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Article (Accepted for Publication)  
(Refereed)

Original Citation:

Nell, Phillip C. and Ambos, Björn
(2013)
Parenting Advantage in the MNC: An Embeddedness Perspective on the Value Added by Headquarters.
Strategic Management Journal, 34 (9).
pp. 1086-1103. ISSN 1097-0266
This version is available at: https://epub.wu.ac.at/4939/
Available in ePub\textsuperscript{WU}: March 2016

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This document is the version accepted for publication and — in case of peer review — incorporates referee comments. There are minor differences between this and the publisher version which could however affect a citation.
Parenting Advantage in the MNC:
An Embeddedness Perspective on the Value Added by Headquarters

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Forthcoming in revised form in Strategic Management Journal
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ABSTRACT

What determines the value an MNC’s headquarters adds to its own affiliates? In this paper, we shed light on this question by linking the embeddedness view of the multinational corporation to the literature on parenting advantage. We test our hypotheses on an original dataset of 124 manufacturing subsidiaries located in Europe. Our results indicate that the external embeddedness of the MNC is an antecedent to headquarters’ value creation. We find that headquarters’ investments into their own relationships with the subsidiaries’ contexts are positively related to the value added by headquarters. Furthermore, this relationship is stronger when the subsidiary itself is strongly embedded. We discuss implications for the MNC literature, embeddedness research, and the literature on parenting and headquarters’ roles.

Keywords: local linkages, embeddedness, parent value added, parenting, headquarters-subsidiary relationships
INTRODUCTION

Multi-business firms frequently struggle with the question of how headquarters’ staff should organize and influence their businesses to create competitive advantages (Goold and Campbell, 1998; Poppo, 2003; Foss, 1997). Numerous researchers acknowledge that headquarters create value through such activities as synergy management, knowledge sharing, and the organization of shared services. This is referred to as the ‘parenting advantage’ (Goold, Campbell, and Alexander 1994; Goold, Pettifer, and Young, 2001; Foss, 1997). However, research also shows that headquarters frequently lack sufficient knowledge and understanding of their subunits’ activities for a number of reasons, such as context specificity and limited attention spans (Goold, Campbell, and Alexander, 1998; Campbell, Goold, and Alexander, 1995). This, of course, has negative consequences for headquarters’ ability to add value (Goold and Campbell, 1998).

Obviously, such problems expand in situations where headquarters attempt to manage an increasingly complex network of subunits (Goold and Campbell, 2002). The multinational corporation (MNC) is considered to be one of the most complex organizations due to cultural, administrative, geographic, and economic differences that emerge when firms cross borders (Kostova and Zaheer, 1999; Ghemawat, 2001). Furthermore, MNC subsidiaries often embed themselves in their local environments, developing close, intense relationships with local partners, such as customers and suppliers. Research has found that subsidiaries can utilize these local linkages to foster learning and enhance their effectiveness (Andersson, Forsgren, and Holm, 2002). It has been argued, however, that subsidiary embeddedness might make adequate value creation even more difficult for parents (Holm, Johanson, and Thilenius, 1995). Few insights into how headquarters can add value under such circumstances exist.
To address this question, we link two established streams of literature: the MNC external embeddedness perspective (see Andersson et al., 2002) and the literature on parenting advantage (Campbell et al., 1995; Goold and Campbell, 2002; Goold et al., 1998, 2001; Foss, 1997). In accordance with Goold et al. (1998), we define ‘headquarters value added’ as a situation in which the headquarters’ influence leads to a level of performance in the subsidiary that is better than the subsidiary could have achieved as an independent, stand-alone entity. We define headquarters as units of MNCs to which subsidiaries directly report. In so doing, we pay tribute to corporate reality in larger organizations where parenting is often conducted by intermediate units, such as regional headquarters (Goold and Campbell, 2002).

We test our hypotheses on an original dataset of 124 manufacturing subsidiaries located in Europe. We find support for our hypotheses that headquarters embeddedness in the subsidiary’s network is positively associated with headquarters value added and that the strength of this relationship increases as the level of subsidiary embeddedness rises. Our results also support the views that subsidiaries’ local embeddedness poses a problem for value-creation attempts by headquarters and that headquarters refrain from embedding themselves locally in situations when doing so seems too costly, especially when a subsidiary operates in internationally integrated markets and when it is located far from headquarters.

Our findings add to the literature in a number of ways. First, we contribute to the literature on the embedded MNC (Ghoshal and Bartlett, 1990). In extant embeddedness research, headquarters’ external relationships are often ignored (Andersson et al., 2002). In contrast, our results show that a more holistic concept of how the MNC is linked to the external network is

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1 Note that we do not investigate MNC-level performance, which would require taking the costs associated with headquarters’ operations into account (Collis, Young, and Goold, 2007). We focus on the value created for the subsidiary as defined by Goold et al. (1998).

2 Throughout the remainder of the paper, we use the terms ‘headquarters’ and ‘parent’ interchangeably.
valuable. We suggest that the common view of the embedded MNC, in which subsidiary embeddedness is viewed rather positively and assumed to be a substitute for headquarters embeddedness (Dacin, Ventresca, and Beal, 1999), should be modified. In this regard, we provide an explanation for why MNCs’ headquarters and subsidiaries build overlapping relationships with the same local partners (Yamin and Forsgren, 2006; Nell, Ambos, and Schlegelmilch, 2011; Birkinshaw, Toulan, and Arnold, 2001) despite the fact that the formation of such linkages can be very costly.

Second, we add to the literature on headquarters’ roles (e.g., Ambos, Andersson, and Birkinshaw 2010; Poppo, 2003; Goold and Campbell, 2002). Over the past two decades, the MNC literature has neglected the role of headquarters or even suggested that an MNC’s headquarters is just one unit among many others (e.g., Andersson, Forsgren, and Holm, 2007). In contrast, our findings suggest that headquarters still play an important role within the MNC. They can add value to their subsidiaries even under challenging conditions by taking on an active role, dispersing their locus of activity, and embedding themselves in their subsidiaries’ networks. Our finding has therefore a bearing on how we conceptualize (headquarters of) MNCs.

Third, we add to the scarce literature on parenting (e.g., Collis et al., 2007; Egelhoff, 2010). In particular, we add a new perspective to what Goold and Campbell (2002) refer to as ‘parenting in complex structures.’ We suggest that the concept of MNC embeddedness is an important attribute of parenting theory, as it helps explain the value added by parents. We confirm that complexity does make parenting more difficult. At the same time, we show that mechanisms exist to overcome these difficulties. As these mechanisms are costly, parents use them selectively. Thus, parenting strategy mediates the relationship between context factors and value creation.
In sum, our study highlights the need for more research into how MNC headquarters behave and how their activities are organized. It also stresses the need to investigate whether headquarters should be geographically dispersed and informed by more diverse mechanisms than those previously considered to allow for a more active and value-creating headquarters’ role (Birkinshaw et al., 2006; Piekkari, Nell, and Ghauri, 2010; Poppo, 2003).

THEORY AND HYPOTHESES

The MNC can be conceived of as a network of differentiated units that is, in turn, embedded in external networks (Ghoshal and Bartlett, 1990). The external embeddedness of subsidiaries and the effects of that embeddedness on the MNC are well researched (e.g., Håkanson and Nobel, 2001; Andersson et al., 2002, 2007; Boehe, 2007; Dellestrand and Kappen, 2012). This stream of research builds on earlier work on the relational view and social networks, which emphasizes trust, joint problem solving, and information sharing as key mechanisms that influence the success of cooperative relationships (e.g., Granovetter, 1985; Uzzi, 1996; Dyer and Singh, 1998). Subsidiary external embeddedness is typically defined in terms of the extent to which a unit has developed close relationships with local external actors as opposed to arm’s-length relationships (e.g., Andersson and Forsgren, 1996). This external embeddedness has been found to lead to increased legitimacy (Luo, Shenkar, and Nyaw, 2002), enhanced subsidiary learning (Mu, Gnyawali, and Hatfield, 2007), and a greater likelihood that the subsidiary will serve as a source for its sister units’ capability development (e.g., Andersson et al., 2002). Thus, MNCs trying to profit from subsidiary learning establish complex organizations in which subsidiaries are externally embedded and know-how is transferred from individual subsidiaries to their sister units (Asmussen, Dhanaraj, and Pedersen, 2009).
Collectively, research on the differentiated MNC and subsidiary external embeddedness has provided important insights. However, due to the emphasis on the subsidiary level in the last two or three decades, researchers have tended ‘to ignore both the general role of hierarchy and the more specific role of a parent HQ in MNCs’ (Egelhoff, 2010: 404). As a consequence, the role played by headquarters in this conceptualization of the MNC has become somewhat blurred over time (Tallman and Koza, 2010). Some researchers equate the headquarters’ role to that of any other unit within the MNC (e.g., Andersson et al., 2007). Others argue that the role of headquarters remains unique and distinct (Egelhoff, 2010). In sum, while the subsidiary’s impact on firm-level performance has received significant attention in recent years, research into the inverse question of how headquarters can add value to their subsidiaries has been rather limited.

This research gap is potentially problematic, as the answer to this question has a bearing on a number of fundamental issues related to MNC management. For example, in situations of low headquarters’ value creation, it might be better to reorganize parenting so that fewer resources are spent on parenting or so that a different headquarters unit (e.g., regional headquarters) can take over parenting activities for particular subunits. Goold and Campbell (2002), for instance, found that headquarters’ activities are increasingly being distributed to different units. Others have found that they are increasingly internationally dispersed and unstable (Birkinshaw et al., 2006; Piekkari et al., 2010).

**Headquarters’ roles and value creation**

The most profound insights into headquarters’ value creation build on a stream of research that dates back to the work of Chandler (1991) and includes more recent work on ‘parenting’ (e.g., Foss, 1997; Collis et al., 2007; Goold and Campbell, 1998, 2002). In general, parents create
value through two mechanisms. First, parents ‘[create] value by preventing loss’ (Foss, 1997: 314). In other words, parents control subunits to ensure that, for instance, opportunistic behavior does not become problematic. Second, parents create value through activities such as synergy management, knowledge sharing, and the organization of shared services. This has been referred to as the ‘positive role of parents’ (Foss, 1997). In this paper, we are interested in this positive role.

A headquarters’ ability to create value for its subsidiaries depends, to a large extent, on the managerial abilities of its employees, i.e., the knowledge, skills, and experience of headquarters’ staff (Campbell et al., 1995; Adner and Helfat, 2003; Holcomb, Holmes, and Connelly, 2009). For example, Goold et al. (1998: 310) note that a necessary condition for value creation is that ‘the parent has sufficient understanding of the business.’ Parents that lack information and understanding can misjudge the capabilities of subsidiary units, which can lead to the transfer of bad practices (Arvidsson, 1999) and synergy bias, i.e., a false evaluation of potential synergies (Goold and Campbell, 1998). Thus, Goold et al. (1994: 44) report that a headquarters is successful when it ‘(…) spends a great deal of time gathering and processing information about the businesses.’

We argue that headquarters embeddedness in the subsidiary’s local network is one important method of gathering and processing information, and that it helps the headquarters create value for the subsidiary. Previous research has acknowledged that headquarters maintain relationships with external actors (Dacin et al., 1999). Such external ties have predominantly been viewed as non-redundant and as substitutes for subsidiary-level external relationships. For example, Dacin et al. (1999) refer to globalization as a disembedding process in which the relationships of subsidiaries are replaced with higher-level relationships, e.g., at the regional or
corporate level. This might be the case, for example, when the MNC responds to their key customers’ decision to establish a central purchasing unit by locating key account management to the MNC headquarters.

However, it has also recently been argued that headquarters maintain relationships that overlap with the subsidiary’s network (e.g., Birkinshaw et al., 2001; Andersson et al., 2002; Yamin and Forsgren, 2006; Holm et al., 1995; Nell et al., 2011). Thus, headquarters apparently build selective, direct relationships with partners of the subsidiary in a non-substitutive way, i.e., in addition to the subsidiary’s relationships. The subsidiaries’ relationships are probably best described as the main business relationships with frequent exchange of information, products, and resources (Andersson et al., 2002). The relationships of headquarters to the same actors can be characterized as information or communication relationships with less interaction and a lower frequency of contact. For example, at the German pharmaceutical firm Boehringer Ingelheim, the regional headquarters’ managers have built direct relationships with important national health care organizations in their region. Visits to and talks with, for example, the Polish public administration, which makes decisions regarding the drugs that will be reimbursed for insured patients, helps headquarters’ managers to stay informed about local circumstances, to support their subsidiary in negotiations, and to leverage know-how gained from other markets. However, the main relationship is held by the Polish subsidiary.

To this end, we argue that headquarters embeddedness in the subsidiary’s network is similar to concepts such as ‘headquarters involvement’ (see Poppo, 2003; Bouquet and Birkinshaw, 2008; Ciabuschi, Dellestrand, and Martin, 2011) and one visible manifestation of
the headquarters’ parenting strategy for a particular subsidiary. Headquarters investing in local embeddedness build external ties that make their staff more involved in the subsidiaries’ operative contexts, shape the managers’ work experience (as well as their learning), and convey information about the context that augments the managers’ knowledge (Adner and Helfat, 2003). The external relationships with the subsidiary context enable the headquarters to develop ‘domain expertise,’ i.e., an understanding of the context, subsidiary-specific strategies, products, markets, task environments, etc. (Holcomb et al., 2009). These relationships also allow for augmentation of the headquarters’ cognitive base for decision making, enabling it to avoid overly selective perceptions or biases (Adner and Helfat, 2003). Accordingly, Holm et al. (1995) argue that headquarters’ own relationships with subsidiary networks increase headquarters’ knowledge and understanding of their subsidiaries’ operating contexts. In turn, the increased domain expertise makes headquarters’ managers more effective at aligning strategies with the subsidiary context and helps them to better understand potential parenting opportunities (Holcomb et al., 2009). For example, synergy bias and bad practice transfer are likely to be reduced, and headquarters are likely to better understand when they should not intervene in subsidiary matters (cf. Foss, Foss, and Nell, 2012). The development of headquarters’ domain expertise also increases the relevance of the knowledge that headquarters wish to channel to subsidiaries as well as the ability of headquarters to help their subsidiaries bargain with external partners. Therefore:

**H1:** Headquarters embeddedness in the subsidiary’s context is positively associated with the value added by headquarters.

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3 In fact, empirical corporate strategy literature often features surrogates of actual parenting strategies, such as the size of the headquarters (Collis et al., 2007). Furthermore, Collis et al. (2007) argue that the involvement of headquarters is one way of characterizing the parenting strategy of the firm.
We also propose that the investments a headquarters makes in building and nurturing its own relationships with subsidiary partners are more valuable when the subsidiaries are strongly embedded, i.e., domain expertise pays off more when the subsidiary itself is strongly embedded. The embedding process is described as a development that moves the attention of the embedding organization towards the external network (Gulati and Sytch, 2007). Thus, the more a subsidiary becomes locally embedded over time, the more its activities, resources, and knowledge become oriented towards and specific to the local network, which in turn limits the potential for value-adding parenting activities. For example, strategic guidance from the parent might not fit the local context in such cases (Goold and Campbell, 1998). Furthermore, the embeddedness process makes it more difficult for parents to understand the local context (Holm et al., 1995). The subsidiaries’ relationships are characterized by the exchange of information, resources, and products with the respective counterparts. These relationships evolve with every exchange, making it very difficult for relationship ‘outsiders’ to understand developments internal to the relationships (Forsgren, Holm, and Johanson, 2005). Holm et al. (1995: 102) conclude that a subsidiary’s external relationships might be pretty ‘incomprehensible’ to headquarters.

Building on this logic, we suggest that a subsidiary that is not strongly embedded externally poses a lesser challenge to headquarters’ knowledge and understanding. Similarly, such a subsidiary would be less likely to be woven into a complex web of two-way knowledge-flows. Still, Goold and Campbell (2002: 226) suggest that ‘the parent needs to have a closer, more hands-on relationship with the units that report to it’ and ‘the parent needs more knowledge of the units, a greater feel for their operations and critical success factors,’ especially in such complex organizations. Thus, the improvement in value creation resulting from a
headquarters’ investment in local relationships will be smaller when the subsidiary is less embedded than when it is strongly embedded:

**H2: The effect of headquarters embeddedness on headquarters value added is greater when the subsidiary is strongly embedded.**

**METHODS**

**Sampling**

The study involves randomly selected European manufacturing subsidiaries of MNCs. Subsidiaries are defined as firms that have manufacturing activities, organizational (i.e., non-financial) shareholders located in a different country with an ownership stake of at least 51 percent, and more than 50 employees. We concentrate on manufacturing subsidiaries because they carry out one of the most important functions and because this focus allows for more precise measurement of constructs. Manufacturing subsidiaries, for example, can be assumed to differ from pure marketing and sales subsidiaries in terms of their embeddedness. Furthermore, we are not interested in organizational units that are strongly oriented towards explorative activities, such as R&D units, as research indicates that isolation or only rare inputs from headquarters are beneficial to the performance of such units (see, for example, Asakawa, 2001). As we are interested in continuous parenting, these units are not appropriate for our study. Note, however, that we have not selected our subsidiaries based on considerations related to the level of value added by headquarters.

The AMADEUS database was used to create the sample frame. Data collection, which was embedded in a larger research project, was conducted in two stages in 2008. In total, 1,329 manufacturing subsidiaries received questionnaires. To improve response rates, we conducted follow-up calls after the initial distribution of the questionnaire. When requested, we sent the
potential respondents a hard copy and/or a pdf of the questionnaire. To estimate the potential
effects of response bias, we used four-digit serial numbers on the survey instruments, which
enabled us to keep track of respondents and non-respondents. 126 questionnaires were received
and 124 questionnaires were used for the main analysis (response rate of 9.3%) due to missing
values. The subsidiaries belonged, to a great extent, to different MNCs. An analysis of non-
responses showed no substantial differences between the tested sample and the target population
in terms of subsidiary age and size, although our tests showed a single, marginally significant
difference between the final sample and the target population in terms of age (means of 25.5
years and 24.6 years, respectively). Therefore, our sample is slightly biased towards older
subsidiaries. There is no evidence of late response or data collection bias (via mail with a
hardcopy document versus via e-mail with a pdf document).

Our variables show good variance. 44 percent of the subsidiaries belonged to four
industries and the rest were spread across a number of other manufacturing industries. The four
main industries were ‘transportation equipment,’ ‘industrial machinery and equipment,’ ‘food
and kindred products,’ and ‘chemicals and allied products.’ The subsidiaries were located in
more than 20 countries, with subsidiaries in Germany, Spain, the United Kingdom, Poland, and
France making up 44 percent of the sample. Their parents were mainly located in Europe, while
13 percent had parents located outside of Europe (the United States or Japan). Roughly 38
percent of the subsidiaries were between 1 and 10 years old at the time of the survey, while
another 30 percent were between 11 and 20 years old. The number of employees varied notably
across the sample, with 33 percent of all subsidiaries having between 201 and 500 employees
and 25 percent with 101 to 200 employees. Average sales were roughly EUR 170 million in
2007. In order to ensure data was gathered directly from those knowledgeable of the subsidiary
as a whole, we aimed to obtain responses from each subsidiary’s general manager. In sum, 85 percent of the sample is made up of responses from senior executives, such as CEOs and general managers.

Measures

*Headquarters value added.* This measure is designed to incorporate important elements of headquarters’ value creation. The measurement of value added is difficult because parent staff play numerous roles in addition to their value-adding roles (Goold and Campbell, 2002) and because it is difficult to find objective measures (Collis *et al.*, 2007). Collis *et al.* (2007: 399) state that ‘*although* the self-reported assessments of effectiveness are prone to error, they have the merit of explicitly evaluating corporate headquarters.’ Furthermore, by the time subsidiary managers take on a senior post within the local organization, they have usually demonstrated significant skill, judgment, and talent, as well as a broad knowledge of their subsidiary. Consequently, their perceptions of important issues related to the performance of their subsidiary should, on average, correspond relatively closely with objective reality (see McGrath, 2001). For these reasons, we use subsidiary managers’ perceptions of the value that their headquarters have created.

Scale development followed a multi-stage process. In a brainstorming session, the research team, which consisted of five researchers, created a list of 15 items pertaining to headquarters value added. This list was derived from extant headquarters-subsidiary literature and exploratory interviews conducted by the team. Subsequently, we sought qualitative feedback from experienced researchers from several universities and from MNC managers at different levels. Based on these interviews, we created a concise scale with high face validity.
Subsidiary managers were asked to indicate their level of agreement with four items on a scale from 1 to 5 ($\alpha = 0.70$): (1) ‘Your parent’s way of challenging your subsidiary’s strategies and tactics has improved your local performance;’ (2) ‘Activities managed by your parent have relieved your local management from administrative work;’ (3) ‘Your parent’s activities have lead to substantial cost savings at your subsidiary;’ and (4) ‘Without your parent, your subsidiary would receive less information that is important to your business.’ High values for this variable indicate that the headquarters produced high additional value for the focal subsidiary through its activities.

*Subsidiary and headquarters local embeddedness.* To measure the degree of subsidiary embeddedness in the local network, we used an adapted graphical scale based on a similar scale used by Ambos and Schlegelmilch (2007). The survey instruments showed a range of possible partners in the subsidiary’s external network, including domestic suppliers and customers, local units of multinational suppliers and multinational customers, local governments, and local industry associations. Respondents were asked to rate the strength of the subsidiary’s relationships with each of these types of actors on a six-point Likert-type scale (see Luo, 2001; Andersson et al., 2002). Following Ambos and Schlegelmilch (2007), we then derived the final measure of average subsidiary embeddedness.

We assessed headquarters’ local embeddedness in a manner analogous to our measurement of subsidiary local embeddedness, i.e., informants were asked to rate the extent to which their headquarters maintained linkages to the same partners. This approach proved useful in the pre-test to emphasize that the strength of headquarters’ relationships needed to be indicated for the same set of subsidiary network partners rather than for the independent components of headquarters’ external networks (cf. Nell et al., 2011).
Controls. Other factors may influence the value that headquarters can create for subsidiaries. We therefore controlled for several control and coordination strategies commonly adopted by headquarters, which are discussed by Collis et al. (2007) and in the standard MNC literature (Nohria and Goshal, 1997): output control, formal control, central control, and socialization. We measured output control using a three-item, Likert-type scale for the following indicators, which depict the extent to which headquarters rely on key performance indicators for information: (1) ‘Numerical records (e.g., financial ratios) are used as the main measure of subsidiary effectiveness by your parent;’ (2) ‘Overall, detailed performance goals for your subsidiary are set by your parent;’ and (3) ‘Primary weight on results in subsidiary performance is placed by the parent’ (α = 0.70). Formal control was measured using two items: (1) ‘Detailed rules and procedures used in your subsidiary are usually developed by your parent’ and (2) ‘There are written rules and processes stating how to perform daily business activities’ (α = 0.72).

We measured central control as the degree of centralization of decision making. Subsidiary managers were asked to rate the degree of autonomy of their subsidiary with regards to a range of decisions on a three-item, five-point Likert-type scale that ranged from ‘subsidiary decides 100 percent’ to ‘parent decides 100 percent.’ The items included decisions related to investments in a major plant or equipment to expand manufacturing capacity, the formulation and approval of the subsidiary’s annual budget, and the increasing of expenditures beyond the budgeted amount (α = 0.72). We also controlled for headquarters’ investments into socialization (Nohria and Ghoshal, 1994). We measured this construct on a four-item scale using the following statements: (1) ‘There is a strong commitment to training and developing skilled managers;’ (2) ‘Your parent puts a lot of effort into establishing a common corporate culture;’
(3) ‘Your subsidiary executives participate in extensive international training initiated by your
parent;’ and (4) ‘Subsidiary managers share the values of your parent’ ($\alpha = 0.82$).

We used trade flows, which are typically seen as key indicators of industry globalization,
to objectively characterize the industries in which the subsidiaries were operating (e.g.,
Morrison and Roth, 1992; Makhija, Kim, and Williamson, 1997). For every subsidiary industry
in each country (as defined by two-digit industry codes), we calculated the extent to which the
industry was integrated within the EU25 region. This measurement is similar to the measures
used by Makhija et al. (1997) and Kim, Park, and Prescott (2003). To do so, we compiled the
LIT index (level of international trade) from a number of secondary sources, as the key measure
of industry integration across several markets. The LIT is defined as $LIT = (\text{Exports +}
\text{Imports})/\text{Domestic Consumption}$. Furthermore, Ghoshal and Nohria (1993) have presented
empirical evidence that MNCs pursuing international strategies that are different from those that
their industries demand suffer from lower performance. Based on this reasoning, we argue that,
under norms of rationality, our industry variable captures the overall international strategy of the
MNCs in our sample to a great extent.

In addition, we controlled for the parenting setup in that we captured whether parenting
activities were primarily implemented by corporate, regional, or divisional headquarters. Two
dummies included in our models indicated whether the most important headquarters was the

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4 We chose the EU as the relevant geographical dimension for data availability reasons, and because Rugman and
Verbeke (2004) have shown that the world’s largest firms are region bound. As our dataset is collected randomly, it
includes many MNCs that are relatively small on a global scale. Therefore, the likelihood that they are region bound
is higher. For this reason, a regional LIT index is appropriate.
5 Sources: OECD bilateral trade data, OECD STAN database, UNIDO Industry Statistics database, EUROSTATS
Prodcomm database, data from GKS (Statistical Bureau of the Russian Federation), and data from the Republic of
Croatia – Federal Bureau of Statistics. For three subsidiaries, we used the respective country averages, as the
industry was not defined. Similarly, for three subsidiaries, the country location was omitted by the respondents. For
these, we used the European averages for the respective industries.
6 For data availability reasons, we used the related variable of domestic output as the denominator.
divisional headquarters or the regional headquarters, leaving the corporate headquarters as the baseline. We also included an additional dummy for matrix structure, which was coded ‘1’ when the subsidiaries indicated that they reported to more than one headquarters. Multiple levels or units might make parent value creation more complex (Goold and Campbell, 2002).

Moreover, we controlled for a range of subsidiary characteristics. We included subsidiary age, as older subsidiaries are generally believed to be more mature and less dependent on headquarters. Similarly, the size of the subsidiary can indicate accumulated know-how or independence from headquarters. Subsidiary size was measured as the subsidiary’s total sales. We use the logarithm of both age and size. We also controlled for a subsidiary’s relative competence by constructing a measure based on two items: the subsidiary’s know-how related to its key activity of manufacturing relative to the knowledge of that activity held by other subsidiaries in the corporation ($\alpha = 0.61$). The scale ranged from 1 (much below average) to 5 (much above average). In so doing, we implicitly controlled for parent competences. It became clear in pre-tests that respondents could not distinguish between parent competences and parent value added. The use of subsidiary competence circumvents this problem. We created another dummy variable based on a question in our survey that asked respondents to indicate whether their subsidiary was active in all functions of the value-chain: R&D (product development), purchasing, manufacturing, marketing and sales, logistics, HR, finance, and stakeholder management. When the subsidiary’s activities covered all areas, the dummy variable miniature replica was assigned a value of ‘1’ (White and Poynter, 1984). Moreover, we use a dummy variable as a control for subsidiary formation (greenfield establishments were assigned a value of ‘1’).
Finally, following Ghemawat’s CAGE framework (Ghemawat, 2001), we calculated four distance measures between the subsidiary’s location and the parent’s location in order to capture effects that distance might have on the value added by headquarters. Thus, we calculated cultural, administrative, geographic, and economic distance from secondary data sources.\(^7\) We used Kogut and Singh’s (1988) cultural distance measure. The other distance dimensions were computed based on the database compiled by Berry, Guillen, and Zhou (2010).

**Common method variance**

We used several procedural and statistical mechanisms to avoid and check for common method bias (Chang, van Witteloostuijn, and Eden, 2010; Podsakoff et al., 2003). First, we protected respondent anonymity to avoid consistency motif and social desirability. We also used improved scale items after extensive pre-testing and validation, and many constructs were based on well-established scales in the literature (Lindell and Whitney, 2001; Podsakoff et al., 2003; Tourangeau, Ripe, and Rasinski, 2000).

Second, the headquarters embeddedness scale had a special introduction in the survey to avoid problems of social desirability. We initiated the question about headquarters’ local relationships with a statement indicating that some firms use networks extensively, while others do not in order to indicate that both answers were fine.

Third, we placed some items that were irrelevant for this paper within the questionnaire in-between the dependent and independent variables (including the control variables) (see Lindell and Whitney, 2001). In addition, the scale for the two embeddedness measures differed from the other scales, including the scale for the dependent variable. These steps help to

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\(^7\) We used the sample mean imputation method for four cases for which we lacked information for either headquarters or the subsidiary location.
decouple the responses to the different questions and to establish methodological separation of our constructs (Podsakoff et al., 2003).

Fourth, our model integrates perceptional measures, objective measures (subsidiary size, age, formation mode, type of HQ, miniature replica dummy), and secondary data (geographical distance, economic distance, administrative distance, cultural distance, LIT). This lessens the likelihood of common method variance problems.

In addition to the procedural remedies, we followed the recommendations in the literature and conducted empirical tests to check for common method bias. First, we followed previous literature and validated our dependent variable (Krishnan, Martin, and Noorderhaven, 2008). In the scale development process, we validated the scale in interviews with subsidiary and headquarters’ managers. Furthermore, to check for convergent validity, we correlated our measure with an objective subsidiary performance measure (return on assets)\(^8\) that we collected for 104 subsidiaries. The correlation was positive \((r = 0.19)\) and significant \((p = 0.05)\), suggesting that our measure of headquarters value added for subsidiaries and our measure of subsidiaries’ objective performance are related.

Second, Harman’s one-factor tests did not produce a single emerging factor, which is evidence against the existence of a single source of variance that is shared among the constructs (Podsakoff and Organ, 1986). We also ran five additional factor analyses, combining items for the dependent variable with items for different independent variables and controls (see McGrath, 2001, for a similar procedure). The results showed that the dependent variable’s items never loaded on other factors and vice versa. The number of factors was always greater than 1 based on the eigenvalue criterion. Furthermore, items from the different constructs separated cleanly and

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\(^8\) We took the average of the three years before data collection.
no item from one particular construct had a significant loading (> 0.5) on a factor associated with another construct.

Third, we validated the independent variable pertaining to headquarters’ parenting (headquarters embeddedness) and collected additional data via telephone from some of the subsidiaries’ headquarters. We calculated an intra-class correlation coefficient to see whether subsidiary- and headquarters-informed responses were strongly correlated. The resulting data on 120 external relationships showed a high average consistency between subsidiary responses and corresponding headquarters responses (Intra Class Coefficient = 0.72).

Finally, the fact that we are using a complex model with interaction effects makes a biased result due to common method variance very unlikely (Siemsen, Roth, and Oliveira, 2010; Kotabe, Martin, and Domoto, 2003). Siemsen et al. (2010: 470) state that ‘finding significant interaction effects despite the influence of CMV in the data set should be taken as strong evidence that an interaction effect exists.’

In sum, we are confident that common method variance is not of major concern in this study.

ANALYSIS

Table 1 presents an overview of the means, standard deviations, and correlations of the variables used in the model. We used OLS regression analysis to test our model. We performed a Cook-Weisberg test to check for heteroscedasticity which was insignificant. Variance inflation factors (all below 2) and bivariate correlations (all below 0.4) indicated no concerns in terms of multicollinearity. Residuals were checked for normal distribution.
To test our hypotheses, we estimated three models and used centered variables (see Table 2). Model 1 contains all control variables, including the subsidiary embeddedness construct. Model 1 is marginally significant \( (p < 0.1, R^2 = 0.210) \), subsidiary age and embeddedness are negatively associated with headquarters value added \( (p < 0.05) \), and socialization is positively associated with the dependent variable \( (p < 0.05) \). The results for the control variables remain stable across all estimated models with the exception of industry integration \( (LIT) \), which becomes significant at \( p < 0.05 \) in the remaining models. \( R^2 \) jumps to 0.291 in Model 2, which integrates the main effect of headquarters embeddedness. Model 2 is significant \( (p < 0.01) \), as is the increase in \( R^2 \) of 0.081 \( (p < 0.01) \). The model supports H1, as headquarters embeddedness is positively associated with headquarters value added \( (p < 0.01) \). This result remains qualitatively stable in the remaining models. In Model 3, the added interaction between headquarters embeddedness and subsidiary embeddedness is positive and significant \( (p < 0.05) \). Thus, the model supports H2. The \( R^2 \) for Model 3 \( (0.332) \) is significantly higher than for Model 2 \( (\Delta R^2 = 0.041; p < 0.05) \).

Figure 1 illustrates that the effect of headquarters embeddedness is much stronger when the subsidiary is strongly embedded, and that the effect of headquarters embeddedness is relatively weak and statistically insignificant when the subsidiary is not embedded. The lowest absolute headquarters value added is found when headquarters are not embedded but the subsidiary is strongly embedded. This is because the effect of subsidiary embeddedness is negative, on average. Headquarters can offset this negative effect by embedding itself in the subsidiaries’ contexts. Thus, if a headquarters wants to add value to a strongly embedded
subsidiary, it can do so by embedding itself in the same context. The threshold-level at which the effect of headquarters embeddedness becomes significant (at p < 0.05) lies at a value for subsidiary embeddedness of -0.45, which is approximately half a standard deviation below the mean. In other words, for all subsidiaries that are above this threshold value, a headquarters’ decision to embed locally creates value. Under normal distribution assumptions, roughly 71 percent of all subsidiaries should lie above the threshold value (in our sample, 67 percent of all subsidiaries have higher embeddedness values). This indicates that headquarters embeddedness is a valuable tool for the majority of the subsidiaries.

We conducted robustness tests to validate our results. First, we used an alternative approach to capture industry effects and compiled and computed the IIT (intra-industry trade) index in addition to the LIT. We used a median split for both variables and constructed four industry types (see Makhija et al., 1997, for a similar approach). The multidomestic industry dummy was negative and significant (p < 0.05) when compared to the baseline—an integrated global industry—and all hypothesized effects remained significant. This is in line with the findings derived using the LIT variable as reported in our model.9

Second, we re-ran models without control variables except for subsidiary embeddedness. In a separate test, we controlled for the fact that several subsidiaries are located in the same country by estimating robust clusters for subsidiary country as implemented in STATA 11.0. All of our hypothesized effects were stable, as were the results obtained from estimations using heteroscedasticity-corrected robust standard errors and the results of an estimation that left out the industry variable and, instead, controlled for all industries by using robust clusters.

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9 The model with the three industry dummies did not explain significantly more than the model with industry integration (LIT) despite the inclusion of two additional variables. Thus, we opted for the parsimonious model with more degrees of freedom.


**Post-hoc analysis**

Our econometric models show support for a positive effect of industry integration on headquarters value added. This is in line with the classical MNC literature, which describes integrated industries as environments in which local adaptation pressures are low and where headquarters hold strong positions within the MNC network (Bartlett and Goshal, 1989; Harzing, 2000). In such industries, there are many ways of adding value to subsidiaries, including the transfer of proprietary knowledge, the organization of shared service centers, or the offering of general strategic guidance. Yet, the extent of industry integration might also have an effect on how the headquarters embeds itself. Global industries call for benefits of scale and scope, and cost effectiveness is crucial. The costly mechanism of headquarters embeddedness in local networks seems to run counter to this principle. Similarly, the geographical distance between the headquarters and the subsidiary context makes headquarters’ local embeddedness very expensive.

Low-integration industries, on the other hand, call for a loosely coupled federation of rather independent national subunits, with the latter having their main ties with the local environment to which they must be responsive (Bartlett and Ghoshal, 1989). Therefore, we conducted a post-hoc analysis to explore whether these context conditions influence subsidiary and headquarters embeddedness, and whether our OLS results still held when we accounted for these relationships.

We employed PLS structural equation modeling (SEM) with one-tailed tests using SmartPLS (Ringle, Wende, and Will, 2005). PLS has recently gained popularity in strategy and management research (e.g., Gruber *et al.*, 2010; Ciabuschi *et al.*, 2011), and it is appropriate in our research context. PLS is a causal modeling approach aimed at maximizing the variance.
explained in the dependent latent variable. It fits our objective of identifying key drivers of the final target construct (headquarters value added) in a multi-step structural model (Hair et al., 2011). Covariance-based SEM, such as LISREL, is not applicable, as its assumptions are violated in our model. Our data set is too small for such a complex model, and some indicators are not normally distributed. Under such conditions, PLS often provides more robust estimations of the structural model, as it does not require data normality or known distributions (Hair, Ringle, and Sarstedt, 2011).

We estimated a PLS model in which we used our control variables as antecedents to headquarters and subsidiary embeddedness, while we also allowed these factors to have a direct impact on headquarters value added. We maintained the interaction term for H2 in the model. We skipped some control variables that had no influence on either of the endogenous variables due to our restricted sample size.\(^{10}\) Table 3 shows the results of the PLS estimation based on a 1,000 sub-sample bootstrap with sub-sample size of \(n = 120\).

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

Overall, the variance explained for the endogenous variables is good, ranging between 0.16 for subsidiary embeddedness to 0.38 for headquarters value added, and Table 3 shows several significant relationships. With regards to the effects on headquarters value added, the results show that the PLS model produces results very similar to those produced by the OLS. Both H1 and H2 gain support, and subsidiary embeddedness is significant, as is industry

\(^{10}\) The rule of thumb for an appropriate PLS sample size is that it should be approximately ten times the largest number of structural paths directed at a particular latent construct in the model (Hair et al., 2011). Therefore, we estimated separate regressions of all controls on the embeddedness variables and we used the OLS results from Table 2 to identify those constructs that did not seem to have an effect on these three endogenous constructs. We dropped those constructs—administrative distance, cultural distance, the divisional and regional headquarters dummies, centralization, formalization, and output control—from the structural model. Moreover, we did not estimate the effects of the miniature replica, greenfield, and matrix dummies on headquarters value added. While this approach is more appropriate in terms of sample size, we also tested a model with all control variables, as specified in the OLS regressions. The results did not differ substantially, with all hypothesized effects gaining support.
integration and the other control variables that were at least marginally significant in the OLS regressions (socialization, subsidiary age, and economic distance). Geographical distance is not directly related to headquarters value added. Therefore, the PLS model shows that our OLS results are robust. Furthermore, the results indicate that industry integration and geographical distance are negatively related to headquarters embeddedness (p < 0.05). Geographical distance has a positive association with subsidiary embeddedness (p < 0.05). Neither the association between industry integration and subsidiary embeddedness nor the association between geographical distance and headquarters value added are significant. Thus, there is some support for the idea that headquarters embeddedness in the subsidiary’s local context partially mediates the effect of industry integration and fully mediates the effect of geographical distance.

**DISCUSSION**

This study demonstrates that MNC headquarters can serve as a source of value for their internationally dispersed subunits and that this positive effect depends on a number of factors. With regard to our control variables, we find that younger, more normatively integrated subsidiaries profit more from their headquarters. Furthermore, the more a country’s industry is linked to other markets, the higher the value added by headquarters. This is in line with the classical MNC literature, which argues that high integration implies that the international activities of the MNC must be integrated in a manner that develops and sustains competitive advantage (Prahalad and Doz, 1987).

Furthermore, our findings suggest that headquarters embed to differing extents in subsidiaries’ environments. These differences help explain why some headquarters add more value than others. We argue that headquarters’ investments in their own relationships are

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11 Bootstrapping the indirect effect of industry integration on headquarters value added via headquarters embeddedness (see Shrout and Bolger, 2002) produced a significant result at p < 0.10. However, our LIT variable contains some extreme values. Thus, we need to apply some caution to the interpretation of this variable.
positively related to value creation because they increase headquarters’ knowledge and understanding of the local context (see Holm et al., 1995) and because they help build domain expertise (Adner and Helfat, 2003). The presence of a positive interaction effect between subsidiary embeddedness and headquarters embeddedness indicates that these activities are even more important when the subsidiary is strongly embedded.

With these findings, we contribute to several strands of literature. First, we add to the literature focusing on different conceptualizations of the MNC, such as the differentiated MNC (Ghoshal and Bartlett, 1990; Nohria and Ghoshal, 1997) or the federative network MNC (Andersson et al., 2007). The literature on the differentiated MNC often implicitly assumes that a headquarters possesses all of the knowledge necessary to make it a successful orchestrator of the MNC’s differentiated system (Forsgren, 2008). Our results indicate that this is a strong assumption. We add that while headquarters’ knowledge and domain expertise are critical for the success of headquarters in terms of making a contribution to subsidiary performance, this knowledge is elusive and might be gained only through costly mechanisms, such as headquarters’ local embeddedness. Interestingly, this suggests that parents might be required to engage more in external relationships and link themselves to the external context in which their subsidiaries are working rather than rely solely on the firm-internal information-processing mechanisms for which we control in our model. In this respect, we extend the idea that it is a headquarters’ special position within the internal MNC network (its centrality) that determines its influence and success, as postulated by Ghoshal and Bartlett (1990) (cf. Nell et al., 2011).

Furthermore, the literature on the federative MNC (e.g., Andersson et al., 2002) frequently assumes that the headquarters unit is just one unit among others, that it has no special role or mandate, and/or that it cannot influence subsidiaries (e.g., Forsgren, 2008). Our results
offer limited empirical support for these notions; that is, this assumption only holds when MNCs are concerned that operate with strongly embedded subsidiaries and where headquarters’ own relationships are neglected. Thus, we argue that the concepts of the differentiated and the federative MNC can be reconciled by accounting for previously unexplored mechanisms, such as the fact that headquarters develop relationships with local external partners that can overlap with subsidiaries’ local networks.

Second, we contribute to the embeddedness literature. In particular, we extend the literature regarding the effects of subsidiary external embeddedness (e.g., Andersson and Forsgren, 1996). Most of this literature emphasizes the positive outcomes of embeddedness, such as learning and performance effects arising from improved relational mechanisms with partner firms (Andersson et al., 2002; Mu et al., 2007). Our findings support the few relatively recent studies highlighting that subsidiary embeddedness also entails costs, such as the alienation of the subsidiary from the rest of the MNC (e.g., Boehe, 2007; Mu et al., 2007) or the increase in subsidiary power vis-à-vis headquarters (e.g., Andersson et al., 2007). To this list, we add an important caveat: headquarters appear to experience substantial problems when attempting to add value to embedded subsidiaries. Furthermore, the embeddedness literature has focused almost exclusively on the embeddedness of subsidiaries (e.g., Andersson and Forsgren, 1996). We show that the embeddedness of headquarters is also an important variable and that it is not necessarily less relevant when subsidiaries are strongly embedded themselves. This suggests that we need to be careful in describing the evolution of the MNC’s external relationships. MNC headquarters do not necessarily disembed completely when subsidiaries become mature but they maintain relationships that allow for some communication and information exchange directly with their subsidiaries’ counterparts. Thus, headquarters embeddedness and subsidiary
embeddedness are not necessarily substitutes (Dacin et al., 1999) and our findings suggest that using a more holistic embeddedness concept that captures external relationships at different levels of the organization could be fruitful for understanding contemporary MNCs.

Third, we contribute to the parenting literature and the literature on headquarters’ roles. Our findings present new evidence supporting recent claims in the parenting literature that headquarters’ roles are becoming more involved and hands-on, especially in complex organizations (Poppo, 2003; Goold and Campbell, 2002). We argue that MNC headquarters that are locally embedded are likely to be more involved in subsidiary matters. Therefore, this study connects to recent research reporting that headquarters’ activities are increasingly allocated to sets of units at different locations (Birkinshaw et al., 2006; Piekkari et al., 2010). Yamin and Forsgren (2006) argue that such relocation allows headquarters to be closer to subsidiary contexts so that selective local embeddedness can be achieved. Thus, the parenting of complex, dispersed structures might itself become more complex and dispersed. This is a generally unexplored area. Our research serves as a first step in understanding this phenomenon, as we integrate corporate, divisional, and regional headquarters in our sample. In our study, the type of headquarters has no impact on the value added. Hence, no one structural approach appears to be superior per se (see Goold et al., 2001). Instead, the headquarters’ managerial abilities and domain expertise seem to be important (Holocomb et al., 2009; Adner and Helfat, 2003; Goold and Campbell, 1998).

Furthermore, while we have restricted our research to the investigation of subsidiary-level performance effects and thus cannot derive conclusions on the ability of parents to create net benefits on the corporate level, our findings provide some initial insights into this matter. The formation of external linkages to distant, external contexts is costly and these costs usually occur
at the headquarters level. Therefore, headquarters are likely to apply heuristics to select subsidiaries on which to focus (Bouquet and Birkinshaw, 2008), i.e., the allocation of headquarters’ resources to selectively embed locally is based on a number of different subsidiary and market characteristics (Bouquet and Birkinshaw, 2008; Nell et al., 2011). However, the parenting literature suggests that headquarters’ attention is often strongly biased (Goold et al., 1994, 1998), and that headquarters are too optimistic when it comes to assessing and realizing synergies between units (Goold and Campbell, 1998). Thus, the net effect of headquarters’ local embeddedness could still be negative, i.e., headquarters can destroy value by intervening more than necessary due to biased perceptions (Goold and Campbell, 1998; Foss et al., 2012).

Our post-hoc tests shed some light on this reasoning. In line with previous literature, the results support the idea that headquarters embeddedness is driven by a number of factors. For example, headquarters are attracted to relatively competent subsidiaries, where they might perceive a potential for learning (Nell et al., 2011). Yet, when the subsidiaries are geographically distant and when the industry is relatively integrated, headquarters embeddedness in the subsidiary’s local context seems to be too costly. Indeed, both variables are negatively related to headquarters embeddedness. High industry integration has a positive, direct effect on headquarters value added but it suppresses the positive effect of headquarters embeddedness. Similarly, geographical distance reduces value creation by headquarters for their subsidiaries through two distinct mechanisms. On the one hand, it is related to higher subsidiary embeddedness, which makes headquarters’ value creation more difficult. On the other hand, it lowers headquarters embeddedness in the local network, which removes the mechanism that would allow headquarters to add value to the embedded subsidiary. In sum, there is evidence that MNC headquarters try to match their parenting strategies to the context, i.e., headquarters adapt
their parenting strategies to the outcomes of a cost-benefit analysis, and that they accept that some subsidiaries might not significantly profit from them when overcoming the barriers to value creation is too costly. Thus, the headquarters’ parenting strategy mediates the relationship between the overall context (e.g., industry integration and geographic dispersion) and parenting success, at least partially.

Limitations and future research

Of course, our study suffers from some limitations. First, future research could investigate potential differences across different parenting structures in a more fine-grained way, perhaps by shedding more light on how multiple parents jointly add value to the subsidiary. Such research could investigate differences in coordination tools and specific parenting activities handled by different elements of a complex parent that includes intermediate headquarters, such as regional headquarters.

Second, additional scholarly attention might be paid to the link between headquarters embeddedness and headquarters’ value creation. We do not explicitly capture specific value-creating activities, such as the transfer of proprietary knowledge. Rather, we argue that headquarters embeddedness is an input mechanism for successful parenting, as it is a source of knowledge and domain expertise. This logic could be explicitly tested using a more specific parenting strategy measure.

Third, our findings shed some light on the links between context, parenting strategy, and parenting outcomes on the subsidiary level, but future research could include MNC-wide outcomes (e.g., MNC performance) as dependent variables. This would be very valuable, albeit highly complex, as it would presumably require multi-level investigations that take the positive
effects of parenting into account while considering the costs associated with such relationships occurring at relatively aggregated levels (see Collis et al., 2007).

Finally, our measure of headquarters value added is subjective and, therefore, biased to some extent. However, we believe that senior subsidiary managers do acknowledge when the headquarters creates value and that the extent of bias due to subjective measurement is usually low when it comes to objective issues (Spector, 1992). Our items reflect actual, objective value created by the headquarters, such as cost savings and improvements in strategy. This is also shown by our further validation of the dependent variable with objective performance data. Nevertheless, research on headquarters value added would benefit from the definition and compiling of objective measures.

CONCLUSION
In conclusion, we believe that this research enhances our understanding of MNC headquarters, their roles, and the conditions under which they add value to their subsidiaries. We drew on the MNC embeddedness view (e.g., Andersson and Forsgren, 1996) and the literature on parenting (Goold and Campbell, 2002) to test the isolated and joint impacts of subsidiary and headquarters’ external embeddedness on headquarters value added. We showed that both subsidiary and headquarters embeddedness are driven by a number of factors, and that they jointly help to explain headquarters value added.

Acknowledgements
We are indebted to the Austrian National Bank (OeNB) as well as the Department of Strategic Management and Globalization at Copenhagen Business School for funding this project. Furthermore, we want to thank SMJ Associate Editor Jiatao Li, the two anonymous reviewers, Larissa Rabbiosi, Christian Geisler Asmussen, Torben Pedersen, Henrik Dellestrand, Aya Chacar, and Bill Newburry, as well as participants in research seminars at Copenhagen Business
School, LUISS University, Aalto University, and the University of Miami for their valuable inputs at various stages of this manuscript.
REFERENCES


Table 1: Means, standard deviations, and correlations

|                | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Matrix organization | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Main headquarters is regional HQ | -0.132 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Main headquarters is divisional HQ | 0.048  | -0.347 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Socialization     | 0.089  | 0.064  | -0.047 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Output control    | 0.047  | 0.043  | 0.144  | 0.181 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Centralization    | -0.054 | 0.076  | 0.080  | 0.014 | 0.250 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Formalization     | 0.001  | 0.047  | -0.094 | 0.208 | 0.204 | 0.146 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Subsidiary relative competence | -0.062 | 0.092  | 0.062  | 0.065 | 0.094 | 0.042 | 0.065 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |
| Value added       | -0.020 | -0.012 | 0.013  | 0.215 | 0.017 | 0.067 | 0.140 | 0.000 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |
| Industry integration (LIT) | 0.040  | 0.161  | -0.059 | -0.032 | 0.009 | 0.121 | 0.053 | -0.054 | 0.170 | 1.000 |       |       |       |       |       |       |       |       |       |       |
| Greenfield dummy  | -0.002 | 0.214  | -0.049 | 0.017 | -0.144 | 0.091 | 0.030 | -0.043 | 0.054 | 0.212 | 1.000 |       |       |       |       |       |       |       |       |       |
| Subsidiary age    | -0.101 | 0.126  | -0.048 | -0.031 | 0.038 | 0.174 | -0.077 | -0.003 | -0.210 | -0.116 | 0.153 | 1.000 |       |       |       |       |       |       |       |       |
| Subsidiary size   | 0.084  | 0.172  | -0.058 | 0.073 | -0.107 | 0.069 | 0.037 | 0.116 | -0.048 | -0.122 | 0.150 | 0.194 | 1.000 |       |       |       |       |       |       |
| Miniature replica | 0.047  | 0.011  | -0.132 | 0.079 | -0.164 | -0.155 | 0.029 | -0.101 | 0.016 | -0.085 | -0.106 | -0.190 | 0.048 | 1.000 |       |       |       |       |       |
| Cultural distance | 0.080  | 0.097  | 0.004  | 0.091 | -0.125 | 0.177 | -0.032 | -0.083 | 0.046 | 0.351 | 0.149 | -0.159 | -0.016 | 0.034 | 1.000 |       |       |       |       |
| Subsidiary embeddedness | 0.212  | -0.017 | -0.034 | 0.092 | -0.010 | -0.061 | 0.118 | 0.005 | -0.221 | -0.099 | 0.090 | 0.035 | 0.225 | 0.170 | -0.078 | 1.000 |       |       |       |
| Administrative distance | 0.101  | -0.074 | 0.104  | 0.030 | -0.013 | 0.064 | -0.099 | -0.111 | -0.059 | -0.064 | 0.049 | 0.058 | -0.028 | -0.003 | 0.207 | 0.073 | 1.000 |       |       |
| Geographic distance | 0.103  | -0.111 | -0.020 | -0.178 | -0.059 | 0.118 | -0.047 | -0.027 | -0.136 | 0.080 | -0.110 | -0.028 | 0.015 | 0.007 | 0.019 | 0.159 | 0.010 | 1.000 |       |
| Economic distance | -0.018 | 0.027  | 0.069  | 0.090 | -0.007 | 0.101 | -0.086 | -0.118 | -0.063 | 0.041 | -0.025 | -0.262 | 0.122 | 0.088 | 0.229 | 0.083 | 0.130 | 0.114 | 1.000 |
| HQ embeddedness   | -0.009 | 0.095  | -0.099 | 0.242 | -0.028 | -0.060 | 0.179 | 0.226 | 0.336 | -0.150 | 0.043 | -0.165 | -0.026 | 0.114 | 0.019 | -0.032 | -0.043 | -0.221 | 0.038 | 1.000 |
| Mean             | 0.198  | 0.317  | 0.206  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.246 | 2.701 | 4.053 | 0.714 | 1.256 | 0.000 | 142.1 | 1725.0 | 5.85 | 0.000 |
| S. D.            | 0.400  | 0.467  | 0.406  | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.710 | 0.432 | 0.991 | 1.424 | 0.454 | 1.085 | 0.801 | 97.9 | 2440.0 | 8.21 | 1.102 |

a) Correlations with n = 124. Descriptives are based on all available observations. Average Variance Inflation Factor (VIF) = 1.27.
Table 2: Results of OLS regression models – dependent variable: headquarters value addeda

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.747 (0.456)</td>
<td>0.569 (0.437)</td>
<td>0.565 (0.426)</td>
</tr>
<tr>
<td>Matrix organization</td>
<td>-0.047 (0.231)</td>
<td>-0.077 (0.220)</td>
<td>-0.091 (0.215)</td>
</tr>
<tr>
<td>Main headquarters is regional HQ</td>
<td>-0.094 (0.214)</td>
<td>-0.136 (0.205)</td>
<td>-0.113 (0.200)</td>
</tr>
<tr>
<td>Main headquarters is divisional HQ</td>
<td>0.061 (0.241)</td>
<td>0.125 (0.230)</td>
<td>0.143 (0.224)</td>
</tr>
<tr>
<td>Socialization</td>
<td>0.237 (0.095)*</td>
<td>0.184 (0.092)*</td>
<td>0.192 (0.090)*</td>
</tr>
<tr>
<td>Output control</td>
<td>-0.057 (0.100)</td>
<td>-0.029 (0.095)</td>
<td>-0.041 (0.093)</td>
</tr>
<tr>
<td>Centralization</td>
<td>0.112 (0.098)</td>
<td>0.113 (0.094)</td>
<td>0.092 (0.092)</td>
</tr>
<tr>
<td>Formalization</td>
<td>0.071 (0.095)</td>
<td>0.024 (0.092)</td>
<td>0.015 (0.090)</td>
</tr>
<tr>
<td>Industry integration (LIT)</td>
<td>0.090 (0.058)</td>
<td>0.129 (0.056)*</td>
<td>0.135 (0.054)*</td>
</tr>
<tr>
<td>Greenfield dummy</td>
<td>0.140 (0.225)</td>
<td>0.071 (0.215)</td>
<td>0.003 (0.211)</td>
</tr>
<tr>
<td>Subsidiary age (logged)</td>
<td>-0.255 (0.104)*</td>
<td>-0.210 (0.100)*</td>
<td>-0.194 (0.098)*</td>
</tr>
<tr>
<td>Subsidiary size (logged)</td>
<td>0.038 (0.068)</td>
<td>0.062 (0.065)</td>
<td>0.082 (0.064)</td>
</tr>
<tr>
<td>Subsidiary relative competence</td>
<td>-0.034 (0.090)</td>
<td>-0.110 (0.089)</td>
<td>-0.129 (0.087)</td>
</tr>
<tr>
<td>Subsidiary embeddedness</td>
<td>-0.270 (0.120)*</td>
<td>-0.250 (0.114)*</td>
<td>-0.243 (0.111)*</td>
</tr>
<tr>
<td>Cultural distance</td>
<td>-0.079 (0.095)</td>
<td>-0.088 (0.090)</td>
<td>-0.087 (0.088)</td>
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<tr>
<td>Administrative distance</td>
<td>-0.000 (0.001)</td>
<td>0.000 (0.001)</td>
<td>-0.000 (0.001)</td>
</tr>
<tr>
<td>Geographical distance</td>
<td>-0.000 (0.000)</td>
<td>-0.000 (0.000)</td>
<td>-0.000 (0.000)</td>
</tr>
<tr>
<td>Economic distance</td>
<td>-0.015 (0.012)</td>
<td>-0.018 (0.011)</td>
<td>-0.021 (0.011)+</td>
</tr>
<tr>
<td>Miniature replica</td>
<td>0.060 (0.208)</td>
<td>0.010 (0.198)</td>
<td>-0.028 (0.194)</td>
</tr>
<tr>
<td>H1: HQ embeddedness</td>
<td>0.302 (0.088)**</td>
<td>0.310 (0.086)**</td>
<td></td>
</tr>
<tr>
<td>H2: HQ embeddedness x subsidiary embeddedness</td>
<td></td>
<td></td>
<td>0.253 (0.101)*</td>
</tr>
</tbody>
</table>

F
1.55+  2.25**  2.56**
R²    0.210  0.291  0.332
Adjusted R² 0.075  0.161  0.202
∆R² 0.081 **  0.041*

*) n = 124. Unstandardized regression coefficients with standard errors in parentheses (2-tailed). ** p < 0.01, * p < 0.05, + p < 0.1.
a) Low (high)

standardized

Figure 1: Effect of different levels of subsidiary embeddedness on the relationship between headquarters embeddedness and headquarters value added

*) Low (high) refers to the mean value - (+) one standard deviation. For this illustration, we added a constant to the standardized factor score of headquarters value added.
### Table 3: Post-hoc analysis: PLS path estimates and R² of endogenous constructs

<table>
<thead>
<tr>
<th>Path Coefficients</th>
<th>Effects on headquarters embeddedness (R² = 0.223)</th>
<th>Effects on subsidiary embeddedness (R² = 0.159)</th>
<th>Effects on headquarters value added (R² = 0.384)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Industry integration (LIT)</td>
<td>Industry integration (LIT)</td>
<td>Subsidiary embeddedness</td>
</tr>
<tr>
<td></td>
<td>Geographical distance</td>
<td>Geographical distance</td>
<td>-0.221 **</td>
</tr>
<tr>
<td></td>
<td>Subsidiary age (logged)</td>
<td>Subsidiary age (logged)</td>
<td>H1: headquarters embeddedness</td>
</tr>
<tr>
<td></td>
<td>Economic distance</td>
<td>Economic distance</td>
<td>0.298 **</td>
</tr>
<tr>
<td></td>
<td>Greenfield dummy</td>
<td>Greenfield dummy</td>
<td>H2: headquarters embeddedness x subsidiary embeddedness</td>
</tr>
<tr>
<td></td>
<td>Matrix structure</td>
<td>Matrix structure</td>
<td>0.193 *</td>
</tr>
<tr>
<td></td>
<td>Miniature replica</td>
<td>Miniature replica</td>
<td>Industry integration (LIT)</td>
</tr>
<tr>
<td></td>
<td>Subsidiary size (logged)</td>
<td>Subsidiary size (logged)</td>
<td>0.201 *</td>
</tr>
<tr>
<td></td>
<td>Socialization</td>
<td>Socialization</td>
<td>Geographical distance</td>
</tr>
<tr>
<td></td>
<td>Subsidiary relative competence</td>
<td>Subsidiary relative competence</td>
<td>-0.160 *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subsidiary size (logged)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-0.161 *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subsidiary age (logged)</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>-0.088</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Socialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>** &lt; 0.01; * &lt; 0.05 based on a Student t distribution with one tail (1,000 sub-sample bootstrap with n = 120).</td>
</tr>
</tbody>
</table>