Subsidiary autonomy and multinational enterprises structures (case of the Czech Republic)*

*Sylva Žáková Talpová***

Abstract

Using the sample of 335 subsidiaries in a CEE country, this article investigates the relationship between the number and type of regional headquarters (RHQs) in a MNE organizational structure and the subsidiary decision-making autonomy. The results show that almost half of the MNEs have more than one RHQ in their structure. Still, the more RHQs in the structure do not mean a higher level of centralization. Instead, the inverted U-shape seems to reflect the relationship. Moreover, within different structures, companies are choosing different areas to centralize. The results provide a better understanding of the subsidiary autonomy and offer a different view on the structure–autonomy relationship.

Keywords: MNE, subsidiary, organizational structure, subsidiary autonomy, Czech Republic
JEL Codes: M16, F23, M10

Introduction

Subsidiary decision-making autonomy has been a vital issue for decades, and multinational enterprises (MNEs) have played an essential role in national economies. However, the market is continually changing. Fast-growing domestic companies, start-ups, and so-called domestic multinational enterprises are threatening the previously unwavering position of foreign MNEs. This contributes to changes in MNEs, reflecting the current trends, needs and pressures from local markets. As the character of MNEs continues to develop, an understanding of the headquarters (HQ)-subsidiary relationship poses an ongoing and central academic task for international business scholars (Johnston and Menguc, 2007).

Twenty years of autonomy has again been identified as one of the essential issues for both researchers and managers (Paterson and Brock, 2002; Young and Tavares, 2004). In line with previous definitions of subsidiary decision-making power (Roth and Morrison, 1992), the accepted and widely used definition of Young and Tavares (2004) defines it as constrained freedom or independence available to or acquired by a subsidiary, which enables it to make certain decisions on its own behalf. More generally, it refers to the degree to which a subsidiary can make significant decisions (de Jong *et al.*, 2015). The degree of freedom of particular subsidiaries can range from huge decision-making inde-

* Received: 21.08.20, accepted: 11.07.22, 2 revisions.

** *Sylva Žáková Talpová*, PhD, Vice-dean for external relations and partnerships, Masaryk University, the Faculty of Economics and Administration. Email: sylva.zakova.talpova@econ.muni.cz. Main research interests: International management, project management, knowledge management.

pendence to tight control of subsidiary activities by a parent company (Ambos, Asakawa and Ambos, 2011). As the MNE evolves and grows, autonomy can change over time (Dörrenbächer and Gammelgaard, 2016).

The division of decision-making autonomy is a crucial issue in the management of headquarters–subsidiary relationships (de Jong *et al.*, 2015) and subsidiary decision-making autonomy is considered a key reflection of the overall organizational structure of an MNE (O'Donnell, 2000). MNCs constantly strive to find an optimal balance between centralization and autonomy. As MNCs evolve fast, new variables might be crucial for setting this balance, such as the number and type of regional headquarters in the MNC organizational structure. To the best of my knowledge, the explicit relation of subsidiary autonomy to the organizational structure is scarce in the literature. Nell et al. (2017) call for further research to better understand geographically dispersed HQs. Since the efficient balance between centralization and autonomy is crucial for the management of the MNC (de Jong *et al.*, 2015), in this article, I aim to explore subsidiary decision-making autonomy and its relation to organizational structures in MNE subsidiaries in the Czech Republic. Specifically, it scrutinizes the relationship between the subsidiary decision-making autonomy and the presence of RHQs in the MNE organizational structure. A two-part research question was developed to guide the investigation:

Research question 1: *What is the relationship between the presence of RHQs in the MNE organizational structure and the subsidiary autonomy in functional areas?*

Research question 2: *What is the relationship between the number of RHQs in the MNE organizational structure and overall subsidiary autonomy?*

Using data from 335 subsidiaries operating in the Czech Republic, the analysis reveals that the levels of subsidiary autonomy in certain areas vary in MNEs using different RHQs. Also, it shows a non-linear relationship between the number of regional headquarters and the level of centralization.

This study makes two significant contributions. First, I explored the number and types of RHQs that are used in MNEs. As the MNEs structures are constantly evolving to accommodate the rapid development, the expanded knowledge of the characteristics of various RHQs adds to the existing literature. It mainly shows how MNEs using various RHQs centralize various functional areas. This extends the view on centralization in MNEs. Second, through examining the relationship between the number of RHQs and subsidiary autonomy, I suggest an inverted U-shape relationship between these variables. This adds to the existing knowledge of the optimal centralization-autonomy balance and can help MNCs managers make more informed decisions about organizational structures.

Theory and conceptual development

Subsidiary autonomy

Subsidiary decision-making autonomy has attracted the attention of scholars in various fields (de Jong *et al.*, 2015). The generally accepted definition of subsidiary decision-making autonomy describes it as the extent to which the subsidiary managers can make decisions without the headquarters' involvement (Roth and Morrison, 1992). The level of autonomy that should be assigned to the subsidiaries and the level of control that should be maintained from headquarters are among central topics in the field of international management (Doz and Prahalad, 1981; Bartless, 1989; Gupta and Govindarajan, 1991). Ambivalence in the relationship often arises because the subsidiary requires or desires a degree of autonomy of action that the HQ is not always disposed to concede (Johnston and Menguc, 2007). The rationale behind the demand for more centralization from headquarters on the one hand and for more autonomy on the other stem from the different tasks and roles these two entities have in the MNE. HQs need to control the subsidiary to ensure that its activities are aligned with corporate strategy (Harzing, 1999) and to ensure efficiency (Ambos, Asakawa and Ambos, 2011). On the other hand, subsidiaries strive for more autonomy because they can provide critical linkages with the host country and can add significant value to the MNC by engaging in autonomous entrepreneurial behaviour (Birkinshaw, 1997). MNCs constantly strive to find an optimal balance between centralization and autonomy.

Over time, two basic viewpoints of autonomy research have evolved with different streams of subsidiary management literature. First, the points of view of the MNC headquarters consider issues of efficiency and centralization (e.g. Fayerweather, 1969). They adopted a headquarters focus with little consideration for subsidiary independence (Cavanagh *et al.*, 2017). Second, the subsidiary point of view tends to analyze the desire for subsidiary autonomy and regional impacts. These streams have highlighted the importance of subsidiary autonomy in driving the expansion of the subsidiary's contributory role (Cavanagh *et al.*, 2017). These two tendencies can be found as early as the 1960s (e.g. Lee, 1966), each prevailing in the literature in different periods.

Most authors within the strategy-structure stream generally supported Chandler's (1962) model of strategy and structure. It means that the strategy, including levels of autonomy and centralization, was designed and determined by HQ. In line with that, the researchers used the viewpoint of the MNE HQs, while neglecting the ability of the subsidiary to undertake strategic decisions and actions (Cavanagh *et al.*, 2017). The perception of subsidiary autonomy changed in the HQ-subsidiary relationship stream. Although the literature within this stream still focused on the centralization of decision-making (Gates and Egelhoff, 1986)

and HQ remains the unit of analysis, many authors recognized that subsidiaries were able to possess autonomy and influence (Ghoshal and Bartlett, 1990).

Nevertheless, the knowledge of subsidiary autonomy within the HQ-subsidiary relationship stream was minimal (Cavanagh *et al.*, 2017). The subsidiary became a unit of analysis in the subsidiary role stream (Paterson and Brock, 2002). Still, this stream assumed that the role of a subsidiary is defined by HQ and that HQs are unwilling to accept high levels of decentralization. The subsidiary development stream moves even more towards a subsidiary-centred perspective. This stream questioned rigid hierarchical organizational structures where all major strategic decisions are made by HQ (Cavanagh *et al.*, 2017). Instead, the subsidiary initiatives are emphasized, often proactively supported by subsidiary management, which involves a certain degree of autonomy (Strutzenberger and Ambos, 2014).

There are several reasons why subsidiary autonomy is important and worth studying. Jong et al. (2015) summarise that it is a key reflection of the overall organizational structure of subsidiaries, the current power-dependence structures between headquarters and subsidiaries, and the intra-organizational management of an MNE network. Second, subsidiary autonomy is among the most critical factors determining the behaviour, strategy and performance of subsidiaries and the MNE (Rabbiosi, 2011). However, it must be noted that the relationship between autonomy and performance is not straightforward and depends on the context (Galli Geleilate, Andrews and Fainshmidt, 2020). Still, an appropriate level of autonomy is a requirement for subsidiary contribution to a MNE's value chain (de Jong *et al.*, 2015). Subsidiary autonomy can influence subsidiary capabilities (Bartlett and Ghoshal, 1986), subsidiary strategy (Young, Hood and Dunlop, 1988), the firm-specific advantages of the MNC (Birkinshaw, Hood and Jonsson, 1998), the adoption of a world product mandate (Rugman and Bennett, 1982), strategic evolution (Taggart, 1996), and local innovations (Bartlett and Ghoshal, 2001). Moreover, it is a crucial motivator for subsidiary management (de Jong *et al.*, 2015). A higher degree of autonomy is often believed to be positively related to subsidiary knowledge creation and development (Gupta and Govindarajan, 1991; Venaik, Midgley and Devinney, 2005). Last but not least, subsidiary autonomy has both a direct and indirect influence on subsidiary performance. A positive association was found between strategic and operational autonomy and subsidiary performance when combined with a robust intra-organizational network relationship (Meins Pedersen and Spon Kofod-Jensen, 2017). Chen and Zheng (2018) found out that only operational autonomy positively correlates with subsidiary performance, while strategic autonomy negatively. Still, subsidiary autonomy is considered a variable important to both the HQ and the subsidiary (Young and Tavares, 2004; Johnston and Menguc, 2007).

There is a vast number of studies examining the subsidiary autonomy antecedents. Following de Jong et al. (2015), these can be classified into three clusters. First, the subsidiary autonomy might account for the characteristics of the subsidiary, such as strategic role or size (Young and Tavares, 2004; e.g. Ambos and Ambos, 2009; Rabbiosi, 2011). The second group of variables used to explain differences in subsidiary decision-making autonomy relates to the approach or characteristics of the side of the MNE – it can be the control structure (Johnston and Menguc, 2007) or an entry mode (Cantwell and Mudambi, 2005). The third group of autonomy antecedents accounts for the context in which the subsidiary operates (e.g. Ambos, Asakawa and Ambos, 2011).

Because the structures of MNEs are constantly evolving in need to balance efficiency derived from standardization and local adaptation (Amann, Jaussaud and Schaaper, 2021), I focused in this study on the second group of subsidiary autonomy antecedents, in other words, on the characteristics of the MNE. Previous studies (Urmas and Helena, 2005; Johnston and Menguc, 2007) examined a relationship between decision-making autonomy and intense monitoring or direct control by headquarters and found a negative relationship. The increased direct control by HQs can be performed through the higher number of company representatives on the subsidiary's management board or the extent of parent ownership, which leaves little opportunities for subsidiary managers to make strategic or operational decisions (Gaur and Lu, 2007). Other studies focused on the relationship between initial entry modes and subsidiary decision-making autonomy and found that the greenfield mode of entry requires greater decision-making autonomy than other modes of entry, such as acquisition (Cantwell and Mudambi, 2005; Lundan *et al.*, 2013).

Organizational structure

As they expand to different markets, MNCs need to balance efficiency derived from standardization and local adaptation (Amann, Jaussaud and Schaaper, 2021). In response to the dual challenge of managing their operations in a globalizing world and staying locally responsive (Prahalad, C; Doz, 1987), MNCs adopt increasingly complex organizational structures (Forsgren, Holm and Johanson, 2005; Andersson and Holm, 2010). The pressures of globalization, in combination with the increasing heterogeneity of challenges facing subsidiaries (Rugman and Verbeke, 2008), lead to the limited knowledge of corporate headquarters about structures and processes taking place at the subsidiary level (Holm, Johanson and Thilenius, 1995). This makes the corporate headquarters' task of orchestration highly difficult. Thus, coordination and control are critical albeit complex issues for headquarters of large MNCs (Amann, Jaussaud and Schaaper, 2021).

Because of this challenge, other organizational solutions need to be considered, such as making use of a headquarters operating closer to the subsidiaries' business networks (Dellestrand, 2011). 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 and Sharma, 2005). As a result, contemporary multinational corporations (MNCs) constantly endeavour to 'slice' their activities efficiently (Kähäri *et al.*, 2017) and try to place them in optimal locations (Buckley and Ghauri, 2004). Various management functions are delegated to so-called intermediate parents (or regional headquarters), and these parents are under constant pressure to add value (Goold and Campbell, 2002). The multilevel nature of HQ activities poses significant challenges for management (Ciabuschi, Dellestrand and Holm, 2012) and increases the complexity of the MNE organizational structure. On the other hand, MNEs without using second-level headquarters, the companies need to have a highly competent and robust headquarters.

The resulting management structures are described and analyzed in a long-standing stream of research devoted to RHQ (Foss, 1997; e.g. Ambos and Schlegelmilch, 2009) and the roles and tasks they carry out on behalf of HQ units (Kähäri *et al.*, 2017)._MNE can create different types of HQs assigned formal responsibility for coordinating activities (Foss, 1997).

In the existing literature, different forms of HQ have been spearheaded at various organizational levels. Generally, there are three organizational levels where headquarters functions are performed (Ciabuschi, Dellestrand and Holm, 2012) – corporate (headquarters) level, divisional/functional/regional headquarters level, and the subsidiary level. Divisional headquarters focus on particular divisions of production or services, such as product or service lines. Functional headquarters devote their activities to the specific functional management area, such as finance or human resources. Regional headquarters are used to manage a particular geographical area, such as EMEA – Europe, Middle East and Asia.

Current MNEs combine these HQs into matrix structures and network types of organizational structures to best suit their strategy. This means that one MNE can have a functional HQ, divisional HQ and regional HQ, and some subsidiaries might be subordinated to all of them. These structures are then reflected in the level of subsidiary autonomy.

In this context, control is a way by which HQ influences, to varying degrees, the behaviour and output of RHQs through the use of power, authority and a wide range of bureaucratic, cultural and informal mechanisms (Geringer and Hebert, 1989). Centralization is a hierarchical decision-making process whereby HQs make most decisions or, on the other hand, provide subsidiaries with a specified degree of autonomy that allows them to make decisions about their own strategies (Amann, Jaussaud and Schaaper 2021). In recent decades, MNCs

have often strengthened their coordination and control mechanisms by creating RHQs (Nell et al., 2011; Amann, Jaussaud and Schaaper, 2021).

The existing research examined factors closely related to the organizational structure and its effect on subsidiary autonomy. Gammelgaard et al. (2012) studied the relationship between autonomy and intra-organisational networks, which include interaction with other units within the MNE. They did not find any significant relationship between these variables. Another study (Gammelgaard, McDonald, Stephan and Tüselmann, 2012) showed that the lowering of subsidiary autonomy is significantly related to the greater use of home country nationals (expatriates) as subsidiary managers and a higher level of intra-organizational network relationships. According to the author, this area requires further development. In particular, how autonomy is distributed to subsidiaries is poorly understood.

I argue that the increased number of RHQs used to control subsidiaries means an increase in centralization initially, as the HQ struggle to manage and control the increasing number of subsidiaries in a growing number of countries (Amann, Jaussaud and Schaaper 2021). However, with more RHQs, the level of centralization does not increase anymore because the multilevel nature of HQ activities poses significant challenges for management (Ciabuschi, Dellestrand and Holm, 2012) and an increased number of RHQs increases the effort of HQ significantly. Therefore, I suggest an inverted U-shape relationship between the number of RHQs and the level of centralization since the HQ with an increasing number of RHQs struggle in a similar way that with a rising number of subsidiaries.

Therefore, the motivation for this study is to extend beyond the extant streams of subsidiary development literature. To the best of my knowledge, the clear relation of subsidiary autonomy to the organizational structure is scarce in the literature. Since the efficient balance between centralization and autonomy is crucial for the management of the MNC (de Jong *et al.*, 2015), in this article, I aim to explore subsidiary decision-making autonomy and its relation to organizational structures in MNE subsidiaries in the Czech Republic. I have developed a two-part research question to guide the investigation:

Research question 1: *What is the relationship between the presence of RHQs in the MNE organizational structure and the subsidiary autonomy in functional areas?*

Research question 2: *What is the relationship between the number of RHQs in the MNE organizational structure and overall subsidiary autonomy?*

Methods

The research was conducted in the Czech Republic – one of the CEE transition countries. Such countries provide a proper context for the research since they have experienced a substantial inflow of foreign direct investments. That was possible mainly due to the liberalization of trade policies, the privatization of state-owned companies and the increasing opening-up of the markets resulting from the EU integration (Jindra, Giroud and Scott-Kennel, 2009). As MNEs played an essential role during the privatization, it raised questions about MNE organizations (de Jong *et al.*, 2015). As the privatization took place more than 25 years ago, the Czech Republic has gained experience with the MNE presence and can provide relevant results for this study.

Research design

This is an exploratory study using a survey research strategy. This was chosen because it allows collecting data on many types of research questions and data from a large sample of respondents. We used a self-administered questionnaire in a cross-sectional study, as data collection is pertinent to finding the answer to the research question.

Sample

The population consisted of 2,509 subsidiaries of MNCs which operate in the Czech Republic, which are legal entities registered in the Czech Republic, have 50 and more employees, and belong to the industry level C Manufacturing Industry according to CZ-NACE classification, and their owner is a foreign legal entity. The response rate reached 13.35 % (335 responses), which compares favourably with the average response rate for higher management surveys (Hult and Ketchen, 2001). Such a response rate reduces the probability of non-response bias (Weiss and Heide, 1993), while standard tests (Armstrong and Overton, 1977) confirmed an absence of significant differences between early and late respondents regarding a range of characteristics.

In a procedure established by previous research (Desarbo *et al.*, 2005; Nandakumar, Ghobadian and O'Regan, 2010), questionnaires were directed at the CEO level of subsidiaries or a member of management with executive powers (CxOs).

Data collection and analysis

Primary data were collected in the Czech Republic through an electronic questionnaire in 2011, under the aegis of the Research Centre for the Competitiveness of the Czech Economy, as part of its ongoing research into multinational (Blažek *et al.*, 2011).

Secondary data were collected from annual company reports, available via web pages, from the Czech Commercial Register and the Credit Info database. The draft questionnaire was pre-tested by a mix of experienced commercial managers and academics. Respondents were kept unaware of the relationships under investigation to avoid over-justification issues. Personally administered questionnaires were also used to gather further pertinent information.

Respondents first received an email informing them that the research was taking place and providing a link to the questionnaire. During the data collection period, CEOs were telephoned randomly to assure that they were actually the survey respondents. Personally administered questionnaires were arranged.

Concerning stability, the test-retest was conducted with the pre-test respondents two months after the pre-test, and the results revealed sufficient stability of measures.

Every effort was made to minimize the effects of non-response error, refusals, and not-at-homes. Those who did not answer the questionnaire within six weeks were emailed with a reminder. The questionnaire was compiled in such a way as to minimize the rate of refusal regarding its length, its graphic and visual aspects, and ease and accessibility of use. Non-response bias was examined by comparing the means of the responses received from early and late respondents. This approach provides an effective test for non-response bias because late respondents are likely to respond like non-respondents (Armstrong & Overton, 1997). T-tests indicated no significant differences between the means of the responses received from early and late respondents.

Common method variance

Common method variance (CMV) was kept to a minimum. Podsakoff et al. (2003) suggest that potential CMV may be avoided by using other sources of information for some of the key measures. In this study, objective data on performance were collected from company annual reports: in other words, from a source that was not the respondents. Podsakoff et al. (2003) also suggest that protecting respondent anonymity may reduce method bias. In the cover letter and at the beginning of the questionnaire, it was indicated that all replies would be treated in the strictest confidence, and no names or identities of individual firms would be revealed or disclosed to third parties. The confidentiality of the study was supported by the fact that the Centre for Competitiveness of the Czech Economy and Masaryk University were engaged in the research. Further, Podsakoff et al. advise that method bias may also be reduced by assuring respondents that there are no right or wrong answers; this was stated explicitly in the questionnaire and re-emphasized in the question on company strategy. The whole questionnaire was pre-tested for appropriateness and comprehensibility of the questions to ensure that ambiguous, vague and unfamiliar terms were not

included and that the questionnaire as a whole and its items were formulated as concisely as possible. The pre-test involved 20 companies from various sectors, 25 % from the manufacturing industry. Different scale endpoints and formats for the predictor and criterion measures were also employed to minimize bias. Choosing the right informants also helps to preclude method bias. Strategic decisions are top-level decisions, and only those directly involved are in a position to provide valid answers. In this study, the CEOs of the participating organizations were the respondents, so the CMV problem was attenuated. To reduce the impact of the consistency motif, the questionnaire was designed so that the dependent variables follow the independent variables.

Measures

Following other studies on subsidiary decision-making autonomy (Johnston and Menguc, 2007; de Jong *et al.*, 2015), I measured the level of subsidiary decision-making autonomy using a particular questionnaire item. A subjective assessment of the respondents measured this. Respondents, members of the subsidiary's management, were asked to identify the level of centralization on a 10-point Lickert-scale (1 – subsidiary decision (full autonomy, no centralization), 10 – head office decision (no autonomy, full centralization)) in the following business functions: information systems, product portfolio, financial management, marketing, choice of main suppliers, choice of other suppliers, choice of main customers, choice of other customers, technological processes, logistics, personnel management. I decided to use a 10-point Lickert scale after the pre-testing of a questionnaire. As for the business functions, I based the questions on existing studies in which autonomy was examined (Beechler and Yang, 1994; Rosenzweig and Nohria, 1994; Gammelgaard, J. McDonald, Stephan and Tüselmann, 2012). Because of the specificity of subsidiary function, a few categories were added, such as IT, logistics, choice of main suppliers and customers.

Cronbach's alpha for the decision-making autonomy of the eleven business functions (0.89) is satisfactory, as it is substantially above the threshold value of 0.70 (Nunnally, 1978; Hair *et al.*, 2006). This indicates the internal consistency of the key construct.

The typology was used to identify the presence of a RHQ in a MNE organizational structure based on the existing research (Lasserre, 1996; Birkinshaw *et al.*, 2006; Ciabuschi, Dellestrand and Holm, 2012). Respondents were asked to identify whether there is a regional (in terms of geographic scope), functional or divisional (in terms of product) HQ in the organizational structure.

Results

Subsidiary autonomy

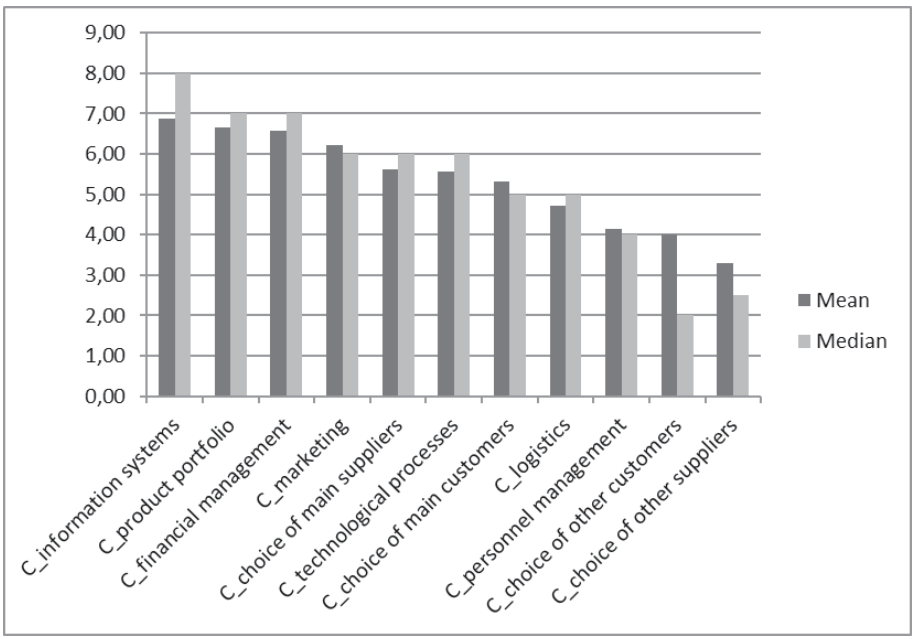
First, I look at the levels of autonomy in various functional areas of the subsidiary, using the median and mean of this variable. The most centralized areas (the mean reached 7.5 and over on the 1–10 scale) are information systems, product portfolio, and financial management. Higher levels of centralization can also be observed for areas of marketing, choice of main suppliers and technological processes (for all these three areas, the mean reached between 5.5 and 6.5). Medium centralization (mean 4.5 – 5.5) was identified for the choice of main customers and logistics.

The least centralized (and most autonomous) areas (mean 4.5 and less) are personnel management and, not surprisingly, the choice of other customers and suppliers. Levels of centralization for each area are depicted in Figure 1.

Minimum subsidiary autonomy when deciding the product portfolio offered in a particular market reflects the main reasons MNE exists. Still, some minor adjustments from the subsidiary side might reflect the local market specifics. The extensive centralization in this area may also occur because some subsidiaries do not sell the products in the subsidiary country but back to HQ or other subsidiaries instead. That raises an important issue for the research in the field of subsidiary autonomy. The market the subsidiary sells to might be a significant variable influencing the level of subsidiary autonomy without any adverse effect on the competitiveness of the subsidiary in the local market.

The centralization of information systems and financial management shows the willingness of the HQ to control the critical issues on the one hand and, on the other, to reach economies of scale and maximum efficiency. Still, significant areas, such as the choice of main suppliers, might influence the subsidiary's competitiveness in the local market. The results can be seen in Figure 1.

Figure 1: Levels of centralisation in subsidiary functional areas (0 = no centralisation (autonomy), 10 absolute centralisation)



Next, I checked for correlations with control variables – performance and size. The performance was operationalized through subjective assessment (ROA) and objective measures (ROA and ROS). The size was measured by employee count and divided into three groups. The size proved to be significantly correlated at the 0.01 level to centralization, implying the larger the company, the less autonomy the subsidiary has. I did not find any significant relationship between the autonomy and the performance of the subsidiary.

Organizational structure

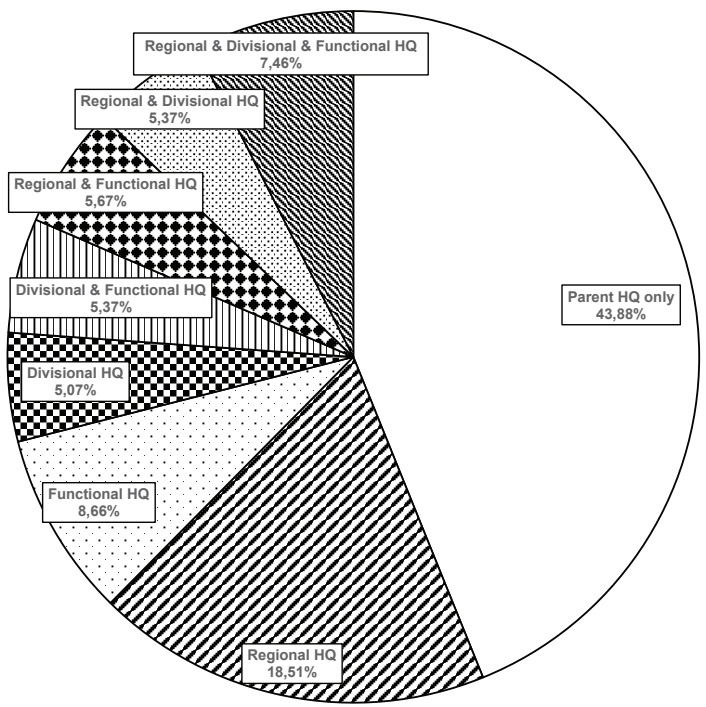
Out of 335 companies participating in the research, 147 (almost 45 %) did not identify having regional, divisional or functional headquarters in their structure. Such subsidiaries might be part of MNEs with simpler and flatter organizational structures, being subordinated to parent HQ only.

The organizational structures of the sample are depicted in Figure 2. Almost 40 % reported having regional headquarters in their structure, implying that **structuring along the regions** remains an essential feature of MNEs. Half of these MNEs do not have any other specialized HQs apart from regional. The rest (20 %) combine regional HQs with functional, divisional or both types of HQ.

The second most important aspect of organizational structures seems to be **functional**. Almost 30 % reported having a functional HQ in their structure but mostly combined with other types of HQ. **Divisional** HQs are used in 20 % of MNEs, again, mainly together with different types of HQ.

When looking at the number of types of HQ included in MNE structures, almost 8 % reported having three types of specialized HQ in their structure, 17 % two types, 32 % one type and the remaining 43 % have a parent HQ only (and no specialized HQs). Two or more specialized HQs do not necessarily mean that they have a matrix structure; instead, often, one regional HQ has more power than the other (e.g., a subsidiary is subordinated both to divisional HQ and to regional HQ, but the divisional HQ might have a priority).

Figure 2: Functional, divisional, regional and parent HQ in MNE structures



Organizational Structure and Centralization

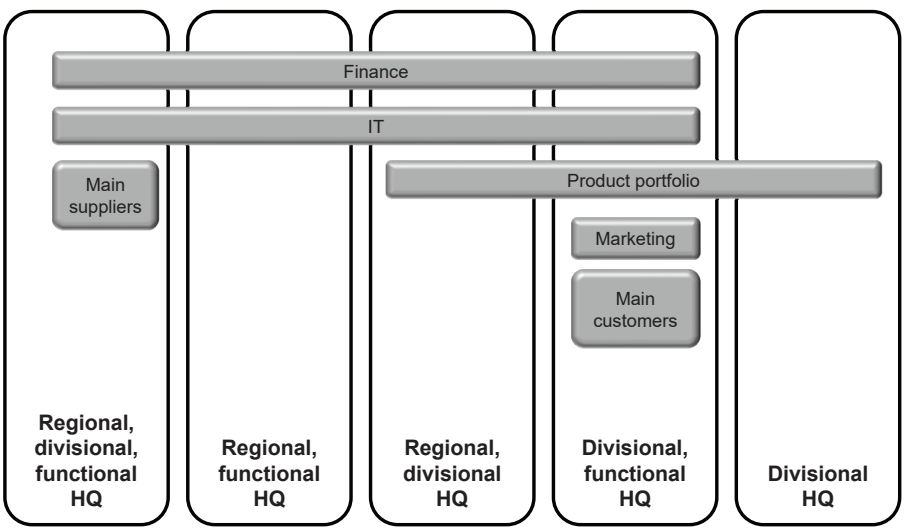
Next, I examined the structure-centralization relationship. In the first stage, I related the organizational structure types to the levels of centralization in each functional area. Specialized headquarters in organizational structures are

abbreviated as follows: divisional (D), regional (R), functional (F), divisional and functional (DF), regional and functional (RF), regional and divisional (RD), regional, divisional and functional (RDF).

First, I examined the mean values to get an overview of the centralization levels in each area. The results show that MNE with more than one specialized headquarters (RDF, DF, RF, and RD) centralize, to a large extent, the areas of financial management and information systems. The most centralized is the MNEs using a combination of divisional and functional (DF) structure (on average, 6.35). In addition to the centralized product portfolio, information systems, and financial management, these subsidiaries also have limited autonomy in choosing the main customers and marketing. MNEs with a divisional HQ in their organizational structure (RD, DF, D) centralize the product portfolio to a large extent, which supports the rationale behind using the divisional structure based on different products/services that the MNE offer.

On the other hand, there is not much autonomy in marketing for any of the structures. This means that even the regional structures do not enable adjustment of local marketing more than other types of companies. The results from this part of the analysis are summarised in Figure 3.

Figure 3: The most centralized functional areas in different organizational structures



Next, I examined the medians for each organizational structure in each functional area and compared them to the median of all companies, together with the interquartile range. This enabled me to see the most significant differences in centralization in various structures. Interquartile range inspection helped us to see where opinions were polarised, and the median would not provide sufficient

information in that case. The companies using all three specializations in their organizational structure (divisional, functional and regional) centralize more than others the choice of main suppliers and information systems – the median of centralization is 8 compared to the median of the whole sample, which is 6. Also, the interquartile range (IQR) is very low (2), which means that most respondents indicated agreement on this issue. Similarly, for information systems, the median is 9 (whole sample 8, IQR 2).

Companies with a combination of divisional and functional HQ centralize more the choice of main customers (8, whole sample 5, IQR 4), product portfolio (9, whole sample 7, IQR 3) and marketing (9, whole sample 6, IQR 4). Structures using regional and divisional HQs centralize to a larger extent product portfolio and personnel management (8.5, whole sample 7, IQR 4; 6, whole sample 4, IQR 3, respectively). The result shows that companies with divisional HQ in their structure (DF and RD) centralize their product portfolio to a larger extent.

In the third part of the structure–centralization relationship analysis, I related the level of centralization (mean) to groups of MNE based on the number of HQ. Groups were created as follows: MNEs that did not indicate any specialized HQ in their structure are supposed to have a parent HQ only (named "parent HQ"). MNEs that reported to have one, two or three types of specialized HQ in the structure were named "one HQ", "two HQs", and "three HQs", respectively.

Remarkably, the results did not initially show any correlation between the number of HQs and the centralization. To further explore the issue, I examined the centralization for each type of organizational structure. As depicted in Figure 4, the average level of centralization increases with the increasing complexity of the organizational structure. However, this trend stops at a certain level of complexity. Having more than two specialized HQs in the organizational structure of MNE seems to imply a decreasing level of centralization. Adding the interpolation line shows that for MNEs, it is efficient to centralize more as they add more dimensions to their organizational structures. But there is a peak from which higher centralization might become inefficient.

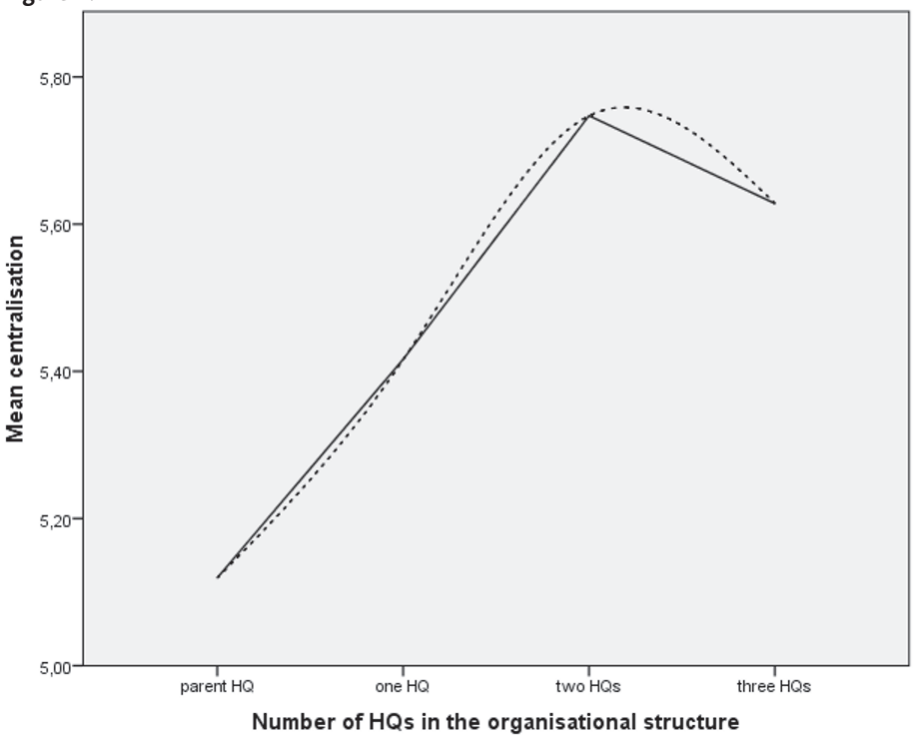
Although this might be true for the average level of centralization of the subsidiary, decomposing this variable into functional areas, show slightly different results. The centralization increases for the area of main suppliers and information systems. Further analysis revealed even a statistically significant correlation between the level of centralization in these areas and the number of specialized HQs. Centralization also increases for personnel management and the choice of other suppliers, but correlations are statistically insignificant.

On the other hand, the same trend as for the whole company can be observed in the areas of product portfolio, choice of customers, finance and marketing.

The average level of centralization is increasing with the rising number of specialized HQs but stops at two and decreases from thereon.

The results suggest that there might be an inverted U-shape between the presence of RHQs in the MNE organizational structure and overall subsidiary autonomy.

Figure 4:



Discussion

As the MNEs structures are constantly evolving to accommodate global development, the new pieces of information about the characteristics of various RHQs add to the existing literature. It mainly shows how MNEs using various RHQs centralize various functional areas. This expands the view on centralization in MNEs. The results show that the most centralized area of subsidiary management is information systems, followed by product portfolio, financial management and marketing. This partially confirms the results of previous studies (Beechler and Yang, 1994; Rosenzweig and Nohria, 1994), which conclude that the most centralized are strategic decisions and value chain activities such as finance, marketing and R& D. Similarly, Edwards, Ahmad and Moss (2002)

showed that subsidiaries have higher autonomy in areas where they have superior information, such as approving finance for minor projects, setting wage rates and domestic marketing. The centralization of information systems might not be significant in previously mentioned studies because the possibilities of centralization of IT systems have developed significantly since then.

The results of this study also show that the least centralized areas are personnel management and logistics. It is possible that in these two areas, the subsidiary has superior information and therefore is more efficient to manage locally. This is an important fact adding to the knowledge of the HQ-subsidiary relationship. The personnel management is closely related to the particular environment, including cultural and legal aspects, which might be reasons for a lower level of centralization in that area. Logistics might be less centralized due to local supply chains, whose knowledge is on the side of a subsidiary.

Next, I analyzed the organizational structures of MNEs. Out of 335 companies participating in the research, more than half reported having a second level of HQs in their organizational structure. This means they have at least one of the following: regional, divisional or functional headquarters. This shows an important aspect of MNE organizational structures. Indeed, headquarters functions can be performed at various levels of the MNC (Ciabuschi, Dellestrand and Holm, 2012). Goold and Campbell (2002) found that various management functions are delegated to so-called intermediate parents, and these parents are under constant pressure to add value. The result of this study supports the previous ones and adds to this by revealing how common it is to have a second-level HQ in the structure. This also illustrates the increasing complexity of the MNE organizational structure.

Second, I examined the relationship between the number of RHQs and subsidiary autonomy. The relation between these two variables is not linear but U-shaped. The level of centralization increases when more second-level HQs are present in the organizational structure, reaching their peak with two HQs and then decreasing. MNEs with three second-level HQ provide subsidiaries with more autonomy. The reason might be that MNEs might not be able to efficiently execute extensive control of their subsidiaries in such complicated structures. This adds to the existing knowledge of the optimal centralization-autonomy balance, and it can also help MNCs managers make more informed decisions about organizational structures.

Of course, other reasons might explain the differences in subsidiary decision-making power. Jong et al. (2015) pointed out that among such reasons is the role of the subsidiary, as some subsidiaries are more critical to the headquarters than others. Also, it can be the number of parent company representatives on the subsidiary management board or the context in which the subsidiary operates, influencing the choice of a particular level of subsidiary autonomy.

When analyzing the results of this study, the size proved to be significantly correlated at the 0.01 level to centralization, implying the larger the company, the less autonomy the subsidiary has. In the existing literature, the relation between subsidiary size and autonomy is not straightforward (Edwards, Ahmad and Moss, 2002). Older studies pointed out a negative relationship between these variables (Hedlund, 1980); more recent ones indicate a positive relationship (Harzing, 1999; Taggart and Hood, 1999), or even the quadratic inverted-U model (Johnston and Menguc, 2007).

In this study, I found no significant relationship between autonomy and the performance of the subsidiary. The results of existing studies focusing on the relationship between autonomy and performance are limited and mixed; the literature seldom investigates the direct effect of autonomy on performance (Gammelgaard *et al.*, 2012). Birkinshaw and Morrison (1995) in their study of subsidiary roles, surmise that high and low (but not medium) levels of autonomy lead to better performance. More recent studies (Mcdonald, Warhurst and Allen, 2008; Dörrenbächer and Gammelgaard, 2010) find limited evidence for positive relationships between autonomy and performance. On the other hand, Tran, Mahnke and Ambos (2010) found an association between autonomy to positive performance effect. Gammelgaard et al. (2012) confirmed an indirect effect of autonomy on performance, as autonomy positively affects inter-organizational network relationships and they, in turn, positively relate to performance.

Conclusion

This study focused on contributing theoretically to the existing knowledge about subsidiary autonomy and the emergence of various types of RHQs in the structure. Combining the complexity of MNE organizational structure and the level of subsidiary autonomy adds a piece to the understanding of RHQs in MNE structures and their possible relation to centralization. This is partially important since an efficient balance between centralization and autonomy is crucial for the management of the MNC (de Jong *et al.*, 2015). The need for further research in this area is emphasized by Nell (2017). They call for further research for a deeper understanding of geographically dispersed headquarters' emergence, management and consequences.

The present study reveals that the relationship between these two variables is not linear. Instead, MNEs with more than two headquarters in their organizational structure tend to decentralize their activities. Since subsidiary decision-making autonomy is a crucial variable that reflects the overall organizational structure of subsidiaries (de Jong *et al.*, 2015), this study attempts to add a piece to understanding this relationship, which is crucial because subsidiary autonomy is among the most important factors determining the behaviour, strategy and performance of subsidiaries and the MNE (Rabbiosi, 2011). This adds to the

existing knowledge of the optimal centralization-autonomy balance, and it can also help MNCs managers make more informed decisions about organizational structures.

I furthermore attempted to find autonomy patterns in various types of organizational structures. I studied the number and types of RHQs that are used in MNEs. As the MNEs structures are constantly evolving to accommodate globalization, the knowledge of the characteristics of various RHQs adds to the existing literature. It mainly shows how MNEs using various RHQs centralize different functional areas. This expands the view on centralization in MNEs.

I assume that a choice of specialized headquarters in the MNE organizational structures is closely related to their strategy. This strategy is reflected in the MNE organizational structure, which in turn is reflected in the centralization of various subsidiary functions. This was partially confirmed in this study but deserved to be further investigated and offered a path for future research.

Also, I found out that more than half of researched MNEs have specialized headquarters in their organizational structures, which strengthens the emphasis on the stream of research devoted to RHQ (e.g. Ambos and Schlegelmilch, 2009).

Managerial implications

The implications for the practitioners are twofold. First, when setting up or changing the organizational structure of an MNE, managers should take into consideration the relation between the number of specialized headquarters and the level of centralization. It might not be possible to centralize activities extensively and without distinction in more complex structures. Second, it might be beneficial to adjust the subsidiary autonomy in areas essential for the particular strategy the company is pursuing.

Limitations and future research

This research was focused on foreign-owned subsidiaries in the Czech Republic. A CEE transition country provides a proper context for the research because it has experienced a substantial inflow of foreign direct investments. Still, it would be exciting to expand the study to other countries to establish the validity of theoretical propositions.

A further issue lies in the subjectivity of measures. For each subsidiary, only one respondent was contacted due to financial and time constraints.

Conclusion

Coordinating and controlling geographically distributed subsidiaries have long been a core topic in global strategic management. Understanding the relationship between MNE and subsidiary, which is conflicting on the one hand and cooperative on the other, remains an essential concern in international business research.

References

Amann, B., Jaussaud, J. and Schaaper, J. (2021) 'The bridging role of regional headquarters. Multinational companies in the Asia-Pacific region, *Multinational Business Review*. doi: 10.1108/MBR-11–2019–0144.

Ambos, B., Asakawa, K. and Ambos, T. C. (2011) 'A dynamic perspective on subsidiary autonomy', *Global Strategy Journal*. doi: 10.1002/gsj.25.

Ambos, B. and Schlegelmilch, B. B. (2009) *The new role of regional management*, *The New Role of Regional Management*. doi: 10.1057/9780230273870.

Ambos, T. C. and Ambos, B. (2009) 'The impact of distance on knowledge transfer effectiveness in multinational corporations', *Journal of International Management*. doi: 10.1016/j.intman.2008.02.002.

Andersson, U. and Holm, U. (2010) *Managing the contemporary multinational: The role of headquarters*, *Managing the Contemporary Multinational: The Role of Headquarters*.

Armstrong, J. S. and Overton, T. S. (1977) 'Estimating Nonresponse Bias in Mail Surveys', *Journal of Marketing Research*. doi: 10.2307/3150783.

Bartless, G. (1989) 'Managing Across Borders', *Harvard Business School Press Boston*. doi: 10.1080/10803920.1999.10392010.

Bartlett, C. A. and Ghoshal, S. (2001) 'Managing Across Borders: The Transnational Solution, 2nd Edition (Hardcover)', *Harvard Business School Press Books*. doi: 10.2307/258620.

Bartlett, C. and Ghoshal, S. (1986) 'Tap your subsidiaries for global reach', *Harvard business review*.

Beechler, S. and Yang, J. Z. (1994) 'The Transfer of Japanese-Style Management to American Subsidiaries: Constraints, and Competencies', *Journal of International Business Studies*. doi: 10.1057/palgrave.jibs.8490208.

Birkinshaw, J. (1997) 'Entrepreneurship in multinational corporations: The characteristics of subsidiary initiatives', *Strategic Management Journal*. doi: 10.1002/(sici)1097–0266(199703)18:3<207::aid-smj864>3.3.co;2-h.

Birkinshaw, J. *et al.* (2006) 'Why do some multinational corporations relocate their headquarters overseas?', *Strategic Management Journal*. doi: 10.1002/smj.541.

Birkinshaw, J., Hood, N. and Jonsson, S. (1998) 'Building firm-specific advantages in multinational corporations: the role of subsidiary initiative', *Strategic Management Journal*. doi: 10.1002/(sici)1097–0266(199803)19:3<221::aid-smj948>3.0.co;2-p.

Birkinshaw, J. M. and Morrison, A. J. (1995) 'Configurations of Strategy and Structure in Subsidiaries of Multinational Corporations', *Journal of International Business Studies*. doi: 10.1057/palgrave.jibs.8490818.

Blažek, L. *et al.* (2011) *Nadnárodní společnosti v České republice II.* Brno: Masaryk University.

Buckley, P. J. and Ghauri, P. N. (2004) 'Globalization, economic geography and the strategy of multinational enterprises', *Journal of International Business Studies*. doi: 10.1057/palgrave.jibs.8400076.

Cantwell, J. and Mudambi, R. (2005) 'MNE competence-creating subsidiary mandates', *Strategic Management Journal*. doi: 10.1002/smj.497.

Cavanagh, A. *et al.* (2017) 'Assigned versus assumed: Towards a contemporary, detailed understanding of subsidiary autonomy', *International Business Review*. doi: 10.1016/j.ibusrev.2017.04.007.

Chen, Z. and Zheng, L. (2018) 'How does subsidiary autonomy influence performance? The moderating role of uncertainty', *Nankai Business Review International*. doi: 10.1108/NBRI-03–2017–0013.

Ciabuschi, F., Dellestrand, H. and Holm, U. (2012) 'The role of headquarters in the contemporary MNC', *Journal of International Management*. doi: 10.1016/j.intman.2012.06.004.

Dellestrand, H. (2011) 'Subsidiary embeddedness as a determinant of divisional headquarters involvement in innovation transfer processes', *Journal of International Management*. doi: 10.1016/j.intman.2011.05.005.

Desarbo, W. S. *et al.* (2005) 'Revisiting the miles and snow strategic framework: Uncovering interrelationships between strategic types, capabilities, environmental uncertainty, and firm performance', *Strategic Management Journal*. doi: 10.1002/smj.431.

Dörrenbächer, C. and Gammelgaard, J. (2010) 'Multinational corporations, inter-organizational networks and subsidiary charter removals', *Journal of World Business*. doi: 10.1016/j.jwb.2009.12.001.

Dörrenbächer, C. and Gammelgaard, J. (2016) 'Subsidiary Initiative Taking in Multinational Corporations: The Relationship between Power and Issue Selling', *Organization Studies*. doi: 10.1177/0170840616634130.

Doz, Y. L. and Prahalad, C. K. (1981)' Headquarters influence and strategic control in MNCs', *Sloan Management Review*.

Edwards, R., Ahmad, A. and Moss, S. (2002) 'Subsidiary autonomy: The case of multinational subsidiaries in Malaysia', *Journal of International Business Studies*. doi: 10.1057/palgrave.jibs.8491011.

Fayerweather (1969) *International Business Management: A Conceptual Framework*. New York: McGraw Hill.

Forsgren, M., Holm, U. and Johanson, J. (2005) *Managing the embedded multinational: A business network view*, *Managing the Embedded Multinational: A Business Network View*. doi: 10.1080/00076790902726681.

Foss, N. J. (1997) 'On the rationales of corporate headquarters', *Industrial and Corporate Change*. doi: 10.1093/icc/6.2.313.

Galli Geleilate, J. M., Andrews, D. S. and Fainshmidt, S. (2020) 'Subsidiary autonomy and subsidiary performance: A meta-analysis', *Journal of World Business*. doi: 10.1016/j.jwb.2019.101049.

Gammelgaard, J. McDonald, F., Stephan, A. and Tüselmann, H. (2012) 'Characteristics of low-autonomy foreign subsidiaries: value chains, staffing, and intra-organizational relationships', *Journal of International Business and Economy*, 1, pp. 1–31.

Gammelgaard, J. *et al.* (2012) 'The impact of increases in subsidiary autonomy and network relationships on performance', *International Business Review*. doi: 10.1016/j.ibusrev.2012.01.001.

Gates, S. R. and Egelhoff, W. G. (1986) 'Centralization in Headquarters–Subsidiary Relationships', *Journal of International Business Studies*. doi: 10.1057/palgrave.jibs.8490425.

Gaur, A. S. and Lu, J. W. (2007) 'Ownership strategies and survival of foreign subsidiaries: Impacts of institutional distance and experience', *Journal of Management*. doi: 10.1177/0149206306295203.

Geringer, J., Hebert, L. Control and Performance of International Joint Ventures. J Int Bus Stud 20, 235–254 (1989). https://doi.org/10.1057/palgrave.jibs.8490359

Ghoshal, S. and Bartlett, C. A. (1990) 'The Multinational Corporation as an Interorganizational Network', *Academy of Management Review*. doi: 10.5465/amr.1990.4310825.

Goold, M. and Campbell, A. (2002) 'Parenting in complex structures', *Long Range Planning*. doi: 10.1016/S0024–6301(02)00052–3.

Gupta, A. K. and Govindarajan, V. (1991) 'Knowledge Flows and the Structure of Control Within Multinational Corporations', *Academy of Management Review*. doi: 10.5465/amr.1991.4279628.

Hair, J. F. *et al.* (2006) 'Multivariate Data Analysis (6th ed.)', *Analysis*.

Harzing, A.-W. (1999) *Managing the Multinationals: An international study of control mechanisms*. Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing Limited.

Hedlund, G. (1980) 'The role of foreign subsidiaries in strategic decision-making in Swedish multinational corporations', *Strategic Management Journal*. doi: 10.1002/smj.4250010104.

Holm, U., Holmström, C. and Sharma, D. (2005) 'Competence development through business relationships or competitive environment? – Subsidiary impact on MNC competitive advantage', *Management International Review*.

Holm, U., Johanson, J. and Thilenius, P. (1995) 'Headquarters' Knowledge of Subsidiary Network Contexts in the Multinational Corporation', *International Studies of Management & Organization*. doi: 10.1080/00208825.1995.11656653.

Hult, G. T. M. and Ketchen, D. J. (2001) 'Does market orientation matter?: A test of the relationship between positional advantage and performance', *Strategic Management Journal*. doi: 10.1002/smj.197.

Jindra, B., Giroud, A. and Scott-Kennel, J. (2009)' Subsidiary roles, vertical linkages and economic development: Lessons from transition economies', *Journal of World Business*. doi: 10.1016/j.jwb.2008.05.006.

Johnston, S. and Menguc, B. (2007) 'Subsidiary size and the level of subsidiary autonomy in multinational corporations: A quadratic model investigation of Australian subsidiaries', *Journal of International Business Studies*. doi: 10.1057/palgrave.jibs.8400294.

de Jong, G. *et al.* (2015) 'Does country context distance determine subsidiary decision-making autonomy? Theory and evidence from European transition economies', *International Business Review*. doi: 10.1016/j.ibusrev.2015.04.003.

Kähäri, P. *et al.* (2017) 'Explaining Mandate Loss of Regional Headquarters: The Difference between Full and Partial Loss', *Journal of Management Studies*. doi: 10.1111/joms.12310.

Lasserre, P. (1996) 'Regional headquarters: The spearhead for Asia Pacific markets', *Long Range Planning*. doi: 10.1016/0024–6301(95)00063–1.

Lee, J. A. (1966) 'Cultural analysis in overseas operations', *The International Executive*. doi: 10.1002/tie.5060080303.

Lundan, S. *et al.* (2013) 'Subsidiary decision-making autonomy: competences, integration and local responsiveness', in *Network Knowledge in International Business*. doi: 10.4337/9781781950623.00015.

Mcdonald, F., Warhurst, S. and Allen, M. (2008) 'Autonomy, Embeddedness, and the Performance of Foreign Owned Subsidiaries', *Multinational Business Review*. doi: 10.1108/1525383X200800014.

Meins Pedersen, V. and Spon Kofod-Jensen, S. (2017) 'The Implications of Subsidiary Autonomy for Multinational Flexibility', in *The Responsive Global Organization*. doi: 10.1108/978–1–78714–831–420171002.

Nandakumar, M. K., Ghobadian, A. and O'Regan, N. (2010) 'Business-level strategy and performance: The moderating effects of environment and structure', *Management Decision*. doi: 10.1108/00251741011053460.

Nell, P.C., Kappen, P. and Laamanen, T. (2017) 'Reconceptualizing hierarchies: the disaggregation and dispersion of headquarters in multinational corporations', *Journal of Management Studies*. doi: 10.1111/joms.12313

Nunnally, J. C. (1978) 'Phychometric theory.', *Psychometric theory*.

O'Donnell, S. W. (2000) 'Managing foreign subsidiaries: Agents of headquarters, or an interdependent network?c, *Strategic Management Journal*. doi: 10.1002/(SICI)1097–0266(200005)21:5<525::AID-SMJ104>3.0.CO;2-Q.

Paterson, S. L. and Brock, D. M. (2002) 'The development of subsidiary-management research: Review and theoretical analysis', *International Business Review*. doi: 10.1016/S0969–5931(01)00053–1.

Podsakoff, P. M. *et al.* (2003) 'Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies', *Journal of Applied Psychology*. doi: 10.1037/0021–9010.88.5.879.

Prahalad, C; Doz, Y. (1987) 'The Multinational Mission: Balancing Local Demands and Global Vision', *Journal of International Business Studies*. doi: 10.1021/jm061072p.

Rabbiosi, L. (2011) 'Subsidiary roles and reverse knowledge transfer: An investigation of the effects of coordination mechanisms', *Journal of International Management*. doi: 10.1016/j.intman.2010.10.001.

Rosenzweig, P. M. and Nohria, N. (1994) 'Influences on Human Resource Management Practices in Multinational Corporations', *Journal of International Business Studies*. doi: 10.1057/palgrave.jibs.8490199.

Roth, K. and Morrison, A. J. (1992) 'Business-Level Competitive Strategy: A Contingency Link to Internationalization', *Journal of Management*. doi: 10.1177/014920639201800303.

Rugman, A.. and Bennett, J. (1982) 'Technology transfer and world product mandating in Canada', *Columbia Journal of World Business*, 17(4), pp. 58–62.

Rugman, A. M. and Verbeke, A. (2008) 'A new perspective on the regional and global strategies of multinational services firms', *Management International Review*. doi: 10.1007/s11575–008–0023-y.

'Strategy and Structure: Chapters in the History of the Industrial Enterprise. By <italic>Alfred D. Chandler, Jr.</italic> [M. I. T. Press Research Monographs.] (Cambridge, Mass.: M. I. T. Press. 1962. Pp. xiv, 463. $10.00.)' (1962) *The American Historical Review*. doi: 10.1086/ahr/68.1.158.

Strutzenberger, A. and Ambos, T. C. (2014) 'Unravelling the subsidiary initiative process: A multilevel approach', *International Journal of Management Reviews*. doi: 10.1111/ijmr.12022.

Taggart, J. H. (1996) 'Evolution of multinational strategy: Evidence from scottish manufacturing subsidiaries', *Journal of Marketing Management*. doi: 10.1080/0267257X.1996.9964433.

Taggart, J. and Hood, N. (1999) 'Determinants of autonomy in multinational corporation subsidiaries', *European Management Journal*. doi: 10.1016/S0263–2373(98)00081–4.

Tran, Y., Mahnke, V. and Ambos, B. (2010) 'The Effect of Quantity, Quality and Timing of Headquarters-initiated Knowledge Flows on Subsidiary Performance', *Management International Review*. doi: 10.1007/s11575–010–0046-z.

Urmas, V. and Helena, H. (2005) 'The Role of Country, Industry and Firm Specific Effects On The Autonomy of a Multinational Corporation's Subsidiary in Central and East European.', *Journal of Economics and Business*.

Venaik, S., Midgley, D. F. and Devinney, T. M. (2005) 'Dual paths to performance: The impact of global pressures on MNC subsidiary conduct and performance', *Journal of International Business Studies*. doi: 10.1057/palgrave.jibs.8400164.

Weiss, A. M. and Heide, J. B. (1993) 'The Nature of Organizational Search in High Technology Markets', *Journal of Marketing Research*. doi: 10.2307/3172829.

Young, S., Hood, N. and Dunlop, S. (1988) 'Global Strategies, Multinational Subsidiary Roles and Economic Impact in Scotland', *Regional Studies*. doi: 10.1080/00343408812331345160.

Young, S. and Tavares, A. T. (2004) 'Centralization and autonomy: Back to the future', *International Business Review*. doi: 10.1016/j.ibusrev.2003.06.002.

Appendix 1: Control variables

Correlations

		centr_average	employees
centr_average	Pearson Correlation	1	,188**
	Sig. (2-tailed)		,001
	N	335	335
employees	Pearson Correlation	,188**	1
	Sig. (2-tailed)	,001	
	N	335	335

**. Correlation is significant at the 0.01 level (2-tailed).