EIBA – Track 3. Organizational structures and subsidiary evolution

Competitive Paper

"The MNC as an inter-organizational network: An investigation of HQ linkages to local subsidiary networks "

Abstract:

MNCs have been conceptualized as differentiated networks that, in turn, are embedded in external networks. Previous research has predominantly focused on the embeddedness of subsidiaries into their local environment, omitting to shed light on the phenomenon of HQ linkages to the local context. With our research we aim to close this gap. Drawing on two theoretical perspectives we develop a model of why MNC HQs develop linkages to their local subsidiary networks. Using detailed information on 168 European subsidiaries, we find support that HQs engage more in such relationships the more the subsidiaries are geographically close high performers which hold important resources, which operate in turbulent environments, and which are rather connected to multinational actors as opposed to purely domestic firms.

Key Words:

External relationships, multinationals, subsidiary embeddedness, resource dependence, information processing

1 Introduction

In recent years scholars developed an increasing interest in the role of subsidiaries' local networks (Ghoshal & Bartlett 1990; Kogut 2000; Andersson et al. 2002). Local network relationships have been found to foster subsidiary innovation, e.g. by enabling the firm to appropriate valuable knowledge from the external environment (Forsgren et al. 1999; Hakanson & Nobel 2001; Lehrer & Asakawa 2002; Almeida & Phene 2004; Jindra et al. 2009), to increase a subsidiary's local autonomy vis-à-vis headquarters (Andersson & Forsgren 1996; Asakawa 1996), to drive subsidiary performance (Luo 2001; Andersson et al. 2002) and to influence subsidiary manager's mindsets and beliefs (Newburry 2001; Newburry & Yakova 2006). Collectively, this research added greatly to our understanding of the multinational firm and the role of local subsidiaries. However, by focusing on the local subsidiaries only the literature largely ignored the fact that headquarters (HQs) build up relationships to local actors as well. In fact, first evidence shows that HQs and subsidiaries quite often share relationships with the same local actors (Forsgren et al. 2005).

Headquarters rational for maintaining such dual relationships remains somewhat unclear. On the one hand, Holm and colleagues (1995) suggests that there might be certain advantages in such multi-level, partially overlapping, relationships. For example, HQs might be able to learn from these contacts and improve their knowledge and understanding of the local context which, in turn, is suggested to improve the HQs ability to control and to maintain power vis-à-vis its own subsidiaries (Holm et al. 1995; Forsgren et al. 2005; Yamin & Forsgren 2006). On the other hand, it is argued that developing and maintaining relationships to the environment is costly and consumes managerial resources (Mizruchi & Galaskiewicz 1994; Luo 2003). Hence, overlapping relationships and redundancies seem to run counter the traditional logic of efficiency of organizations (Williamson 1991)[1].

---

[1] From a social network perspective, the rationale is similar: HQ relationships to the local subsidiary network would break the rule of efficiency and effectiveness (Burt 1992). The efficiency and effectiveness rule says that investment in a new relationship (from the HQ to the subsidiary's local network partner) should not be made if the contact can be reached through existing relationships and that resources should rather be committed to existing relationships (between the HQ and its subsidiary).

In this paper we attempt to break new ground by focusing on the relationships HQs maintain to actors in the local subsidiary context. Studying these direct linkages may extend our knowledge in at least two important ways.

First, in relaxing the simplifying assumption that only subsidiaries hold relationships to local actors we contribute to the understanding of MNCs as a network organization itself embedded in a network of external actors. We claim that this perspective offers a more realistic picture of existing complexities of networks and that it challenges extant simplistic views of the interplay between external and internal networks (Hedlund 1986; Ghoshal & Nohria 1989; Ghoshal & Bartlett 1990).

Second, despite the fact that scholars (e.g. Forsgren et al. 2005) have recently started to acknowledge the existence of HQ local relationships, the conceptual foundation largely remains unclear. By drawing on two established theories, notably information processing theory and resource dependency theory, we attempt to provide a theoretically grounded explanation of why HQs develop relationships to some local subsidiary networks while ignoring others. We argue that from an information processing perspective HQs forming local linkages to subsidiary partners is a way of increasing the MNC's information processing capacity. In addition, we acknowledge that subsidiaries' local relationships are potentially influencing dependencies between different units within the MNC (Andersson & al. 2000; Garcia-Pont et al. 2009). Building on data of 168 European subsidiaries our study provides new empirical evidence in this phenomenon. Our analysis extends insights of the selection process HQs apply when trying to balance the costs of building and maintaining local relationships with the benefits that are attached to them (Andersson et al. 2007). We discuss implications especially for resource dependence theory.

The paper proceeds as follows. In the second section, we provide a review of the literature on inter-organizational relationships especially subsidiary embeddedness. This discussion leads into the development of our research hypotheses on the drivers of headquarters relationships to the local context. The third section describes the methodology. The third section describes the findings, and the fifth presents a discussion of the major issues that arise from the study.

2 Literature review

Modern conceptualizations see the MNC as an organizational network which is itself connected to an environmental network on multiple levels (Ghoshal & Bartlett 1990). The internal network is characterized by a web of semi-independent units and a multi-center structure (Hedlund 1986; Nohria & Ghoshal 1997; Rugman & Verbeke 2001). Based on the idea that firms are embedded in social networks (Granovetter

1985; Burt 1992; Uzzi 1996; Gulati et al. 2000) embeddedness research in international business has mostly used the concept of subsidiary *relational* embeddedness (Andersson & Forsgren 1996)[2]. It is assumed that each subsidiary develops direct relationships of varying strength and intensity to actors in its local environment (Andersson et al. 2002) – but it has neglected other organizational levels such as HQs or regional HQs (Dacin et al. 1999). Therefore, the subsidiary role has frequently been characterized as a "quasi-firm" (Forsgren 2004) which occupies a bridging position between the environment and the MNC (Asakawa 1996), and consequently has dual allegiance to the host country and the MNC (Almeida & Phene 2004). Figure 1 illustrates the MNC network as well as the subsidiary relationships to their local partner units (relationships A).

Subsidiary relational embeddedness to external actors has been shown to be a driver of subsidiary resources and capabilities (Schmid & Schurig 2003; Almeida & Phene 2004; Holm et al. 2005; Boehe 2007; Mu et al. 2007) and financial performance (Luo 2001; Andersson et al. 2002). This is based on the reasoning that knowledge and capability development is facilitated through strong ties which are able to transfer more fine-grained knowledge and information (Krackhardt 1992; Uzzi 1996; Nobel & Birkinshaw 1998; Rowley et al. 2000). For example, a MNC's local R&D subsidiary is able to develop new products and processes due to its strong linkages to local R&D institutions, universities, and supplier organizations (Hakanson & Nobel 2001).

 ------------Insert Figure 1 about here ----------

However, headquarters have been also found to develop direct relationships to external actors. For illustration purposes consider the following vignette (relationships B in Figure 1):

> *Puma AG, the renowned sports goods firm, has reorganized their external relationships to Footlocker – a world-wide operating distributor. Since Footlocker has strongly centralized its purchasing activities, Puma has relocated the management of this relationship from the subsidiary to the regional HQ level.*

In this case, Puma has "disembedded" the subsidiary in favor of the regional HQ (Dacin et al. 1999). Besides HQs' "own" network relationships, however, they can also connect to local networks of their

---

[2] This is also called first-order coupling by Uzzi (1996).

subsidiaries even when the subsidiaries are not located in the home-country (relationships C in Figure 1). In this case the subsidiary loses its tertius position between otherwise unconnected actors (Burt 1992):

> *At Boehringer Ingelheim, a German pharmaceutical company, the marketing staff of the Eastern European regional HQ maintains direct linkages to important customers and health care organizations in the Eastern European countries in order to understand developments in the highly turbulent pharmaceutical markets. These linkages help the regional HQ staff to exercise control over the 28 country operations, to defend strategies of standardization and harmonization of marketing approaches, and to perceive business opportunities which are often not perceived by the subsidiaries themselves.*

> *At Dental[3], a Swiss medical technology firm with 25 subsidiaries worldwide, the headquarters maintains relatively strong linkages to the local subsidiaries' key network partners such as universities, industry associations and research institutes, in order to complement knowledge acquisition and processing capacity of the subsidiaries.*

The vignettes show that HQ relationships to local partners of their subsidiaries are a relevant issue in the organizational setup of the MNC since it relates to coordination and control issues and the development of the subsidiary network; and it shows the costs involved in maintaining local relationships. Despite this relevance, research has just started to acknowledge the role of external HQ relationships to local network partners of their subsidiaries (Birkinshaw et al. 2001; Frost 2001; Forsgren et al. 2005; Andersson et al. 2007). The scarce research has shown that HQ local relationships vary in strength and that only a fraction of all subsidiary networks are strongly connected directly to the HQ. For example, Forsgren et al. (2005) report that HQs have built strong relationships to local subsidiary networks in approximately 10% of all subsidiaries in their sample – weak relationships are built to roughly 30% of all subsidiary networks.

Hence, the questions arise under which circumstances HQs build these local linkages and what theoretical perspectives are relevant. In general, it is necessary to make sense of a phenomenon using existing lenses to gain better understanding of its usefulness and limitations (Birkinshaw et al. 2001). The case of HQ relationships to the external network represents an organizational phenomenon where organization theories are most likely to contribute to its explanation. We chose two theoretical perspectives. First, resource-dependence theory is one important theory when it comes to predicting inter-organizational relationships.

---

[3] Firm name anonymized.

The theory has recently been used within the MNC context, i.e. with regard to HQ-subsidiary relationships (e.g. Ambos & Schlegelmilch 2007; Mudambi & Navarra 2004). Given that our research focuses on the interplay between internal and external networks this theory seems particularly relevant. Second, information processing theory has also been used to explain the formation of linkages (e.g. Birkinshaw et al. 2001) and fits the Boehringer and Dental vignettes. To this end, we investigate environmental uncertainty as a driver of HQ local relationships.

In sum, our approach is in line with the belief that relationship building is endogenous and dependent upon internal factors (organizational needs) and external factors (environmental opportunities and threats), since both are captured by the two theoretical perspectives (Gulati & Gargiulo 1999; Koka & Prescott 2002; Luo 2003). We will start by considering information processing theory.

HQ relationship building as enhancement of information processing capacity

Information processing theory links the organizational capacity for information processing with the information processing requirements imposed by the internal organizational setup and especially by developments in the task environment. To remain high-performing, firms must react to increases in information-processing requirements by building additional information processing capacity (Galbraith 1973; Egelhoff 1982). This can be done via various methods such as the built-up of additional managerial levels, information and communication systems, or a general restructuring of the organization (Egelhoff 1991).

The scarce literature on multi-level embeddedness and our exploratory research indicates that HQ local linkages have a strong grounding in information-processing theory. For instance, Birkinshaw et al. (2001) argues that multi-level external relationships can then be seen as a system of improving the information-processing capacity of the firm. Others argue that specifically HQs need to develop own relationships to local networks to gain knowledge and understanding of the local conditions (Holm et al. 1995; Yamin & Forsgren 2006). Similarly, Andersson et al. (2002, p. 992) note that "the HQ must take part and develop its own relationships with important customers and suppliers in the subsidiary's network" in order to recognize and understand the local context. This perspective is related to a suggestion in recent literature, that HQs suffer of limited information processing capacity which makes them select certain subsidiaries onto which they put their attention (Bouquet & Birkinshaw 2008).

Hence, if HQ local linkages improve the MNC's and HQ's information-processing capacity then appropriate drivers of information processing requirements have to be considered. One key variable

frequently used to characterize information processing requirements of the environment is uncertainty (Beckman et al. 2004).

According to information processing theory, environmental uncertainty can be defined as a situation in which the amount of information required to perform a task is inferior to the amount of information possessed by the organization (Galbraith 1973). More generally, environmental uncertainty can be defined as a situation in which there is ambiguity about environmental change (Beckman et al. 2004). Hence, a number of authors have suggested and empirically shown that increasing uncertainty (a situation of insufficient information processing capacity) in the environment leads to tie creation and tie strengthening (Granovetter 1985; Beckman et al. 2004; Koka et al. 2006).

In situations of uncertainty, there are many competing technologies and business models and a dominant technological standard has not evolved. Uncertainty also implies that more market opportunities and challenges emerge simultaneously (Rawski 1994). Consequently, it has been argued that in such environments the need for a strong market orientation and increased inter-organizational resource-sharing is higher (Boyd & Fulk 1996; Luo 2003). Uncertainty also derives from intense competition in a market which can be defined as a situation in which competitors are very prone to fighting and retaliation which creates a high level of market instability (Porter 1980). Such competitive pressures challenge the position of players in the market and make them more dependent on other firms (Caves & Porter 1978). Therefore, authors have argued that intense competition makes it necessary to neutralize this pressure through external relations (Luo 2003; Holm et al. 2005). Competitor information gathering – which could be achieved through building information and communication relationships – is essential to combat greater market uncertainty and unpredictability (Gupta 1986). The above explains increased overall inter-organizational activity in response to uncertain environments. But why should HQs build local linkages to turbulent subsidiary markets?

First, it has been argued that opportunities and risks can best be identified, when a single dominant logic of interpretation is avoided under uncertain circumstances (Prahalad & Bettis 1995; Birkinshaw & Lingblad 2005). This means that in order to be able to interpret the multiple and conflicting information coming from the environment, the multinational has to build up "requisite variety" in its information processing capacity. Firms need to maximize chances to fully identify opportunities and risks (Birkinshaw & Lingblad 2005). Similarly, Hedlund (1980) has claimed that to respond appropriately to turbulent environments, firms need to be very creative and need to involve several hierarchical levels of the organizations. This

reasoning becomes also clear in the Boehringer Ingelheim vignette. HQ's own relationships to the local subsidiary network help improve the information processing capacity of the MNC in the local environment. The HQ is able to support the subsidiary by adding its own interpretation of the circumstances.

Second, it is argued that the dynamic nature of the competition in a particular market is a strong opportunity to learn from that market (Frost et al. 2002; Holm et al. 2005). Intense competition in a market increases the likelihood that process and product innovations are developed as firms fight for a way to differentiate themselves from their competitors (Porter 1980). Hence, HQs might be interested in getting first-hand knowledge on the local developments and the nature of competitive rivalry. This increases the necessity for HQs to form direct relationships to the local market since they might help to understand and learn from the subsidiary market (Holm et al. 1995; Andersson et al. 2007).

In sum, we hypothesize that HQ local linkages to the subsidiary network partners are stronger under conditions of environmental uncertainty in this market.

Hypothesis 1: Local environmental uncertainty is positively associated with the degree of HQ linkages to the subsidiary's local network.

Resource dependence theory applied to MNC internal actors

Resource dependence theory has recently been applied more frequently within organizations with the focus of analysis switching from firms to organizational units (Ghoshal & Bartlett 1990; Medcof 2001; Mudambi & Navarra 2004; Ambos & Schlegelmilch 2007). Based on this literature, organizational units are supposed to be dependent upon others within the organizational network when these others possess specific resources and capabilities which enable them to exercise or resist influence from other actors including the HQ. It is then suggested that HQs might want to counter this influence (Ambos & Schlegelmilch 2007). This is necessary since it is the HQ's task to maximize competitiveness and profits on the firm-level instead of on the level of subsidiaries. The latter might lead to undue rent-appropriation at a particular, very powerful unit (Mudambi & Navarra 2004).

In this respect, extant literature is relatively silent on how HQs can counter the influence of subsidiaries (Ambos & Schlegelmilch 2007). Consistent with traditional resource dependence theory some authors suggest that HQs should try to restructure the relationship to the subsidiaries. For example, it is suggested that HQs should increase centralization (Ambos & Schlegelmilch 2007). However, restructuring the

dependence relationship lead to a dilemma seldom highlighted in extant research. First, HQ's use of certain control mechanisms might inhibit the development of local embeddedness of the subsidiary. Indeed, scholars have described the embedding process as a development which moves the attention of the embedding organization towards the external network (Gulati & Sytch 2007). Increasing HQ control of subsidiaries might inhibit the development of subsidiary external embeddedness with detrimental effects on the subsidiary's ability to create new knowledge through their networks (Andersson et al. 2005). Moreover, Casciaro and Piskorski (2005) argue that the prediction of restructuring the dependence relationship omits the motivation of the constraining party (the subsidiary) to engage in the restructuring. In fact, subsidiaries might have no interest in relinquishing their autonomy. This is mirrored in MNC research showing that subsidiary autonomy might often rather been "taken" than "given" from the HQs, and that powerful subsidiaries can "avoid" control by the HQ (Bartlett & Ghoshal 1989; Mudambi & Navarra 2004).

In sum, the HQ dilemma is to remain influential in an organizational setup which still allows subsidiaries to create embedded ties and to learn from and adapt to the environment – a restructuring of the HQ-subsidiary relationship through control mechanisms such as centralization has its limitations. One solution to the dilemma might be HQ direct linkages to the local subsidiary network. By doing so, HQs can overcome their lack of knowledge of the local context which is crucial for effective management and the retention of power (Bartlett & Ghoshal 1990; Holm et al. 1995; Yamin & Forsgren 2006; Andersson et al. 2007). The reason is that knowing and understanding a political network is in itself a source of power (Krackhardt 1990). The knowledge HQs gain through their direct relationships is not "biased" by the subsidiary opinion and might be a strong help to influence powerful subsidiaries. Furthermore, the relational view postulates that today's capability and resource development is conducted to a large extent within relationships with external actors and not purely within single organizations (Hakansson 1982; Dyer & Singh 1998; Gulati 1998; Forsgren et al. 1999; Gulati 1999). Hence, it is just "natural" for the HQ to follow this development and to move its attention more to these external actors which are involved in critical activities and which are important sources of why the subsidiary is resource-strong and powerful in the first place. Therefore we hypothesize the following:

Hypothesis 2: The dependency of the MNC on the subsidiary is positively associated with HQ linkages to the subsidiary's local network.

Globalization and the multinationality of subsidiary external network partners

Our last hypothesis is consistent with both theories. After having modeled a key characteristic of the local environment in hypothesis 1 and the dependency of the MNC on a subsidiary in hypothesis 2, we now turn to the subsidiary's external partners. Interestingly, research on subsidiary embeddedness ignores to a large extent differences between different kinds of network partners (Dacin et al. 1999)[4].

One important characteristic of the external partners is whether they are purely domestic firms or they belong to a multinational corporation. From an information-processing perspective, globalization is suggested to increase information-processing requirements (Tihanyi & Thomas 2005) and the emergence of multinational corporations is one outcome of globalization processes. If the external partners of the MNC become more and more global then interdependencies between markets are created. Some customers or suppliers might be connected to the MNC in several markets which has an influence on how the relationships to these actors are managed (Dacin et al. 1999; Birkinshaw et al. 2001; Newburry 2001).

We argue that the MNC is more dependent on large, multinational network actors than on purely domestic firms. Multinational actors have, by definition, a big impact on several country operations of the MNC compared to purely domestic firms. For HQs, local units of multinationals are much more important as their behavior probably has strong connections on the MNC's business in other markets. A local partner unit of a multinational is embedded internally in the partner MNC. Decisions taken by this unit can be guided by the partner MNC and hence reflect strategic and tactical moves of the whole partner MNC. Furthermore, subsidiary strategic initiatives can develop reputation and influence of the subsidiary within the MNC which translates into certain benefits such as enhanced responsibility and autonomy or formal recognition as a center of excellence (Birkinshaw 1996). Hence, local units of multinationals are able to contribute to the strategic and tactical behavior of the partner MNC and direct connections of HQ to such a unit might therefore be worthwhile.

Therefore, the HQ of the focal MNC has an incentive to develop strong direct relationships to such local units of multinational actors and to increase its information processing capacity with regard to this multinational partner. The gained knowledge and understanding can then be used to reduce or restructure the reliance of the MNC on the partner or to increase the influence over the partner (Thompson 1967; Pfeffer & Salancik 1978).

---

[4] To be precise, many studies do measure the level of embeddedness of subsidiaries with regard to different categories of external network partners. The categories distinguish between external and internal network partners and different kinds of organizations such as customers and suppliers, distributors, competitors, R&D institutions and government institutions. Yet, these partial embeddedness measures are mostly aggregated in order to derive an overall average measure for subsidiary embeddedness (e.g. Andersson et al. 2002).

In sum, we hypothesize that the more a MNC's subsidiary is connected to multinational actors as opposed to purely domestic actors, the higher the incentive for the HQ to get involved and to build additional information processing capacity to the network actors of this unit.

Hypothesis 3: The degree of multinationality of the subsidiary's local network is positively associated with HQ linkages to the subsidiary's local network.

3   Research Methodology

3.1   Sample and Data Collection

The study involves 168 European subsidiaries of MNCs. The population list of more than 45000 subsidiaries was drawn from the AMADEUS database which contains data on European firms. Subsidiaries were defined as legal entities (firms) whose shareholders are other firms owning at least 51% of the subsidiary and residing abroad. The subsidiaries needed to have more than 50 employees, and be incorporated since or before 2006[5]. A random sample of 1507 subsidiary companies was successfully contacted and received questionnaires. We undertook several efforts to enhance response rates. We conducted several follow-up calls roughly after the initial mailing of the questionnaire. When requested, we resent hardcopy and/or pdf questionnaires (Dillman 2000). Confidentiality was assured reducing respondents' incentive to artificially inflate or disguise their responses: We used a 4 digit serial numbers on the email and on the hardcopy survey instrument to keep track of respondents and non-respondents. A total return of 193 questionnaires represented a response rate of 12.8%. However, due to missing values the present analysis was conducted with a sample of 168 subsidiaries (11.1% of the target sample).

The large majority of the subsidiaries belong to two manufacturing industries namely "Machinery" and "Chemicals, Petroleum, and Coal". The subsidiaries are located in more than 26 countries with the largest countries, i.e. Germany, Spain, the United Kingdom, Poland and France, making up 40% of the sample. On average, the responding subsidiaries are 22.3 years old, achieve total sales of approximately 30 Mio. Euro, and operate with 131 employees. Regarding the location of the HQs, approximately one third of the firms are coming from Germany (18%) and Austria (13%). HQs located outside Europe (US, Japan) represent 11% of the sample. It was the aim of the study to receive responses from the general managers of the subsidiaries as it was necessary to have a person that is knowledgeable of the whole subsidiary. Roughly 85% of our responses are from very senior executives such as CEOs.

---

[5] The limit of 50 employees is set, as this excludes small and micro enterprises according to the definition in the European Union

We analyzed non-response bias and late-response bias and found no significant differences[6]. To counter common method bias, we protected respondent anonymity to avoid consistency motif and social desirability, we used improved scale items after extensive pre-testing, and most of the constructs are based on well-established scales in the literature (Podsakoff et al. 2003). The dependent variable (HQ local relationships) had a special question initiation to avoid social desirability (cf. Martinez & Jarillo 1991; Harzing 1999)[7]. In addition, a Harman's one-factor test did not produce a single emerging factor (Podsakoff & Organ, 1986). To validate the dependent variable we also collected additional data via telephone from some of the subsidiaries' headquarters and calculated an intra-class correlation coefficient. Resulting data of 120 external relationships showed a high average consistency between subsidiary and corresponding HQ responses (Intra Class Coefficient ICC = .715[8]). In sum, we assume that common method bias is not a serious problem in this study.

3.2 Measures

Measures of all constructs were developed based on an in-depth review of the literature. The questionnaire was first pretested by the research team in which this project was embedded (included 5 researchers from WU Wien) and second, by 10 knowledgeable individuals working for international subsidiaries or as researchers. The testers came from several countries and professional backgrounds. The questionnaire was subsequently modified based on the comments.

HQ local linkages

We decided to measure HQ local linkages as a composite of the relationship strength to several types of external actors (cf. Luo 2001; Andersson et al. 2002). Instead of using a standard Likert scale, we used an adapted graphical scale based on a similar scale by Ambos and colleagues (Ambos & Schlegelmilch 2007) and measured subsidiary embeddedness and HQ embeddedness with the same question. This approach proved very useful in the pretests since it emphasizes that the HQ relationship strength needed to be indicated in relation to the network partners of the subsidiaries and not to others. Respondents were asked to estimate the strength of the relationships between their subsidiary and the network actor, and their HQ

---

[6] To test for non-response bias we performed a Mann-Whitney U test to test for equality of means and a Kolmogorov-Smirnov Z test to test for distribution similarity regarding the variables sales, age, and number of employees. This suggests that the sample is representative of the population of European foreign-owned subsidiaries as represented through the AMADEUS database.

[7] For example, we initiated the question asking for HQ local relationships with a statement indicating that some firms use networks extensively while others do not to indicate that both answers are fine.

[8] Two-way random effects model with a 95% interval between .568 and .809.

and the same actors by assigning two numbers from 0 (no relationship) to 5 (very strong relationships) to each actor. The following local actors were given: domestic actors (domestic suppliers; domestic customers), multinational actors (local units of multinational suppliers, local units of multinational customers), and political actors (local governments, local industry associations). Based on this question, we computed a variable named "HQ local linkages", which represents the composite strength of the HQ's relationships to the six local actor categories. The six items of local network partners are all significantly correlated to each other, but not to a degree higher than 0.7. We used VARIMAX rotation and derived one single factor which explains 55.2 % of the variance. All loadings are significant with the smallest loading being .673 (Cronbach's alpha = 0.836; construct reliability = .880[9]).

In order to be able to conduct a robustness test with a related but still different dependent variable, we computed a second variable: a continuous, metric variable which combines HQ and subsidiary external relationships. We named this construct "Shared relationships" and it measures the percentage of shared relationships to the local network between the HQ and the respective subsidiary[10].

Environmental Uncertainty

Uncertainty has been operationalized as a multidimensional construct consisting of technological turbulence, intensity of competition and market turbulence in the subsidiary market (DeSarbo et al. 2005). We adapted and shortened extant scales (Jaworski & Kohli 1993; DeSarbo et al. 2005). Respondents were asked to indicate their agreement with the following conditions of the subsidiary market: "In your business, customers' preferences change substantially over time". "There is demand from customers who never bought your products before". (Market turbulence).

"It is very difficult to forecast the technological development in the next three years". "A large number of new product ideas have been made possible through technological breakthroughs in your industry". (Technological turbulence).

"Competition in your market is very fierce". "Heavy price competition is a characteristic of your industry". (Intensity of competition).

Three two-item factors emerged for the three dimensions of uncertainty. However, the factor for technological turbulence turned out to be unreliable and the items had small loadings. We deleted these

---

[9] Construct reliability was calculated as an alternative to Cronbach's alpha according to Hair et al. (2006) taking into account the square of the summed loadings and the sum of the error variance terms for the construct.

[10] We took the subsidiary perspective as a baseline for the measure. If a subsidiary had indicated that it maintains relationships to three local actors (strength of relationship > 0) and that its corresponding HQ is linked to one of those actors as well (strength of relationship >0) the variable takes the value of 33%. If a subsidiary had indicated that it maintains relationships to 5 actors and that its corresponding HQ is linked to all five of them, then "shared relationships" would be 100%.

two items. Then, factor analysis produced two factors explaining 74.4 % of the variance. The first factor covers the first two items and was named "turbulence". (Cronbach's alpha = .63; construct reliability =.82). The second construct was named "intensity of competition" and was built on the last two items. (Cronbach's alpha = .68; construct reliability = .85)

MNC and HQ dependence on the subsidiary

In line with the extant literature, we measured the dependency of the MNC on the focal subsidiary indirectly using drivers of subsidiary power (Ambos & Schlegelmilch 2007): subsidiary past performance and subsidiary resource importance. The MNC depends more on subsidiaries which are high performers in terms of profitability than on low performers. First, strong financial performance of a subsidiary means that the subsidiary contributes strongly to the performance of the whole MNC which increases the freedom for HQs to allocate financial resources to projects or units where it thinks it is most applicable. Second, high levels of performance might indicate that the subsidiary has a strong capability base. This is an indicator of potential learnings from this subsidiary to other subsidiaries which are performing less. Subsidiary past performance was measured subjectively and relative to other subsidiaries of the corporation on a scale from 1 (worse) to 5 (better). Respondents were asked rate six performance indicators over the past three years: sales growth; market share; return on investment; profit; productivity; cash flow from operations. Through principal component analysis, we derived two factors from these items (explaining 72% of total variance). The composite factor "Sub Past Financial Performance" was developed from four indicators: return on investment, profit, productivity, and cash flow from operations. This factor represents the past financial performance of the subsidiary (Cronbach's alpha = .85; construct reliability = .88). The factor "Sub Past Market Performance" was built using the sales growth and the market share items. It represents the market-oriented performance of the subsidiary (Cronbach's alpha = .70; construct reliability = .85).

Subsidiary resource importance is defined as the extent to which resources of the subsidiary (such as know-how) are important to other units within the MNC which we measured with 3 Likert-type items. Respondents were asked to indicate the extent of resource outflows from the focal subsidiary to other subsidiaries of the MNC from 0 (no resource flows at all) to 5 (a very great deal) with regard to "technology know-how", "manufacturing know-how", and "product flows (e.g. parts and finished

products). The one emerging factor explained 77% of total variance (Cronbach's alpha = .85; construct reliability = .94).[11]

Subsidiary partner multinationality

We developed a new scale to measure the extent to which the subsidiary partners are rather multinational organizations as opposed to domestic actors. We used the subsidiary's average strength of relationships to local units of multinational partners and regional industry associations and regional governments divided by the subsidiary's average strength of relationships to purely domestic partners (domestic suppliers, domestic customers, local industry associations and local governments). The higher this ratio, the more the subsidiary is connected to multinational partners as opposed to purely domestic partners.

Control variables

In order to control for other effects than hypothesized we used several control variables which we drew from the extant literature. Subsidiary **age** was measured as the number of years between the subsidiary's date of establishment and the year 2007. The **size** of the subsidiary can be a sign of accumulated know-how and power within the organization. Subsidiary size was measured as the number of employees of the subsidiary. We used the natural logarithm of age and size. We used two dummy variables as controls for **formation** of the subsidiary (greenfield investments and joint-ventures; baseline is acquired subsidiaries). We also controlled for the **geographic distance** between the HQ and the subsidiary and created a dummy variable called "hostregiondummy" which indicated "1" for the case that the HQ was from US and Japan with average distance of 7019 km, and "0" for the case that the HQ was located within Europe with the average distance of 871 km. On the firm-level, we are controlling for the organizational setup of the MNC by integrating the dummy variable "**matrix organizational structure**" into the analysis. The variable reflects if the MNC's dominant logic is based on more than one organizational dimension (regional, product, or functional divisions). Furthermore, we include **subsidiary autonomy** into the analysis since this variable is often assumed to shape the subsidiary mandate and overall role within the MNC (Paterson & Brock 2002). The scale is built on four items: "Hiring and/or promoting top management in your subsidiary, formulating and approving your subsidiary's annual budget, changing your subsidiary's organization, increasing expenditures beyond budget". These were measured on a five-point scale from 1:

---

[11] In order to check if the resource outflows are indeed "important" to the rest of the MNC we validated the scale with responses to another question which directly asked for the importance of the subsidiaries' resources for other units. Correlations were highly significant and above .762. We did not use this importance scale because of a substantially higher number of missing values.

subsidiary decides 100% to 5: parent decides 100%. Finally, we controlled for the overall level of economic development of the subsidiary location by measuring the gross domestic product per capita in purchasing power parity (data of 2007 from Eurostat).

3.3 Statistical Methods

We used hierarchical ordinary least squares (OLS) to test the hypotheses. Stata 10.0 was used to calculate regressions with robust standard errors to counter effects of heteroscedasticity for the regressions with the dependent variable HQ local relationships ("HQ local relationships")[12]. We checked for the assumptions of linearity, normality of errors, absence of multicollinearity, independence of errors, and no undue outliers or influential cases. Table 1 contains an overview of means, standard deviations and correlations of the variables used in the model. The results of the regression analysis are depicted in Table 2.

------ Insert Table 1 about here ----------

4 Results

Table 2 contains the results of the regression analysis. Model 1 presents all control variables which account for roughly 15% of the variance. Of these variables, subsidiary autonomy, subsidiary size, and entry mode "joint venture "are positively and significantly related to HQ local relationships. Subsidiary age and geographic distance (host region dummy) are negatively related to the dependent variable. This is in accordance to our assumptions and mirrors previous findings (e.g. Hakanson & Nobel 2001; Forsgren et al. 2005).

In Model 2 we present the results pertaining to the hypotheses 1 to 3 in addition to the control variables. The prediction that uncertainty leads to the formation of HQ local relationships was supported only for the variable "turbulence" but not for "competition". There is also support for hypothesis 2: all three sources of MNC dependency on the subsidiary, subsidiary resource importance, subsidiary past market and financial performance, are positively related to the extent of HQ local relationships. Furthermore, H3 is supported. The more the subsidiary is connected to multinational corporations the more the HQ builds local relationships to these local units of multinationals. Of the control variables subsidiary autonomy, age and size as well as geographic distance (host region dummy) remain significant.

---

[12] Results were stable as compared to the calculation without robust standard errors.

---- Insert Table 2 about here ----

To validate our results, we estimated the same hierarchical OLS model and exchanged "HQ local relationships" with the variable "Shared Relationships" which represents the percentage of shared relationships to the local environment of the subsidiary. The results are displayed in Table three. Our findings are to a large extent validated with the alternative dependent variable. H1 receives support only for "turbulence" and not for "intensity of competition". H2 receives full support regarding the variable subsidiary resource importance and financial performance. However, subsidiary market performance is not significantly related to the extent of HQ local relationships. H3 is supported with subsidiary partner multinationality being positively associated with HQ local relationships. While subsidiary autonomy is not significant, subsidiary age and size as well as geographic distance confirm the results of the first regression Model 2. The overall model is highly significant and the percentage of variance explained very similar to Model 2 in Table 2 (32%).

---- Insert Table 3 about here ----

5 Discussion

The basic assumption of this study is that MNCs, such as any other kind of firm, are embedded in their external network and that this is one important characteristic of the organizational setup which drives organizational performance, survival and behavior. This study investigates the particular phenomenon of HQ local linkages since extant research has investigated the phenomenon only to a very limited extent. To our knowledge, this is one of the first attempts to measure this phenomenon. Furthermore, we develop a model that explains the phenomenon based on resource dependence theory and information-processing theory logic. Overall, the results of this study support the predictions of both theories. Hence, HQ local relationships can be modeled as a method of increasing the information-processing capacity of the firm and of managing dependencies emanating from subsidiaries and their partners (i.e. their belonging to a multinational group).

The level of environmental uncertainty in the local market is a driver of HQ local linkages which is in line with information processing theory. However, the hypothesis received only partial support. There is only support for the hypothesis that uncertainty emanating from market turbulence is positively related to HQ

local linkages and to overlap. One reason for the insignificance of the competition variable might be the price pressure in competitive industries. In contrast to the level of overall environmental uncertainty as captured by the turbulence measures, the level of competition is also a sign of a mature industry in which there is substantial cost pressure (Birkinshaw & Lingblad 2005). Prices tend to decrease when competition is very intense and firms might therefore eliminate redundant activities where possible and strive for efficiency in their operations. Hence, while HQ local linkages might be a countermeasure against increased competition, firms will still try to streamline their organizations and avoid the duplication of relationships to the external networks. In such a context HQ local linkages, i.e. requisite information processing capacity, are relatively too costly.

The data show support for the prediction that HQs connect to the local networks of those subsidiaries upon which the MNC is most dependent. The importance of subsidiary resources to the rest of the MNC is clearly related to the extent of HQ local relationships. The findings support the idea that HQs use external relationships to gather knowledge and to build understanding of the local context which can be useful to counter subsidiary influence (Andersson et al. 2007). This view is further supported by some control variables. There is support for a positive relationship between the size of the subsidiary and HQ local relationships and the percentage of shared relationships. It is reasonable to assume that large subsidiaries are more likely to be powerful and resource-strong. Furthermore, some authors also argue that subsidiary autonomy is an indicator of subsidiary power (Mudambi & Navarra 2004). Since also subsidiary autonomy is positively related to HQ local relationships the results are consistent.

In sum, the findings extend the view of the differentiated and embedded network MNC. It contradicts classic contingency theory which postulates high levels of subsidiary autonomy in the case the HQ lacks knowledge and understanding of the local context (Nohria & Ghoshal 1997). Instead, the inverse seems to be true. This is an important finding which confirms initial evidence by Forsgren et al. (2005). Our findings also have important implications for resource dependence theory. We add empirically to the concerns raised by Casciaro and Piskorski (2005) that dependent actors might not be able to restructure the dependence relationship to another actor because of lacking motivation to accept the restructuring by this other actor. Our findings support this view in the sense that HQs build external relationships to subsidiary partners instead of restructuring the relationship to the subsidiary, i.e. centralizing decision-making. Arguably, the MNC with its very dispersed and differentiated network is a relatively typical context in which this can happen. Dependency relationships continue to exist to a strong extent within the MNC despite the internalization of the foreign activities. Interestingly, the notion of the externally embedded network organization becomes different with this finding in mind: in order to control and manage

internalized foreign activities, HQ units relate to local external networks. Ghoshal and Bartlett (1990) claim that the HQ can assume the role of the powerful designer of the MNC organization due to its centrality in the intra-organizational network. We extend this perspective and add that HQ's role depends on its relationships to internal and external units and organizations. This is an interesting avenue for future research. In general, our findings call for more research using resource dependence theory within the MNC context. However, it seems necessary that this research takes the external network into account.

Finally, we found that network partners that are multinational actors are more interesting to HQs than purely domestic actors. Newburry and colleagues (Newburry 2001; Newburry & Yakova 2006) have used the construct "extent of shared clients" as an indicator for the level of subsidiary embeddedness. Their assumption is that subsidiaries with an independent client base (purely domestic firms only) are in general more strongly locally embedded than subsidiaries sharing their clients with many other units. This is in line with work on liability of foreignness and institutional pressures (Zaheer 1995). Institutional research has shown that affiliates of foreign MNCs differ from domestically-owned, single-country firms and that their local legitimacy is challenged (Roth & Kostova 2003). This has consequences on their networking behavior, since opportunities to network depend on prior networking, which a foreign-owned subsidiary might lack (Sampson 2005) and since it is very costly to build new relationships in a foreign environment (Chen et al. 2004). Our post hoc analysis for the average level of embeddedness of the subsidiary shows that, indeed, subsidiaries are significantly stronger connected to domestic firms than to multinational customers and suppliers. This confirms the assumption of Newburry and colleagues (2001; 2006) and our data gives a two-fold picture: Subsidiaries connect to a stronger extent to domestic partners than to local units of multinational partners while the inverse is true for the HQs. This is in line with the suggestions by Dacin (1999) who postulated a crowding-out effect of subsidiary embeddedness if the HQ embeds as well due to increasing globalization. The increasing interconnectivity between several markets and several actors of partner units make firms shift their relationships from local to aggregate levels (HQs) which become stronger involved in inter-organizational issues. Only then can HQs coordinate multi-market customers and suppliers effectively (Birkinshaw et al. 2001). HQs are less interested in purely domestic actors since they are no potential threat to bargaining power, their behavior does not have an impact on several markets of the MNC, they probably offer limited learning potentials to the HQ, and they can be handled perfectly by the subsidiary level. However, in contrast to Dacin et al. (1999), we show that intermediate situations exist in-between pure subsidiary embeddedness and a complete crowding out in favor of HQ external relationships. This is an important novel finding since it calls for re-focusing research into the characteristics of the external partners (the portfolio or composition of the subsidiary network),

and the effect of globalization on the creation and management of interorganizational relationships (cf. Birkinshaw et al. 2001).

Finally, our findings significantly extend the literature on the idea of rational selection processes HQ units apply when choosing on which subsidiaries to focus (Andersson et al. 2007). First, we extend the notion of attention (Bouquet & Birkinshaw 2008) in the sense that HQ attention to subsidiary matters also includes attention to the subsidiaries' local networks. Second, we have evidence that the information-processing as well as resource dependency logic plays an important role and that hence variables describing the overall environment, the network partner, and the subsidiary are important to understand the selection mechanism.

5.1 Limitations and future research

This study is a first attempt to explore the phenomenon of HQ relationships to local subsidiary contexts. Notwithstanding the robustness of the results across the two alternative dependent variables and the lack of obvious bias, there are some limitations of this study.

First, testing hypotheses in a cross-sectional research design primarily indicates association, not causality. Empirically observed correlations in our model are therefore a necessary but not sufficient condition for causality. Hence, it is necessary to interpret the results with caution. It is desirable to investigate longitudinally the relationships between the variables of this study.

Second, we conducted our analysis on the nodal level (unit level) treating groups of external actors (such as suppliers and customers) as relevant partner categories. This was useful to get comparable data across different MNCs and is based on common approaches in the field (Luo 2001; Ambos & Schlegelmilch 2007). However, it creates a problem of aggregation. Future research could build on this and develop a more fine-grained measure of external relationships.

Third, it could be argued that the purpose of HQ relationships to local partners is not only information-seeking and that the activity structure of the HQ might have an important impact. However, we assume that different types of HQs are randomly distributed in our sample. Furthermore, we have retested the results with a much smaller subsample and controlled for the size of the HQ (number of employees) and the number of subsidiaries reporting to the HQ. Both variables are not significant and the other hypothesized relationships remained stable with the exception of subsidiary resource importance and market turbulence which became insignificant when predicting "HQ local relationships"; and turbulence which becomes only marginally significant when predicting the percentage of shared relationships. Finally, and most importantly, network theory postulates that there is no information diversity between

partners when there is no structural hole between them (Burt 1992; Zaheer & Soda 2009 forthcoming). In other words, the collection of information and the built up of knowledge about the local context and the subsidiary's external relationships is a result of HQ's own relationships to the local context no matter what their purpose is (Burt 1992).

These findings hold important information for managers on both HQ as well as subsidiary level. Managers have to understand that the HQ decision to involve in local networks is a rational selection process guided by relevant issues on the agenda of the HQ: maintaining control, achieving coordination across the locations, increasing knowledge of the local context, including identifying relevant sources of new know-how, capabilities, and dependencies emanating from within and outside the boundaries of the MNC. Increased HQ involvement in general is counterproductive since large costs are involved.

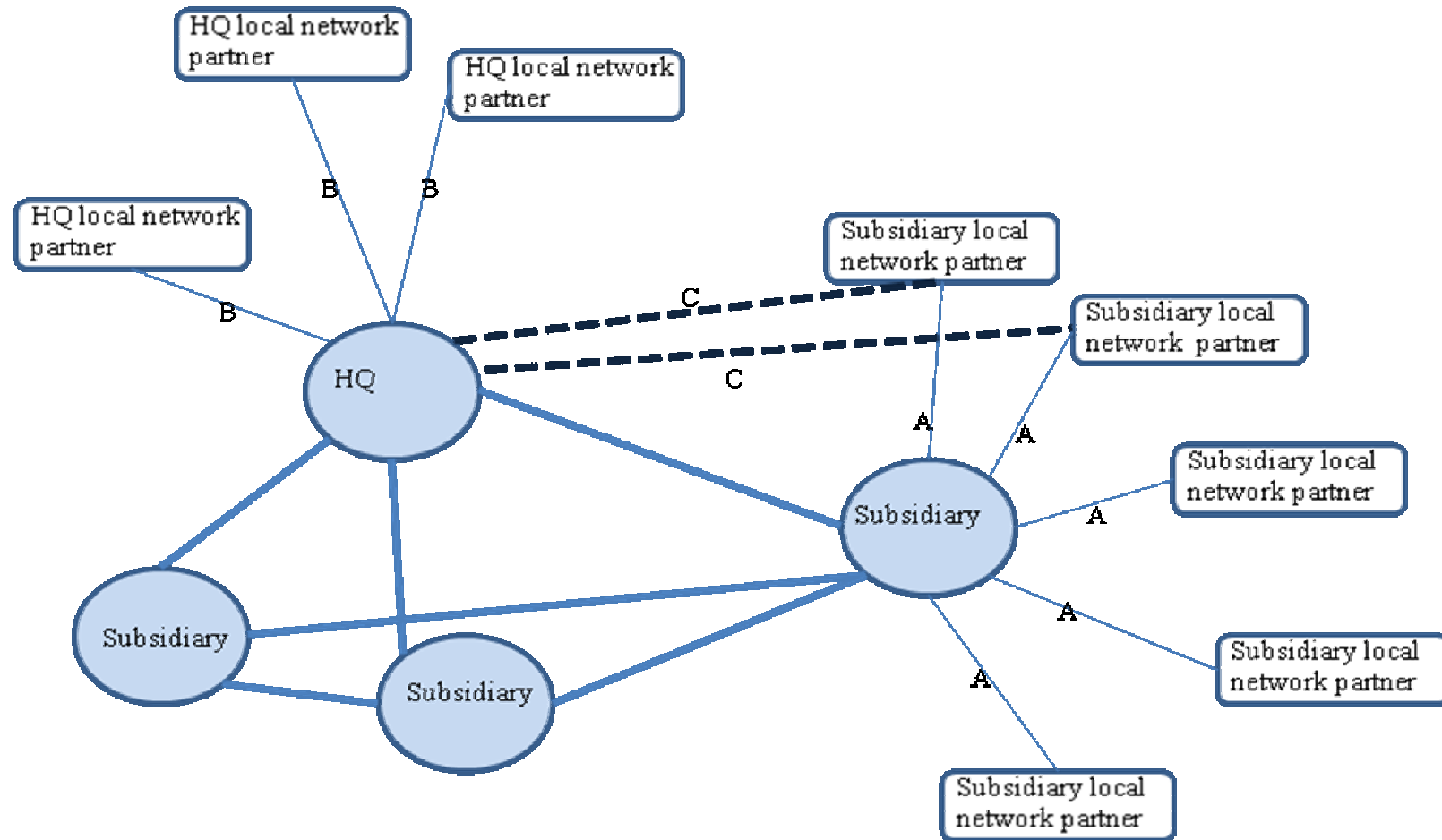**Figure 1: Model of the embedded MNC**

Table 1: Means, standard deviations and correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 HQ local relationships	1.000															
2 Shared relationships	0.798	1.000														
3 Sub Autonomy	0.130	0.090	1.000													
4 Dummy Greenfield	-0.171	-0.143	0.012	1.000												
5 Dummy Joint Venture	0.158	0.128	-0.021	-0.297	1.000											
6 Sub Age	-0.172	-0.219	0.019	0.119	-0.036	1.000										
7 Sub Size	0.182	0.195	0.032	-0.185	0.085	0.113	1.000									
8 Dummy Matrix Structure	0.044	0.080	-0.009	-0.002	0.142	-0.092	0.063	1.000								
9 Dummy Host Region	-0.152	-0.165	0.068	-0.140	0.067	0.056	0.066	0.012	1.000							
10 GDP per Capita	-0.105	-0.147	-0.112	-0.081	-0.124	0.282	-0.025	0.029	0.162	1.000						
11 Competition	0.013	-0.049	-0.076	0.018	0.164	0.013	0.051	0.071	0.028	-0.014	1.000					
12 Turbulence	0.157	0.166	-0.052	-0.085	-0.097	-0.029	0.075	-0.071	-0.039	0.071	-0.036	1.000				
13 Sub Resource Imp.	0.283	0.269	0.042	-0.311	0.263	-0.161	0.227	0.050	0.233	0.006	0.036	-0.004	1.000			
14 Sub Past Market Perf.	0.127	0.051	-0.110	0.116	-0.151	-0.008	-0.029	-0.051	-0.033	0.100	0.006	0.028	0.064	1.000		
15 Sub Past Financial Perf.	0.191	0.193	-0.103	0.033	0.055	-0.047	-0.105	-0.032	-0.073	-0.103	-0.068	0.068	0.100	0.003	1.000	
16 Sub Partner Multination.	0.200	0.201	0.055	-0.099	0.000	0.094	0.042	0.032	0.111	0.094	-0.166	-0.083	0.107	0.034	0.053	1.000
Mean	0.046	0.679	-0.034	0.369	0.131	1.145	2.258	0.179	0.125	96.913	-0.007	0.006	0.082	0.028	0.023	0.744
Std. Dev.	0.997	0.306	1.014	0.484	0.338	0.421	0.567	0.384	0.332	29.035	0.990	0.997	0.993	0.982	1.009	0.466

Table 2: Results of OLS regression analysis with robust standard errors. Dependent variable "HQ local relationships".

	VARIABLES	Model 1	Model 2
	Constant	**-0.090**	**-0.307**
		(0.374)	(0.372)
	Sub Autonomy	**0.141****	**0.166****
		(0.071)	(0.069)
	Dummy Subsidiary is Greenfield	**-0.230**	**-0.139**
		(0.170)	(0.161)
	Dummy Subsidiary is Joint Venture	**0.349***	**0.316**
		(0.204)	(0.219)
	Subsidiary Age (log)	**-0.394***	**-0.323***
		(0.201)	(0.186)
	Subsidiary Size (log)	**0.312****	**0.248****
		(0.123)	(0.117)
	Dummy Matrix Structure	**0.009**	**0.043**
		(0.203)	(0.192)
	Dummy Host Region	**-0.562*****	**-0.660*****
		(0.195)	(0.181)
	GDP per Capita	**-0.000**	**-0.001**
		(0.003)	(0.002)
	Competition		**0.052**
H1			(0.068)
	Turbulence		**0.156****
			(0.069)
	Sub Resource Importance		**0.175****
			(0.084)
H2	**Sub Past Market Performance**		**0.147****
			(0.068)
	Sub Past Financial Performance		**0.156****
			(0.070)
H3	**Sub Partner Multinationality**		**0.444*****
			(0.149)
	Observations (n)	**168**	**168**
	R-squared	**0.146**	**0.301**

Robust standard errors in parentheses;   *** p<0.01, ** p<0.05, * p<0.1

Table 3: Results of OLS Regression Analysis. Dependent variable "Shared Relationships".

VARIABLES	Model 1
Constant	0.595***
	(0.126)
Sub Autonomy	0.033
	(0.021)
Dummy Subsidiary is Greenfield	-0.017
	(0.049)
Dummy Subsidiary is Joint Venture	0.066
	(0.069)
Subsidiary Age (log)	-0.130**
	(0.055)
Subsidiary Size (log)	0.090**
	(0.039)
Dummy Matrix Structure	0.042
	(0.056)
Dummy Host region	-0.202***
	(0.066)
GDP per Capita	-0.001
	(0.001)
Competition	-0.004
	(0.022)
Turbulence	0.051**
	(0.022)
Subsidiary Resource Importance	0.055**
	(0.024)
Sub. Past Market Performance	0.018
	(0.022)
Sub. Past Financial performance	0.045**
	(0.022)
Sub Partner Multinationality	0.140***
	(0.047)
Observations	168
R-squared	0.295
Adj. R-Squared	0.230

Standard errors in parentheses;   *** p<0.01, ** p<0.05, * p<0.1

Bibliography

Almeida, P. & Phene, A. (2004). "Subsidiaries and knowledge creation: the influence of the MNC and host country on innovation." Strategic Management Journal 25(8/9): 847-864.

Ambos, B. & Schlegelmilch, B. B. (2007). "Innovation and Control in the Multinational Firm: A Comparison of Political and Contingency Approaches." Strategic Management Journal 28(5): 473 - 486.

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. (1996). "Subsidiary Embeddedness and Control in the Multinational Corporation." International Business Review 5(5): 487-508.

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): 802-819.

Asakawa, K. (1996). "The Multinational Tension in R&D Internationalization: Strategic Linkage Mechanisms of Distant Contextual Knowledge in Japanese Multinational Companies". Dissertation INSEAD. Fontainebleau.

Bartlett, C. & Ghoshal, S. (1989). "Managing Across Borders: The Transnational Solution". Boston, Harvard Business School Press.

Beckman, C. M., Haunschild, P. R. & Phillips, D. J. (2004). "Friends or Strangers? Firm-Specific Uncertainty, Market Uncertainty, and Network Partner Selection." Organization Science 15(3): 259-275.

Birkinshaw, J. (1996). "How multinational subsidiary mandates are gained and lost." Journal of International Business Studies 27(3): 467-496.

Birkinshaw, J. & Lingblad, M. (2005). "Intrafirm Competition and Charter Evolution in the Multibusiness Firm." Organization Science 16(6): 674-686.

Birkinshaw, J., Toulan, O. & Arnold, D. (2001). "Global account management in multinational corporations: Theory and evidence." Journal of International Business Studies 32(2): 231-249.

Boehe, D. M. (2007). "Product development in MNC subsidiaries: Local linkages and global interdependencies." Journal of International Management (13): 488-512.

Bouquet, C. & Birkinshaw, J. (2008). "Weight vs. voice: How foreign subsidiaries gain attention from corporate headquarters", Academy of Management Journal, 51 (3), 577-601.

Boyd, B. K. & Fulk, J. (1996). "Executive scanning and perceived uncertainty: A multidimensional model." Journal of Management 22(1): 1-22.

Burt, R. S. (1992). "Structural Holes: The Social Structure of Competiton". Cambridge, MA, Harvard University Press.

Casciaro, T. & Piskorski, M. J. (2005). "Power Imbalance, Mutual Dependence, and Constraint Absorption: A Close Look at Resource Dependence Theory." Administrative Science Quarterly 50: 167-199.

Chen, T.-J., Chen, H. & Ku, Y.-H. (2004). "Foreign direct investment and local linkages." Journal of International Business Studies 35(4): 320-333.

Coleman, J. S. (1990). "Foundations of Social Theory". Cambridge, Harvard University Press.

Dacin, M. T., Ventresca, M. J. & Beal, B. D. (1999). "The Embeddedness of Organizations: Dialogue & Directions." Journal of Management 25(3): 317-356.

DeSarbo, W., S., Di Benedetto, A. C., Song, M. & Sinha, I. (2005). "Revisiting the Miles and Snow strategic framework: uncovering interrelationships between strategic types, capabilities, environmental uncertainty, and firm performance." Strategic Management Journal 26(1): 47-75.

Dillman, D. A. (2000). "Mail and Internet Surveys: The Tailored Design Method". New York, Wiley.

Dyer, J. H. & Singh, H. (1998). "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage." Academy of Management Review 23(4): 660-679.

Egelhoff, W. G. (1982). "Strategy and Structure in Multinational Corporations: An Information-Processing Approach." Administrative Science Quarterly 27(3): 435.

Egelhoff, W. G. (1991). "Information-Processing Theory and the Multinational Enterprise." Journal of International Business Studies 22(3): 341.

Fisher, C. D. (1993). "Boredom at Work." Human Relations 46: 395-417.

Forsgren, M. (2004). The Use of Network Theory in MNC Research. In: Mahnke, V. & Pedersen, T. (editors): Knowledge flows, governance and the multinational enterprise - Frontiers in international management research. Houndsmill et al., Palgrave Macmillan: 18-37.

Forsgren, M., Holm, U. & Johanson, J. (2005). "The Embedded Multinational - A Business Network View". Cheltenham, UK, Edward Elgar.

Forsgren, M., Pedersen, T. & Foss, N. J. (1999). "Accounting for the strengths of MNC subsidiaries: the case of foreign-owned firms in Denmark." International Business Review 8(2): 181-196.

Frost, T. S. (2001). "The Geographic Sources of Foreign Subsidiaries' Innovations." Strategic Management Journal 22(2): 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.

Galbraith, J. R. (1973). "Designing Complex Organizations", Reading, MA, Addison-Wesley.

Garcia-Pont, C. Ignacio Canales, J., Noboa, F. (2009). "Subsidiary Strategy: The Embeddedness Component", Journal of Management Studies, 46-2, 182-213

Ghoshal, S. & Bartlett, C. A. (1990). "The Multinational Corporation as an Interorganizational Network." Academy of Management. The Academy of Management Review 15(4): 603-625.

Ghoshal, S. & Nohria, N. (1989). "Internal Differentiation within Multinational Corporations." Strategic Management Journal 10(4): 323-337.

Granovetter, M. (1985). "Economic Action and Social Structure: The Problem of Embeddedness" American Journal of Sociology 91(3): 481-510.

Gulati, R. (1998). "Alliances and networks." Strategic Management Journal 19(4): 293-318.

Gulati, R. (1999). "Network location and learning: The influence of network resources and firm capabilities on alliance formation." Strategic Management Journal 20(5): 397-420.

Gulati, R. & Gargiulo, M. (1999). "Where do interorganizational networks come from?" The American Journal of Sociology 104(5): 1439-1462.

Gulati, R., Nohria, N. & Zaheer, A. (2000). " Strategic networks". Strategic Management Journal 21 (3), 203-215.

Gulati, R. & Sytch, M. (2007). "Dependence Asymmetry and Joint Dependence in Interorganizational Relationships: Effects of Embeddedness on a Manufacturer's Performance in Procurement Relationships." Administrative Science Quarterly 52(1): 32-69.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. & Tatham, R. L. (2006). "Multivariate Data Analysis". Upper Saddle River, New Jersey, Pearson Education.

Hakanson, L. & Nobel, R. (2001). "Organizational Characteristics and Reverse Technology Transfer." Management International Review 41(4): 395-420.

Hakansson, H. (1982). "International Marketing and Purchasing of Industrial Goods: An interaction approach". New York, John Wiley.

Hedlund, G. (1980). "The Role of Foreign Subsidiaries in Strategic Decision-making in Swedish Multinational Corporations." Strategic Management Journal 1(1): 23-36.

Hedlund, G. (1986). "The Hypermodern MNC -- A Heterarchy?" Human Resource Management 25(1): 9-36.

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., Johanson, J. & Thilenius, P. (1995). "Headquarters' knowledge of subsidiary network contexts in the multinational corporation." International Studies of Management & Organization 25(1,2): 97-120.

Jaworski, B. J. & Kohli, A. K. (1993). "Market orientation: Antecedents and consequences." Journal of Marketing 57(3): 53-71.

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. (2000). "The Network as Knowledge: Generative Rules and the Emergence of Structure." Strategic Management Journal 21(3): 405-425.

Koka, B. R., Madhavan, R. & Prescott, J. E. (2006). "The Evolution of Interfirm Networks: Environmental Effects on Patterns of Network Change." The Academy of Management Review 31(3): 721-737.

Koka, B. R. & Prescott, J. E. (2002). "Strategic alliances as social capital: A multidimensional view." Strategic Management Journal 23(9): 795.

Krackhardt, D. (1990). "Assessing the Political Landscape: Structure, Cognition, and Power in Organizations." Administrative Science Quarterly 35: 342-369.

Krackhardt, D. (1992). "The strength of strong ties: the importance of philos in organizations". In: Nohria, N. & Eccles, R., G. Boston (editors): Networks and Organizations. MA, Harvard Business School Press: 216-239.

Lehrer, M. & Asakawa, K. (2002). "Offshore knowledge incubation: The "third path" for embedding R&D labs in foreign systems of innovation." Journal of World Business 37(4): 297-306.

Luo, Y. (2001). "Toward a Cooperative View of MNC-Host Government Relations: Building Blocks and Performance Implications." Journal of International Business Studies 32(3): 401-419.

Luo, Y. (2003). "Industrial Dynamics and Managerial Networking in an Emerging Market: The Case of China." Strategic Management Journal 24(13): 1315-1327.

Medcof, J. W. (2001). "Resource-based strategy and managerical power in networks of internationally dispersed technology units." Strategic Management Journal 22: 999-1012.

Mizruchi, M. S. & Galaskiewicz, J. (1994). "Networks of Interorganizational Relations". In: Wasserman, S. & Galaskiewicz, J. (editors): Advances in Social Network Analysis. Thousand Oaks, CA, Sage: 230-253.

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. & Navarra, P. (2004). "Is knowledge power? Knowledge flows, subsidiary power and rent-seeking within MNCs." Journal of International Business Studies 35(5): 385-406.

Newburry, W. (2001). "MNC Interdependence and Local Embeddedness Influences on Perceptions of Career Benefits from Global Integration." Journal of International Business Studies 32(3): 497-507.

Newburry, W. & Yakova, N. (2006). "Standardization preferences: a function of national culture, work interdependence and local embeddedness." Journal of International Business Studies 37(1): 44-60.

Nobel, R. & Birkinshaw, J. (1998). "Innovation in multinational corporations: Control and communication patterns in international R&D operations." Strategic Management Journal 19(5): 479-507.

Nohria, N. & Ghoshal, S. (1997). "The Differentiated Network. Organizing Multinationals for Value Creation". San Francisco, Jossey-Bass.

Paterson, S. L. & Brock, D. M. (2002). "The development of subsidiary-management research: review and theoretical analysis." International Business Review 11(2): 139.

Pfeffer, J. & Salancik, G. R. (1978). "The External Control of Organizations: A Resource Dependence Perspective". New York, Harper & Row.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y. & Podsakoff, N. P. (2003). "Common Method Biases in Behavioural Research: A Critical Review of the Literature and Recommended Remedies." Journal of Applied Psychology 88(5): 879-903.

Porter, M. E. (1980). "Competitive Strategy". New York, Free Press.

Prahalad, C. K. & Bettis, R. (1995). "The Dominant Logic: Retrospective and Extension." Strategic Management Journal 16(1): 5-14.

Rawski, T. G. (1994). "Chinese Industrial Reform: Accomplishments, Prospects and Implications." American Economic Review (84): 271-275.

Roth, K. & Kostova, T. (2003). "The Use of the Multinational Corporation as a Research Context." Journal of Management 29(6): 883-1003.

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(3): 369-386.

Rugman, A. M. & Verbeke, A. (2001). "Subsidiary-specific advantages in multinational enterprises." Strategic Management Journal 22(3): 237-250.

Sampson, R. C. (2005). "Experience effects and collaborative returns in R&D alliances." Strategic Management Journal 26(11): 1009-1031.

Schmid, S. & Schurig, A. (2003). "The development of critical capabilities in foreign subsidiaries: disentangling the role of the subsidiary's business network." International Business Review 12(6): 755-782.

Thompson, J. D. (1967). "Organizations in Action". New York, McGraw-Hill.

Tihanyi, L. & Thomas, W. B. (2005). "Information-processing demands and the multinational enterprise: a comparison of foreign and domestic earnings estimates." Journal of Business Research 58(3): 285.

Uzzi, B. (1996). "The Sources and Consequences of Embeddedness for the economic Performance of Organizations: The Network Effect." American Sociological Review 61(4): 674-698.

Williamson, O. E. (1991). "Strategizing, economizing, and economic organization." Strategic Management Journal(12): 76-94.

Yamin, M. & Forsgren, M. (2006). "Hymer's analysis of the multinational organization: Power retention and the demise of the federative MNE." International Business Review 15(2): 166-179.

Zaheer, A. & Soda, G. (2009 Forthcoming). "The Evolution of Network Structure: Where Do Structural Holes Come From?" Administrative Science Quarterly.

Zaheer, S. (1995). "Overcoming the Liability of Foreignness." The Academy of Management Journal 38(2): 341-363.