The impact of increases in subsidiary autonomy and network relationships on performance

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A R T I C L E   I N F O

Article history:
Received 7 September 2010
Received in revised form 21 December 2011
Accepted 9 January 2012

Keywords:
Autonomy
Multinational companies
Network relationships
Partial least squares
Performance
Subsidiaries
Subsidiary evolution

A B S T R A C T

This paper uses network approaches to subsidiary theory to investigate the performance impacts of interactions among the factors of autonomy, intra-organizational network relationships, and inter-organizational network relationships. The paper offers an analysis of both direct and indirect interactions among these factors. This study develops and extends existing research that uses network-based approaches in studies of subsidiary performance by considering the roles of autonomy and network relationships. In addition, the study examines changes in terms of increases in the interactions between the main factors rather than the levels of these factors. The examination of the interactions between increases in autonomy and networks and the subsequent impact of this change on performance contributes to a better understanding of subsidiary evolution. The results, which are based on data gathered from a survey of 350 foreign-owned subsidiaries in the UK, Germany, and Denmark, reveal complex interactions between increases in autonomy and network relationships, and the subsequent impact of these changes on performance. The results also highlight the central role of inter-organizational network relationships in the interaction between the factors, which produce significant and positive effects.

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1. Introduction

The pressures of globalization create incentives for multinational corporations (MNCs) to change their organizational structures and strategies. From the subsidiary point of view, the main question is how to integrate effectively into the local host country and simultaneously benefit from being part of the MNC network (Holm, Holmström, & Sharma, 2005). This paper develops the network-based approaches to subsidiary theory (Nohria & Ghoshal, 1997) by adding autonomy (Young & Tavares, 2004) to the assessment of the performance impact of the interaction between intra- and inter-organizational networks. The paper analyzes the impact of changes, here in terms of increases, in autonomy and network relationships rather than focusing on the level of such factors, thereby permitting a more dynamic analysis of the effect of these interactions on subsidiary performance.

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doi:10.1016/j.ibusrev.2012.01.001
The paper enhances network-based approaches to subsidiary theory, and provides evidence on the nature of these interactions from a survey of foreign-owned subsidiaries in Germany, Denmark, and the UK. The evidence provided in this paper helps to illuminate important aspects of the evolution of MNCs’ subsidiary strategies in response to global changes. This is an important element in the search for better theories on how MNCs respond to changes in the global environment (Buckley, 2009).

Subsidiary strategic development is often associated with subsidiary evolution and changes in the host-country environment (Birkimshaw & Hood, 1997) and the parent–company strategy. It is also related to the allocation of production mandates (Young & Tavares, 2004), subsidiary entrepreneurship (Birkimshaw, Hood, & Young, 2005), and competence development (Cantwell & Mudambi, 2005). Other approaches embrace institutional theory to examine the impact of the parent–company and host–country institutions on subsidiary development (Kostova & Zaheer, 1999). In this literature, the additional costs arising from the liability of foreignness influence subsidiary evolution (Zaheer, 1995). As this paper enlarges the network-based approaches to subsidiary evolution by considering performance in the light of increases in the interaction between autonomy and network relationships, it is more focused on evolutionary developments in subsidiaries than studies that examine interaction based on levels of autonomy and network relationships. The paper also responds to the call from Giroud and Scott-Kennel (2009) to expand the range of studies on the intensity of MNC linkages to include the quantity, scope, and quality of network relationships.

A number of studies have investigated autonomy and the network relationships of subsidiaries, and the influence of these elements on performance. However, most of these studies do not use a framework that integrates autonomy, inter-organizational relationships, and intra-organizational networks. Vermaak, Midgley, and Devinney (2005) examine inter-organizational networking and subsidiary autonomy independently, and exclude intra-organizational networks. Andersson, Forsgren, and Holm (2007), meanwhile, investigate inter- and intra-organizational networks in a federative MNC, but omit autonomy. A study by Andersson, Björkman, and Forsgren (2005) investigates the relationships between inter-organizational networks, subsidiary knowledge creation, and control. Other studies oriented towards subsidiary performance treat performance as an independent variable (Lovett, Pérez-Nordtvedt, & Rasheed, 2009) or focus on issues such as psychic distance (Dikova, 2009) or spillover effects (Duanmu & Fai, 2007; Giroud, 2007). One study does center on the relationships among networks, autonomy, and performance, but it tests the model using a few case studies (Birkimshaw et al., 2005). In this paper, we build on the Birkimshaw et al. study (2005) to develop a model that includes the interaction effects of changes in all three factors, and we test the model using a large sample from three European countries.

This study is relevant for subsidiary management because it assesses the effects of changing interactions between autonomy and inter- and intra-organizational networks on performance. The most important managerial consequences are likely to be related to the indirect effects that investments in inter-organizational network relationships have on autonomy and intra-organizational network relationships, and, subsequently, on performance.

In the next section, six hypotheses are developed on the links between autonomy, inter- and intra-organizational network relationships, and performance. This leads to the methodology section, which describes the sample and the constructs. A section on data analysis leads to a discussion of the results and a conclusion.

2. Network theory

The theoretical foundation for this paper is network-based theory. Different schools of thought, tradition, and analytical focus mean that the term ‘network-based theory’ is ambiguous. Networks are social structures made up of actors, which can be individuals or organizations. The literature analyzes the connections among these actors from many different perspectives. Social-network theorists focus on the social contacts of individuals, and the conflicts, power relationships, and communication patterns that arise from such social interactions (Blazejewski & Dorow, 2003). Granovetter (1973) investigates how weak relationships affect information seeking and innovation. Burt (1992) contributes to the discussion by investigating the value of structural holes and how actors may profit from interactions with a range of actors that are not interrelated. Granovetter (1985) further develops network theory by discussing the concept of ‘embeddedness’ and the benefits of strengthening relationships with other actors, which is likely to lead to trust-based relationships that decrease transaction costs. Industrial network theory, also termed the ‘Swedish network approach’, builds on this concept of embeddedness, and shows how market actors adapt to each other by adjusting attitudes, strategies, knowledge, and knowledge transfer modes, which in turn results in modifications to products and processes (Forsgren, Hägg, Håkansson, Johanson, & Mattsson, 1995). Over time, these repeated business interactions lead to routinization and the relationships become institutionalized.

This paper analyzes networks from the perspective of the MNC’s inter- and intra-organizational relationships (Ghoshal & Bartlett, 2005), the differentiated network view (Nohria & Ghoshal, 1997), and the ‘heterarchy’ perspective (Hedlund, 1986). These literature streams have altered the view of the MNC, so that MNCs are no longer viewed as centralized, uniform units but as units that are decentralized and differentiated in terms of relationships with subsidiaries. In principle, each relationship between a parent company and a subsidiary, or between one subsidiary and another is unique in terms of the scale and scope of activities, resource flows, strategic mandates, and autonomy. This paper builds on this research tradition by focusing on increases in the number and variety of network relationships, and the frequency of interaction.

This type of network analysis links to subsidiary evolution in the context of the subsidiary’s role as a bridge between the parent company and host-country actors (Giroud & Scott-Kennel, 2009). In this approach, the strategic development of subsidiaries is affected by the quantity of linkages (number of transactions and relationships), the scope of these linkages
(variations in the level of engagement in the value chain, sectors, and countries), and performance effect, such as learning opportunities. The number and frequency of network relationships directly links to this approach and, in this respect, this paper further builds on the notion of embeddedness (Granovetter, 1973, 1985). The embeddedness concept is, therefore, an underlying logic, where an increased number of network relationships helps subsidiaries to establish weaker–tie relationships and an increased frequency of interaction facilitates strong ties.

Finally, we elaborate on a new research field, which investigates the micro-political struggles for power in the MNC (Bouquet & Birkinshaw, 2008; Dörrenbächer & Gammelgaard, 2010). Subsidiary autonomy links to this discussion naturally, but network relationship intensity is likely to influence the distribution of power within the MNC. Frequent interactions between headquarters and a subsidiary bring the latter into a more influential position relative to other subsidiaries. Another example is that a high number of external relationships increase the likelihood that subsidiary-specific advantages (Rugman & Verbeke, 2001) will be created, which again will influence performance. The following sections further consider these issues.

2.1. Definitions of inter- and intra-organizational network relationships

In this paper, the terms ‘network’ and ‘relationships’ address the two important elements in MNC linkages. These elements are based on reciprocal and interdependent task–related activities that are performed given a certain constellation of resources among a number of players in a specific context (Ghoshal & Bartlett, 2005). ‘Network’ defines the actors with which the subsidiary establishes relationships. Intra-organizational networks consist of the parent company and the other subsidiaries of the MNC. Inter-organizational networks comprise actors outside the boundaries of the MNC, such as domestic or international business entities, and include customers, suppliers, and competitors. ‘Relationships’ refer to the interaction between the subsidiary and its network partners, and includes the linkages and transactions among these partners. These relationships cover the subsidiary’s backwards linkages and transactions (such as supply and logistics), its forward linkages and transactions (such as distribution and sales), and its collaborative linkages (such as strategic alliances with competitors) (Giroud & Scott-Kennel, 2009). These activities are carried out within the intra- and inter-organizational networks (Jindra, Giroud & Scott-Kennel, 2009).

The number of actors with which the subsidiary links characterizes the network relationship. Network frequency shows how often the subsidiary interacts with its partners. A change in a subsidiary’s network, therefore, reflects an increase or decrease in the number and frequency of its network relationships.

2.2. Subsidiary inter-organizational network relationships

Subsidiary inter-organizational network relationships are positively associated with performance because of the value attached to establishing the subsidiary within local networks to develop international competitiveness (Porter, 1994) and to capitalize on localization advantages (Dunning, 2009). Such relationships are also associated with learning and innovation benefits (Frost, 2001) and enhanced entrepreneurial activities (Birkinshaw et al., 2005; Jindra et al., 2009). There is empirical support for positive effects on subsidiary performance by developing intra-organizational network relationships that enhance the development of useful resources and knowledge assets (Andersson, Forsgren, & Holm, 2002; Frost, Birkinshaw & Ensign, 2002) and improve learning and innovation (Andersson, Forsgren, & Pedersen, 2001; Hagedoorn & Duysters, 2002). Most literature therefore, as pointed out by Schmid and Schurig (2003) establishes that inter–organizational relationships enhance the development of critical capabilities. One example of a critical capability is when the subsidiary taps into knowledge networks in clusters (Birkinshaw & Hood, 2000; Giuliani, 2007). Furthermore, Schmid and Schurig (2003) argue that these critical capabilities are the prime determinant of economic rents. The MNCs ability to develop critical capabilities therefore depends to a large extent on its subsidiaries ability to establish intense and frequent interactions with partners in their business network (see also Andersson et al., 2002).

The benefits gained from inter-organizational network relationships also enhance the power of the subsidiary within the MNC by increased dependency by other parts of the MNC on resources gained from the subsidiary’s inter-organizational networks (Andersson et al., 2007; Bouquet & Birkinshaw, 2008). This, in turn, decreases the uncertainty of further parent company investments into the subsidiary (Astley & Sachdeva, 1984) thereby further contributing to subsidiary performance. The literature therefore indicates that the development of intra-organizational networks provides performance boosting effects connected to improved resource development, enhancing learning and innovation, as well as developing entrepreneurial skills and increasing the importance of the subsidiary with the MNC, which enhances investment by parent companies.

It is likely that increased frequency and a higher number of inter-organizational network relationships positively affect performance. The work of Johanson and Vahlne (2009) provide a theoretical underpinning on how increased number and frequency of network relationships lead to improved performance. They distinguish between the liability of foreignness, which is the additional cost of internationalization caused by a lack of institutional market knowledge in terms of rules and regulations, norms and values, and cognitive structures (Scott, 1995; Zaheer, 1995), and the liability of outsidership, which is a lack of business–market knowledge in terms of the market, its players, and their mutual relationships (Eriksson, Johanson, Majkgård, & Sharma, 1997). To reduce liability of foreignness information about institutions is required. This information is likely to be encapsulated in social structures and, therefore, is largely tacit knowledge. Johanson and Vahlne predict the need to form networks, which in turn lead to ‘relations-specific knowledge’ to access such tacit knowledge. Increasing the frequency of network relationships facilitates the process of relation specific knowledge acquisition, as frequency motivates trust building between partners, which increases the likelihood that the local partner will provide knowledge about


accessing appropriate institutions. Building up trust by increased frequency also provides the subsidiary with access to a variety of valuable assets that are available in the host environment and, thereby, increases the likelihood of exploiting such sources (Mu, Gnyawali, & Hatfield, 2007). Access to such assets helps to reduce the liability of outsidership, particularly in cases where knowledge is tacit and requires trust-based relationships to be grasped effectively (Madhavan & Iyiyama, 2009). In addition to frequency of network relationships, increasing the number of network relationships offers a mean to gain insights about how the market operates and the different roles of the various actors by exposing the subsidiary to a wider range of practices in business operations, which Johanson and Vahlne (2009) refer to as ‘general relationship knowledge’. Thus, knowledge of the best practices of many players, acquired through extending the number of network relationships is likely to smooth the progress of mimicry or imitation of these practices, which leads to improved performance (DiMaggio & Powell, 1983). Granovetter’s (1973, 1985) notions of strong and weak ties supports these arguments as an increased frequency of network relationships establishes the strong ties needed to gain access to tacit knowledge structures. An increased number of network relationships however facilitates weaker ties but improves general knowledge-seeking processes connected to acquiring knowledge that is less tacit. Increases in frequency help to develop relation-specific knowledge, while increases in number enhance general relationship knowledge. Subsidiaries subject to liability of foreignness and of outsidership need to improve both specific and general knowledge to boost their performance and thereby will seek to increase both the frequency and number of network relationships.

There are contrary arguments that benefits flow from increased inter-organizational network relationships. First, subsidiaries with a poor resource base will be restricted in the volume of investment in inter-organizational network relationships. Second, the governance costs of coordinating these network relationships might exceed the value of engaging in these networks (Rugman & D’Cruz, 2000). Furthermore, not every relationships might be beneficial to the subsidiary, and there is evidence that the value of specific subsidiary’ network relationships decreases over time, and in some cases leads to subsidiary charter removers (Dörrenbächer & Gammelgaard, 2010). Finally, host country economic conditions and related competitive environments may negatively affect the value of network relationships (Kogut, 1985). These competitive conditions are, therefore, important determinants of subsidiary performance (Christmann, Day, & Vip, 1999). However, Vernaik et al. (2005) argue that improved performance through networking is robust after controlling for these environmental pressures. The literature supports the view that in general positive networks effects prevail over the potential problems and costs of increasing inter-organizational network relations. On the basis therefore of the argumentation above the postulation is that an increase in the frequency and number of inter-organizational network relationships will lead to positive subsidiary performance. This leads to the first hypothesis:

H1. Increases in inter-organizational network relationships improve subsidiary performance.

2.3. Subsidiary intra-organizational network relationships

Intra-organizational network relationships have been found to be positively associated with subsidiary performance (Vernaik et al., 2005), as they boost learning processes and stimulate subsidiary’s entrepreneurial efforts (Gnyawali, Singal, & Mu, 2009). Research shows that, in particular, the subsidiary network relationship with the parent company is highly valuable (Birkinshaw & Hood, 1998). For example, knowledge exchanges with a parent company positively affect innovation and performance (Monteiro, Arvidsson, & Birkinshaw, 2008). Furthermore, the extent of the parent’s international network is important for the subsidiary’s ability to establish its own international network (Elango & Pattnaik, 2007). The parental network provides the subsidiary with important connections and lowers transaction costs. Furthermore, Gnyawali et al. (2009) argue that the network relationship with the parent company is decisive for an underperforming subsidiary, as this network relationship reduces the subsidiary’s strategic vulnerability. Luo (2003) suggests that parental support reduces the subsidiary’s dependencies on resources located in the host country, which in turn reduces the uncertainty associated with subsidiary operations. From an MNC-network perspective, subsidiaries with frequent network relationships with the parent company benefit from their more central position in the intra-organizational network (Ghoshal & Bartlett, 2005). Centrally positioned subsidiaries control value-chain operations (Astley & Zajac, 1991) or access to critical resources in the host country. In these situations, the subsidiaries are powerful (Forsgren, Holm, & Johanson, 2005). The concept of ‘network centrality’, therefore, indicates that a high number of direct exchange relationships within MNCs are important for subsidiaries to flourish. Ghoshal and Bartlett (2005) show that subsidiaries with a higher number of exchanges with other subsidiaries or the parent company achieve more prominent positions in MNCs. Hence, on average, increased frequency of intra-organizational network relationships enhance the likelihood that the subsidiary will be able to influence the behavior of the parent company’s strategic decision-making behavior in its favor. Therefore, such relationships are positively associated with performance. This leads to the second hypothesis:

H2. Increases in intra-organizational network relationships improve subsidiary performance.

2.4. Subsidiary inter-organizational and intra-organizational network relationships

An increased number and frequency of intra- and inter-organizational network relationships are proposed to positively influence subsidiary performance. The question, however, is whether an increase in the number and frequency
of inter-organizational network relationships leads to a corresponding increase in intra-organizational network relationships. The main issue in this respect is whether the subsidiary operates in two separate networks or, as argued by Wang, Liu, and Li (2009), there are interdependencies between the two networks in some cases. Wang et al. (2009) find that this depends on the subsidiary’s role. For example, for MNCs emphasizing local responsiveness at the expense of global integration, the multi-domestic strategy argument suggests that an increase in intra-organizational network relationships will not lead to a corresponding increase in intra-organizational network relationships (Prahalad & Doz, 1987). On the other hand, the same authors present a counter argument for transnational companies.

This paper argues that both an increased number and an increased frequency of inter-organizational network relationships are likely to increase intra-organizational relationships. However, different mechanisms cause this effect. As argued above, increased frequency leads to the development of strong ties, which is necessary for overcoming institutional and tacit knowledge barriers, and which also improves the absorptive capacity of the subsidiary (Cohen & Levinthal, 1990). On the basis of these arguments, the accumulation of external knowledge builds a knowledge reservoir in the subsidiary, which then helps the subsidiary to absorb internal knowledge. This further increases the likelihood of increased intra-organizational network relationships. Following Birkinshaw and Hood (1997), absorptive capacities facilitate the attraction of resources from both internal and external sources. Furthermore, Håkanson and Nobel (2001) show how strong intra-organizational relationships induce innovations in foreign R&D units, although dedicated integration efforts are needed to ensure the dissemination of technologies back to the parent company. Hansen (1999) also points to the need for multiple intra-organizational network relationships to effectively diffuse tacit knowledge. Increased subsidiary inter-organizational relationships, therefore, facilitate the infusion of knowledge into the MNC, and the subsequent dissemination of this knowledge requires an increase in intra-organizational interactions in terms of knowledge transfers and measures to help to diffuse the acquired knowledge. These circumstances lead to an increase in intra-organizational network relationships.

An increase in the number of inter-organizational network relationships can also increase intra-organizational relationships because increasing levels of engagement between subsidiaries and external partners may raise the parent company’s (or other subsidiaries’) dependency on the subsidiary. In these circumstances, the challenges created by geographical and institutional distances encourage the growth of intra-organizational network relationships. Increased inter-organizational network relationships are typically an outcome of subsidiary ambitions and entrepreneurial behavior (Birkinshaw et al., 2005), and are likely to lead to subsidiary-specific advantages (Rugman & Verbeke, 2001) or to the establishment of a distinct position in the MNC network (Garcia-Pont, Canales, & Noboa, 2009). Boehe (2007) demonstrates that the more the subsidiary is able to create ‘resource-dependency’ network relationships, the more its position within the MNC is enhanced. Participation in powerful intra-organizational networks thus requires that the subsidiary is able to build external network relationships upon which central players in the MNC depend. However, subsidiary evolution, as emphasized by Dörrenbächer and Gammelgaard (2010), requires not only possession of attractive resources but also the effective use of profitable exchange relationships by the subsidiary. Therefore, attractive resources acquired through inter-organizational network relationships need an effective means of exploitation that encourages an increase in appropriate intra-organizational network relationships, which then serves to improve network centrality. These arguments lead to the third hypothesis:

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

2.5. Subsidiary autonomy and performance

The evidence on whether high levels of autonomy are directly related to performance is limited and mixed. Young and Tavares (2004) link the concept of autonomy to many different characteristics, but not to performance. Most studies investigate factors that are likely to lead to enhanced performance, such as marketing innovation (Verona et al., 2005), the degree of internationalization (Fenton-O’Creevy, Gooderham, & Nordhaug, 2008) and subsidiary growth (Johnson & Medcalf, 2007). However, the literature seldom investigates the direct effect of autonomy on performance. A study of subsidiary roles by Birkinshaw and Morrison (1995) finds that high and low (but not medium) levels of autonomy lead to good performance. McDonald, Warhurst, and Allen (2008) find limited evidence for positive relationships between some types of autonomy and performance.

‘Subsidiary autonomy’ is defined in this paper as the decision-making rights that are granted by parent companies. High autonomy occurs when operational and/or strategic decisions are primarily made by the subsidiary. Low autonomy arises when such decisions are largely made by parent companies. From the subsidiary evolution perspective, autonomy is often associated with performance because autonomy often correlates with the granting of more advanced roles to the subsidiary (Birkinshaw & Morrison, 1995).

Autonomy has also been associated with subsidiary entrepreneurship (Boehe, 2007), which entails some degree of freedom to engage in a variety of intra- and inter-organizational network linkages and transactions. These activities can involve a multitude of strategic and operational areas, and a large number of possible outcomes. A virtuous cycle effect results in which enhanced subsidiary performance leads to increased autonomy and so on, so that the links between subsidiary autonomy and performance are emphasized. Subsidiaries that have a low degree of autonomy will, therefore, often benefit from increased autonomy, and highly autonomous subsidiaries are likely to be able to take on advanced
subsidiary roles, such as center of excellence designations (Frost et al., 2002). There are counterarguments to this outcome. Autonomy can lead to the subsidiary taking a peripheral position in the MNC network, leading to lower levels of parent company support (Phelps & Fuller, 2000). Alternatively, autonomy can be used by subsidiaries to engage in rent-seeking behavior (Mudambi & Navarra, 2004) or the development of location-bound resources (Rugman & Verbeke, 2001). Furthermore, decisions solely made by autonomous subsidiaries might not be as good as decisions negotiated with the parent company, which would build on a larger knowledge base (Aghion & Tirole, 1997).

Thus, the theoretical and empirical results on the effects of autonomy on performance are mixed. The limited empirical evidence suggests that increased autonomy positively affects performance, at least in some cases. Moreover, there are theoretical arguments for a positive association between autonomy and performance. This leads to the fourth hypothesis:

H₄. Increases in the autonomy of the subsidiary improve subsidiary performance.

2.6. Subsidiary autonomy and inter-organizational network relationships

Subsidiary flexibility helps management to establish and deal with beneficial inter-organizational network relationships more successfully because of a decreased control from and negotiations with the parent company (Birkinshaw et al., 2005). This is especially true when subsidiaries operate in networks where not only their relationships with clients (customers, suppliers, etc.) are important, but their clients’ relationships with their suppliers, customers, and competitors are also critical resources for the subsidiary (Lindstrand, Eriksson, & Sharma, 2009). Increased autonomy, therefore, is suggested to increase the number and frequency of the subsidiary’s networks (Giroud & Scott-Kennel, 2009). With increased freedom to make decisions, the subsidiary can increase the number of partners with whom it interacts and further increase the frequency of interaction when needed. When a subsidiary faces resource constraints and is, consequently, unable to increase the number of actors in its network relationships, an increase in autonomy is likely to facilitate innovation designed to take advantage of existing relationships. A subsidiary in this position is, therefore, more likely to engage more intensively with local partners by increasing the frequency of interactions in order to gain access to knowledge. This reasoning leads to the fifth hypothesis:

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

2.7. Subsidiary autonomy and intra-organizational network relationships

Increases in subsidiary autonomy are likely to lead to decreases in intra-organizational network relationships. This is primarily because subsidiary autonomy, by its very nature, is likely to disassociate the subsidiary from other units in the organization (Phelps & Fuller, 2000). Thus, studies indicate that subsidiary autonomy has a negative effect on intra-organizational knowledge sharing. Noorderhaven and Harzing (2009) find that subsidiary autonomy leads to ‘stand-alone activities’, which imply less social interaction between the subsidiary’s employees and other MNC staff members. The intra-MNC flows of knowledge from subsidiaries with high autonomy have proven to be limited (Monteiro et al., 2008). The direct effect of increasing autonomy on intra-organizational network relationships is, therefore, likely to be negative.

However, as argued in hypothesis 5, autonomy directly increases inter-organizational network relationships, while hypothesis 3 postulates that increased inter-organizational network relationships directly increase intra-organizational relationships. The combined postulates of hypotheses 3 and 5 imply that increased autonomy indirectly increases intra-organizational network relationships by increasing inter-organizational network relationships, which in turn leads to an increase in intra-organizational relationships. The direct effect of autonomy on intra-organizational network relationships is, however, likely to be negative, as increased autonomy tends to lead to a degree of disengagement with other parts of the MNC. This line of reasoning leads to the final hypothesis:

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

3. Methodology

To test the hypotheses, a survey of foreign-owned subsidiaries located in the UK, Germany, and Denmark was undertaken following Tung and van Witteloostuijn’s (2008) recommendation of surveying international business themes using a comparative sample. A self-administered questionnaire sent to these subsidiaries provided the data. The design, administration, and procedures of the mail survey followed the main techniques recommended by Dillman (1991). These were supplemented with specific steps informed by Harzing (2000) and Harzing and Noorderhaven (2006), which were designed to increase response rates. The Danish and German subject specialists of the research group translated the initial questionnaire, which was written in English and developed using a literature review of former surveys in this area, into their native languages. The questionnaire was then back-translated, linguistic specialists were consulted, and final adjustments were made on the basis of pilot tests in the three countries.

The target audience for the survey was the managing directors of the subsidiaries. The mailings consisted of a four-page, carefully designed, easy-to-complete structured questionnaire; a return envelope; and a personalized cover letter, which
described the study and its objectives, the importance and relevance of the study for subsidiary managers, the ethics and confidentiality procedures, contact details, and the deadline. To incentivize participation, respondents were informed that they would receive a summary of the main findings of the survey and its implications. To increase the likelihood of responses, the home institutions of the research team administered the process in their own countries. The survey took place in 2007 and 2008.

The sampling frame was constructed from information provided by the Commerzbank database, the Experian database, the listings of foreign chambers of commerce, Dunn and Bradstreet lists, regional authorities, and the commercial sections of embassies. The German and British samples consisted of a random selection of 3000 foreign-owned subsidiaries for each country, while the Danish sample included 2996 identified foreign-owned firms.

A total of 528 responses were received after sending reminders. These consisted of 249 Danish, 155 British, and 124 German replies. After removing holding-type establishments, real estate firms, registered offices, non-active trading addresses, wrong addresses, establishments that moved away, and those with a change in ownership, the effective initial sample size was reduced from 8996 to 5584, yielding an effective response rate of 9.5%. Although this response rate is relatively low, it is not out of line with those of other international mail surveys (e.g., Dikova & van Witteloostuijn, 2007; Harzing & Noorderhaven, 2006; Noorderhaven & Harzing, 2009) and is not unusual for multi-country studies in which high-level managers are the respondents (Harzing, 1997; Harzing & Noorderhaven, 2006; Noorderhaven & Harzing, 2009). In terms of host country nationalities, the response rates equal 15% for Denmark, 10.4% for Britain, and 5.3% for Germany. There are substantial differences in the response behaviors among foreign-owned firms in the three host countries and previous studies point to similar patterns (Brewster & Hegewisch, 1994; Harzing, 2000; Pudelko & Harzing, 2007). Moreover, the relatively low response rate for Germany is in line with international business surveys in Germany (Schwens & Kabst, 2009). Tests for representativeness along broad industry characteristics indicated no significant differences for either the total sample or the three host-country settings. In terms of potential for non-coverage error (Dillman, 1991), tests comparing the respondents’ industry profiles with official data on the number of foreign-owned firms by industry showed no significant differences for the sample as a whole or for individual host countries (these tests utilized information from the Deutsche Bundesbank, the Office of National Statistics, and European Statistical Data). Detailed control variables, such as host country, home country, type of industry, size, and entry mode, were included in the statistical analysis nonetheless (see below). Non-response bias was tested using wave analysis, based on the observation that late respondents to mail surveys tend to be more similar to non-respondents (Fowler, 1993). The comparison of early and late respondents on the variables of broad industry, age, entry mode, and nationality of managing director, did not reveal any significant differences in response behaviors.

The number of usable responses was reduced to 350 because responses with missing data were removed. As the study is focused on change, retrospective data relating to a period dating five years into the past was required, so that only those subsidiaries that had been under foreign ownership for at least five years could be included. Missing-data cases accounted for about 32% of the responses, which compares favorably to other international mail surveys (Björkman, Fey, & Park, 2007; Dikova & van Witteloostuijn, 2007). An inspection of the missing data revealed no discernable patterns, and statistical tests confirmed the randomness of the missing data and that differences in the number of missing data items among the three host countries were not significant.

The questionnaire collected data on the salient characteristics of the foreign-owned subsidiaries (Table 1). Over half of all of the subsidiaries were German, Dutch or Swedish owned. The majority of subsidiaries employed less than 100 employees, and most managers were host-country nationals. Moreover, greenfield sites predominated. Most subsidiaries had been under foreign ownership for more than 10 years, and had a relatively high share of sales and distribution in their activity profile. The majority of subsidiaries operate in high/medium-high and knowledge-intensive industries. The subsidiary profile is generally similar to those seen in other studies of foreign-owned subsidiaries in West European countries (Tüselmann, McDonald, & Thorpe, 2006).

3.1. Testing techniques

A partial least square (PLS) approach to structural equation modeling was used to test the hypotheses. A PLS modeling approach to subsidiary research has been adopted by Vernaik et al. (2005) and Fey, Morgulis-Yakushvev, Park, and Björkman (2009), among others. This technique is preferable to the Lisrel and AMOS techniques when given a smaller sample.

PLS models operate with two sets of linear equations: an inner model that specifies relationships between latent variables, and an outer model analyzing relationships between the latent variables and associated manifest variables. This permits the simultaneous analysis of the path coefficients between latent variables, and the path coefficients between these variables and their constructs (measurements) (Fey et al., 2009). This allows for an assessment of the reliability and validity of the measurement model, as well as an assessment of the structural model (Hulland, 1999). Furthermore, as Vernaik et al. (2005) argue because models and measures in international business are still in the initial stages of development, the regression-based approach is more appropriate than covariance-based methods like LISREL. Finally, the PLS method is effective in guarding against inadequacies, such as skewed distributions of manifest variables, multi-collinearity within blocks of manifest variables and between latent variables, and omissions of data (Cassel, Hackl, & Westlund, 1999). Through the use of SmartPLS 2.0, r-statistics emerge through bootstrapping procedures. This technique makes the results more reliable, as it uses repeated random samples (Vernaik et al., 2005). Furthermore, total effects are calculated. This is advantageous, as it includes both direct and indirect effects (Sönke, 2010, chap. 18).
Table 1
Subsidiary profile (%).

<table>
<thead>
<tr>
<th>Host country</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>33.8</td>
</tr>
<tr>
<td>Germany</td>
<td>23.4</td>
</tr>
<tr>
<td>Denmark</td>
<td>42.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Home country</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>19.1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>15.4</td>
</tr>
<tr>
<td>Sweden</td>
<td>13.1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>8.2</td>
</tr>
<tr>
<td>US</td>
<td>6.3</td>
</tr>
<tr>
<td>Japan</td>
<td>6.2</td>
</tr>
<tr>
<td>France</td>
<td>5.4</td>
</tr>
<tr>
<td>Others</td>
<td>26.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size (Employment)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1–10</td>
<td>25.7</td>
</tr>
<tr>
<td>11–100</td>
<td>53.2</td>
</tr>
<tr>
<td>&gt;100</td>
<td>21.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entry mode</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenfield investment</td>
<td>62.8</td>
</tr>
<tr>
<td>Acquisition</td>
<td>37.2</td>
</tr>
</tbody>
</table>

Activity<sup>a</sup>

<table>
<thead>
<tr>
<th>Activity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Production of goods or services</td>
<td>25.6</td>
</tr>
<tr>
<td>Sales/distribution</td>
<td>42.6</td>
</tr>
<tr>
<td>Ancillary service functions</td>
<td>17.9</td>
</tr>
<tr>
<td>R&amp;D/new product development</td>
<td>3.3</td>
</tr>
<tr>
<td>Others</td>
<td>10.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years in foreign ownership</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5–10</td>
<td>32.1</td>
</tr>
<tr>
<td>11–20</td>
<td>31.8</td>
</tr>
<tr>
<td>21–30</td>
<td>16.9</td>
</tr>
<tr>
<td>&gt;30</td>
<td>17.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of industry&lt;sup&gt;b&lt;/sup&gt;</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High/medium-high tech manufacturing</td>
<td>46.0</td>
</tr>
<tr>
<td>Medium-low/low-tech manufacturing</td>
<td>24.1</td>
</tr>
<tr>
<td>Knowledge-intensive service industries</td>
<td>17.8</td>
</tr>
<tr>
<td>Less knowledge-intensive service industries</td>
<td>12.1</td>
</tr>
<tr>
<td>Nationality of managing director</td>
<td></td>
</tr>
<tr>
<td>Host-country national</td>
<td>76.5</td>
</tr>
<tr>
<td>Home-country/third-country national</td>
<td>23.5</td>
</tr>
</tbody>
</table>

<sup>a</sup> Distribution of employment according to activity.

<sup>b</sup> Based on two-digit NACE classification and collapsed into industry based on OECD technology and knowledge-intensity industry classifications.

Chang, Witteloostuijn, and van Eden (2010) address the problem of common method variance (CMV), which is likely in self-reported questionnaire surveys where the same respondents provide information for both the dependent and independent variables. The survey used for this paper is of this kind, but the respondents reported on measures ‘five years ago’ and ‘currently’, thereby allowing for the use of a change variable that reduces the likelihood of CMV. In addition, as suggested by Podsakoff and Organ (1986), reporting on discrete events reduces the likelihood of CMV. Therefore, information on the number and frequency of relationships was sought in the questionnaire. Furthermore, questions related to performance appeared before questions related to relationships and autonomy. This ordering reduces the likelihood that respondents estimated, for example, good performance as an outcome of high levels of relationships. The complexity of the PLS technique further reduces the likelihood of CMV (Chang et al., 2010). The results of the Harman’s one-factor test – for which we use a principal component analysis – are satisfactory, with the first eigenvalue accounting for 25% of the variance and with six eigenvalues above 1.

3.2. Constructs and measures

The model has four main constructs: ‘subsidiary autonomy’, ‘inter-organizational network relationships’, intra-organizational network relationships’, and ‘subsidiary performance’. Data for these constructs were gathered in relation to both the current period and the situation five years ago. Previous work has shown that a five-year time span provides more accurate information than longer periods (Peng & York, 2001). In fact, a five-year period establishes a mathematically explicit relationship between observed scores (or manifest variables) and latent variables (the change variable) (Borsboom, Mellenbergh, & van Heerden, 2003). Latent variables are widely used in structural equation models and, as Borsboom et al. (2003, p. 203) write, it is: “the analysis of interindividual differences data by statistically relating co-variation between observed variables to latent variables”.
To capture rich data, the constructs are derived from multiple questionnaire items that used five-point Likert scales. For example, respondents were asked to report the number of relationships with customers (inter-organizational relations) using a five-point Likert scale for the situation five years ago and for the present time. If a respondent reports a ‘2’ for the situation five years ago and a ‘5’ for the present time, the change (latent) variable is 3. The latent variable then becomes an amalgamation of the changes in the number and frequency of network relationships on the one hand, and in strategic and operational autonomy on the other. In PLS, each variable is assigned a weight – a coefficient – that reflects the importance of the manifest variable for the latent variable. The t-tests for the outer relations (manifest variables) indicate whether those coefficients (weights) are significant. The coefficients for the manifest variables are determined and the R-square for the inner relation maximizes the structural model.

All constructs are based on self-reported information. Therefore subsidiary performance includes subjective (non-financial) measures. Although this data may be subject to bias, this method is widely used in the literature and, in general, there is evidence of general reliability (Venkatraman & Ramanujam, 1986). In terms of measuring the performance of MNC operations, problems exist in relation to the multi-faceted nature of performance (Miller, Lee, Chang, & Le Beton-Miller, 2009). Thus, subsidiary performance is a single measure of overall performance that also provides a rounded view of subsidiary performance. There are also well-documented problems of collecting accurate, valid performance measures using questionnaires (Luo, 2007). However, management is not guided solely by objective performance indicators, but also by strategic thinking and actions. Furthermore, management is likely to act upon its perception of facts, rather than the facts themselves (Thompson, 2003). In addition, many objective indicators on the subsidiary level, especially financial indicators, are suspect because of the reporting arrangements of MNCs (Guest, Michie, Conway, & Sheehan, 2003). Given these reservations and corresponding discussions in similar studies, objective measures of performance were not included in the questionnaire (Demirbag, Tatoglu, & Glaiser, 2007). Various studies employing subjective measures of performance ask respondents to assess performance in relation to their competitors (Ellis, 2007). This facilitates the comparison of establishments across size categories and industries.

Subsidiary performance uses a five-item measurement encompassing items frequently and reliably used in other studies (Birkinshaw et al., 2005):

- ‘Sales growth by volume’,
- ‘Sales growth by value’,
- ‘Productivity’,
- ‘Customer satisfaction’, and
- ‘Market share’.

Respondents assessed each of these performance items relative to their market competitors on a scale of one (a lot better) to five (a lot worse).

The constructs inter-organizational networks and intra-organizational networks were measured using items adapted from Holm and Pedersen (2000). These items measure the number and frequency of a subsidiary’s relationships with a range of partners. Intra-organizational partners included:

- ‘Buyers’,
- ‘Suppliers’,
- ‘R&D and innovation centers’, and
- ‘Other units within the MNC organization’.

Inter-organizational partners included:

- ‘Customers’,
- ‘Suppliers’, and
- ‘Competitors’.

Both inter- and intra-organizational relationships were measured as the number of relationships on a scale ranging from one (none) to five (many), and as the frequency of contact with networks on a scale of one (low) to five (high).

Measurement of autonomy followed Young and Tavares’s (2004) approach, which focuses on strategic decision making (policy decisions) and operational decision making (tactical decisions). The measurement of strategic and operational decision-making authority uses approaches and measurement scales adapted from Birkinshaw and Hood (2000), and Taggart and Hood (1999). The items related to strategic decision making authority were:

- ‘Market areas supplied’,
- ‘Product range’,
- ‘R&D and new product development’,
- ‘Production of goods or services’.
Areas of operational decision making were:

- 'Marketing activities',
- 'R&D and new product-development activities',
- 'Activities related to producing goods or services',
- 'Financial management practices', and
- 'Human resource management practices'.

For the strategic and operational decision making items, respondents were asked to assess the extent of their decision-making autonomy on a scale from one (exclusively by headquarters) to five (exclusively by the subsidiary).

Fig. 1 illustrates the model.

The control variables included in the model were: (a) host country, (b) home country, (c) size (number of employees), (d) type of industry (as defined in note 1 under Table 1), and (e) entry mode (greenfield, acquisition). These types of control variables have been used in other PLS tests (Fey et al., 2009). We did not control for subsidiary turnover as financial indicators for subsidiaries are suspect because of the reporting arrangements of MNCs (Guest et al., 2003). The use of internal transfer prices and related tax issues also affects the validity of subsidiary turnover as a good measure of size (Demirbag et al., 2007). Further, turnover is not a meaningful measurement of size when the sample includes both manufacturing and service industries because the size of financial institutions is measured by the value of assets. In the light of these problems with turnover as a measure of the size of subsidiaries this paper uses number of employees as the best control for size.

Fig. 1. Conceptual model.
4. Results

The results of the PLS test are reported in Table 3, while Table 2 provides the composite reliabilities, Cronbach's alpha values, and $R$-squareds. The goodness-of-fit is 0.996 and the standardized root mean square residual is 0.080.

The results confirm hypothesis 1, which suggests a positive relationship between increases in inter-organizational network relationships and increases in subsidiary performance. There is some support for hypothesis 2 because there is a significant relationship without the controls. The results confirm the relationship between intra-organizational and inter-organizational network relationships, which supports hypothesis 3. There is some support for hypothesis 4 with evidence of a significant link between increased autonomy and increased performance when controls are included. There is strong support for hypothesis 5, which confirms the positive relationship between autonomy and inter-organizational network relationships. The results indicate that autonomy has an indirect effect on performance, as autonomy positively affects inter-organizational network relationships and they, in turn, positively relate to performance. There is no support for hypothesis 6, as the relationship between autonomy and performance has the correct sign but it is insignificant. There is some evidence of an indirect effect of autonomy on performance via intra-organizational network relationships: autonomy positively relates to inter-organizational network relationships and these relationships are associated with intra-organizational network relationships, which significantly and positively relate to performance in the absence of controls. Table 4 summarizes the results.

The controls affect the relationships among intra-organizational network relationships, autonomy, and performance. We adopt a multivariate analysis of variance using a two-step procedure, where the introduction of the control variables reveals that there are no home-country or industry effects. However, host country, size, and entry mode do affect the results. These three factors have a negative impact the relationship between intra-organizational relationships and performance, and the relationship between autonomy on intra-organizational relationships. At the same time, these controls positively affect the relationships between autonomy and performance. To test the effects of the host country, the sample was divided into smaller samples based on host country: Denmark, Germany, and the UK. In relation to hypotheses 1–3 and 5, host country was found to make no difference in relation to the reported findings for the total sample. However, host-country effects are evident for hypothesis 4, where there is a positive, significant relationship between autonomy and performance in Denmark and the UK, and a significant, negative effect for Germany. In terms of the link between autonomy and intra-organizational relationships (hypothesis 6), the results for Denmark and Germany confirm the results for the overall model, whereas the results for the UK indicate negative total effects.

| Table 2 | Composite reliabilities, Cronbach's alphas, and $R$-squareds. |
|----------|---------------------------------|-----------------|----------------|
|          | Composite reliability | Cronbach's alphas | $R$-squareds |
| Autonomy | 0.94 | 0.93 | - |
| Inter-organizational networks | 0.84 | 0.79 | 0.16 |
| Intra-organizational networks | 0.87 | 0.82 | 0.20 |
| Performance | 0.84 | 0.75 | 0.19 |

Note: Composite should be above 0.70 for each construct (Fornell & Larcker, 1981). Cronbach's alpha values should be above 0.70 (Hulland, 1999). When using the PLS technique, one variable is 'locked' and $R$-squareds are reported in relation to this variable.

| Table 3 | PLS test. |
|----------|-----------------|-----------------|
|          | Path coefficient mean | Total effect mean | $t$-Statistics total effects |
| H1: Inter-organizational network relationships AND performance | 0.36 | 0.40 | 7.00*** |
| H2: Intra-organizational network relationships AND performance | 0.08 | 0.07 | 1.18 |
| H3: Inter-organizational network relationships AND intra-organizational network relationships | 0.49 | 0.49 | 6.84*** |
| H4: Autonomy AND performance | 0.07 | 0.23 | 3.17*** |
| H5: Autonomy AND inter-organizational network relationships | 0.40 | 0.40 | 6.29*** |
| H6: Autonomy AND intra-organizational network relationships | -0.08 | 0.11 | 1.37 |

$t$-Values in parentheses are without controls.
Means are computed via a bootstrapping procedure. 1000 samples are constructed and the model is estimated 1000 times. The mean is the mean of the 1000 coefficients that have been obtained in the 1000 estimations. Standard error (deviation) is also derived from these 1000 coefficients. Standard deviations are between 0.06 and 0.08 in all cases.

* $p < 0.10$.

** $p < 0.05$.

*** $p < 0.01$. 

The robustness of the data analysis was confirmed by a generalized structured component analysis, which revealed similar results. The causal relationships between factors were also tested. In the main model, we assume that autonomy affects network relationships and that inter-organizational network relationships affect intra-organizational network relationships. An alternative model, in which intra-organizational network relationships are assumed to affect inter-organizational network relationships, shows similar path-correlations. However, this latter model is weak, showing lower $R$-squareds. Another alternative model that tests how network relationships affect autonomy produces the same path correlations and similar $R$-squareds as the main model. There is, therefore, a reverse-causation effect regarding the relation between autonomy, network relationships, and performance, which was referred to as the ‘virtuous circle effect’ in the discussion leading to hypothesis 4.

5. Conclusions and discussions

This study sheds light on the complex interactions among increases in autonomy, and inter- and intra-organizational network relationships, and performance. The results provide strong evidence of direct and positive linkages between inter-organizational network relationships and performance, autonomy and inter-organizational network relationships, and inter-organizational network relationships and intra-organizational network relationships. The evidence is not as strong for direct and positive links between autonomy and performance, and intra-organizational network relationships and performance.

The study also finds support for the suggestion that autonomy indirectly affects performance, as increases in autonomy lead to increases in inter-organizational network relationships, which then affect performance. Evidence also emerges of indirect links between increases in autonomy and intra-organizational network relationships. The route for this link is the following: increased autonomy leads to increased inter-organizational network relationships, which in turn are associated with increased intra-organizational network relationships. There is no evidence of a direct negative effect between increasing autonomy and intra-organizational network relationships. There is, however, country-specific evidence that a negative relationship exists in this regard. Overall, the results indicate that increasing autonomy may have only a weak direct influence in terms of reducing intra-organizational network relationships, and that the indirect effects of interactions between the autonomy and inter-organizational network relationships tend to increase intra-organizational network relationships.

The paper provides new insights into several key issues about the performance effects of the evolution of autonomy and inter- and intra-organizational network relationships in subsidiaries. First, this study contributes to the differentiated network model of MNCs (Nohria & Ghoshal, 1997). In particular, the inclusion of autonomy extends and develops the network-based literature on subsidiary strategy based on intra- and inter-organizational networks (Andersson et al., 2002, 2007). Second, the approach and results of this study enhance the literature on the role of subsidiary autonomy in MNC strategies (Young & Tavares, 2004). Third, the paper develops and deepens the work of Birkinshaw et al. (2005) on the interactions between autonomy and inter and intra-organizational networks and performance.

The results from the alternative causation model used in this study further develop these network-based approaches to subsidiary strategy by indicating that a two-way directional relationship is likely to exist in the relationships between the key factors. The paper, therefore, highlights the complex nature of interactions between key factors in subsidiary development, and provides evidence on the significance of direct and indirect effects. In addition, the results indicate that two-way causation may lead to virtuous cycles in the interactions between these key factors.

This study contributes to our understanding of the interaction between network connections and autonomy in the context of embeddedness in both the MNC (internal links) and the host location (external links). One major implication is that increasing embeddedness in the host location (or external embeddedness) appears to be at the core of subsidiary evolution. However, external embeddedness requires the establishment of internal embeddedness if subsidiaries intend to utilize the resource-dependency power to bring them into a more central position in the MNC network. Furthermore, increased absorptive capacity is likely to be necessary to facilitate the dissemination of externally gained knowledge. Increases in autonomy also provide more freedom to interact in these networks. The paper, therefore, sheds light on how a careful evolution of autonomy, inter-organizational network relationships, and intra-organizational network relationships can generate performance benefits that do not necessarily drive a wedge between subsidiaries and parent companies. Indeed, the results presented here suggest that evolution centered on increasing inter-organizational network relationships can result in strengthened intra-organizational network relationships and increased autonomy among subsidiaries.
The study’s focus on change in terms of increases highlights several major issues related to the evolution of subsidiary strategy. The results indicate that complex processes are at play, whereby both direct and indirect routes exist in the interactions between increases in autonomy and in inter- and intra-organizational network relationships, and the subsequent effects of these improvements on performance. The study does not provide evidence of the factors that determine these complex interactions in terms of subsidiary roles, parent company/subsidiary power systems, and resource constraints and competencies in either host locations or the MNC. Furthermore, the study does not focus on the drivers of such developments in terms of the attitudes, characteristics, and behaviors of key players. The level of internationalization, and the size or the subsidiary, and the MNC, should also be examined in future research.

This paper emphasizes the need for further investigations into the ways in which the liability of foreignness and outsidership affect subsidiary evolution. Clearly, an increased frequency of interaction with external partners drives the acquisition of the institutional knowledge needed to reduce these liabilities. These interactions are likely to be centered in complex social structures. There is a need, therefore, for qualitative studies at the individual level to reveal these mechanisms. An increased number of external players with which the subsidiary interacts are also likely to decrease outsidership. Future research must therefore develop proper measurements for these concepts in order to test them using large samples. The paper also indicates that future investigation of evolutionary paths in subsidiary development in the context of these issues should consider the complex direct and indirect paths of the interactions among changes in autonomy, inter-organizational network relationships, intra-organizational network relationships, and performance. Furthermore, the central role of increases in inter-organizational network relationships in these interactions should be at the core of such studies.

Some implications for subsidiary management emerge from the study. The results imply that there is a need for parent companies and subsidiaries to coordinate strategies to effectively manage all three factors simultaneously. The causal relationships among the three factors identified in this study need to be further developed at the subsidiary level to gather rich data on these interactions in a dynamic context and, thereby, provide detailed guidance to managers on how best to strategically develop the subsidiary. An important implication of the study is that inter- and intra-organizational network relationships are not mutually exclusive. A related implication is that, given resource constraints, the increased use of the subsidiary’s external links leads to a higher payoff that supports the internal links. This indicates a need for careful management of external and internal network relationships to achieve performance benefits.

Subsidiary managers should also be aware that the rationale for increased autonomy is complex. The evidence indicating that increased autonomy will directly lead to enhanced performance is not strong, but increasing autonomy does appear to have indirect, positive effects on performance. Links to inter-organizational network relations are probably at the core of the complex interactions that lead to enhanced performance. Therefore, increased autonomy is primarily a facilitator in the management of inter-organizational relationships, which can subsequently influence performance. The intention of boosting the performance effects of increased inter-organizational network relationships by increasing autonomy needs to be carefully weighed against the possibility of harming intra-organizational network relationships. The results of this study indicate that it may be possible to achieve a balance between the higher autonomy needed to increase inter-organizational network relationships and the development of intra-organizational network relationships.

The results are limited due to the sample characteristics and the conceptual focus of network theory. The results are derived from developed, west European countries that are geographically proximate. Although the three host countries represent a cross-institutional setting (Fenton-O’Creevy et al., 2008) and variety of country sizes (Gammelgaard, McDonald, Tüselmann, Dörrnbächer, & Stephan, 2009), the sample restrictions mean that the generalizability of the conclusions to host locations with different characteristics is limited. Future research needs to encompass a wider range of countries and include issues such as economic strength, comparative factor endowments of the host country (Kogut, 1985), and value-chain distribution in relation to location (Mudambi, 2008).

From a conceptual point of view, future research on subsidiary evolution should consider the conditions under which autonomy is an obstacle to achieving overlapping network benefits between intra- and inter-organizational networks. More specifically, an investigation of the conditions under which increased subsidiary autonomy hinders subsidiaries from benefiting from external knowledge sources is warranted. Future research in this direction that uses the type of interaction processes developed in this paper might also reveal the conditions under which autonomy disconnects the subsidiary from its MNC context, and whether such a disconnect hinders intra-MNC knowledge transfers. Another possible area for research is the conditions under which increased autonomy, in the context of the interactions processes identified in this paper, facilitate entrepreneurial activities that help to transform subsidiaries into centers of excellence.

References


