

CIBEM WORKING PAPER

PERFORMANCE EFFECTS OF SUBSIDIARY DEVELOPMENTS IN COLLABORATION, AND DECISION MAKING POWER

Jens Gammelgaard¹ (Copenhagen Business School, Porcelænshaven 24 2, 2000 Frederiksberg, Denmark)

Frank McDonald (Bradford University School of Management, Emm Lane Bradford, BD9 4JL, United Kingdom)

Andreas Stephan (Jönköping International Business School, Box 1026, 551 11 Jönköping, Sweden)

Heinz Tüselmann (Manchester Metropolitan University, Aytoun Street, Manchester M1 3GH, United Kingdom)

Christoph Dörrenbächer (Berlin School of Economics and Law Badensche > Strasse 50/51, D-10825 Berlin)

¹ Corresponding Author: Copenhagen Business School, Department of International Economics and Management, 2000 Frederiksberg, Denmark. E-mail: jg.int@cbs.dk. Telephone: +45 38152512. Fax: +45 38152500-

Abstract

The paper investigates the consequences of interactions between autonomy, intra and inter-organizational networks for the performance of subsidiaries. Furthermore, the paper analyzes the impact of *changes* in autonomy and network relationships rather than investigating levels. This introduces the concept of adjustment of subsidiary strategies to changes in the international and host country business environment. Based on a survey of 350 foreign owned subsidiaries located in the UK, Germany and Denmark, we find evidence that increases in the inter-organizational network relationships of subsidiaries lead to increased subsidiary performance. Further, increased subsidiary autonomy positively affects subsidiary inter-organizational network relationships, and to some degree negatively affects intra-organizational network relationships. Finally, overlapping effects between inter- and intra-organizational network relationships are found.

Keywords:

Subsidiaries; Multinational Companies; Autonomy; Network Relationships; Performance; Partial Least Squares

1.0 Introduction

The pressures of globalization are likely to call for changed organizational structures and strategies of the multinational corporation (MNC) (Buckley, 2009). From the subsidiary point of view, the question is how to most effectively integrate operations into the local host country environment, and simultaneously to benefit from being part of the MNC network (Holm, Holmström, & Sharma, 2005). This paper contributes by adding the element of subsidiary autonomy to this question (Young & Tavares, 2004). The paper therefore investigates the consequences of interactions between autonomy, intra and inter-organizational networks for the performance of subsidiaries. Furthermore, the paper analyzes the impact of *changes* in autonomy and network relationships rather than investigating levels. This introduces the concept of adjustment of subsidiary strategies to changes in the international and host country business environments.

A number of studies have investigated autonomy and network relationships of subsidiaries and their influence on performance. However, these studies do not present an integrated framework of how subsidiary autonomy and inter-organizational and intra-organizational relationships affects subsidiary performance. To exemplify, Vernaik, Midgley, & Devinney (2005) survey how inter-unit networking and subsidiary autonomy independently affects subsidiary performance, but excludes the effects of external networks. Andersson, Forsgren, & Holm (2007) investigate subsidiary influence in the federative MNC, but it leaves out the factor of autonomy. Likewise the survey by Andersson, Björkman, Forsgren (2005) investigating the relation between subsidiary knowledge creation and control. Other subsidiary performance-oriented surveys either treats performance as an independent variable (Lovett, Pérez-Nordtvedt, & Rasheed, 2009) or focus on other issues such as psychic distance (Dikova, 2009). Surveys focusing on network relationships tend to investigate local spillover effects (Duanmu & Fai, 2007; Giroud, 2007). One survey, though, analyzes the relation between networks, autonomy and performance, but builds their investigation on a limited number of cases (Birkinshaw, Hood, & Young, 2005).

This paper also responds to the call from Giroud and Scott-Kennel (2009) to expand studies on the intensity of MNC linkages. In their paper they develop a framework of MNC linkage intensity based on the, scope, quantity and quality of these linkages. In our paper, we both identify the intensity of quantity, by considering the number and frequency of linkages, the scope of linkages by investigating various actors of the network, and the quality results from linkages by including a performance variable.

The paper uses network views on subsidiary organizational strategies to derive six hypotheses on the links between autonomy, inter and intra-organizational network relationships and performance. This leads to the methodology section describing the sample and the constructs. A section on the empirical analyses leads to discussion of the results and a conclusion.

2.0 Inter- and intra-organizational network relationships

Increased inter- and intra-organizational network relationships positively affect subsidiary performance (Birkinshaw et al., 2005). The combined use, in this paper, of the terms 'network' and 'relationships' addresses the two important elements in MNC linkages, which are based on reciprocal and interdependent task-related activities that are performed given a certain constellation of resources among a number of players in a specific context (Ghoshal & Bartlett, 2005). 'Network' defines the actors with which the

subsidiary establishes relationships. Intra-organizational networks consist of the parent company and other subsidiaries of the MNC. Inter-organizational networks comprises actors outside the boundaries of the MNC such as domestic or international business entities such as customers, suppliers, competitors as well as non-business entities like universities, and other supporting agencies governmental, quasi-governmental and non-governmental agencies (Giroud & Scott-Kennel, 2009). Relationships refer to the interaction between the subsidiary and network partners including linkages and transactions between these partners. These relationships cover both the backwards linkages and transactions (such as supply and logistics), forward linkages and transactions (such as distribution and sales), and collaborative linkages (such as strategic alliances with competitors and collaborations to boost innovation) of the subsidiary (Giroud & Scott-Kennel, 2009), which is carried out within an intra- and inter-organizational network (Jindra, Giroud, & Scott-Kennel, 2009).

2.1 Subsidiary inter-organizational network relationships

A high level of intensity in inter-organizational network relationships is associated positively to performance because of the value attached to locating within local networks to develop international competitiveness (Porter, 1994) and utilize localization advantages (Dunning, 2009). Obtaining such higher value activities in many cases is based on learning and innovation benefits (Frost, 2001) and entrepreneurial activities (Birkinshaw et al., 2005; Jindra et al., 2009). Research suggests that innovation and entrepreneurial activities enhances performance by increasing the number of partner firms, and by increasing the diversity of network relationships (Powell, Koput, & Smith-Doerr, 1996). Further, increasing local network intensity exposes the subsidiary to multiple sources of valuable assets available in the host environment and thereby increases the likelihood of tapping into such sources (Mu, Gnyawali, & Hatfield, 2007), especially in cases where knowledge is tacit or requires trust-based relationships to be grasped effectively (Madhavan & Iriyama, 2009).

The benefits of tapping into networks imply that high levels of inter-organizational network relationships are positively associated to subsidiary performance. The effect however of increasing such network relationships is not unambiguous. An ever increasing level of intra-organizational network relationships may not always lead to increased subsidiary performance. Nevertheless, newly established greenfield subsidiaries often have low levels of inter-organizational network relationships and are disadvantaged compared to local firms and most foreign owned subsidiaries suffer from liability of foreignness (Zaheer, 1995). Therefore, Saggi (2002) suggests that foreign firms typically must generate more external linkages than local firms to secure benefits. Moreover, in constantly changing environments are likely to require subsidiaries to develop inter-organizational network relationships. Increasing inter-organizational network relationships bring power to the subsidiary (Andersson et al., 2007), as an outcome of other MNC units' resource dependency on the subsidiary (Bouquet & Birkinshaw, 2008), and decreased uncertainty of further parent company investment into the subsidiary (Astley & Sachdeva, 1984). Subsidiaries that focus more on R&D and related activities (Manea & Pearce, 2006) are likely to suffer from the resource constraints that derive from innovation (Abernathy & Clark, 1985). Such firms are likely to establish strategic collaboration with other firms (Teng, 2007). On average increased inter-organizational network relationships is predicted to generate positive subsidiary performance. This argumentation leads to the first hypothesis:

H₁: Increases in inter-organizational network relationships increase subsidiary performance

2.2 Subsidiary Intra-organizational Network Relationships

Intra-organizational network relationships have been found to be positively associated to subsidiary performance (Vernaik et al., 2005), as these network relationships boost learning processes and stimulate subsidiary's entrepreneurial efforts (Gnyawali, Singal, & Mu, 2009). In particular, the network relationship to the parent company is highly valuable (Birkinshaw & Hood, 1998) for example knowledge exchanges with parent company positively affects innovation and performance (Monteiro, Arvidsson, & Birkinshaw, 2008). Further, the extent of the parental international network is important for the subsidiary's ability to establish its own international network (Elango & Pattnaik, 2007). The parental network provides the subsidiary with important connections, and lowers transaction cost. Furthermore, Gnyawali et al. (2009) argue that the network relationship to the parent company is also decisive for the underperforming subsidiary, as this network relationship reduces the subsidiary's strategic vulnerability. Luo (2003) argues that parental support reduces the subsidiary's dependencies of resources located in the host country, and thereby it reduces the uncertainty of subsidiary operations.

Increased support from the parent company is therefore relevant to the subsidiary with low embeddedness with the parent. Highly embedded subsidiary also benefits from further increases in network relationships, as they are likely to put the subsidiary into a more central position in the intra-organizational network (Ghoshal & Bartlett, 2005). Centrally positioned subsidiaries control value chain operations (Astley & Zajac, 1991) or the access to critical resources in the host country. In this situation, the subsidiary is found to be powerful (Forsgren, Holm, & Johanson, 2005). Hence on average increased intra-organizational network relationships enhances the likelihood of the subsidiary's ability to influence the behavior of the parent company's strategic decision making behavior being in favour of the subsidiary, and therefore, positively associate to performance. This leads to the second hypothesis:

H₂: Increases of the intra-organizational network relationships increase subsidiary performance

2.3 Subsidiary inter-organizational and intra-organizational network relationships

Changes in both intra- and inter-organizational network relationships are proposed to positively influence subsidiary performance. However, the question is whether the subsidiary operates in two distinct networks, or as argued by Wang, Liu, & Li (2009) that there are interdependencies between the two networks. The impact of subsidiary external network relationships on power distribution and capability development within the MNC indicates that both inter- and intra-organizational network relationships help to enhance subsidiary performance (Andersson, Forsgren, & Holm, 2002, Andersson et al., 2007; Garcia-Pont, Canales, & Noboa, 2009). However, a remaining question is whether the intensity of one type of network relationships also facilitates an extension of the other type of network relationships thereby affecting performance. These aspects are discussed by Forsgren, Hägg, Håkansson, Johanson, & Mattsson, 1995) who note that the use of one firm's assets (e.g., parent company) depends on the use of another firm's (a local firm) assets. The subsidiary becomes the link and coordinating entity in a network of inter- and intra-organizational actors. Garcia-Pont et al. (2009: 184) posit: 'that subsidiaries can proactively define their strategy in both environments'. The interdependencies of the two networks are the explanatory factor. The concept of an overlapping network encapsulates the situation where some actors in one network are related to actors in another network. Mattsson (1998) speaks of actor-based overlapping in which strategic actions increases the extension of the network (i.e., the number of overlapping actors).

According to Mattsson (p. 246-247) an overlap: ‘stimulates innovation and increases opportunities to coordinate extended production systems for increased efficiency’. Mattsson, further, predicts that an overlap between internal and external networks is central in explaining increases in the international integration of the subsidiary. These arguments lead to the third hypothesis:

H₃: Increases in inter-organizational network relationships increase intra-organizational network relationships

2.4 Subsidiary autonomy and performance

The degree to which a subsidiary can establish or extend its network relationships depends on the degree of autonomy granted to the subsidiary. In this paper, autonomy refers to an organization “in which units and sub-units possess the ability to take decisions for themselves on issues which are reserved to a higher level in comparable organizations” (Brooke, 1984: 9). Autonomy is often associated to performance because autonomy seems to correlate with the most advanced subsidiary roles (Birkinshaw & Morrison, 1995; Enright & Subramanian, 2007; White & Poynter, 1984). Autonomy has further been associated to subsidiary entrepreneurship (Boehe, 2007) that permits a degree of freedom to engage in a variety of both intra- and inter-organizational network linkages and transactions that can involve a multitude of possible strategic and operational areas and a large number of possible outcomes. A virtuous circle effect, whereby increased subsidiary performance leads to increased autonomy that emphasizes the links between subsidiary autonomy and performance. Subsidiaries that have a low degree of autonomy will therefore benefit from increased autonomy whereas high autonomous subsidiaries are likely to develop into advanced subsidiary roles such as centres of excellences that require increased autonomy (Frost, Birkinshaw, & Ensign, 2002). This leads to the fourth hypothesis:

Hypothesis 4: Increases in the autonomy of the subsidiary increase subsidiary performance

2.5 Subsidiary autonomy and inter-organizational network relationships

Subsidiary flexibility helps management to more successfully establish and deal with beneficial inter-organisational network relationships because of a decreased need to obtain approval from the parent company (Birkinshaw et al. 2005). This is especially the case when operating in networks where not only the relationship to a client (customer/supplier etc.) is important, but the client’s relationships to its suppliers, customers and competitors are critical resources of the subsidiary (Lindstrand, Eriksson, & Sharma, 2009). Increased autonomy is, therefore, suggested to increase the quantity, the scope, and the quality of the subsidiary network (Giroud & Scott-Kennel, 2009). The latter refers to the autonomy and subsidiary entrepreneurial connection. Here Jindra et al. (2009) find support for the connection between subsidiary autonomy and network intensity, though not in the case of product developments.

In general, increases in autonomy, both from a low and a high level, help the subsidiary to enlarge the scope, quantity and quality of their inter-organizational network relationships. Even though a subsidiary can only manage a certain number of network relationships, and a further increase in a high level of autonomy will not necessarily lead to increases in inter-organizational network relationships, the subsidiary will still be able to develop more intense network relationships, and thereby benefit from the ‘client’s relationship to other clients’. Hypothesis 5 reflects this view:

H₅: Increases in subsidiary autonomy increases inter-organizational network relationships of the subsidiary.

2.6 Subsidiary autonomy and intra-organizational network relationship

A counterargument to the above analysis states that changes in subsidiary autonomy are likely to lead to a decrease in intra-organizational network relationships. The primary reason is that subsidiary autonomy by nature is likely to disassociate the subsidiary from other units in the organization. Thus, studies indicate that subsidiary autonomy has a negative effect on intra-organizational knowledge sharing. Noorderhaven & Harzing (2009) find that subsidiary autonomy leads to 'stand alone activities', which implies less social interaction between the subsidiary' employees and other MNC staff members. Another argument is that autonomous subsidiaries will have a tendency to become 'peripheral' or 'isolated' from interactions within the MNC. The in- and outflows of knowledge from such entities has proven to be limited, which indicates negative performance effects (Monteiro et al., 2008). A third argument derives from the concept of overembeddedness where autonomy leads to the development of a few and very strong inter-organizational network relationships, this might 'blind' the subsidiary from other important developments (Mu et al., 2007; Uzzi, 1997). This line of reasoning leads to the final hypothesis:

H₆: Increases in subsidiary autonomy decrease the intra-organizational network relationships of the subsidiary.

3.0 Methodology

To test the hypotheses a survey of foreign owned subsidiaries located in the UK, Germany and Denmark was undertaken following Tung & Witteloostuijn's (2008) recommendation of surveying international business themes using a comparative sample. A self-administrated questionnaire sent to subsidiary managers provided data to test the hypotheses. An initial survey format, written in English, developed using a literature review of former surveys in this area was translated into Danish and German by native-speaking members of the research group. Pilot tests of the questionnaire in nine subsidiaries, three Danish, German and United Kingdom based subsidiaries provided information to improve the questionnaire. In the first mailing, a cover letter and a 4 paged questionnaire went to the subsidiary manager in establishments in Denmark, Germany and the UK, followed by a reminder for those subsidiaries that did not respond. In the Danish case, information from the CD-direct database contained information on every establishment in Denmark. According to this database, at the time of investigation there were 2,996 foreign owned establishments in Denmark. However, 1,187 of those establishments were holding type of units (with zero or one employee) or operating within real estate. The questionnaire to 1,809 subsidiaries, excluding 32 subsidiaries that returned the questionnaire because of non-applicability, and 120 subsidiaries being returned by postal service as undeliverable, the sample size was therefore reduced to 1,657. Of these 249 usable questionnaires were returned, producing a response rate at 15 percent. In the German case, the postal survey resulted in 124 returns. In this case the sample size of randomly selected 3000 foreign owned subsidiaries with 550 non identifiable addresses, 18 companies did not exist anymore, and 14 companies responded that they did not have any foreign ownership. In United Kingdom, we had 155 responses. Again, wrong addresses and a substantial part of holding companies reduced the original sample to 1509. We, therefore, pass the acceptable level of response rate for international surveys (Harzing, 1997). Missing values reduced the useable returns to 350. A non-response bias test using a MANOVA framework, testing differences between the first call and reminders showed no effects.

Table 1 presents descriptive statistics of the sample. Germany is the main investor with other European countries providing the bulk of the ownership of the subsidiaries. Most investments come from neighboring

countries. On average the subsidiaries have been established with activities in host country for decades. They are therefore now medium sized and have extensive international activities. Given their age, it is not surprising that most of them are greenfield establishments. Their age might explain the high proportion of them that are managed by host country managers.

3.1 Testing techniques

This survey adopts a partial least squares (PLS) approach to structural equation modeling. PLS modeling is used in subsidiary research by for example Vernaik et al., (2005), Money & Graham (1999), and Fey, Morgulis-Yakushev, Park, & Björkman (2009) and in related areas, such as international joint ventures (Inkpen & Birkinshaw, 1994). This technique based on structural equation model can, compared to the Lisrel and AMOS techniques be used to test smaller samples. Moreover, PLS models operates with two sets of linear equations, an inner model that specifies relationships between latent variables, and an outer model analyzing relationships between the latent variables and associated manifest variables. This permits simultaneously analysis of the path coefficients between latent variables, and the path coefficients between these variables and their constructs (measurements) (Fey et al., 2009). This provides an assessment of the reliability and validity of the measurement model, followed by an assessment of the structural model (Hulland, 1999). Further, as Vernaik et al., (2005) indicate, since models and measures in international business are still in initial stages of development, the regression based approach is more appropriate than covariance-based methods like LISREL. Finally, PLS method is robust against inadequacies such as skewed distribution of manifest variables, multi-collinearity within blocks of manifest and between latent variables, and omission of regressions (Cassel, Hackl, & Westlund, 1999). By using SmartPLS 2.0, we generate t-statistics by bootstrapping procedures. This technique makes the result more reliable as it uses repeated random samples (Vernaik et al., 2005). Further, we calculate total effects. This is advantageous since it includes both direct and indirect effects (Sönke, 2010).

Chang, Witteloostuijin, & Eden (2010) address the problem of common method variance (CMV) which is likely to occur in self-reported questionnaire surveys where the same respondent provides information for both dependent and independent variables. This survey is of this kind but the respondents reported on measures 'five years ago' and 'currently' thereby allowing use a change variable that reduces the likelihood of CMV. Further, as suggested by Podsakoff & Organ (1986), the reporting on discrete event reduces the likelihood of CMV thus in the questionnaire the number and frequency of relationships was sought. Furthermore, the questions relating to performance appeared before questions related to relationships and autonomy. This order reduces the likelihood of the respondent estimating for example good performance as an outcome of high levels of relationships. Complexity of the PLS technique further reduces the likelihood CMV (Chang et al., 2010). The Harman's one-factor test results are satisfactory, using a Principal Component Analysis, where first eigenvalue counts for 25% of the variance and 6 eigenvalues are above 1.

3.2 Construct and Measures

The model has four main constructs – 'subsidiary autonomy', 'inter-organizational network relationships', 'intra-organizational network relationships', and 'subsidiary performance'. All four constructs are based on changes during a five-year period. The measurements for each construct are shown in Figure 1. Measurements are adapted from Taggart & Hood (1999), Holm & Pedersen (2000), and Birkinshaw et al., (2005). To capture rich data, the constructs come from multiple questionnaire items using five-point Likert scales. All constructs are based on self-reports and therefore include subjective (non-financial) measures.

This may be subject to bias, however, this method is widely used in literature, and in general there is evidence of general reliability (Venkatraman & Ramanujam, 1986). In relation to measuring performance of MNC operations, problems exist in relation to its multi-faceted nature of performances (Glaister & Buckley, 1999; Gong, Shenkar, Luo, & Nyaw, 2005; Miller, Lee, Chang, & Le Betron-Miller, 2009). Thus subsidiary performance is defined as a single measure to gauge overall performance and to provide a rounded view of subsidiary performance. There are also well documented problems of collecting accurate and valid performance measures using questionnaires (Luo, 2007). However, management's strategic thinking and actions guides their perception of company performance rather than solely by objective performance indicators, and it is the perception of facts and not facts themselves that management is likely to act upon (Thompson, 2003). In addition, at subsidiary level many objective indicators, especially financial ones, are suspect because of the reporting arrangements of MNCs (Guest, Michie, Conway, & Sheehan, 2003). Due to reservations with similar studies objective measures of performance were not included in the questionnaire (Demirbag, Tatoglu; Glaiser, 2007). Figure 1 illustrates the tested model.

Figure 1 about here

Control variables are (a) host country, (b) home country, (c) size (number of employees), (d) industry (each entity's main activity classified in relation to NACE code and divided into either the high-tech, medium-tech or low-tech category, and (e) entry mode (greenfield, joint venture, acquisition). This type of control variables has been used in other PLS test like Fey et al., (2009)

4.0 Analysis/Results

The results of the PLS test are reported in Table 3. Composite reliabilities, Cronbach alpha values, and R-squares are shown in Table 2. Goodness-of-Fit is 0.996, and Standardized Root Mean Square Residual is 0.080.

Table 3 and Table 2 around here

Hypothesis 1 suggested a positive relationship between increases in inter-organizational network relationships and increases in subsidiary performance, and this is the case with or without controls. There is no support for hypothesis 2 suggesting that a positive relationship between increases in intra-organizational network relationship and performance exist. However, there is a significant relationship without the controls. There is support for the overlapping network effect thus verifying hypothesis 3. Furthermore, there is a positive and a significant link between increased autonomy and increased performance but the controls affect this result, leading to partial support for hypothesis 4. There is a strong support for hypothesis 5, the relationship between autonomy and inter-organizational network relationships. Finally, without controls we find a significant and negative relationship between autonomy and intra-organizational network relationships.

The controls affect the triangle of intra-organizational network relationships, autonomy, and their relations to performance. Using a Multivariate Analysis of Variance in a two step procedure reveals that there are no host country and industry effects. However, home country, size, and entry mode affects the result. These three factors facilitate intra-organizational network relationships leading to improved performance.

However, control variables worsen the negative effect of autonomy on intra-organizational network relationships. As we report total effects, this negative relation affects the links between autonomy and performance, making this relationship non-significant.

To test the robustness of data analysis, we ran a Generalized Structured Component Analysis on the same data set. Here we reach similar results, despite that estimation methodology and procedures are different. Finally we tested the causal relationships between factors. In our main model we assume that autonomy affects network relationships, and that inter-organizational network relationships affect intra-organizational network relationship. An alternative model, where intra-organizational network relationships affect inter-organizational network relationships shows similar path-correlations; however, this model is weak showing lower R-squares. Another alternative model testing how network relationships affect autonomy produces same path correlations and similar R-squares as the main model.

5.0 Conclusions and discussions

This paper demonstrates a need for further investigation of the interdependencies among subsidiary autonomy and the intra- and inter-organizational network relationships of the subsidiary. The results imply, for both parent company management and subsidiary management, a need to coordinate strategies so all three factors are managed simultaneously instead of having an individual focus on one of the factors. The causal relationships between the three factors, we suggest, to be researched through qualitative surveys. However, based on the strong and significant results, the inter-organizational network relationships seem to be of high importance, and direct strong performance effects are likely to occur from increases in these network relationships. However, managers must be aware that autonomy is a double-edged sword. It is only in some cases that direct performance effects will result from expanding autonomy, thus increased autonomy may enhance the likelihood of putting the subsidiary into a peripheral position in the intra-organizational network. Another managerial implication must be that in case of resource constraints, the external links of the subsidiary seemingly leads to a higher payoff than supporting the internal links.

The survey tests the taxonomy by Giroud and Scott-Kennel (2009) as it points at how the quantity of network relationships (number and frequency of transactions) combined with the scope of network relationships (number of internal and external actors) affects subsidiary performance (the quality of network relationships). The study investigates the interactions between these factors, and it adds the factor of autonomy. These interactions effects are worthy of further investigation; for example the overlapping effects between inter- and intra-organizational networks. However, autonomy presents a complex problem as it simultaneously smoothens the flexibility of the subsidiary to operate in host country environment, but is likely to leave the subsidiary in a peripheral organizational position within the MNC. The change aspect is, therefore, of high managerial importance. A best solution might be that increases of some factors simultaneously creates a need for a decrease of other elements, for example a simultaneously increase in autonomy of inter-organizational network relationships and decreased autonomy of intra-organizational network relationships.

The results are limited due to the sample and the conceptual focus on network theory. Naturally, the results in most cases refer to Western European investment into nearby developed countries. Even though the three host countries represent a cross-institutional setting (Fenton-O'Creevy, Gooderham, & Nordhaug, 2008), and a variation into country size (Gammelgaard, McDonald, Tüselmann, Dörrenbächer, & Stephan,

2009), the conclusions that can be drawn are still limited. Future research to improve our understanding are require on issues such as the economic strength and comparative factor endowments of the host country (Kogut, 1985) and the value chain distribution in relation to location (Mudambi, 2008). From a conceptual point of view, the focus on network theory excludes factors that typically are explained by other theories of the firm such as absorptive capacities (resource-based view), internal coordinating cost and entry mode decisions (transaction costs) and legitimacy and cultural and regulative aspects (institutional theory). On the other hand, useful generic results emerge from this survey. It confirms the finding of Birkinshaw et al. (2005) where subsidiaries with a high degree of autonomy and an external focus, or a combined internal and external focus, where slightly better performing. This survey further confirms the findings by Vernaik et al. (2005) as this study could only find some evidence for a link between autonomy, and performance. However, this survey contributes by investigating 'changes' in network relationships. We, therefore, recommend future survey base on other samples that test the effects of changes. Finally, the survey confirms the need and the applicability of the framework developed by Giroud & Scott-Kennel (2009) where number, scope and intensity of network relationships affect the quality of these network relationships. Our survey does not address learning processes but increased performance is a possible outcome of increased learning effects.

A further question that remains is whether autonomy is an obstacle to achieve overlapping network effects between intra- and inter-organizational networks. The question is whether increased subsidiary autonomy complicates the subsidiary to benefit from external and internal knowledge sources. Future research may reveal whether autonomy disconnects the subsidiary from its MNC contexts, and if this creates stickiness in knowledge transfers. By this we questions Kogut and Zander's (1992) seminal contribution of the firms' combinative capabilities. Furthermore, if increased autonomy facilitates entrepreneurial activities that in the end turn the subsidiary into a centre of excellence, this specialization, for example within a technology, might decrease the need for tapping into intra-organizational knowledge sources (Frost, 2001). From a conceptual point of view, future research, we propose, must investigate the effects of autonomy on network positions, transfers, and network relationships.

References

- Abernathy, W., & Clark, K.B. (1985). Mapping the winds of creative destruction. *Research Policy*, 14(3), 3-22.
- Andersson, U., Björkman, I., & Forsgren, M. (2005). Managing subsidiary knowledge creation: The effect of control mechanisms on subsidiary local embeddedness. *International Business Review*, 14(5), 521-538.
- Andersson, U., Forsgren, M., & Holm, U. (2002). The strategic impact of external networks: Subsidiary performance and competence development in the multinational corporation. *Strategic Management Journal*, 23(11), 979-996.
- Andersson, U., Forsgren, M., & Holm, U. (2007). Balancing subsidiary influence in the federative MNC: A business network view. *Journal of International Business Studies*, 38(5), 802-818.
- Astley, W. G., & Sachdeva, P. S. (1984). Structural sources of intraorganizational power: A theoretical synthesis. *Academy of Management Review*, 9(1), 104-113.
- Astley, W. G., & Zajac, E. J. (1991). Intraorganizational power and organizational design: Reconciling rational and coalitional models of organization. *Organization Science*, 2(4), 399-411.
- Birkinshaw, J., & Hood, N. (1998). Multinational subsidiary evolution: Capability and charter change in foreign-owned subsidiary companies. *Academy of Management Review*, 23(4), 773-795.
- Birkinshaw, J., Hood, N., & Young, S. (2005). Subsidiary entrepreneurship, internal and external competitive forces, and subsidiary performance. *International Business Review*, 14(2), 227-248.
- Birkinshaw, J., & Morrison, A. J. (1995). Configurations of strategy and structure in subsidiaries of multinational corporations. *Journal of International Business Studies*, 26(4), 729-753.
- Boehe, D. M. (2007). Product development in MNC subsidiaries: Local linkages and global interdependencies. *Journal of International Management*, 13(4), 488-512.
- Bouquet, C., & Birkinshaw, J. (2008). Managing power in the multinational corporation: How low-power actors gain influence. *Journal of Management*, 34(3), 477-508.
- Brooke, M. Z. (1984). *Centralization and autonomy: A study in organization behaviour*. London and New York: Holt, Rinehart and Winston.
- Buckley, P. J. (2009). Internalisation thinking: From the multinational enterprise to the global factory. *International Business Review*, 18(3), 224-235.
- Cassel, C., Hackl, P., & Westlund, A. H. (1999). Robustness of partial-least squares method for estimating latent variable quality structures. *Journal of Applied Statistics*, 26(4), 435-446.
- Chang, S.-J., Witteloostuijn, A. van, & Eden, L. (2010). From the Editors: Common method variance in international business research. *Journal of International Business Studies*, 41, 178-184.
- Demirbag, M., Tatoglu, E., & Glaiser, K. (2007). Factors influencing the perceptible performance: The case of Western FDI in an emerging market. *International Business Review*, 16, 310-36.
- Dikova, D. (2009). Performance of foreign subsidiaries: does psychic distance matter? *International Business Review*, 18(1), 38-49.
- Duanmu, J.-L., & Fai, F.M. (2007). A processual analysis of knowledge transfer: from foreign MNEs to Chinese suppliers. *International Business Review*, 16(4), 449-473.
- Dunning, J. (2009). Location and the multinational enterprise: John Dunning's thoughts on receiving the Journal of International Business Studies 2008 Decade Award. *Journal of International Business Studies*, 40(1), 20-34.
- Elango, B. & Pattnaik, C. (2007): Building capabilities for international operations through networks: a study of Indian firms. *Journal of International Business Studies*, 38:4, 541-555.
- Enright, M. J., & Subramanian, V. (2007). An organizing framework for MNC subsidiary typologies. *Management International Review*, 47(6), 895-924.
- Fenton-O'Creevy, M., Gooderham, P., & Nordhaug, O. (2008). Human resource management in US subsidiaries in Europe and Australia: Centralisation or autonomy? *Journal of International Business Studies*, 39(1), 151-166.
- Fey, C. F., Morgulis-Yakushev, S., Park, H. J., & Björkman, I. (2009). Opening the black box of the relationship between HRM practices and firm performance: A comparison of MNE subsidiaries in the USA, Finland, and Russia. *Journal of International Business Studies*, 40(4), 690-712.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement errors. *Journal of Marketing Research*, 18, 39-50.
- Forsgren, M., Hägg, I., Håkansson, H., Johanson, J., & Mattsson, L-G. (1995). *Firms in Networks - A New Perspective on Competitive Power*. Uppsala: Acta Universitatis Upsaliensis Vol. 38.
- Forsgren, M., Holm, U., & Johanson, J. (2005). *Managing the embedded multinational: A business network view*. Cheltenham: Edward Elgar.
- Frost, T. (2001). The geographic sources of foreign subsidiaries' innovations, *Strategic Management Journal*, 22, 101-123.
- Frost, T. S., Birkinshaw, J. M., & Ensign, P. C. (2002). Centers of excellence in multinational corporations. *Strategic Management Journal*, 23(11), 997-1018.
- Gammelgaard, J., McDonald, F., Tüselmann, H., Dörrenbächer, C., & Stephan, A. (2009). Subsidiary role and skilled labour effects in small developed countries. *Management International Review*, 49(1), 27-42.

- Garcia-Pont, C., Canales, J. I., & Noboa, F. (2009). Subsidiary strategy: The embeddedness component. *Journal of Management Studies*, 46(2), 182-214.
- Glaister, K., & Buckley, P. (1999). Performance relationships in UK international alliances. *Management International Review*, 39(123-47).
- Ghoshal, S., & Bartlett, C. A. (2005). The multinational corporation as an inter-organizational network, in S. Ghoshal, S., & D. E. Westney, (Eds.), *Organization theory and the multinational corporation* (pp. 68-92). Houndmills, Bas.: Palgrave MacMillan; 68-92
- Gong, Y., Shenkar, O., Luo, Y., & Nyaw, M-K. (2005). Human resources and international joint venture performance: A system perspective. *Journal of International Business Studies*, 36, 505-18.
- Giroud, A. (2007). MNEs vertical linkages: The experience of Vietnam after Malaysia. *International Business Review*, 16(2), 159-176.
- Giroud, A., & Scott-Kennel, J. (2009). MNE linkages in international business: A framework for analysis. *International Business Review*, 18, 555-566.
- Gnyawali, D., Singal, M., & Mu, S. (2009). Knowledge ties among subsidiaries in MNCs: a-multi-level conceptual model. *Journal of International Management*, 15, 387-400.
- Guest, D. E., Michie, J., Conway, N., & Sheehan, M. (2003). Human resource management and corporate performance in the UK. *British Journal of Industrial Relations*, 41(2): 291-314.
- Harzing, A. W. (1997). Response rates in international mail surveys: Results of a 22-country study. *International Business Review*, 6(6), 641-665.
- Holm, U., Holmström, C., & Sharma, D. (2005). Competence development through business relationships or competitive environment?: Subsidiary impact on MNC competitive advantage. *Management International Review*, 45(2), 197-218.
- Holm, U., & Pedersen, T. (2000). *The emergence and impact of MNC centres of excellence – A subsidiary perspective*. Houndsmill, Bas.: MacMillan Press.
- Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, 20, 195-204.
- Inkpen, A. C., & Birkinshaw, J. (1994). International joint ventures and performance: an interorganizational perspective. *International Business Review*, 38(3), 201-217.
- Jindra, B., Giroud, A., & Scott-Kennel, J. (2009). Subsidiary roles, vertical linkages and economic development: Lessons from transition economies. *Journal of World Business*, 44(2), 167-179.
- Kogut, B. (1985). Designing global strategies: Profiting from operational flexibility. *Sloan Management Review*, 27(1): 27-38.
- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3(3), 383-397.
- Lindstrand, A., Eriksson, K., & Sharma, D. D. (2009). The perceived usefulness of knowledge supplied by foreign client networks. *International Business Review*, 18(1), 26-37.
- Lovett, S. R., Pérez-Nordtvedt, L., & Rasheed, A. A. (2009). Parental control: A study of U.S. subsidiaries in Mexico. *International Business Review*, 18(5), 481-493.
- Luo, Y. (2003). Market-seeking MNEs in an emerging market: How parent-subsidiary links shape overseas success. *Journal of International Business Studies*, 34, 290-309.
- Luo, Y. (2007). An integrated anti-opportunism system in international exchange. *Journal of International Business Studies*, 38, 855-877.
- Madhavan, R., & Iriyama, A. (2009). Understanding global flows of venture capital: human networks as the “carrier wave” of globalization. *Journal of International Business Studies*, 40(8), 1241-1259.
- Manea, J., & Pearce, R. (2006). MNE's strategies in Central and Eastern Europe: Key elements of subsidiary behaviour. *Management International Review*, 46(2), 235-255.
- Mattsson, L.-G. (1988). Dynamic of overlapping networks and strategic actions by the international firm. In A. D. Chandler jr., P. Hagström, & Ö. Sölvell (Eds.), *The dynamic firm: The role of technology, strategy, organization and Regions*. Oxford: Oxford University Press.
- Miller D., Lee, I., Chang, S., & Le Betron-Miller, I. (2009). Filling the institutional void: The social behaviour and performance of family vs. non-family technology firms in emerging markets. *Journal of International Business Studies*, 40, 802-817.
- Money, R. B., & Graham, J. L. (1999). Salesperson performance, pay, and job satisfaction: Tests of a model using data collected in the United States and Japan. *Journal of International Business Studies*, 30(1), 149-172.
- Monteiro, L. F., Arvidsson, N., & Birkinshaw, J. (2008). Knowledge flows within multinational corporations: Explaining subsidiary isolation and its performance implications. *Organization Science*, 19(1), 90-107.
- Mu, S.C., Gnyawali, D.R., & Hatfield, D. E., (2007). Foreign subsidiaries' learning from local environments: An empirical test. *Management International Review*, 47(1), 79-102.
- Mudambi, R. (2008). Location, control and innovation in knowledge-intensive industries. *Journal of Economic Geography*, 8, 699-725.
- Noorderhaven, N., & Harzing, A-W. (2009). Knowledge-sharing and social interaction within MNEs. *Journal of International Business Studies*, 40(5), 719-771.
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and perspectives. *Journal of Management*, 12(4), 531-544.

- Porter, M. E. (1994). The role of location in competition. *Journal of the Economics of Business*, 1(1), 35-39.
- Powell, W., Koput, K., & Smith-Doerr, L. (1996). Inter-organizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41(1), 116-145.
- Saggi, K. (2002). Trade, foreign direct investment, and international technology transfer: A survey. *World Bank Research Observer*, 17, 191-235.
- Sönke A. (2010). PLS and success factor studies in marketing, chap. 18, V. Esposito Vinzi, W.W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of Partial Least Squares*. Berlin: Springer.
- Taggart, J. H., & Hood, N. (1999). Determinants of autonomy in multinational corporation subsidiaries. *European Management Journal*, 17(2), 226-236.
- Teng, B-S. (2007). Corporate entrepreneurship activities through strategic alliances: A resource-based approach toward competitive advantage. *Journal of Management Studies*, 44(1), 119-142.
- Thompson E. (2003). A grounded approach to identifying national competitive advantage: a preliminary exploration. *Environment and Planning A*, 35, 631 – 657.
- Tung, R. L., & van Witteloostuijn, A. (2008). From the Editors: What makes a study sufficiently international? *Journal of International Business Studies*, 39(2), 180-183.
- Uzzi, B. (1997). Social structures and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42: 35-67.
- Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance in strategy research: a comparison of approaches. *Academy of Management Review*, 11(4), 801-814.
- Vernaik, S., Midgley, D. F., & Devinney, T. M. (2005). Dual paths to performance: The impact of global pressures on MNC subsidiary conduct and performance. *Journal of International Business Studies*, 36, 655-675.
- Young, S., & Tavares, A. T. (2004). Centralization and autonomy: Back to the future. *International Business Review*, 13, 215-237.
- Wang, J., Liu, X., and Li, X. (2009). A dual-role typology of multinational subsidiaries. *International Business Review*, 18, 578-591.
- White, R. E., & Poynter, T. A. (1984). Strategies for foreign-owned subsidiaries in Canada. *Business Quarterly*, 49(2), 59-69.
- Zaheer, S. (1995). Overcoming the liability of foreignness. *Academy of Management Journal*, 38, 341-363.

Figure 1: Conceptual Model

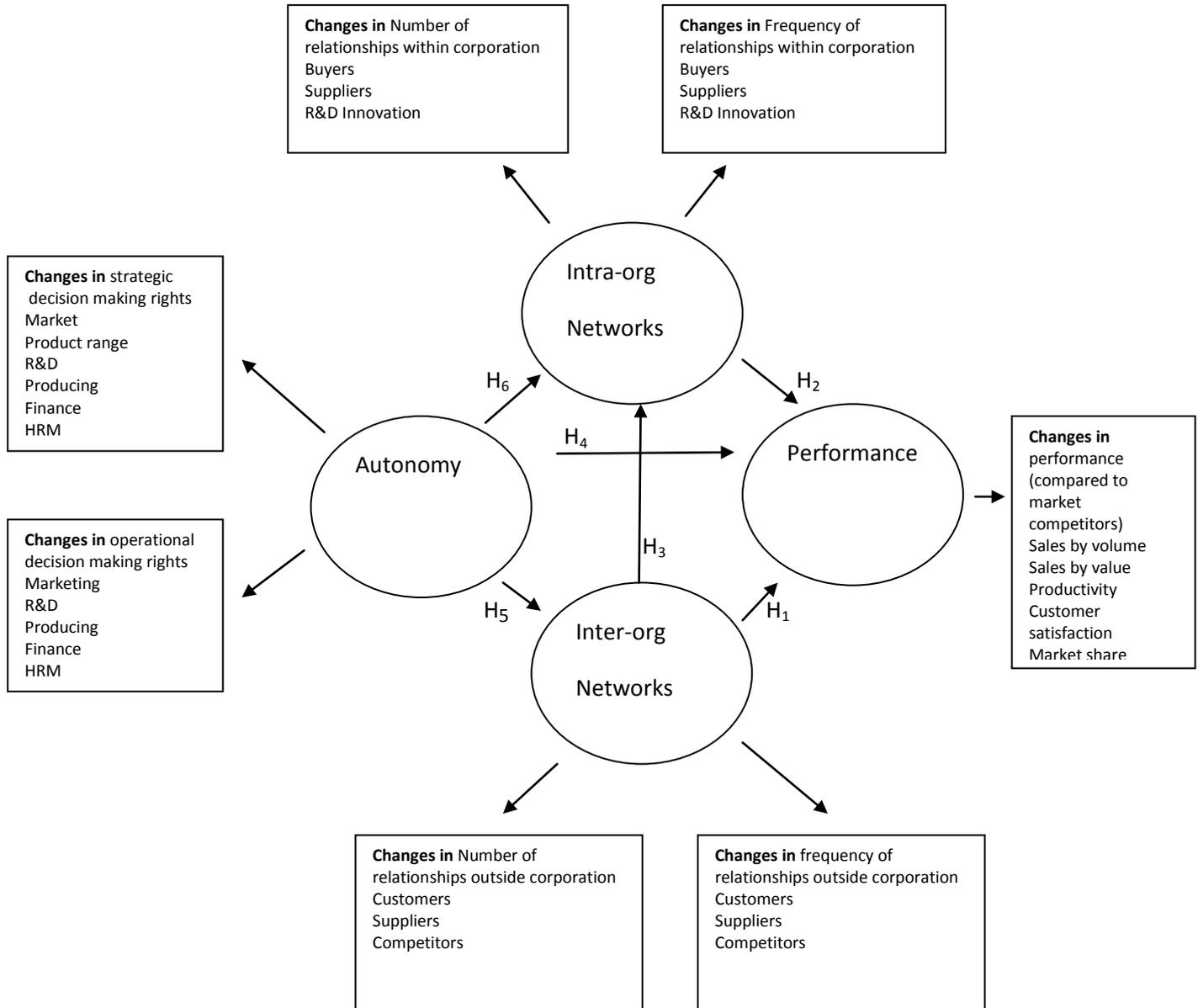


Table 1: Descriptive data

Home Country	Activity	Miscellaneous
Germany (19)	Production (25.6)	Age (19.6 years)
Netherlands (15)	Sales (42.6)	Greenfield (56)
Sweden (13)	Services (17.9)	Acquisition (37)
Switzerland (8)	R&D (3.3)	Joint Venture (7)
US (6)	Other (10.4)	FS/TS (23.8)
Japan (6)		# employees (121)
France (5)		HCN (77)
Denmark (5)		PCN (19)
UK (3)		TCN (3)
Other (20)		

All figures are percentages, except age and # employees. Activity is measured as the proportion of the workforce in relation to the different types of activity. Greenfield, acquisition and joint venture refers to entry mode. FS/TS = foreign sales/total sales. HCN = subsidiary managed by a host country national. PCN= parent company national. TCN=third country national.

Table 2: Composite Reliabilities, Cronbach Alphas and R squares

	Composite Reliability	Cronbachs Alphas	R squares
Autonomy	0.94	0.93	-
Inter-organizational Networks	0.84	0.79	0.16
Intra-organizational Networks	0.87	0.82	0.20
Performance	0.84	0.75	0.19

Composite should be above 0.70 for each construct (Fornell and Larcker, 1981). Cronbach alpha values should be above 0.70 (Hulland, 1989). When using PLS technique, one variable is 'locked' and R-squares are reported in relation to this variable.

Table 3: PLS test

	Sample mean	Standard deviation	t-statistics
H1: inter-performance	0.40	0.07	7.24*** (5.32)***
H2: Intra-performance	0.09	0.07	1.36 (1.81)*
H3: Inter-Intra	0.49	0.07	7.06*** (6.80)***
H4: autonomy-performance	0.23	0.07	3.16*** (1.00)
H5: autonomy – inter	0.40	0.06	6.21*** (5.19)***
H6: autonomy-intra	- 0.11	0.06	1.31 (1.77)*

T values in parentheses are without controls