiary Impact on MNC Competence Development and MNC Performance

Innovations in terms of new products, services, and production technologies (Damanpour/Evan 1984) are a crucial determinant of competitive advantage (Mansfield 1968, D'Aveni 1994). Innovation may be used to close “performance gaps” for a firm or to “catch up” to the innovation leader (Brown/Eisenhardt 1998). The competence-based view suggests that firms act as repositories of knowledge. This, in turn, positively affects the ability to acquire, assimilate, create, and exploit competence, resulting in superior firm performance.

We can conclude that as the MNC subsidiary contributes unique competence to the rest of the MNC, the subsidiary will have a positive impact on MNC performance in terms of its competitiveness in the global market. This implies that knowledge transfer would create advantages for receiving units, bolstering their competitive performance in their respective marketplaces. Consequently, through the transfer and use of a subsidiary’s knowledge in, for example, the development of products and processes or business activities by other MNC units, the upgrading of the MNC’s knowledge base will improve the performance of the MNC.

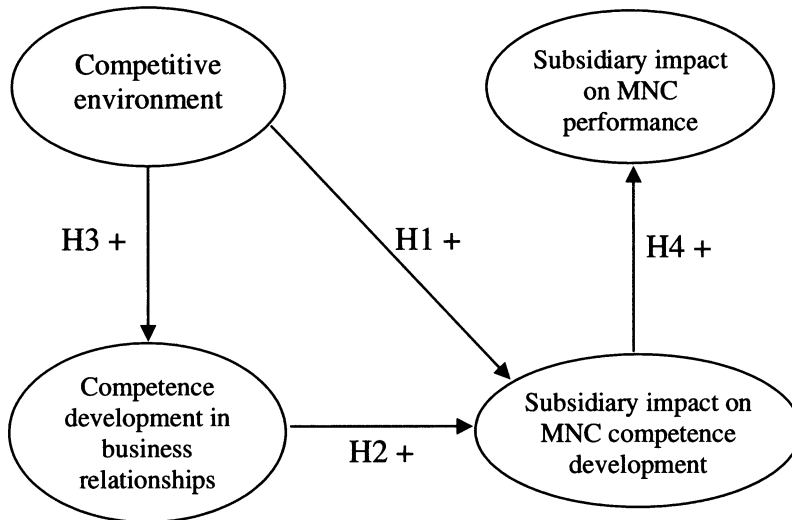
Hypothesis 4. There is a positive relationship between subsidiary impact on MNC competence development and subsidiary impact on MNC performance.

The four hypotheses are organised and summarised in a theoretical model, which clarifies the proposed interrelationships, as shown in Figure 1.

Method

In the following sections, we discuss the collection of data and the operationalisation of the four constructs. We then present some descriptive statistics and the chosen observable indicators constituting the constructs. Then the method of

Figure 1. The Hypothesised Model



analysis is presented. For the empirical test of the hypothesised model, we adopted the LISREL technique (Jöreskog/Sörbom 1993). The first step in this two-step process is to run a measurement model test, which secures convergent and discriminant validity. The second step is to test the hypothesised relationships in accordance with the model in Figure 1. We then present the resulting structural model, the significance of which is evaluated and used for the possible verification of relationships between the four constructs, thereby testing the hypotheses.

Data Collection

This study is based on data from subsidiaries in three Nordic countries, i.e. Sweden, Finland and Denmark that belong to MNCs with foreign mother companies. The sample included subsidiaries in both service and manufacturing industries. Our analysis focused on so-called complete subsidiaries in the sense that they were not specialised in only one activity, for example, in only sales or development. Because we wanted to generate a sample of comparable subsidiaries, all subsidiaries included in the study conducted production, sales and marketing, logistics and purchasing, and product and process development.

In collecting data, a questionnaire was sent to subsidiary top managers, who were asked to evaluate measurable indicators relating to the four constructs presented. In case of uncertainty, respondents were instructed to forward such questions to appropriate alternative respondents in the subsidiary organisation. The

questionnaire was sent out in a two-step procedure, and was answered by the subsidiary's CEO in 70 percent of the cases, and by the sales director, the top controller, or administrative director in the other cases. The first step resulted in 350 answers from so-called complete subsidiaries. To reduce the level of missing values and to clarify obvious misunderstandings, personal contact was established with about 25 percent of the respondents. In the second step, the questionnaire was redistributed to those subsidiaries that had not yet answered, which, after the corresponding re-contact procedure, resulted in 151 further replies. From a sample containing 501 observations, the final response rate was 45 percent, and the average proportion of missing values for individual questions was low – about two percent. Using a test of non-response bias, there was no significant differences between responding and non-responding groups regarding sales volume and number of employees.

Constructs and Indicators

Four constructs are included in the hypothesised model presented in Figure 1, meaning that observable indicators have been selected for each construct. The first construct in the model, *Competitive environment*, follows Porter's (1990) differentiation of the determinants of national competitive advantage, and attempts to capture the competitiveness of the subsidiary's environment as it influences the quality of the firm's strategies and capabilities. The construct involves two indicators: first, the level of pressure from demanding customers (DEMCUS), and second, the level of competition in the environment (COMPLEV).

The second construct in the model, *competence development in business relationships*, captures the extent to which a subsidiary develops its competencies through adapting to, and interacting in, relationships with counterparts in the environment. Two relationships, and thus indicators, have been identified as being important for subsidiary competence development: that is, relationships with customers (CUS), and competitors (COMP). We asked the respondents to what extent specific relationships with each of these counterparts have been important for competence development in their subsidiaries.

The third construct, *Subsidiary impact on MNC competence development*, reflects the extent to which a subsidiary has contributed to competence development of the whole MNC, that is, to competence development in other MNC subsidiaries. According to Mansfield (1968), for instance, competitive advantage is reflected in the development of products and in the degree of development of production technology concerning goods and services among MNC units of a given subsidiary. Two indicators were used. In the first, the respondents indicated the degree to which their respective subsidiaries had contributed to the development of products and processes in other MNC units (PRODPROC). Subsidiary im-

pact may also concern more business-related activities (Frost/Birkinshaw/Ensign 2002). Thus, the second indicator was measured in the same way but concerned the development of marketing and sales activities (MASALES).

Observe that all measures were perceptual and that subsidiary respondents made the evaluation. Thus, the measures of subsidiary impact on MNC competence development and performance were somewhat arbitrary, since it could be argued that the subsidiary managers did not have complete knowledge of their own influence on other corporate units. For this reason there was a risk that they might overestimate their corporate influence. However, there is also reason to believe that the subsidiary managers have a reasonable understanding of their subsidiaries' impact on the MNC through information from the corporate report systems and through communication with HQ managers and other corporate sister units. Still, objective measures would have been preferable although such measures are also associated with several dilemmas (March/Sutton 1997). Another problem is lack of appropriate financial information, such as transfer prices between corporate units, financial transactions, and tax considerations. Concerning the fourth construct, *subsidiary impact on MNC performance*, we focused on perceived impact on performance in terms of profitability (PROF) and competitive power (COMP) rather than on financial measures. Although some have argued that perceived performance and measures that are more objective do not converge (Wexley et al. 1980), many researchers stress that perceptual measures correlate with objective accounting-based measures (Geringer/Hebert 1991).

Another issue is the risk of common-method bias from the use of a single respondent method. To check for the possibility of common-method bias, we used Harman's one-factor test (Podsakoff/Organ 1986). A principal-component analysis including all the items yielded four factors with eigenvalues greater than 1.0 that accounted for 75 percent of the total variance. Since several factors, as opposed to one single factor, were identified, and since the first one did not account for the majority of the variance (24.89 percent), substantial common-method bias did not appear to be present (*ibid*).

The indicators of the four theoretical constructs were measured on a seven-point Likert scale ranging from 1, meaning very low (or not at all), to 7, meaning very strong (or very high).

Descriptive Statistics

Subsidiary size ranged from four to 9,300 employees, with an average of 388. The business volume ranged from two to 2,330 million USD, with an average of 87 million USD. Table 1 presents further descriptive statistics for the eight measured indicators of the four constructs.

Table 1. Descriptive Statistics of Eight Observed Indicators

Statistics	Competitive environment		Competence development in business relationships		Subsidiary impact on MNC competence development		Subsidiary impact on MNC performance	
	DEM CUS	COMP-LEV	CUS	COMP	PROD-PROC	MA-SALES	COMP-NESS	PROF
Mean	5.58	5.49	4.50	3.43	3.20	2.94	3.11	3.37
S.D.	1.13	1.23	1.77	1.83	1.65	1.61	1.71	1.78
Median	6	6	5	4	3	3	3	3
Minimum	1	1	1	1	1	1	1	1
Maximum	7	7	7	7	7	7	7	7

The *competitive environment* indicators averaged 5.58 (DEMCUS) and 5.49 (COMPLEV). For *competence development in business relationships*, the indicators averaged 4.50 (CUS) and 3.43 (COMP). For *subsidiary impact on MNC competence development*, the two indicators averaged 3.20 (PRODPROC) and 2.94 (MASALES). Finally, the two indicators of *subsidiary impact on MNC performance* – competitive power and profitability – averaged 3.11 and 3.37, respectively. Table 1 indicates that subsidiaries apparently did not systematically overestimate their corporate role (discussed above), insofar as the median value is only 3 (on the seven-point scale) for the indicators measuring the impact on MNC development and performance. A correlation matrix of the constructs is provided in the Appendix.

Data Analysis

The hypothesised model was tested using the LISREL package (Jöreskog/Sörbom 1993). LISREL is a multivariate technique suitable for estimating causal models with multiple independent and dependent constructs. The purpose is to generate a coherent representation of data through repeated iterations. A specific relationship that cannot be verified is omitted from the subsequent analysis (Bollen 1989). Thus, our aim was to construct a structural model consisting of significant relationships, valid for the entire model, that is, nomologically valid.

The analysis was done in two steps. First, we ran the observable indicators used for measuring the four constructs, thus creating a so-called measurement model to evaluate different forms of validity. Table 2 shows the result of the measurement-model test (i.e., test of construct validity), with factor loadings, t-values, and R^2 values for all indicators. The four constructs had good validity, in that their factor loadings ranged between 0.45 and 0.98, and in that all t-values,

Table 2. Constructs and Indicators

Constructs and Indicators	Abbreviation	Factor loading	T-value	R ² value
Competitive environment				
Demanding customers	DEMCUS	0.96	6.42	0.82
Level of competition	COMPLEV	0.48	5.67	0.23
Competence development in business relationships				
Customers	CUS	0.79	–	0.63
Competitors	COMP	0.45	4.94	0.21
Subsidiary impact on MNC competence development				
Products and processes	PRODPROC	0.77	–	0.59
Marketing and Sales	MASALES	0.79	11.93	0.62
Subsidiary impact on MNC performance				
Competitiveness	COMPNESS	0.98	–	0.96
Profitability	PROF	0.87	18.95	0.76

ranging between 4.94 and 18.95, were significant. The R² values were also relatively high, with the exception of two indicators: the COMPLEV indicator in the *Competitive environment* construct had an R² of 0.23, while the COMP indicator in the *Competence development in business relationships* construct had an R² of 0.21. These values are acceptable, but indicate a certain imbalance in the constructs because the indicators, DEMCUS and CUS, weigh more than do the others. However, as the two former indicators had acceptable R² values and significant t-values they remained in the analysis. Our set of latent constructs also showed good discriminant validity, in that no construct (or indicator) had significant factor loadings, vis-à-vis any indicator, other than those that they were stipulated to indicate.

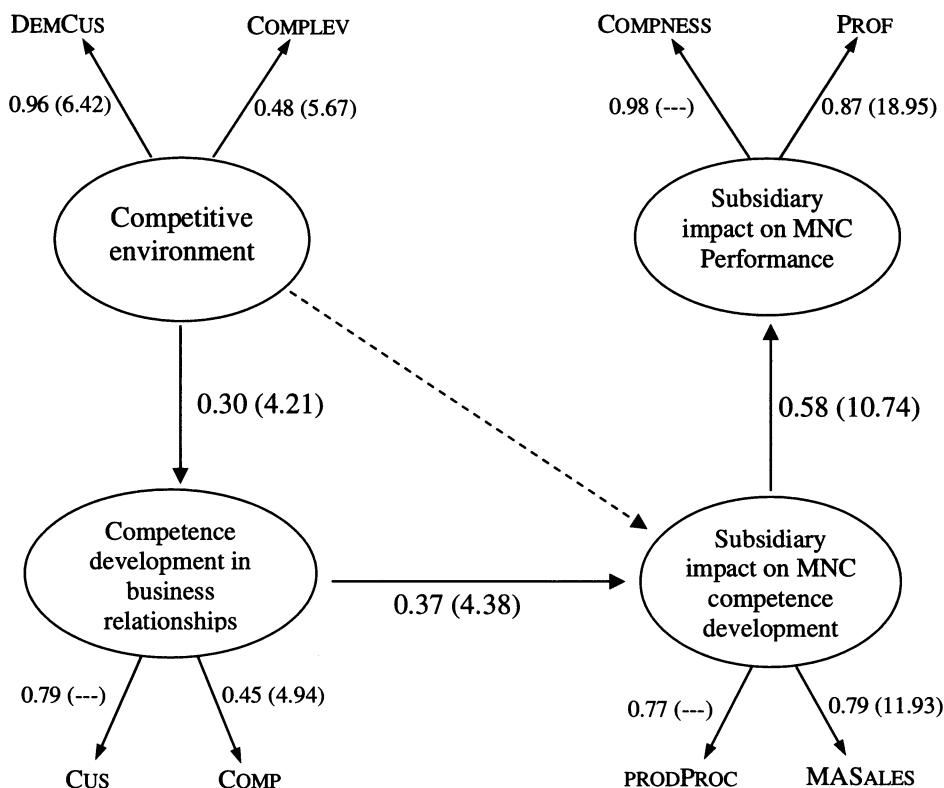
The Results of the Model Analysis

The second step in our analysis was to test the structural model. The first test included all four specified hypotheses. This resulted in a significant model with a p-value of 0.12. Thus, the model was significant and valid above the 5-percent level, indicating a small distance between the data and the model (Jöreskog/Sörbom 1993). However, in this comprehensive test, all relationships except *Hypothesis 1* were significant (*Hypothesis 1* had a factor loading of 0.02 with a t-value of 0.46). In a second test we omitted (the alternate) *Hypothesis 2* and ran the test with all other hypotheses remaining in the model. In this test *Hypothesis 1* had a factor loading of 0.15 with a t-value of 2.83. However, this model did not result

in a significant p-value ($p = 0.00002$). Therefore, on the basis of the two tests, *Hypothesis 1* was omitted and a third model involving the other three stipulated relationships was tested. This resulted in a significant model with a p-value of 0.16 ($\text{Chi}^2 = 21.63$, $\text{df} = 16$). Therefore, within the context of the present model, a direct relationship between competitive environment and subsidiary impact on MNC competence development (*Hypothesis 1*) cannot be verified. Further, the other indices, CFI, GFI, NFI, and NNFI, were all between 0.98 and 1.00, also indicating a good fit between the model and the data (Bentler 1990, Bentler/Bonnet 1980). The final model and its results are presented in Figure 2 below.

The model in Figure 2 indicates that subsidiary impact on MNC competence development is indirectly driven by subsidiary location in competitive environments via competence development in subsidiary business relationships. The results therefore support *Hypotheses 2* and *3*: that competitive pressure in the environment has a significant effect on competence development in subsidiary

Figure 2. Resulting Structural Model



P-value = 0.16, Chi-square = 21.63 (df = 16)
 RMSEA = 0.027, CFI = 1.00, NFI = 0.98, NNFI = 0.99, PNFI = 0.56, GFI = 0.99, PGFI = 0.44

business relationships (factor loading = 0.30, t-value = 4.21). In turn, the competence that develops through these relationships is positively related to the subsidiary impact on competence development within the larger MNC, that is, its development of products, processes, marketing, and sales activities (factor loading = 0.37, t-value = 4.38).

The resulting model also supports *Hypothesis 4*: that the subsidiary impact on competence development within the larger MNC is positively related to the subsidiary impact on MNC performance in terms of competitiveness and profitability (factor loading = 0.58, t-value = 10.74).

Concluding Remarks

Recent research into MNCs is acknowledging the importance of foreign subsidiaries as sources of competence. But empirical research into how the environmental conditions of foreign subsidiaries influence MNC competitive advantage is still limited. The purpose of this paper was to investigate the link between the nature of the environment of foreign MNC subsidiaries and their impact on MNC competitive advantage. The overall results indicated that competence development in business relationships had the strongest direct effect on MNC competence development, as the competitive environment construct was insignificant in the comprehensive test and produced an insignificant model when the business relationship construct (*Hypothesis 2*) was omitted. Therefore, the results excluded *Hypothesis 1*, i.e. the relationship between competitive environment and subsidiary impact on MNC competence development. Hence, upgrading MNC competence (in products and processes, and in marketing and sales) does not directly follow from the degree of local competition in the specific subsidiary environment. Still, the competitive environment construct played a central role in the model inasmuch as it affected the creation of competence development in business relationships that, in turn, affected the possibility of the subsidiary having an impact on MNC competence development. Thus, *Hypotheses 2, 3, and 4* were verified.

The subsidiary may create structural fit with the environment for its local purposes, and sister units in an MNC located at other markets may receive objective knowledge of this. However, we obtained a significant model only when the effect was mediated through competence development in business relationships. This may have to do with the variation of local subsidiary environments, which means that the competition and characteristics of a particular subsidiary environment has low relevance for investments in other local environments. Thus, the requirements and need for structural fit differ between country markets. Accordingly, sister units in an MNC will have different pasts and different evolutionary

trajectories, and may therefore find it more difficult to assimilate competencies originating from other business and institutional environments. Their internal routines and processes may not be suitable for assimilating competencies developed under distinctly different environmental conditions, and thus achieving an extensive impact on MNC competence development is difficult. However, the support for *Hypothesis 3* implies that the uncertainty that appears from customer pressure and competition is “handled” through the creation of interdependent and co-operative relationships with other business actors. This institutionalisation seems not only to secure business sustenance and exchange efficiency, but also to provide mutual learning possibilities. Thus, the results of this study relates to and provide support to research on the importance of an organization to buffer, i.e., to insulate itself from disturbances within the environment (Thomson 1967, Miner/Amburgey/Stearns 1990) and environmental uncertainty (Pfeffer/Salancik 1978, Galaskiewicz 1985, DiMaggio/Powell 1983), where it is suggested that inter-organizational linkages are an important source of such buffering.

The investments in specific business relationships are not made in isolation, which means that connections to relationships with corporate sister units may affect corresponding investments among others. Thus, in line with *Hypothesis 2*, competence development in business relationships was related to the subsidiary impact on the wider MNC competence development. This supports the belief that MNC subsidiaries located in demanding local environments, at several corporate locations distant from the central MNC HQ organisation, develop their own superior competencies. The support for *Hypotheses 2* and *4* shows that the network of capabilities, coming from competence development in business relationships, is associated with the competitive advantage of the MNC in terms of impact on MNC competence development and performance. The advantage, which stems from an MNC’s ability to co-ordinate the operations of internationally dispersed subsidiaries, relates to its ability to make use of the competencies developed and accumulated in foreign subsidiaries. These findings relate to the view that the competitive advantage of the MNC can be associated with its global network of capabilities (Madhok 1997).

The study supports the view that the competitive advantage of the MNC concerns knowledge development in several corporate locations originating from external business relationships that emerge in a competitive environment. This is consistent with the business-as-networks approach and the industry structure view although there is reason to stress that competitive subsidiary environments has an indirect effect, that of driving the creation of competence development in business relationships, which in turn affect the subsidiary impact on competence development of the MNC.

The results are also in line with recent studies of the effect of relationships on MNC performance. As suggested by Douglas and Ryman (2003), for instance, an MNC that develops the organisational ability to assimilate external

knowledge, by developing competencies within a partnership or a relationship, may thereby improve its overall performance.

Managerial Issues and Future Research

The results have some implications for both management and future research. First, from a managerial perspective, competence development in external relationships is of strategic importance. The linking role of the subsidiary, between the external and internal network, becomes crucial: to the extent that external relationships via a certain subsidiary impact competence development in the wider system of MNC subsidiaries, the HQ's influence over the strategic development is circumscribed. Not only will the ability to manage the external impact on the MNC depend on the ability of HQ managers to recognise which subsidiaries are (informal) centres of excellence. It will also depend on insight into the quality of subsidiary relationships. In line with Nohria and Ghoshal (1997) each HQ-subsidiary relationship should certainly be specific when it concerns the issue of competence development. Indeed, managerial co-ordination of knowledge dispersal between corporate units, from the HQ level, will largely be a matter of specific monitoring, learning, and sanctioning rather than controlling through authority or hierarchy. Future research should therefore pay attention to how competence development in external network relationships affects the internal diffusion of knowledge. In this process the HQ may play a more or less important role.

Secondly, further studies on what environmental conditions make subsidiaries develop competence-driving relationships, would be fruitful. For instance, what are the effects of the dynamic characteristics of the MNC environment, such as competition, rivalry, and customer pressure, as compared to more institutional factors such as governmental support or tax policies. Further, do different kinds of relationships (e.g., forward and backward linkages) contribute differently to MNC development, and does a subsidiary operating in a more localised environment differ from one exposed to a more regional or global context?

Finally, the findings relate to organising the configuration of the MNC. Porter (1986) stressed the importance of locating MNC units in dynamic and competitive environments to create pressure for competence development. Our results show that such locations matter, but that the effect of such locations highly depends on whether the subsidiary invests in competence development that is rooted in existing business relationships. However, from an HQ managerial perspective it remains problematic not only to identify the suitable competitive environments for location, but also to identify business counterparts suitable for long-term competence development. HQs may choose to "support" (or oppose) the incremental development of a subsidiary's business relationships; it will, however, be problematic to plan their outcomes and value in terms of long-term competitive advantage.

Appendix. Correlations between constructs

Constructs	1	2	3
1. Competitive environment	1		
2. Competence development in business relationships	0.30**	1	
3. Subsidiary impact on MNC competence development	0.11*	0.37**	1
4. Subsidiary impact on MNC performance	0.06	0.12*	0.58**

** Correlation is significant at the 0.01 level; * Correlation is significant at 0.05 level (2-tailed)

Endnotes

- 1 Several approaches contend with the sources of MNC competitive advantage, such as the resource-based view (Wernerfeldt 1984, Barney, 1991). However, the present study will deal with the “external” rather than the internal” environment of the MNC subsidiary. Whereas the first refers to the characteristics and effects of the market, the second refers to the combining of resources between MNC units.
- 2 Subsidiaries may have local, regional, or even global responsibilities. Making such a distinction would probably be useful. However, with regard to environmental characteristics such as competitive pressure or competence development in business relationships, this particular study makes no such distinction.

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