

**EXPLAINING SUBSIDIARY NETWORK EMBEDDEDNESS: THE
IMPACT OF HEADQUARTERS CONTROL MECHANISMS**

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It has been increasingly acknowledged that a firm's external business network should be viewed as a strategic resource, and the degree of embeddedness in such a network has been shown to be a reliable indicator of the value of this resource (Zukin and DiMaggio, 1990; Uzzi, 1996; Dyer and Singh, 1998; Håkansson and Snehota, 1998; McEvily and Zaheer, 1999; Gulati et al., 2000; Rowley et al., 2000). The importance of the external business network as a strategic resource has also been demonstrated in the context of the multinational firm (MNC). The extent to which a subsidiary in an MNC is embedded in close relationships with external customers, suppliers and other counterparts is important for the subsidiary's performance in several dimensions. For instance, it has been demonstrated that external business network embeddedness has a positive impact on a subsidiary's expected sales growth, market share and profitability as well as on its importance for other MNC units' competence development (Andersson, Forsgren and Holm, 2001, 2002). There are also indication of a positive relationship between a subsidiary's degree of external embeddedness and its influence on strategic decisions in the MNC (Andersson and Forsgren, 2000).

The underlying reasoning behind the importance of embeddedness rests on two basic assumptions. First, closeness in relationships with specific customers, suppliers and other counterparts improves the subsidiary's ability to absorb new knowledge from the environment (Lane and Lubatkin, 1998; Hansen, 1999). Secondly, innovative behavior, as a distinctive activity, is something that is going on as much *within* business relationships as within firms (von Hippel, 1988; Håkansson, 1989). Closeness in the relationships, in terms of trust, adaptation of resources and frequency of interaction, is a prerequisite for relation specific innovations, due to the uncertainty and long-term orientation of such activities. A subsidiary's degree of external network

embeddedness, in terms of closeness of specific relationships, therefore, is a fruitful indicator of its level of resources and consequently to what extent the MNC can be characterized as a differentiated network.

While the importance of subsidiary external network embeddedness is recognized in the MNC literature, few efforts have been made to explain why subsidiaries differ in terms of their embeddedness. In this paper we propose that the control mechanisms used by MNC headquarters influence the degree of external embeddedness of foreign subsidiaries. Based on a review of the literatures on MNC control and subsidiary embeddedness we develop a range of hypotheses that are tested on a sample of Western-owned subsidiaries located in Finland and China. The results indicate that MNC headquarters indeed can influence the extent to which their foreign subsidiaries are externally embedded. The implications of the findings for MNC management and further research are discussed.

CONCEPTUAL DEVELOPMENT AND HYPOTHESES

There is today widespread agreement that MNCs should be conceptualized as differentiated network of internationally dispersed units (Ghoshal and Bartlett, 1990). Foreign subsidiaries differ substantially in terms of the roles that they are playing in the MNC; with some subsidiaries playing strategic roles for the MNC as a whole and others playing much more constricted roles (Hedlund, 1986; Bartlett and Ghoshal, 1987; Jarillo and Martinez, 1990). The stock of resources controlled by the focal unit is a key determinant of the importance of the role that it plays for the organization as a whole (Hedlund, 1986).

In Nohria and Ghoshal's (1997) discussion of possible extensions of the model of the differentiated MNC they emphasize the need to recognize that the MNC is not only an intra-network but also that the environment of each MNC unit is itself a network of other organizations such as customers, suppliers, regulators and competitors. Other researchers have suggested that the concept of network embeddedness (Polanyi, 1957; Granovetter 1985, 1992; Håkansson and Snehota 1995, Dicken et al. 1995; Uzzi 1996, 1997; Gulati 1998; Forsgren et al., 2000; Andersson et al., 2001) should be integrated with the conceptualization of the MNC as a differentiated network.

The concept of embeddedness has been used by several scholars to emphasize the relationships with other business actors as a crucial ingredient of every organization's business life (see, e.g., Polanyi, 1957; Granovetter, 1985, 1992; Zukin and Di Maggio, 1990; Grabher, 1993; Håkansson and Snehota, 1995; Uzzi, 1996, 1997; Gulati, 1998; Halinen and Törnroos, 1998; McEvily and Zaheer, 1999; Dyer and Chu, 2000; Gulati et al., 2000; Rowley et al., 2000). The concept of network embeddedness has also been used more specifically to analyze certain issues in relation to MNCs (Andersson and Forsgren, 1996; Forsgren et al., 1999).

Even though a closer look at these works reveals great variety in the conceptualization of network embeddedness, there do seem to be some common themes (for an overview, see Dacin et al., 1999). First, network embeddedness can be looked upon as a strategic resource that will influence the firm's future capability and expected performance. Therefore, performance can differ between firms because of differences in network embeddedness. Second, embeddedness in business networks is assumed to

develop over time from more arm's length relationships to relationships based on adaptation and trust (Larson, 1992; Håkansson and Snehota, 1995; Ford, 1997; Uzzi, 1997). Consequently, embeddedness should be treated as a continuous variable rather than as something that is either absent or present (Dacin et al., 1999, p. 24). Third, most writings recognize that embeddedness, as a strategic resource has to do with the content of the firm's individual relationships as well as its position within the whole network of relationships. The first aspect has to do with the informational advantages associated with the firm's close links with other actors, while the second aspect highlights the advantages that a strong position within the network as a whole has on the control a firm can exercise (Gulati, 1998; Rowley et al., 1999). Although they overlap considerably, the first aspect has been called relational embeddedness, while the second has been labeled structural embeddedness (Gulati, op.cit.).

Applied in an MNC context, relational embeddedness refers to the extent to which individual relationships in the local market, with customers, suppliers, competitors, etc., can serve as a source of knowledge. It focuses on individual relationships and deals with the extent to which the subsidiary's set of dyads creates opportunities for the subsidiary to improve its performance. An underlying idea is that actors who are strongly tied to each other are in a better position to exchange information than those that are not, and therefore, can learn more easily from each other (Mowery et al., 1996; Uzzi, 1996; Kumar and Nti, 1998; Lane and Lubatkin, 1998; Hansen, 1999). Consequently, an organization does not have an equal capacity to learn from all organizations. A subsidiary's possibility to identify new information in other organizations, and its ability to assimilate this information, is heavily dependent on

the closeness of its existing dyadic relationships with different business partners (Lane and Lubatkin, op.cit).

Structural embeddedness in an MNC context focuses on the subsidiary's overall position in its network of relationships. It has to do with the centrality and in-betweenness of the subsidiary in its network and the extent to which the subsidiary has a bridgehead function between different networks. Compared to relational embeddedness, structural embeddedness is difficult to operationalize because the subsidiary's indirect relationships must be included, in addition to which, the difficulties associated with delimiting an actor's business network are notorious (Anderson et al., 1994; Håkansson and Snehota, 1995).

In the following, a subsidiary's relational embeddedness in its network external of the MNC will be at the center of our analysis. The closeness of the subsidiary's direct external relationships at a dyadic level will be studied, rather than its structural position in the network as a whole.

But, given that the degree of subsidiary embeddedness is of crucial importance both for the unit in question and potentially for the MNC as a whole, how can MNC management influence it? One of the conclusions from the analysis of the MNC as a differentiated network is that if subsidiaries differ, control systems should also differ (Nohria and Ghoshal, 1997). For instance, according to Nohria and Ghoshal (1997), the system used by MNC (or divisional) headquarters to control each and every subsidiary should be adapted to the degree of environmental complexity and the level of the subsidiary's resources. An implicit assumption in this argumentation is that the

use of certain control mechanisms will have the intended consequences on the activities undertaken by the subsidiary. However, while there are a number of studies of the effect of subsidiary characteristics on MNC control strategies (e.g., Egelhoff, 1988; Ghoshal and Nohria, 1989, 1997; Ghoshal et al, 1994), this strand of the MNC literature seems to be largely silent on the actual *effects* of different control systems used by headquarters.

How does the use of different control mechanisms influence the extent to which subsidiaries are embedded in their external environment? Or phrased differently: how should MNCs design a control system if they want to stimulate network embeddedness at the subsidiary level? This is the largely unexplored issue that we address in this paper. In the following section we will formulate some hypotheses concerning the relationship between headquarters control mechanisms and subsidiary embeddedness. The hypotheses will be confronted with data about foreign owned subsidiaries in Finland and China.

Direct control and subsidiary embeddedness

Agency theory (Jensen and Meckling, 1992; Eisenhardt, 1989) has increasingly been used in MNC research (e.g., Roth and O'Donnell, 1996; O'Donnell, 2000). The relationship between headquarters and a subsidiary can be viewed as a principal-agent relationship. The headquarters (principal) try to secure that the subsidiary (the agent) behave in accordance with the principal's goal. Within an agency theory perspective there are basically two types of control the headquarters can use; direct (personal) control or output control. Direct control implies intervention by the headquarters in the subsidiary's on-going operations, through centralized decision-making and/or

through direct supervision by headquarters representatives. Output control implies evaluation of the subsidiary's performance through use of evaluation criteria such as financial performance, market share, productivity or knowledge development.

Direct control puts heavy demand on the headquarters' knowledge about the subsidiary's operations. The existence of information asymmetry between the headquarters and the subsidiary will therefore put constraints on the possibility for the headquarters to use direct control in a way which is beneficial for the subsidiary's involvement in its external network environment.

The use of centralized decision-making is likely to impact on subsidiary embeddedness. First, when decision-making is centralized to headquarters, the decision-makers are less likely to possess an in depth understanding of the local external environment, different facets of the relationship between the focal subsidiary and important local counterparts, and efficient ways in which to deepen the embeddedness of the subsidiary in the network. Developing close relationships with counterparts in the subsidiary's external business network is resource demanding. Knowledge about the counterparts' capabilities and resources must be acquired and the activities on both sides must be adapted to each other. Mutual trust must be created and demonstrated through deepening personal links and mutual investments. To a large extent developing closeness in relationships includes developing tacit and explicit knowledge at the subsidiary level, which is difficult to access, understand and evaluate for the corporate headquarters. Additionally, the attention of MNC headquarters decision-makers is more likely to focus on issues pertinent to the MNC as a whole (or their own unit, i.e. the headquarters) than issues of direct relevance for

the focal subsidiary. Therefore, the more decision-making is centralized to headquarters the less likely decisions are made that are necessary for the further development of the subsidiary's network relationships.

A parallel reasoning is adopted in research about the relationship between subsidiary autonomy and inter-subsidary communications in MNCs (Ghoshal, Korine and Szulanski, 1994). A high degree of decision-making centralization is expected to reduce the kinds of initiatives that the subsidiary may take and reduces the propensity to initiate communication with other sub-units.

Based on the reasoning above the following proposition can be formulated:

Hypothesis 1: Decentralization is positively related to subsidiary external embeddedness.

In line with the reasoning above, development of the subsidiary's relationships with local business actors run the risk of being hampered if headquarters intervenes heavily in activities at the subsidiary level through direct control, for instance by transferring people from headquarters to key positions within the subsidiary. Investment prospects need attention, and attention is dependent on the existent knowledge of the members of the organization. Knowledge about specific customer/supplier relationships, and about the possibilities and needs to develop them further, tends to reside among local subsidiary employees rather than among expatriates who have been transferred to the subsidiary for a limited period of time. Consequently, the more direct intervention is part of the control mechanisms used by the headquarters, the higher the propensity

that activities which are easier to understand and deal with by the expatriate managers will be emphasized, at the expense of developing the relationships with local business actors.

A high degree of subsidiary network embeddedness is associated with mutual investments in the relationship between the focal organizations. A high degree of perceived trustworthiness is a necessary condition for such investments to be made. Unless the other party is viewed to have the ability, integrity or benevolence (Mayer et al., 1995) to contribute to joint business undertakings, the focal unit is unlikely to undertake the necessary steps towards deepening the relationship. Both interpersonal and interorganizational trustworthiness are likely to be of importance. A long history of cooperation and interaction has been found to contribute to perceived trustworthiness as has perceived similarity of the other party (Mayer et al, 1995). Subsidiaries with a large number of expatriate managers are less likely to possess these characteristics than are units with predominately local managers.

Therefore, we suggest the following hypothesis:

Hypothesis 2: Direct control is negatively related to subsidiary external embeddedness

We hypothesize that the more subsidiaries are integrated with the rest of the MNC in terms of relying on supplies from other MNC units and sales of goods and services to other units, the less they will be externally embedded. First, the headquarters' degree of behavioral control over the subsidiary is associated with the operational

relationship between the subsidiary and the rest of the MNC. When the unit is highly integrated with the rest of the MNC it provides an opportunity for MNC management to monitor and directly influence the subsidiary's activities. Based on the arguments presented above concerning the headquarters lack of understanding of local networks and the place of the subsidiaries in these networks, we would expect highly integrated subsidiaries to be less externally embedded.

Second, and related to the first argument, subsidiaries that are highly integrated are likely to spend considerable managerial time and resources on intra-MNC relationships. As a consequence, the subsidiary is likely to devote more resources on managing intra-MNC relationships than on relationships with external business actors. As a consequence the following hypothesis will be formulated:

Hypothesis 3. Integration with rest of the MNC is negatively related to subsidiary external embeddedness

Performance evaluation and subsidiary embeddedness

Also in line with agency theory an important part of every control system is the use of different criteria for evaluation of the agent's performance (O'Donell, 2000). Through the choice of appropriate criteria the principal can influence the behavior of the agent, so that the agent's behavior will be congruent with the principal's objectives. Performance evaluation is especially important in control situations when the information asymmetry is large and therefore direct supervision difficult to apply by the headquarters.

Different performance criteria produce different behavior. For instance, if a subsidiary is evaluated based on yearly sales, marketing and sales efforts will be prioritized at the expense of other activities. On the other hand, if the headquarters emphasizes the development of new knowledge in terms of for instance new products or procedures, the subsidiary is expected to devote special interest to such issues.

This latter type of evaluation criteria is of special importance when the impact on embeddedness is considered. Close and long-lasting relationships with external business partners are conducive for knowledge development (von Hippel, 1988). The subsidiary has a greater incentive to develop such relationships if knowledge development is a crucial criterion by which subsidiary performance is evaluated, even if such development is resource- and time-consuming and therefore less beneficial for the short-term economic performance. Consequently, the choice of performance evaluation criteria used by the headquarters to control the subsidiary can have a profound impact on the existence of external embeddedness at the subsidiary level.

A similar impact can be expected if the corporate role of the subsidiary in the MNC is used as an explicit part of the evaluation system. An emphasis by the headquarters on the subsidiary's ability to share new knowledge with other corporate units can be expected to be conducive for establishing close business relationships. Close relationships are crucial for creating knowledge at the subsidiary level, which is a prerequisite for the subsidiary being successful as a knowledge provider in the MNC. Based on the reasoning above the following hypothesis can therefore be formulated:

Hypothesis 4: Emphasis on knowledge development as an important performance evaluation criterion is positively related to subsidiary embeddedness.

Control variables

In addition to the factors discussed above, some other factors may be associated with external subsidiary embeddedness and should therefore be employed as control variables.

METHODS

Sample and data collection

Data for this study were collected through structured face-to-face interviews with top managers of Finnish and Chinese subsidiaries of Western-owned MNCs. Finland and China were chosen so as to test the hypotheses with data from two different contexts, one advanced small industrial country (Finland) and one large developing country (China). In both cases the data collection was begun by sending a letter to the subsidiary president – in Finland to the 150 largest foreign-owned subsidiaries, in China to some 300 foreign-owned subsidiaries whose contact information was available to us. The letter described the project and emphasized the confidentiality of individual responses. The subsidiary presidents were then contacted by telephone to book interviews. 158 subsidiaries (89 Finnish, 69 Chinese) agreed to participate in the study, resulting in a sample of 35 US-owned, 56 Nordic-owned, and 67 European-owned units. They had been part of their parent corporations for an average of 15 years, had a mean of 375 employees, and average annual sales of 81.3 million US \$.

On average, their parent companies had an annual turnover of 10.718 million US \$ and operated in 67 countries.

The interviews, which lasted 45-120 minutes, were conducted in 2000-2002. During the interviews, the respondents and the researchers went through a pre-tested questionnaire together and filled it out. The questionnaire language was English; any terms respondents had difficulty understanding were explained to them in another language they felt comfortable with (Finnish, Swedish, or Mandarin). After elimination of relationships that contained missing values, the final data set covered 140 subsidiaries.

Measures

Dependent variable

Subsidiary embeddedness. Following established practice, the following four questions were used to measure subsidiary embeddedness. On Likert-type scales ranging from 1=very little to 7=very much, the respondents were asked to indicate to what extent their subsidiaries' most important external business relationships had caused adaptations concerning a) product technology, b) production technology, c) standard operating procedures, and d) business practice. The answers were averaged to form a construct measuring subsidiary embeddedness (mean = 4.31, S.D. = 1.42).

Independent variables

Centralization of decision-making. The respondents were asked to estimate the relative overall influence of the subsidiary and its parent company in deciding upon (1) strategic subsidiary goals and (2) the strategy of the subsidiary. The following scale

was used: 1 = Decided mainly by the parent company or regional headquarters without consulting with or seeking the advice of the subsidiary; 2 = Decided mainly by the parent company or regional headquarters after consulting with or seeking the advice of the subsidiary; 3 = Decided jointly with equal weight being given to the views of subsidiary and headquarters; 4 = Decided mainly by the subsidiary after consulting with or seeking the advice of the parent company or regional headquarters; 5 = Decided mainly by the subsidiary without consulting with or seeking the advice of the parent company or regional headquarters.

Direct control. Direct control was measured as the number of expatriate managers in the subsidiary.

Value chain integration. The extent to which the focal unit was functionally integrated with another internal unit was estimated by asking the respondent to provide data on how many percent of the focal unit's sales were sold to the unit in question, and how many percent of the subsidiary's purchases were bought from that unit. These two measures were combined to a measure of value chain integration that was used in the analyses (mean = 17.8, S.D. = 32.2).

Knowledge development as performance evaluation criterion. The respondents were asked to estimate on a 7-point scale the importance of 'Knowledge development' "when subsidiary performance is evaluated by the business area/the parent company."

Control variables

In addition to the factors discussed above, some other factors may be associated with external subsidiary embeddedness and should therefore be employed as control variables. First, embeddedness is something that takes time to develop. The longer the subsidiary has been in business, the higher its possibility to develop close

relationships with market counterparts. Size of MNC and the subsidiary (annual turnover) as well as the fact that the subsidiary operates in an old developed country (Finland) or in a new developing country (China) is therefore used as control variables in the analysis. It is also reasonable to expect that the form of establishment can have an impact on degree of subsidiary embeddedness. A related factor is whether the subsidiary is a green-field investment or an acquisition if we assume that the acquired firm, on average, has a longer history than the green-field subsidiary. The form of establishment is therefore applied as a control variable. Finally, the breadth of the subsidiary's operations, in terms of value chain activities, can also affect its degree of embeddedness. The number of such activities (manufacturing, sales, service, R/D) is therefore also used as a control variable

RESULTS

The result of the empirical testing is summarized in Table 1. The whole model is highly significant. The most striking result is the clear impact from the use of evaluation criteria on the embeddedness at the subsidiary level. Hence, hypotheses 4 is strongly supported, with a t-value significant at the 1 per cent level. The more the headquarters emphasizes knowledge development, the more embedded is the subsidiary's external network. This result indicates that the use of performance evaluation can have a significant impact on the subsidiary's propensity to invest in network relationship development activities, at least if the criteria used stimulate knowledge-seeking behavior. Such behavior will, in its turn, be conducive for establishing close relationships with external actors in the subsidiary's business network.

If the right performance criteria can be a stimulating factor for creating a high degree of external embeddedness, there is some limited indication that close monitoring may have the opposite effect. Too close monitoring by the headquarters was expected to function as a hindrance to establishment of close business relationships at the subsidiary level. The reason was mainly lack of knowledge at the HQ level about local market condition and too much attention on internal relationships at the expense of external relationships. The overall results indicate that performance criteria play a more important role than possible barriers inherited in the control system. The degree of centralization does not seem to have any impact at all on subsidiary embeddedness, that is Hypothesis 1 is not supported. There is a weak support (at 0.1, one-tailed t-test) for the impact from direct control (Hypothesis 2) while the expected importance of the subsidiary's degree of integration with sister units is also significant only at the 10 per cent level (Hypothesis 3). The latter results suggests that what counts mostly at the "down-side" of the control system is the existence of close relationships with sister units. The negative impact is first of all stemming from the trade off between investing in one type of relationship compared to another type of relationship. The more the subsidiary devotes time and money to foster its internal relationships, the less resources there are to establish close relationships with external counterparts.

Only one of the control variables, subsidiary size, were statistically significant at the $p < 0.05$ (two-tailed t-test). The positive significance indicates that developing close relationships takes time and, therefore, a larger subsidiary will on average show a higher degree of embeddedness. Among the other control variables the subsidiary's

host country (Finland or China) and the value chain scope show the expected sign, although not significant on 0.05 level.

CONCLUDING REMARKS

In an MNC context the quality of the subsidiaries' external network has got an increasing interest among IB scholars. One strand of this research is the emphasis on business network embeddedness, that is the degree of closeness in the relationships with customers, suppliers and other external counterparts that the subsidiary has developed over time. It has been argued that a high degree of embeddedness has a positive impact on the subsidiary's possibility to absorb new knowledge from the environment and be a "knowledge giver" to the rest of the MNC.

In this research subsidiary embeddedness has been conceptualized as an independent variable rather than as a dependent variable. The more the importance of embeddedness is emphasized, though, the more crucial it becomes to address the question of what factors affect subsidiary embeddedness in the first place, that is its role as an dependent variable. This issue is probably a much more challenging task, because such an analysis should include a large number of environmental, technological as well as organizational factors that influence the subsidiary's propensity and ability to develop close relationships with external business partners over time. The limited research so far addressing this issue is therefore not surprising. In this paper we try to make a first modest step in this challenging but important area, by focusing on the impact of HQ control mechanisms have on subsidiary embeddedness. If subsidiary network embeddedness is considered to be a strategic variable of importance for the MNCs overall competitive strength, the possible impact from corporate management systems becomes a natural issue.

A tentative conclusion from our empirical study of the relationship among foreign-owned Finnish and Chinese subsidiaries is that HQ control matters for subsidiary embeddedness. Especially, our results supports the hypothesis that a control system which explicitly applies knowledge development as a performance evaluation criteria can have positive effects on the subsidiary's propensity to develop close relationships with external business partners.

Our results also suggest that direct control in terms of use of expatriates and subsidiary integration in with other MNC units can have a negative impact on subsidiary embeddedness. The last relationship is maybe especially interesting and points to the fact that business relationships are resource-demanding investments. A subsidiary that invest in relationships with sister units have less resource to invest in business relationships with external customers, suppliers and other types of counterparts. This trade off implies a dilemma, of special relevance for MNCs. On one hand, the HQs primary responsibility is to combine and integrate different activities and units in order for the MNC to become something more than a sum of its parts. To use control mechanisms conducive for integration of the individual subsidiary, in terms of business relationships with sister units, is therefore an important task for the HQ. Such integration will probably also facilitate the knowledge flows between the subsidiary and the rest of MNC. On the other hand, due to constrained resources for relationship investments at the subsidiary level, such control mechanisms can have a negative impact on the subsidiary's possibility to develop close relationships with external business actors. This is of course a serious matter if we assume that such relationships are of special importance for competence development at the subsidiary level in the first place.

This study has some shortcomings. First, HQ control mechanisms can be analyzed at different levels and include more variables the ones dealt with here. Second, our result can be influenced by firm-specific factors, for instance difference in company culture etc. A more appropriate research design, therefore, would be to compare subsidiaries within one and the same MNC. Third, casual relationships are difficult to explore with cross-sectional data. In future research longitudinal studies of changes in control mechanisms and subsidiary embeddedness are necessary to explore this relationships more in depth. Fourth, there are other factors that should be included in a model where subsidiary embeddedness is the dependent variable, such as type of product, market conditions, technology etc. Our result, although interesting enough and raising a lot of exciting issues for further research, is more tentative than conclusive.

ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|------|
| 1 | Regression | 39,266 | 9 | 4,363 | 3,276 | ,001 |
| | Residual | 174,444 | 131 | 1,332 | | |
| | Total | 213,710 | 140 | | | |

a Predictors: (Constant), MNC's turnover (MUSD) (sum in FIM/6.5 or X-rate as per end July '02), Value chain scope (sum of number of activities), Foreign employees: management, strategic decision-making (sum of q19+q20), MNCINTEG, Knowledge development, Subsidiary was acquired, Sub sales MUSD (FIM/6.5), Sub home country (0=FIN, 1=PRC)

b Dependent Variable: Total embeddedness (mean qq43-46)

Coefficients

| Model | | Unstandardized | | Stand. Beta | t | Sig. |
|-------|--|----------------|------------|-------------|--------|------|
| | | Coefficients | | | | |
| | | B | Std. Error | | | |
| 1 | (Constant) | 3,318 | ,575 | | 5,771 | ,000 |
| | strategic decision-making (sum of q19+q20) | 3,010E-02 | ,056 | ,044 | ,535 | ,594 |
| | MNCINTEG | -3,540E-03 | ,002 | -,128 | -1,508 | ,134 |
| | Knowledge development | ,189 | ,069 | ,230 | 2,734 | ,007 |
| | Sub sales MUSD (FIM/6.5) | 1,432E-03 | ,001 | ,197 | 2,061 | ,041 |
| | Value chain scope (sum of number of activities) | ,186 | ,098 | ,154 | 1,899 | ,060 |
| | Subsidiary was acquired | -,366 | ,223 | -,149 | -1,639 | ,104 |
| | Sub home country (0=FIN, 1=PRC) | -,443 | ,258 | -,175 | -1,714 | ,089 |
| | Foreign employees: management | -6,840E-02 | ,051 | -,137 | -1,341 | ,182 |
| | MNC's turnover (MUSD) (sum in FIM/6.5 or X-rate as per end July '02) | -6,251E-06 | ,000 | -,112 | -1,307 | ,193 |

a Dependent Variable: Total embeddedness (mean qq43-46)

REFERENCES

- Anderson JC, Håkanson H, Johanson J. 1994. Dyadic Business Relationships Within a Business Network Context. *Journal of Marketing* **58**: 1-15
- Andersson, U. and Forsgren, M., 1996, Subsidiary Embeddedness and Control in the Multinational Corporation, *International Business Review*, Vol. 5, No. 5, pp. 487-508.
- Andersson, U. and Forsgren, M., 2000, In Search of Centre of Excellence: Network Embeddedness and Subsidiary Roles in Multinational Corporations, *Management International Review*, Vol. 40, No. 4, pp. 329-350.
- Andersson, Ulf, Mats Forsgren and Ulf Holm, 2001. Subsidiary Embeddedness, Expected Performance and Competence Development in MNCs – A Multilevel Analysis. *Organization Studies*, Vol. 22, No. 6, pp. 1013 – 1034.
- Andersson, U., Forsgren, M. and Holm, U. (2002) ‘The Strategic Impact of External Networks - Subsidiary Performance and Competence Development in the Multinational Corporation’, *Strategic Management Journal*, (forthcoming).
- Andersson, U. and Johanson, J., 1997, International Business Enterprise, in Björkman, I and Forsgren, M. (eds.), *The Nature of the international Firm- Nordic Contributions to International Business Research*, Copenhagen: Copenhagen Business School Press, pp. 33-49.
- Dacin TM, Ventresca MJ, Beal BD. 1999. The Embeddedness of Organizations: Dialogue & Direction. *Journal of Management* **25**(3): 317-356.

Dicken, P. et al. 1995,

- Dyer JH, Singh H. 1998. The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage. *Academy of Management Review* **23**(4): 660-679.
- Dyer JH, Chu W. 2000. The Determinants of Trust in Supplier-Automaker Relationships in the U.S., Japan, and Korea. *Journal of International Business* **31**(2): 259-285.
- Egelhoff WG. 1988. *Organizing the Multinational Enterprise - An Information-processing Perspective*. Ballinger: Cambridge, MA.
- Eisenhardt, K. 1989, Building Theories from Case Study Research, *Academy of Management Review*, Vol. 14, pp. 532-550.
- Ford D. (ed) 1997. *Understanding Business Markets*. Dryden Press: London.
- Forsgren, M., Johanson, J. And Sharma, D. D. 2000. Development of MNC centers of excellence. In *The emergence and impact of MNC centers of excellence*, Holm, U. and Pedersen, T. (eds.), London: MacMillan
- Ghoshal S, Bartlett CA. 1990. The Multinational Corporation as an Interorganizational Network. *Academy of Management Review* **15**(4): 603–625.
- Ghoshal S, Nohria N. 1989. Internal Differentiation within Multinational Corporations. *Strategic Management Journal* **10**: 323-37.
- Ghoshal S, Nohria N. 1997. *The Differentiated MNC. Organizing Multinational Corporation for Value Creation*. Jossey-Bass Publ.: San Francisco.
- Ghoshal, S., Korine, H. and Szulanski, G., 1994, Interunit Communication in Multinational Corporations, *Management Science*, Vol. 40(1), pp. 96-110.

- Grabher G. 1993. Rediscovering the Social in the Economics of Interfirm Relations. In *The Embedded Firm*, Grabher G (ed). Routledge: London.
- Granovetter M. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology* **91**(3): 481–510.
- Granovetter M. 1992. Problems of Explanation in Economic Sociology. In Nohria N, Eccles R (eds). *Networks and Organizations: Structure, Form and Action*. Harvard Business School Press: Boston.
- Gulati R. 1998. Alliances and Networks. *Strategic Management Journal* **19**: 293-317.
- Gulati R, Nohria N, Zaheer A. 2000. Strategic Networks. *Strategic Management Journal* **21**: 203-215.
- Halinen A, Törnroos J-Å. 1998. The Role of Embeddedness in the Evolution of Business Networks. *Scandinavian Journal of Management* **14**(3): 187–205.
- Hansen MT. 1999. The Search–Transfer Problem: The Role of Weak Ties in Sharing Knowledge across Organization Subunits. *Administrative Science Quarterly* **44**(1): 82–111.
- Hedlund G. 1986. The Hypermodern MNC: A Heterarchy?. *Human Resource Management* **25**(1): 9–35.
- Hedlund, Gunnar and Rolander, Dag. 1990. Action in heterarchies - new approaches to managing the MNC. In C. A. Bartlett, Y. Doz & G. Hedlund, editors, *Managing the global firm*. London: Routledge.
- Håkansson H. 1989. *Corporate Technological Behaviour: Cooperations and Networks*. Routledge: London.
- Håkansson H, Snehota I. 1995. *Developing Relationships in Business Networks*. Routledge: London.

- Håkansson H, Snehota I. 1998. The Burden of Relationships or Who's Next. In Naudé P, Turnbull PW (eds). *Network Dynamics in International Marketing*. Jarillo JC, Martinez JI. 1990. Different roles for subsidiaries: The case of multinational corporations in Spain. *Strategic Management Journal* **11**: 501-512.
- Jensen, M. C. And Meckling, W. H. 1992. Specific and general knowledge and organizational structure. In *Contract economics*, Werin, L. and Wijkander, H. (eds.), Oxford: Blackwell.
- Kumar R, Nti KO. 1998. Differential Learning and Interaction in Alliance Dynamics: A Process and Outcome Discrepancy Model. *Organization Science* **9**(3): 356–67.
- Lane PJ, Lubatkin M. 1998. Relative Absorptive Capacity and Interorganizational Learning. *Strategic Management Journal* **19**: 461–77.
- Larson A. 1992. Network Dyads in Entrepreneurial Settings: A Study of the Governance of Exchange Processes. *Administrative Science Quarterly* **37**: 76-104.
- Mayer, Roger C., James H. Davis, & F. David Schoorman. 1995. An Integrated Model of Organizational Trust. *Academy of Management Review*, 20: 709-734.
- McEvily B, Zaheer A. 1999. Bridging Ties: A Source of Firm Heterogeneity in Competitive Capabilities. *Strategic Management Journal* **20**: 1133-1156.
- Mowery DC, Oxley JE, Silverman BS. 1996. Strategic Alliances and Interfirm Knowledge Transfer. *Strategic Management Journal* **17**: 77–91.
- Nohria, N. and Ghoshal, S. 1997, *The Differentiated Network – Organizing Multinational Corporations for Value Creation*. San Francisco: Jossey-Bass Publishers
- O'Donnell, S.W., 2000. Managing foreign subsidiaries: Agents of headquarters, or an interdependent network? *Strategic Management Journal*, 21, 525-548.

Polanyi K. 1957. *The Great Transformation*. Beacon Press: Boston.

Roth and O'Donnell, 1996,

Rowley T, Behrens D, Krackhardt D. 2000. Redundant Governance Structures: An

Analysis of Structural and Relational Embeddedness in the Steel and

Semiconductor Industries. *Strategic Management Journal* **21**: 369-386.x

Uzzi B. 1996. The Sources and Consequences of Embeddedness for the Economic

Performance of Organizations: The Network Effect. *American Sociological Review*

61(August): 674–698.

Uzzi B. 1997. Social Structure and Competition in Interfirm Networks. The Paradox

of Embeddedness. *Administrative Science Quarterly* **42**: 35–67.

von Hippel E. 1988. *Sources of Innovation*. Oxford University Press: Oxford.

Zukin S, Di Maggio PJ. (eds) 1990. *Structure of Capital*. Cambridge University Press:

Cambridge.