

**Subsidiary entrepreneurship and headquarters involvement
during innovation development: Dual paths to subsidiary
performance**

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Abstract

There are different views on how innovation processes within MNC subsidiaries should be managed in order to provide competitive advantage. One stream of research emphasizes the importance of an active participation of the headquarters in subsidiary innovation, whereas another stream of research claim that innovation processes within subsidiaries must be left alone in order for the innovation to maximize their performance, and ultimately leading to the competitive advantage of the MNC. Keeping this in mind, the current paper aims at addressing the impact of “subsidiary entrepreneurship” and “headquarters involvement” during subsidiary innovation development on subsidiary performance. Five hypotheses are developed and tested using data on 87 innovation projects in 64 MNC subsidiaries.

We find that subsidiary entrepreneurship during the innovation process has a positive impact on the subsidiary’s market performance and a negative impact on its’ organizational performance. On the contrary, an active involvement of the corporate headquarters has a negative impact on the market performance, but a positive impact on the organization performance of the subsidiary.

Keywords: Innovation, product innovation, performance, subsidiary performance, subsidiary entrepreneurship, headquarters, headquarter role

1. Introduction

Innovation has long been recognized as essential for the competitiveness and success of organizations (Chesbrough, 2003; Edwards, 2005; Tidd, Bessant & Pavitt, 2001), in particular for multinational corporation (references). For the MNC, the pressure to innovate becomes even more intense since they are exposed to multiple countries, contexts and competitors. This implies that MNCs has become more dependent on its overseas subsidiaries, where much of the innovative capabilities resides (Dunning, 1994; Ghoshal & Bartlett, 1990; Hedlund, 1986; Holm & Pedersen, 2000).

For the multinational companies (MNCs), the implication for the management of innovation process becomes very complex due to the nature of the subsidiary-headquarters relationships, and there is an ongoing debate on how innovation processes within MNC subsidiaries should be managed. One stream of research has put attention to the role of headquarters in subsidiary innovation (Bartlett & Ghoshal, 1989; Brown & Eisenhardt 1995; Quinn, 1985; Poppo, 2003). Empirical studies show that the headquarters, through the use of different control and incentive systems and resource allocation procedures, can influence innovation processes at the subsidiary level (Ambos & Schlegelmilch, 2007; Andersson & Kappen, 2010). In fact, headquarters support and attention is an important and “sought-after” resource in many organizations (Haas & Hansen, 2001) and subsidiaries often compete for headquarters attention in order to acquire resources, to augment their market mandate as well as to increase their bargaining power and avoid intervention (Ambos & Birkinshaw, 2010: 450). A very common reason for headquarters to actively involve themselves in innovation processes is the possibility to ensure that the project it supports renders profits, not only for the individual subsidiaries, but for the whole MNC (Poppo, 2003; Stein, 1997).

On the other hand, some scholars argue that in some firms, the involvement of the corporate parent can inevitably destroy value by “incurring overhead costs, slowing down decisions, and making some ill-judged interventions” (Gold & Campbell, 2002: 219). Hence, the involvement of headquarters in the innovation process may actually have a negative effect on innovative activity and, at the end, on the performance of these innovating subsidiaries. In line with this, some current management research has addressed the importance of encouraging entrepreneurial processes within MNC subsidiaries (Paterson & Brock, 2002; Young & Tavares, 2004). It is suggested that “subsidiary entrepreneurship” during innovation processes is vital for the success of the subsidiary (Birkinshaw & Hood, 1998; Birkinshaw, Hood & Young, 2005; Taggart, 1998) and research has shown that subsidiaries

that undertake entrepreneurial initiatives performs relatively better than subsidiaries that show no entrepreneurial tendencies (Ambos & Birkinshaw, 2010). Since much prior research is characterized by contributions to either of these research areas, this study seeks to combine these lines of thoughts. Moreover, notwithstanding these diverse perspectives on how to manage subsidiary innovation for the creation of competitive advantage, it is still unclear how the headquarters involvement and subsidiary entrepreneurship affects the performance of the innovating subsidiaries. Accordingly, by drawing on a sample of 87 innovation projects in 64 MNC subsidiaries, this study aims to investigate how the “headquarters involvement” in subsidiary innovation and “subsidiary entrepreneurship” during innovation affect subsidiary performance.

From past research it has been shown that the performance of MNC subsidiaries is very much oriented toward the goals and strategies of corporate executives (Taggart, 1999) and the objectives set by corporate headquarters may not always coincide with those of the individual subsidiaries (Prahalad & Doz, 1987: 57). Subsidiaries are thus confronted with a goal ambiguity in the sense that they seek to succeed in its local market and, at the same time, seek to perform well within the corporation (see e.g. Andersson, Forsgren & Pedersen, 2001, Birkinshaw, Hood & Young, 2005; Forsgren, Holm & Johanson, 2005). In order to capture this duality of MNC subsidiaries and the goal ambiguity facing many subsidiaries, Andersson, Forsgren and Pedersen (2001) provide a useful conceptual framework for studying subsidiary performance as they distinguish between a subsidiary’s “market performance” and “organizational performance”. Hence, the subsidiary’s performance relates to both its’ performance on the market-place” (Andersson, Forsgren & Pedersen, 2001), as well as the organizational performance, in terms of the subsidiaries strategic influence and position within the corporation. In this study we propose that the subsidiary’s local market performance and organizational performance will be affected by whether the subsidiary’s innovation process takes the route of an entrepreneurial process, or evolve into a process in which the subsidiary is under great influence of its corporate headquarters. This is in line with recent research suggesting that an understanding of the outcomes of subsidiary innovative activities needs a consideration of the strategic route, or organizational path underlying subsidiary managers’ processes and activities (Birkinshaw, 1996, 1997; Birkinshaw & Hood, 1998b; Birkinshaw, Hood & Young, 2005; Venaik, Midgley & Devinney, 2005).

In the next section the theoretical framework of the study is presented, followed by a presentation of the hypotheses. The third section presents the sample, data collection and

methods used to test the hypotheses. The results are reported and interpreted in the fourth section, followed by a concluding section that also presents a number of implications from the study.

2. Subsidiary innovation and performance

Since the work by Bartlett and Ghoshal (1989) there has been an increased amount of research on the multinational subsidiary and research has explored issues such as the development of subsidiary roles (Birkinshaw & Hood, 1998; Holm & Pedersen, 2000), the creation of innovative capabilities among subsidiaries (Almeida & Phene, 2004), and the transfer of subsidiary capabilities within the MNC (cf. Gupta & Govindarajan, 2000). Given the increasing importance of the role of subsidiary innovation for the success of MNC, much of past research has also explored the role of subsidiary innovative activities within the context of the effect it has on the MNC performance (cf. Bartlett & Ghoshal, 1986; Birkinshaw & Morrison, 1995; Gupta & Govindarajan, 1994). It is clear that many subsidiaries are more than just implementers of innovations (Bartlett & Ghoshal, 1986; Holm & Pedersen, 2000) and can provide valuable resources and knowledge of importance for the rest of the corporation (Gupta & Govindarajan, 1994). Given the rise of research on the importance of subsidiaries to MNC in the business strategy literature, researchers are increasingly moving away from the study of the effect of the subsidiary on MNC's performance and are focusing more on finding and examining the relationship between subsidiary innovation and subsidiary performance (cf. Andersson, Forsgren & Pedersen, 2001; Poppo, 2003; Taggart, 1999; Venaik, Midgley & Devinney, 2005).

Research suggests that firm performance can be studied at three levels: at the narrow financial level, at a broader operational (e.g. non-financial) level and, at the level of organizational effectiveness (Venaik, Midgley & Devinney, 2005; Venkatraman & Ramanujam, 1986). The organizational effectiveness aspect takes into account the conflicting nature of organizational goals (Cameron & Wetten, 1983). In the absence of an appropriate operationalization of organizational performance (Venaik, Midgley & Devinney, 2005), many studies on firm performance use indicators at the level of financial and/or operational level (see e.g., Gupta & Govindarajan, 1994; Murphy, Trailer & Hill 1996; Wiklund, 1999). In the analysis of subsidiary performance, neglecting the organizational aspect of performance, implies that we are overlooking that many subsidiaries have their own goals that do not always are aligned with the goals of headquarters (Andersson, Forsgren & Pedersen, 2001; Mudambi & Navarra, 2004; Prahalad and Doz, 1987; Taggart, 1999). This goal ambiguity is

associated with the very nature of subsidiary units — their embeddedness in a local business context and a corporate context (cf. Bartlett & Ghoshal, 1989; Birkinshaw, 2000; Birkinshaw & Hood, 1998; Forsgren, Holm & Johanson, 2005; Holm & Pedersen, 2000). The requirements placed on a subsidiary within the context of varying demands and expectations from local business actors (e.g. customer, suppliers or local regulatory agencies) might not be aligned with the overall strategy of the MNC. This puts the subsidiary in a difficult position as it faces a tension between being oriented toward fulfilling its role as a market competitor, and being oriented toward competing for strategic positions within the MNC (Birkinshaw, Hood & Young, 2005; Bouquet & Birkinshaw, 2008). Acknowledging this dual role and goal ambiguity of MNC subsidiaries, this study is based on the conceptual framework for measuring subsidiary performance proposed by Andersson, Forsgren and Pedersen (2001). In their view subsidiary performance can be conceptualized as “the performance of a subsidiary in its own market-place as well as its performance *within* the MNC in terms of its influence on the MNC’s strategic decision-making” (Andersson, Forsgren & Pedersen, 2001: 4).

3. The role of headquarters versus the subsidiary during innovation development

The role of corporate headquarters in managing the innovative activities among subsidiaries has long been a topic of special attention in international management (Bartlett & Ghoshal, 1986; Beamish 1985; Birkinshaw, 2001; Doz, Santos, & Williamson, 2004) and strategy research (Chandler, 1991; Gold & Campbell, 2002; Porter, 1986). Some scholars emphasize the relevance of organizational structure and design for managing innovative activity among MNC subsidiaries (Bartlett & Ghoshal, 1989; Doz & Prahalad, 1981; Kogut, 1985), whereas others have put attention to the modes of control available to headquarters (Ambos & Schlegelmilch, 2007; Gupta & Govindarajan, 1991; Martinez & Jarillo, 1989) or the use of communication- and coordination mechanisms (Gupta & Govindarajan, 2000; Nobel & Birkinshaw, 1998). In the pursue of an understanding of the role played by corporate headquarters in the development of successful innovations, some researchers has emphasized the importance of an active commitment and support of the corporate management to innovation processes (Brown & Eisenhardt 1995; Gold & Campbell, 2002; Quinn, 1985; Rothwell, 1994).

There is a variety of conceptualizations and labels used to denote corporate headquarters involvement in unit-level activities such as: corporate parenting (Gold, Campbell & Alexander, 1998; Gold & Campbell, 2002), selective corporate involvement (Poppo, 2003; Williamson, 1985), headquarters attention (Bouquet & Birkinshaw, 2008; Luo,

2003; Ocasio, 1997; Rugman & Verbeke, 2001), and headquarters involvement (Ciabuschi, Kang & Ståhl, 2004; Ciabuschi & Martin, 2010). However, a common idea within this stream of research is the view of headquarters as an active participant that invests time, and effort (e.g., Bouquet & Birkinshaw, 2008) and resources; human as well as financial, (Gold, Campbell & Alexander, 1998) in unit-level activities and that the commitment to such activities are of value-adding nature (Gold, Campbell & Alexander, 1998). Accordingly, the use of the term “active involvement of corporate headquarters” in subsidiary innovation refers to an active participation of the corporate headquarters in the innovation development process providing personal attention to the process and support in terms of skills, knowledge and resources during the development of the innovation.

In another stream of research, the importance of strategic freedom of subsidiary managers during the innovation processes has been emphasized, and research has put focus on the topic of subsidiary entrepreneurship (Birkinshaw, 2000). There has been a call for further research on the relationship between the entrepreneurial behavior of subsidiary managers and the performance of the subsidiary (Paterson & Brock, 2002; Young & Tavares, 2004). Research has long emphasized the importance of entrepreneurial activity as a competitive capability of firms (see e.g. Kirzner, 1973; Porter, 1980). Given the rapid changes in the environment, MNCs have been facing considerable pressure to quickly and effectively respond to local market (Prahalad, 1999). Firms with high levels of entrepreneurial orientation are constantly scanning their business environment in order to find new opportunities that will strengthen their competitive positions (Covin & Miles, 1999). In MNCs, some subsidiaries have seized the opportunity created by ongoing changes in the global marketplace by engaging in innovative activities (Dunning, 1994; Roth & Morrison, 1992). These subsidiaries have also become more proactive in their operations, reaching the market with innovations well ahead of their rivals (Birkinshaw, 1998, 1999; Birkinshaw, Hood & Jonsson, 1998). The entrepreneurial intensity among MNC subsidiaries can thus be considered as an imperative for the overall success of the MNC (Birkinshaw, 1998; Porter, 1980). Within the large body of research on the theme of entrepreneurship, it has been suggested that entrepreneurship involves some kind of proactiveness of subsidiary managers (Lumpkin & Dess, 1996; Zahra & Covin, 1995) which denotes the commitment of a subsidiary to initiate changes rather than respond to certain circumstances (Lumpkin & Dess, 1996; Miller, 1983). This is in line with research suggesting that a key manifestation of subsidiary entrepreneurship is subsidiary “initiative” (Birkinshaw, 1997) and research on the topic of subsidiary entrepreneurship has very much been focused on the notion of “subsidiary initiatives” (Birkinshaw, 1997, 2000;

Birkinshaw, Hood & Young, 2005; Yamin, 2002) and “subsidiary autonomy” (Birkinshaw, 1997; Young & Tavares, 2004). In respect to subsidiary entrepreneurship research, the concept of “subsidiary initiative” has been described in terms of an “entrepreneurial process, beginning with the identification of an opportunity and culminating in the commitment of resources to that opportunity’ (Birkinshaw, 1997: 207). Subsidiary autonomy essentially refers to the subsidiary’s freedom or independence in taking decisions on its own behalf (Young & Tavares, 2004) and has been positively linked to the pursuit of entrepreneurial initiatives at the subsidiary level (Birkinshaw, 1997, 2000). Other characteristics of an entrepreneurial orientation of a subsidiary is its value added scope (e.g. Birkinshaw, Hood & Young, 2005; Taggart, 1997; White & Poynter, 1984), which represents the extent to which a subsidiary is engaged in value adding activities (such as R&D, purchasing and marketing). Hence, the level of subsidiary entrepreneurship during innovation processes is related to the extent to which the subsidiary actively initiates and is engaged in an innovation project and its degree of autonomy during this process.

In the following section, we integrate further these lines of thoughts by elaborating on the effect of the involvement of the corporate headquarters and subsidiary entrepreneurship on subsidiary performance in the form of hypotheses.

3.1 Headquarters involvement during innovation development and subsidiary performance

Although the relevance of headquarters involvement in subsidiary-level activities is not disputable, there is an ongoing debate on the effects of headquarters intervention and/or commitment used as a strategy to influence the activities of their subsidiaries. Several scholars (Chandler, 1991; Collis & Montgomery, 1998; Foss, 1997; Gold, Campbell & Alexander, 1998) have recognized that the commitment by the corporate headquarters can be value enhancing for firms. One of the important value enhancing role of headquarter is the integrative role (Chandler, 1962, 1991). Since subsidiaries lack an overview of the business needs of other units, the integrative role of the headquarters consists of coordinating the MNC’s activities across individual subsidiaries, pooling resources and centralizing value added activities (Ambos & Mahnke, 2010). Another important role of headquarters is providing “...the appropriate organizational context for its subsidiaries’ operations” (Ambos & Mahnke, 2010: 406). In another word, the headquarters provides structure and incentives to share assets and provides rationales for sharing, thus adding value to the MNC (Bartlett & Ghoshal, 1989). Therefore when the headquarter is actively involved in the innovation development activity, the value adding effect of their involvement is an outcome of

minimizing coordination problems and guiding and influencing innovation activities through providing structure and incentive to share knowledge, skills and giving financial support (Luo, 2003; Rugman & Verbeke, 2001). The headquarters active involvement during the innovation development process is needed to leverage its competence to incorporate innovation into MNC strategy on a global level beyond the local market (Egelhoff, 2010; Ambos & Birkinshaw, 2010).

On the other hand, the subsidiary's value adding role lies more on the scope of the subsidiary's performance in its home market. Thus the source of the influence on the subsidiary's innovation development activities comes not only from the MNC internal relational conditions but from external industry and market conditions as well. While the headquarters provides integrative role in providing structure and incentive to transfer knowledge within the MNC, the subsidiary deals with adapting to the knowledge from a particular market. This implies several disadvantages of actively involving headquarter in innovation development activity, particularly on the performance of innovation in the subsidiary's home market. Past research has found that significant headquarters involvement over the subsidiary's strategic actions, i.e. in this case decision on innovation development, will lead to more standardization rather than customization (Picard, Boddewyn & Grosse, 1998; Kirpalani, Laroche & Darmon, 1988) which can lead to incongruence with the home market needs. Furthermore, an active involvement of corporate headquarters may eventually become more like a formal process control which can result in: decreased creativity, excess bureaucracy, and decreased innovativeness (Amabile, 1998; Tatikonda & Rosenthal, 2000). Also it can be negatively associated with performance outcomes (Abernethy & Brownell, 1997; Bonner, Ruekert & Walker, 2002). Since, managers cannot know with certainty which of their projects will actually generate strategic advantage (Barney, 1991), the role of the corporate headquarters is restricted by uncertainty about the value-added of their commitment to an innovation project. Moreover, a good "parenting" may not always be flexible enough to acknowledge the often conflicting nature of subsidiary-headquarters relationships (Gold & Campbell, 2002). In other words, what seems to be efficient parenting by the headquarters may actually be regarded inefficient by the local subsidiary because it is perceived to be inappropriate given that specific external environment. Research shows that some level of organizational independence is a prerequisite for both highly innovative output and new product development performance (Leifer, McDermott, O'Connor, Peters, Rice & Veryzer, 2000). If the financial support of the subsidiaries activities has a tendency to become more of a financial input control than an overall support to enhance the innovative process as well as

the commercialization of the innovation, than it can be expected that such involvement will have a negative impact on the innovation process (cf. Barringer & Bluedorn, 1999) and ultimately on the market performance of the innovation. Hence, if the headquarters does not have a clear market-value-added rationale for their commitment (see also Gold & Campbell, 2002) the effect on the performance of innovation in subsidiary's home market will thus be negative. Based on the above reasoning it can be expected that a high level of corporate headquarters active involvement in innovation development activities would have negative effect on the innovation performance in the subsidiary home market.

Hypothesis 1: Headquarters involvement during the innovation development, *ceteris paribus*, is negatively related to the subsidiary's home market performance

It is assumed that headquarters systematically evaluate and tap valuable knowledge for global reach (Bartlett & Ghoshal, 1986). It is thus in its interest to get insight about the distribution of valuable knowledge and innovations in the corporation (Krackhardt, 1990). However, as research has suggested, it would be difficult for the headquarters with activities spread all over the world to be involved in all of these activities. Hence, an active involvement of the corporate headquarters in a particular innovation project often relates to very high expectations for that project (Stein, 1997). Literature on subsidiary evolution (Birkinshaw & Hood, 1998; Holm & Pedersen, 2000) shows that subsidiaries that are innovative can create competitive capabilities of use to the whole organization. Hence, a subsidiary that is recognized for its competencies by corporate headquarters may gain a global mandate (D'Cruz, 1986; Etemand & Dulude, 1986; White & Poynter, 1984), a role as a global innovator (Gupta & Govindarajan, 2000) or be assigned a role as a centre of excellence (Holm & Pedersen, 2000). For the individual subsidiary, this active involvement by corporate headquarters could thus enhance the legitimacy of the subsidiary's innovative activities in the corporation (Quinn, 1985) and provide the subsidiary with a strategic position within the MNC (Frost, Birkinshaw, & Ensign, 2002). Accordingly, it can be expected that an active involvement of corporate headquarters during the innovation process of the subsidiary will enhance the organizational performance of the subsidiary.

Hypothesis 2: Headquarters involvement during the innovation development, *ceteris paribus*, is positively related to the subsidiary's organizational performance

3.2 Subsidiary entrepreneurship during innovation development and subsidiary performance

Several studies have shown that the strength of the entrepreneurial orientation in a firm can have a positive impact on its performance (Covin & Slevin, 1991; Smart & Conant, 1994; Wiklund & Shepard, 2005; Wiklund, 1999; Zahra & Covin, 1995) and that firms with a strong entrepreneurial orientation tend to be more effective in technology commercialization (Joshua & Scott, 2003; Li, Guo, Liu & Li, 2008; Zahra & Nielsen, 2002). Subsidiary managers that take their own initiatives may thus result in innovations that are useful locally (Venaik, Midgley & Devinney, 2005). It has been suggested that the more entrepreneurial the subsidiary become, the more alert it becomes to external stimuli and thus aware of its position on the external business market (Birkinshaw, Hood & Young, 2005). This implies that in order to enhance its competitive position on the local market, the subsidiary will make changes that respond to the demands and requirements of the external environment. Enhancing competitive position will lead to rise in market effectiveness, including an increase in market share and new product development (Birkinshaw, Hood & Young, 2005; Liouka, 2007). According to Bauer and Frese (2008: 50), a “climate for initiative” is positively related to company performance. Accordingly, it can be expected that the more the entrepreneurial orientation of the subsidiary during the innovation process, the more likely that the innovation will result in enhanced market performance.

Hypothesis 3: Subsidiary entrepreneurship during the innovation development, *ceteris paribus*, is positively related to the subsidiary’s home market performance

The idea that the subsidiary faces both an internal and external environment is well established in the literature (Bartlett & Ghoshal, 1989; Prahalad & Doz, 1987; Westney, 1994). The external environment consists of a set of different actors, such as customers, suppliers and competitors, whereas the internal environment consists of e.g. internal customers and suppliers. According to some scholars, the external environment and the internal environment can be viewed as two “competitive arenas” (Birkinshaw, 2000; Birkinshaw, Hood & Young, 2005; Young, Hood, & Peters, 1994) in which the subsidiaries try to create advantageous positions (Birkinshaw, Hood & Young, 2005). Subsidiaries try to position themselves both in their internal environment and in their external environment (see e.g. Andersson, Forsgren & Pedersen, 2001; Birkinshaw, Hood & Young, 2005; Forsgren, Holm & Johanson, 2005). However, managing both “competitive arenas” at the same time may be a difficult task for the subsidiary. Since subsidiaries with a strong entrepreneurial

orientation are quite externally focused (Birkinshaw, Hood & Young, 2005), it can be expected that their focus is on developing a position in the local market rather than in the internal market. Furthermore, an entrepreneurial subsidiary, having relatively high organizational freedom, implies that it is more alienated from the activities of the corporation than would otherwise be the case. Subsidiary entrepreneurship during innovation could therefore imply a corporate “unconnectedness” (e.g. Powell, Koput & Smith-Doerr, 1996). In the words of Mudambi and Navarra (2004: 392), managers’ focus on maximization objectives (profit seeking) coexist uneasily with their attempts at maximizing their bargaining power within the firm (rent-seeking)”. Consequently, it can be expected that the higher the entrepreneurial orientation of the subsidiary during the innovation process, the less likely it is that the innovation will improve the subsidiary’s organizational performance (e.g., is its strategic position and influence within the corporation).

Hypothesis 4: Subsidiary entrepreneurship during the innovation development, *ceteris paribus*, is negatively related to the subsidiary’s organizational performance

4. Data and methods

The data used in this research consists of cross-sectional data collected during 2002-2005. This study uses data on 87 specific innovations that have been developed by 64 subsidiary units in 25 multiple-division MNCs. The participating MNC subsidiaries are part of manufacturing industries, e.g., paper and pulp, machinery and equipment, electrical machinery and motor vehicles, and are located across 14 countries in Asia, Europe and North America. Each subsidiary had developed on average 1.2 innovations and the average subsidiary size, in terms of the number of employees, was 630 with average annual sales of 270 million Euros. Out of the 87 innovations, 70 were core technology and product innovations and 17 were production process, marketing and administrative innovation. Based on a broad literature review, it can be concluded that concepts of innovation, although the definitions vary, contains an idea of “newness” (see e.g. Atuahene-Gima, 1996; Dewar & Dutton, 1986; Nelson, 1993; Rogers, 2003; Utterback, 1994), or a “significant change” (Zander, 1991) in a process or in the outcome of an innovation. Innovations are also classified along a variety of dimensions, of which the literature often distinguishes between product, process and marketing and service innovations (e.g. Tidd et al., 2001). In this study the focus is on product and process innovations.

The population of the data sample was collected in conjunction with a research project¹ that focuses on the development and transfer of in MNCs. Most of the innovations that are represented in our data were developed as components to be used by other businesses or as inputs in the development of consumer products, which is similar to the definition of an innovation as “a process of turning opportunity into new ideas and of putting these into widely used practice” (Tidd, Bessant & Pavitt, 2001). Inherent in this view of an innovation is that the newness and usefulness of the innovation is based on the perception of the organization (e.g. individuals within the MNC), which is a proper way of assessing the value of an innovation (see e.g. Rogers, 1993). A selection criterion in the choice of innovations was that the innovation had to have been completed 1 to 10 years prior to the interview. Since the respondent were asked to recall events relating the innovation development process that had taken place some years before, there is possibility of retrospective rationalisations.

The data collection was carried out using a standardized questionnaire, administered through face-to-face interviews with project- and R&D managers, and engineers involved in the development process of the focal innovation. The questionnaire used was pretested in two pilot interviews which resulted in some changes in order to eliminate ambiguous questions. The sampling procedure was first conducted at the headquarters site of each business areas, where the first meeting was arranged with top management together with R&D and/or production management to identify innovations to be included in our sample. Then the key units involved in production and transfer process were identified and contact details were provided and interviews at the relevant subsidiaries units were conducted. Prior to the interview the respondents were briefed concerning the aim of the study, and were promised anonymity. The respondents had to be involved in the development of the innovation and they were usually R&D managers, project managers, or subsidiary CEOs. Typically, several respondents were involved in the interview process. This means that the data is not based on only one single respondent. Moreover, by having access to several “experts” on the innovation process, we could control for the appropriateness of the respondents and its knowledge of the process. The respondents were encouraged to elaborate on their answers, while at the same time carefully selecting the most appropriate answer in the questionnaire. The interviews often also encompassed a demonstration of the innovation, its production and application. The duration of the interviews averaged between 2 to 4 hours.

¹ The project started in year 2000 and data collection ended in year 2005. There were 10 members in the project team. The data was collected using snowball sampling of established international MNCs with different nationalities.

The research method employed for the data collection offers the advantage of providing high quality data, by reducing the missing data for individual questions to a minimum, and ensuring that the objectives of the questions are met (cf. Fowler, 1993). The first part of the questionnaire covers descriptive information of the unit in question, such as size, age, main line of business etc. The second part of the questionnaire deals with the information and characteristics of the technology and at hand. Then third part of the questionnaire investigates the role of the innovating unit and the role of the headquarters during the innovation development process.

4.1 Operationalization of variables

With the emphasis of addressing both local adaptation as well as the global integration of MNCs which is in line with the integration-responsiveness framework of headquarters-subsidiary relationship (Gates & Egelhoff, 1986; Bartlett & Ghoshal, 1989; Hedlund, 1994), the subsidiary performance is conceptualized as performance in the market as well as within the MNC. Andersson, Forsgren and Pedersen (2001) contended that subsidiaries strive to perform well in both the local home market (where the subsidiary competes with all the other companies), as well as within the corporate network (where the subsidiary competes with other MNC units). Forsgren, Pedersen and Foss (1999) argue that theorizing subsidiary performance must incorporate a consideration of the market strength, as well as the organizational strength of the subsidiary within the MNC. Hence, in order to capture this, subsidiary performance was divided into two different but related dimensions (constructs): the *market performance* and the *organizational performance* (cf. Forsgren, Pedersen & Foss, 1999 & Andersson, Forsgren & Pedersen, 2001).

The past literature on firm performance covers numerous ways to measure market performance. A traditional way of measuring market performance is the use of financial performance indicators. Typically, financial indicators are e.g. sales growth, profitability and so forth, which are emphasising the dominance and importance of financial goals. However, more comprehensive market performance measurement also includes operational performance, such as market share position which leads to competitive advantage in the market (Venkatraman & Ramanujam, 1986). When it comes to subsidiary performance, collecting financial secondary data are intricate process. Due to either the reluctance of sharing financial transactions inside the MNC, or simply unavailability of absolute measures, obtaining necessary secondary data for subsidiary market performance is in most cases not

feasible. Accordingly, several researchers have turned to perceptual measurements in order to capture subsidiary market performance (Andersson, Forsgren & Pedersen, 2001; Venaik, Midgley & Devinney, 2005). Venkatraman and Ramanujam (1986) affirm evidence of reliability of using perceptual performance measurements. Other scholars point out that perceptual measure does correlate positively with objective measures, which enhances validity and reliability (Dess & Robinson, 1984; Gupta & Govindarajan, 1984; Murphy & Callaway, 2004; Murphy, Trailer & Hill, 1996; Venkatraman & Ramanujam, 1986). Therefore, the first dependent variable, the subsidiary's *market performance*, implying the performance in the subsidiary's local (home) market, was measured by three items capturing the subsidiary's financial and operational performance on the local market (see Appendix 1). The Cronbach's alpha was 0.77.

The second dependent variable is the subsidiary's *organizational performance*. According to Andersson, Forsgren and Pedersen (2001: 7) the "subsidiary's organizational performance should reflect the extent to which that subsidiary can influence the allocation of investment resources and other strategic decision processes within the MNC". Moreover, enacted as well as potential influence can best be attained by measuring the perception of the managers (Andersson, Forsgren & Pedersen, 2001; Provan, Beyer & Kruytbosch, 1980). Thus using a similar measurement as Andersson, Forsgren and Pedersen (2001), the subsidiary's organizational performance is based on the subsidiary managers' assessment of the extent to which the innovation has resulted in an increased influence of the subsidiary on strategic decisions concerning investments in production capacity and in R&D, as well as its position within the MNC (the including items is shown in Appendix 1). The Cronbach's alpha is 0.724.

Venaik, Midgley and Devinney (2004) claim that performance outcome of innovation processes is dependent on the subsidiary's conduct during the innovation development. With this in mind, the independent variables deal with the source of subsidiary's resources and competence input during the innovation development process. On the one end of the subsidiary's resource dependence - independence spectrum is the corporate headquarters involvement. The active involvement deals with how much attention and support the subsidiary received from the headquarters during the innovation development (cf. Bouquet & Birkinshaw, 2008). Thus, corporate headquarters involvement should imply less of control (Bouquet, Morrison & Birkinshaw, 2009) and more of an active assistance in the form of time and effort put into the process as well as tangible resources and support. Thus the items

forming the first independent variable *corporate headquarters involvement*, captures the extent of headquarter interaction, participation and support during the innovation development process (see a similar procedure used by and Andersson & Kappen, 2010 and Cabuschi & Martin, 2010). Cronbach's alpha is 0.828. (See the including items in Appendix 1). On the other end of the spectrum is the subsidiary's independence or self-sufficiency during the innovation development, which can be represented by subsidiary entrepreneurship during the innovation process. The subsidiary entrepreneurship in MNCs is associated with initiatives, which covers from recognizing the need, committing resources, as well as following through to the end product (Birkinshaw, 1997). According to Birkinshaw, Hood and Young. (2005), autonomy and value added scope, are also important proxies for subsidiary entrepreneurship. The autonomy denotes subsidiary independence to make decision on its own without influence from the headquarters (Young & Tavares, 2004). In previous studies, it shows that autonomy influences subsidiary initiatives when it comes to innovation development (Birkinshaw, 1997; Ghoshal & Bartlett, 1988). Value added scope is represented by the presence of particular value adding activities within the value chain such as basic research, development, production, marketing etc. (Birkinshaw, Hood & Young, 2005). Value added scope shows subsidiary's role in providing necessary functional activities to carry out innovation development independent of resources from outside of its own unit. Hence, based on a similar measurement of subsidiary entrepreneurship used by Birkinshaw, Hood and Young (2005), the second independent variable, *subsidiary entrepreneurship*, is a composite measurement consisting of the level of: subsidiary initiative, subsidiary autonomy, and value-added scope (see details about the items in Appendix 1) of which the latter includes an assessment of the number of different functional activities that the subsidiary was engaged in during the innovation development process. The Cronbach's alpha is 0.742.

A number of subsidiary specific control variables are also used. The data sample includes subsidiaries located in the Western and the Eastern countries. The organizational precondition such as cultural difference might differ when it comes to subsidiary's business strategies which in turn will affect subsidiary performance. For example, Chiao, Yu, Li and Chen (2008) showed that subsidiaries located in China are given more autonomy, so that they can respond to local needs and establish strategic legitimacy in the Chinese market. These subsidiaries also take more initiative in implementing their own strategies such as introducing locally developed new products. Therefore the *location of the subsidiary* was controlled using country dummy variable indicating the location of the subsidiary (0=Europe & USA,

1=Asia). Previous studies (Chiao, Yu, Li and Chen, 2008; Hedlund, 1981; Johnston & Menguc, 2007; Welge, 1981) have been shown that the size of subsidiary gives subsidiary specific advantage and that it may impact the overall subsidiary performance. Since larger subsidiaries can leverage and deploy more resources, they are more likely to seek out and capitalize on new ventures as well as diversify risk by engaging in a broader range of activities (Luo & Peng, 1999). Thus, using the number of employee as proxy, the subsidiary size was used as a control variable in the analysis. Subsidiary age was also used as control variable which consist of two measurements; *subsidiary age in the market*, e.g. the number of years that the subsidiary has been part of the market, and *subsidiary age in MNC*. The longer the subsidiary has been on the market, the more likely that it will have market experience which will have a positive influence on its performance on the market (Miller & Eden, 2006). The same logic applies to number of years within the MNC. A more recently established subsidiary within the MNC will have less influence and will need more support from others within the corporation, and will thus have a disadvantage when it come to organizational performance.

4.2 Common method bias

Appendix 1 lists the actual items used from the questionnaire and all items are measured in 7-point Likert scale except for the control variables. All variables showed high inter-item reliability with Cronbach's alpha above the recommended threshold value of 0.70 (Hair, Black, Babin, Anderson & Tatham, 2006). In addition, a composite index for each variable in the analysis was constructed from the results of a factor analysis. All items in each variable loaded on the first principle component (see appendix 1 for the eigenvalue of each variable). In many of the cases, the answers of the questionnaire questions were gathered from several sources, that is, more than one person having been involved in the innovation development processes were interviewed. This procedure reduced risk that the data collection process would result in common method bias. However, in some of the cases, data on the innovation projects were collected from single respondents due to problems with accessing appropriate respondents and time-related aspects. In order to examine the extent of common method bias in our data, a Harman's one factor test was conducted (Podsakoff & Organ, 1986). The results of a principal component factor analysis revealed eight factors with eigenvalues greater than 1.0 that together accounted for 80.55 percent of the total variance explained. Together with multiple factors and the relatively low amount of total variance explained by the first two

factors (21.31 percent and 14.13 percent respectively) indicates that common method bias should not be a significant problem for analysis of the data (Podsakoff & Organ, 1986).

5. Analysis and results

To test the hypotheses regarding relationship between the degree of subsidiary and corporate headquarters involvement during the innovation development and subsidiary performance, ordinary least squares (OLS) regression was used. Table 1 (see appendix 2) introduce some descriptive statistics and the correlation matrix of the variables used in the regression analysis. Some significant correlations exist between variables, though none are high enough to indicate any problems with multicollinearity in the data (cf. Hair, Black, Babin, Anderson & Tatham, 2006). To check for further multicollinearity, variance inflation factor (VIF-values) were calculated. None were greater than 1.43, and therefore multicollinearity does not appear to pose any severe problems in the analysis. To check for normal distribution, first Kolmogorov-Smirnov test was carried out. The results showed that significance of all variables were greater than 0.05 (where less than 0.05 will have tendencies of non-normality) except for corporate headquarters involvement variable. However the test of significance is less useful in small sample and quite sensitive in large samples (cf. Hair, Black, Babin, Anderson & Tatham, 2006), we have looked at both graphical plots and Kolmogorov-Smirnov test to assess the actual degree of departure from normality. Thus, normal probability plot was carried out and all the variables were normal distributed. Heteroskedasticity and non-linearity diagnosis were also made by plotting the standardized residuals against the predicted dependent variable. There seems to be no heteroscedasticity and non-linearity problem.

The results of the OLS regression analysis are presented in Table 2 (see appendix 2). Model 1 represents the effect of the control variables on the subsidiary's home market performance (F-value is 13.63 at $p < 0.001$ and adjusted R^2 is 0.18). It is shown that subsidiary location has a positive effect on the subsidiary's home market performance, whereas subsidiary age within MNC has a negative effect on the subsidiary's home market performance. In Model 2 (F-value is 16.40 at $p < 0.001$ and adjusted R^2 is 0.29), the independent variables, subsidiary entrepreneurship and corporate headquarters involvement, are included in the analysis of the subsidiary's home market performance. The results show that the corporate headquarters involvement in the innovation process has a negative effect of the subsidiary's market home performance. This is consistent with hypothesis 1 which is

supported. Subsidiary entrepreneurship on the other hand, showed a positive effect on subsidiary's home market performance. Hence, hypothesis 3 is supported.

Model 3 shows the effect of the control variables on the subsidiary's organizational performance (see Table 2). Subsidiary age, both concerning the years on the market and the years within the MNC, was negatively related to the subsidiary's organizational performance (F-value is 14.66 at $p < 0.001$ and adjusted R^2 is 0.19). In model 4 (F-value is 14.90 at $p < 0.001$ and adjusted R^2 is 0.27) the independent variables are included in the analysis of the subsidiary's organizational performance. The results show that the corporate headquarters involvement has a positive effect on the organizational performance, which gives support for hypothesis 2. Subsidiary entrepreneurship, on the other hand, shows a negative effect on the subsidiary's organizational performance. Hence hypothesis 4 is supported.

To sum up, the results indicate that the corporate headquarters involvement in a subsidiary's innovation development process is of valued-adding character when it comes to the subsidiary's organizational performance, but it will have a negative effect on the subsidiary's performance on its home market. On the contrary, when the innovation development process is driven by subsidiary entrepreneurship, it will have a positive effect on the subsidiary's home market performance and a negative effect on the subsidiary's organizational performance.

6. Concluding remarks

The object of this paper is to study the effect of subsidiary entrepreneurship and corporate headquarters involvement during the innovation process on subsidiary performance. The fact that a subsidiary often struggle with the need to perform well both in its external market and in the internal market (Andersson, Forsgren & Pedersen, 2001; Birkinshaw, Hood & Young, 2005), puts the subsidiary in a difficult situation when the goals on the subsidiary does not coincide with that of the parent company. In order to capture this goal incongruence, this paper addresses the distinction between the subsidiary's home market performance and organizational performance (cf. Andersson, Forsgren & Pedersen, 2001).

The findings show that subsidiary entrepreneurship and corporate headquarters involvement are two important innovation strategies that will lead the subsidiary into different directions. Subsidiary entrepreneurship during innovation is positive for its market performance but negative for its organizational performance. The active involvement of

corporate headquarters shows an opposite path – it is negative for the subsidiary's home market performance but positive for its organizational performance.

6.1 Implications of the study

On the managerial level, the findings show that if the subsidiary's development process is under influence of the corporate headquarters, it will not fare so well in the market. Similar results were observed in the case of Procter & Gamble's European operations in the mid 1970s. P&G European headquarters' launched Pampers strategy for the whole continent, where the headquarters took over the responsibility for the product development and marketing strategy and acted as a coordinator of activities across subsidiaries. However within 12 months the Pampers strategy failed because subsidiary managers were de-motivated and felt no responsibility for sales performance. Furthermore, the Pampers strategy ignored local knowledge and failed to utilize subsidiary resources (for more details on this case see Barlett & Ghoshal, 1986). Hence, this clearly shows that headquarters active involvement does not bring about positive market performance for the subsidiary when there is a lack of "good parenting" and a value-added strategy for the subsidiary (cf. Gold & Campbell, 2002). On the other hand, this study indicates that when the innovation is developed under a strong entrepreneurial orientation of the subsidiary, there is a market-value-added strategy already included in the subsidiary's activities and operations which will have positive effects for the subsidiary's performance on the home market. This is due to the very nature of entrepreneurship, where more initiative and willingness is taken to respond and adapt to the local market. The findings of this study support the important observation that, although the business environment of firms has changed significantly, the innovation processes used by firms have changed very little (Tidd, Bessant & Pavitt, 2001). The negative impact of corporate headquarters involvement on the subsidiary's market performance implies that there has to be a stronger fit between the management of innovations and the complexity of the business environment of foreign subsidiaries of MNCs.

The result regarding subsidiary organizational performance is in congruence with the findings from previous literature on subsidiary evolution (Birkinshaw & Hood, 1998; Holm & Pedersen, 2000) and the claim that subsidiaries receiving headquarters attention can develop capabilities and position that subsequently lead to competitive advantage and an expanded role within the MNC (Bouquet & Birkinshaw, 2008). An innovation that is driven and developed under strong influence of the corporate headquarters will bring a legitimacy of

the subsidiary's innovation activities within the MNC, thus enhancing the subsidiary's power position within the corporation. However, the results indicate that subsidiaries with a strong entrepreneurial orientation during the innovation process tend to become more unconnected to rest of the MNC. Subsidiary managers therefore need to consider that being an entrepreneur can eventually lead to isolation from the rest of the MNC, which ultimately can lead to a decreased power-position relatively other units within the MNC. For the parent, this is an apparent issue of allowing subsidiaries to become islands instead of peninsulas (cf. Birkinshaw & Hood, 2001) in the sense that MNCs should think of their foreign subsidiaries as "extensions of the company's strategic domain rather than as isolated outposts" (Birkinshaw & Hood, 2001:132).

With a growing emphasis on cultivating subsidiary entrepreneurship for innovativeness and efficient use of local resources, this study contributes to research on the positive link between entrepreneurship and performance. Moreover, the findings indicate the importance of incorporating subsidiary entrepreneurship as part of corporate strategy. Thus the challenge for the headquarters is to find a way to balance liberalization and control. The headquarters need to give foreign subsidiaries authority and a sense of freedom, but at the same time make sure that their entrepreneurial endeavours is aligned with the corporate vision. This is in line with Gold and Campbell (2002) that posit that firm managers need to be aware of that there is a delicate balance between acting as policy-maker and policeman, and providing support and helpful advice based on expertise rather than on an incentive to control.

6.2 Limitations and implications for future research

There are limitations in this study that should be acknowledged. First, revamping the measurement of subsidiary entrepreneurship should be considered. Although the measurements used in this study were taken from past studies, the proxy of subsidiary entrepreneurship is rather coarse and uncouth. There is only handful of studies that have conceptualized the notion of subsidiary entrepreneurship in the MNC (Birkinshaw, 1997; 2000; Birkinshaw, Hood & Young, 2005). Birkinshaw, Hood and Young (2005) recognize that the three dimensions of entrepreneurship² used in their study do not provide a comprehensive coverage and there is a need for more holistic conceptualization and measurement of subsidiary entrepreneurship. This study brought one step further towards the understanding of subsidiary entrepreneurship by providing additional measurement into the

² 3 dimensions are autonomy, value-added scope and subsidiary upgrading and are used in Birkinshaw, Hood and Young (2004) article to operationalize the subsidiary entrepreneurship variable.

measurement of subsidiary entrepreneurship variable, as well as untangling cause- and effect relationships between subsidiary entrepreneurship and subsidiary performance. However, much more research is needed in this area, and future studies would gain from developing a more composite model of subsidiary entrepreneurship.

While there is rather limited definition of subsidiary entrepreneurship, there are many different conceptualization and definition of headquarters involvement (e.g. corporate parenting, headquarters attention, headquarters control). Due to the many different notions that denote different but at the same time relatively similar contents, the conceptualization of headquarters involvement variable seems haphazard at the best. Therefore, there is need for more concise measurements of headquarters involvement as well as studying how different type of involvement effects subsidiary performance. Third, we are aware of that subsidiary entrepreneurship as used in this study, does not exclude the fact that an entrepreneurial orientation of the subsidiary can coexist with some level of headquarters involvement. Hence future studies would gain from investigating the effect of the corporate headquarters involvement on subsidiary entrepreneurship. Research should also put attention to what part of the corporate involvement that not only encourages subsidiary entrepreneurship but also have value-added outcomes for the individual subsidiaries.

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Appendix 1

Dependent variables

Market Performance

Cronbach's alpha: 0.768
(Eigenvalue: 2.056)

Evaluate how the innovation has affected your own unit's:
...competitive advantage on the home country market
...business volume in our home country market
...operating profit
(-3= strong negative effect, 0= no effect, 3= strong positive effect)

Organizational Performance

Cronbach's alpha: 0.724
(Eigenvalue: 1.765)

Evaluate how the innovation has affected your own unit's:
...advantage within the MNC
...influence on decisions about investments in our production capacity
...influence on decisions about investments in our R&D
(-3= strong negative effect, 0= no effect, 3= strong positive effect)

Independent variables

Headquarters Involvement

Cronbach's alpha: 0.828
(Eigenvalue: 3.963)

Evaluate the following statements:
...HQ took the initiative for the innovation process
...HQ financed the innovation process
(1 = not at all to 7 = very much)

Evaluate the following statements:
...HQ has participated closely in developing this innovation
...HQ has brought competence of use for the development of this innovation
...HQ has taken important initiatives for developing the innovation
...HQ has fully supported your interests in developing this innovation
(1 = totally disagree to 7 = totally agree)

Subsidiary Entrepreneurship

Cronbach's alpha: 0.742
(Eigenvalue: 1.851)

What is the relative influence of your unit compared with HQ considering the following decisions:

...choosing suppliers

...deciding on investments in production capacity

...deciding on investments in R&D

...appointing senior managers in your unit

(1 = HQ decides alone, 4 = equal influence, 7 = unit decides alone)

To what extent has representatives from following departments of your unit been engaged in the development of the innovation: General management, Basic research, Development, Production, Marketing & Sales, Purchasing. Service

Evaluate the following statements:

...your unit took the initiative for the innovation process?

...your unit financed the innovation process?

(1 = not at all to 7 = very much)

Control Variables

Subsidiary location

0 = Europe & USA, 1 = Asia

Subsidiary size

Number of employee

Subsidiary age

Years on the market

Years on the MNC

Appendix 2

Table 1: Descriptive Statistics and Correlations

| Variable | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------|------|------|---------|----------|----------|---------|----------|--------|-------|-----|
| 1 Market Performance | 5.71 | 0.83 | --- | | | | | | | |
| 2 Org. Performance | 5.24 | 0.85 | 0.281 | --- | | | | | | |
| 3 Sub. Entrepreneurship | 4.74 | 1.00 | -0.014 | -0.410** | --- | | | | | |
| 4 HQ Involvement | 2.31 | 1.40 | -0.046 | 0.252 | -0.081 | --- | | | | |
| 5 Sub. Location | 0.21 | 0.41 | 0.362** | 0.225 | -0.514** | 0.093 | --- | | | |
| 6 Sub. Size | 735 | 1068 | 0.174 | 0.265* | -0.384** | -0.142 | 0.461** | --- | | |
| 7 Sub. age in market | 50 | 45 | -0.245 | -0.334** | 0.017 | -0.275* | -0.327** | -0.128 | --- | |
| 8 Sub. age in MNC | 21 | 20 | -0.243 | 0.043 | -0.151 | 0.106 | -0.018 | 0.045 | 0.105 | --- |

N = 87

** p<0.01 * p<0.05, all two-tailed tests.

Table 2: Results of OLS estimations^a

| Independent variables | Dependent variable: Market Performance | | Dependent variable: Org. Performance | |
|-------------------------------|--|--------------------|--|--------------------|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| | | | | |
| Sub. Location | 0.197 (2.796)** | 0.231 (3.339)** | 0.085 (1.206) | 0.005 (0.075) |
| Sub. Size | 0.067 (0.978) | 0.008 (0.128) | 0.037 (0.539) | -0.050 (-0.746) |
| Sub. age in the market | -0.017 (-0.279) | -0.108 (-1.747) | -0.380 (-6.113)*** | -0.349 (-5.571)*** |
| Sub. age in the MNC | -0.354 (-5.836)*** | -0.406 (-7.010)*** | -0.132 (-2.193)* | -0.118 (-2.005)* |
| HQ Involvement | ---- | -0.334 (-5.395)*** | ---- | 0.173 (2.754)** |
| Sub. Entrepreneurship | ---- | 0.118 (1.918) * | ---- | -0.237 (-3.803)*** |
| R² | 0.196 | 0.308 | 0.208 | 0.288 |
| Adjusted R² | 0.182 | 0.289 | 0.194 | 0.269 |
| F-value | 13.631*** | 16.401*** | 14.657*** | 14.905*** |

^a Standardized coefficients with t-values in parentheses.

*** P < 0.001 ** P < 0.01 * P < 0.05 † P < 0.10

All two-tailed tests