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RESEARCH ARTICLE

Boundary spanners and intra-MNC knowledge sharing: The roles of controlled motivation and immediate organizational context

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Research Summary: We examine the conditions under which boundary spanners positively contribute to intra-MNC knowledge sharing. Specifically, we argue that the knowledge-sharing behavior of boundary spanners should not be taken for granted, as it is affected by the individual's motivation to share knowledge and is contingent upon the immediate organizational context in which the individual is located. An analysis of data covering 482 individuals located in different business units of a Danish MNC confirms our arguments.

Managerial Summary: Boundary spanners are employees who act as knowledge intermediaries between many individuals from within and outside their organizations. They are well connected internally and externally and share knowledge across MNC units to a greater extent than non-boundary spanners. However, their contribution to knowledge sharing should not be taken for granted as it depends on their motivation and their immediate context.

KEYWORDS

boundary spanners, controlled motivations, intra-MNC knowledge sharing, knowledge hub units

1 | INTRODUCTION

Global organizations experience several challenges when they attempt to integrate and transfer knowledge internally. For example, they must coordinate a network of geographically dispersed units and address knowledge management challenges (Ghoshal & Bartlett, 1990). More specifically, multinational corporations (MNCs) need to integrate knowledge found in host country environments

with existing organizational knowledge and, at the same time, ease the sharing of individuals' knowledge (Gupta & Govindarajan, 2000; Kogut & Zander, 1993; Szulanski, 1996). Research on intra-MNC knowledge sharing highlights the importance of boundary spanners for facilitating cross-unit knowledge transfers (e.g., Kogut & Zander, 1992) based on the view that these individuals play a key information-processing role (Allen & Cohen, 1969; Friedman & Podolny, 1992; Tortoriello & Krackhardt, 2010; Tushman & Scanlan, 1981a, 1981b). Thus, boundary spanners possess an information advantage because they have access to diverse forms of knowledge (see, e.g., Tushman & Scanlan, 1981a) and they are able to support innovation (see, e.g., Tortoriello & Krackhardt, 2010; Tushman, 1977).

Boundary spanners have traditionally been defined as people who act as knowledge intermediaries among many individuals within and outside their organizations. They are strongly connected internally and externally (Tushman & Scanlan, 1981a) and, hence, serve as a critical link between the organization and its environment (Adams, 1976; Aldrich & Herker, 1977; Friedman & Podolny, 1992). Within MNCs, boundary spanners are "deeply embedded in both a specific local context and the MNC as a whole" (Schotter & Beamish, 2011, p. 255). They play a crucial role in bridging relationships between different MNC units or across different country contexts (Mudambi & Swift, 2009), especially in terms of bringing in external local knowledge (Tushman & Scanlan, 1981b) and facilitating intra-MNC knowledge flows in order to alleviate information asymmetries and perception gaps (Bouquet & Birkinshaw, 2008; Schotter & Beamish, 2011).

Given their strong internal and external ties, boundary spanners are assumed to unambiguously contribute to knowledge sharing across MNC units (Kogut & Zander, 1992; Reiche, 2011). However, we believe there is a need to nuance these general arguments and to investigate further the knowledge-sharing behavior of boundary spanners. By acting as knowledge intermediaries among many individuals, boundary spanners may extract rents by exploiting structural holes in order to, for example, advance their own careers (Burt, 1992). Therefore, the simple presence of boundary spanners may not guarantee a high degree of knowledge sharing across MNC units, as boundary spanners may behave opportunistically and their knowledge-sharing behaviors should not be taken for granted. This highlights an unanswered question: *Under what conditions are boundary spanners likely to contribute the most to intra-MNC knowledge sharing*?

To answer this question, we draw on self-determination theory (Deci & Ryan, 2000; Gagné & Deci, 2005) and research focused on knowledge as a source of power (Blackler, Crump, & McDonald, 2000; Brown & Woodland, 1999; Davenport, 1997; Jarvenpaa & Staples, 2001; Mudambi & Navarra, 2004; Weiss, 1999). We argue that boundary spanners have more at stake than non-boundary spanners when making their knowledge available to others, and they may tend to expend only the minimum required effort in order to derive gains in the future by withholding knowledge in the present (Bock, Zmud, Kim, & Lee, 2005). Whether this agency issue arises depends on the boundary spanner's *motivation to share knowledge* (e.g., Bock et al., 2005; E. F. Cabrera & Cabrera, 2005; A. Cabrera, Collins, & Salgado, 2006; Osterloh, Frost, & Frey, 2002; Quigley, Tesluk, Locke, & Bartol, 2007; Reinholt, Pedersen, & Foss, 2011) and the *immediate context* in which the boundary spanner is located (Alvesson, 1993; Armbrecht et al., 2001; Empson, 2001). We test our arguments on survey data collected from a single MNC with a complex, dispersed network structure. Our final sample encompasses 482 individual respondents.

We contribute to research on boundary spanners and intra-MNC knowledge sharing in several ways. First, by investigating the knowledge-sharing behaviors of boundary spanners across MNC units, we add to extant research, which has thus far focused on vertical knowledge flows (Reiche, 2011). Second, our study sheds light on specific behavioral conditions that influence boundary

spanners' contributions to intra-MNC knowledge sharing. Knowing these conditions would allow companies to design specific governance mechanisms that favorably influence intra-MNC knowledge sharing (Foss, 2007). With this, we contribute to the more general debate on the need to consider microfoundations in international and strategic management research (Felin & Foss, 2005).

The article is structured in the following way: First, we discuss the theoretical background and develop our hypotheses. We then present our data collection method and our measures. After discussing the results, we conclude by providing recommendations for future research and outlining the practical implications of our findings.

2 | THEORETICAL BACKGROUND

Traditionally, boundary spanners have been defined as "individuals who operate at the periphery or boundary of an organization, performing relevant organizational tasks and relating the internal organization to external elements" (Leifer & Delbecq, 1978, p. 1530). Often, boundary spanners are defined as individuals who play a central role in intergroup relations (Friedman & Podolny, 1992) and engage in significant transactions with large networks consisting of both in-group and out-group members (Richter, West, Van Dick, & Dawson, 2006). Hence, the function of a boundary spanner is twofold: "First, to maintain a high level of contact with the external information and gather information from it; and, second, to maintain high levels of contact with the internal organization and thus filter, translate, and diffuse external information to it in terms that can be understood by his or her colleagues" (Zhao & Anand, 2013, p. 1517).

Mudambi and Swift (2009) and Schotter and Beamish (2011) echo Kogut and Zander (1992) in pointing out the crucial role of boundary spanners in MNCs. Boundary spanners alleviate information asymmetries, reduce perception gaps, and increase trust between HQ and foreign subsidiaries "while enabling MNCs to take strategic advantage of the pressures created by the global integration versus local responsiveness quandary" (Schotter & Beamish, 2011, p. 254). In the context of a geographically dispersed network, MNC units are simultaneously embedded in their external networks and in the MNC's internal networks (Meyer, Mudambi, & Narula, 2011; Yamin & Andersson, 2011). Therefore, boundary spanners should be understood as those *individuals with a large number of strong knowledge-related ties in both the MNC's external networks and its internal network.* The internal and external dimensions represent different types of contacts and, therefore, different types of information, knowledge, and work practices (see Geletkanycz & Hambrick, 1997). This variety amplifies the boundary spanner's potential for knowledge sourcing and recombination and, thereby, knowledge sharing within the MNC network (Zhao & Anand, 2013).

One limitation of the extant research on boundary spanners and intra-MNC knowledge sharing is the assumption that boundary spanners unambiguously facilitate intra-MNC knowledge sharing (Kogut & Zander, 1992). However, in their early contribution, Tushman and Scanlan (1981a) argue that although individuals with substantial boundary-spanning potential may have access to external knowledge and valuable information, they do not necessarily disseminate that knowledge and information within the organization. In other words, we cannot assume that boundary spanners always contribute to intra-MNC knowledge sharing. In fact, as knowledge intermediaries across organizational boundaries, boundary spanners may act as knowledge brokers (Fleming & Waguespack, 2007). They can exploit structural holes and use the knowledge for their own benefit (Burt, 1992; Fleming & Waguespack, 2007) rather than for the benefit of the MNC or the local units in which they are located. In these cases, positive effects on knowledge sharing may materialize, but they are not a priority for the boundary spanner. Indeed, Fleming and Waguespack (2007) suggest that

although knowledge brokers and boundary spanners are empirically correlated constructs, they remain theoretically distinct. Fleming and Waguespack (p. 166) also note that: "Burt [1992]… characterize[s] brokers as calculating and politically savvy operators, while Allen [1977] and Tushman [1977] characterize boundary spanners as well-respected guardians who redirect crucial information, both within and outside the firm." However, to assess the extent to which boundary spanners share knowledge across MNC units, we need to account for specific conditions favoring the emergence of agency issues. To this end, we highlight the need to focus on: (a) individual characteristics, especially individual motivations for knowledge sharing (Marrone, 2010); and (b) the effect of the immediate organizational context of the units in which these individuals are located (Kostova, Roth, & Dacin, 2008).

On the basis of insights from self-determination theory (SDT) (Deci & Ryan, 2000; Gagné & Deci, 2005), which is particularly informative for understanding knowledge-sharing behaviors among individuals, we focus on controlled motivation (i.e., goal-directed activities that are controlled or non-self-determined, such that "people feel pressured to do [them]" (Deci & Ryan, 2000, p. 237)). With our focus on controlled motivation, we complement recent research on individual's knowledge-sharing behavior (e.g., Reinholt et al., 2011), focusing only on the moderating role of autonomous motivation (i.e., goal-directed activities that "are enacted with a full sense of volition and choice" (Deci & Ryan, 2000, p. 237)). In addition, based on well-established views of MNC unit heterogeneity and intra-MNC knowledge sharing (e.g., Gupta & Govindarajan, 2000), we distinguish between units serving as knowledge hubs within the multinational network (i.e., units that actively engage in knowledge transfer to other organizational units and are simultaneously at the receiving end of knowledge flows from other units; "integrated players" in Gupta & Govindarajan (2000) terminology) and all other MNC units.

Based on the idea that characteristics of an individual's position within network relationships influence the quality and richness of the knowledge that individual can access (Hansen, Mors, & Løvås, 2005; Nerkar & Paruchuri, 2005), we focus on the size and strength of an individual's network relationships and the individual's spanning of structural holes to define boundary spanners. In particular, we define boundary spanners as those individuals with a great number of strong ties, both internally and externally (Adams, 1976; Aldrich & Herker, 1977; Friedman & Podolny, 1992). As MNC units are "multiply embedded" (Meyer et al., 2011; Yamin & Andersson, 2011), these individuals span two types of MNC boundaries: external boundaries between the MNC and the external context and internal boundaries between the MNC unit in which the individual is located and other MNC units. As a result, boundary spanners have a structural role and "are exposed to large amounts of potentially relevant information" (Aldrich & Herker, 1977, p. 218), which is likely to be valued by one or more parties within and outside the MNC.

In line with the literature reviewed, we first present our baseline hypothesis that boundary spanners contribute positively to knowledge sharing across MNC units. We then develop testable hypotheses on the contributions of boundary spanners with controlled motivations to engage in intra-MNC knowledge sharing and the contributions of those located in knowledge hubs. In both situations of controlled motivation and knowledge hubs, we argue that boundary spanners make only limited contributions to intra-MNC knowledge sharing.

3 | HYPOTHESIS DEVELOPMENT

Boundary spanners engage in knowledge mediation in large networks consisting of individuals from within and outside the MNC who would otherwise often be only weakly connected. This

knowledge-intermediary role enables these individuals to access a wide range of knowledge from sources external to the MNC and to be conducive to internal MNC knowledge sharing (see, e.g., Carlile & Rebentisch, 2003; Tushman & Scanlan, 1981b). Strong ties facilitate the exchange of rich information (Nerkar & Paruchuri, 2005). In addition, a large external network offers opportunities to see problems or tasks from different perspectives and, hence, increases creativity and innovation (Tortoriello & Krackhardt, 2010; Tushman, 1977). At the same time, by virtue of their large internal networks, boundary spanners "are able to disseminate new information and new ideas to their more locally oriented colleagues" (Tushman & Scanlan, 1981a, p. 292). In contrast, individual positions within network relationships characterized by limited spanning of structural holes, small size, and little strength offer few opportunities for positive contributions to intra-MNC knowledge sharing. In line with this literature, our baseline hypothesis states:

> **Hypothesis 1 (H1)** *Boundary spanners share knowledge across MNC units to a greater extent than non-boundary spanners do.*

3.1 | Boundary spanners' controlled motivations

Individual motivations matter in the context of knowledge sharing in networks (Reinholt et al., 2011). SDT differentiates between two broad types of motivation: autonomous and controlled (Deci & Ryan, 2000). When an individual is autonomously motivated, his/her behavior is congruent with the individual's own interests due to the achieved coherence between external regulations and his/her own goals and values. In other words, the individual will engage in knowledge sharing because "it is personally meaningful and fits one's value system (identified regulation)" (Gagné, 2009, p. 573). Instead, when an individual is controlled motivated, his/her behavior is driven by a feeling of pressure from either outside sources, such as "promised reward and threats of punishment (external regulation), or inside sources, such as [the feeling that] one's self-esteem is contingent upon successfully completing a task (introjected regulation)" (Gagné, 2009, p. 573).

The knowledge-sharing literature stresses that different types of motivation may lead to different knowledge-sharing outcomes (Bock et al., 2005; E. F. Cabrera & Cabrera, 2005; A. Cabrera et al., 2006; Foss, Minbaeva, Pedersen, & Reinholt, 2009; Minbaeva, 2013; Osterloh et al., 2002; Quigley et al., 2007). In relation to controlled motivation, we know that when tacit knowledge is involved and multiple-task problems are combined with the problem of "free riding" in teams, controlled motivation fails to promote knowledge sharing (Osterloh et al., 2002). Individuals with high levels of controlled motivation may be reluctant to spend time on knowledge sharing, as that time could instead be invested in activities that those individuals regard as more rewarding.

We suggest that controlled motivations may moderate the relationship between being boundary spanners who, by virtue of their knowledge-intermediary role, are likely to source different types of information, knowledge, and practices and their knowledge-sharing behavior. The boundary spanners' intermediary role makes the knowledge held by these individuals especially attractive to the organization, which then exerts direct pressure on the individual to share knowledge by appealing to the individual's controlled motivation through the promise of extrinsic rewards and praise. However, this type of motivational focus tends to have a counterproductive effect. It creates a "market" for knowledge sharing in which the reward bar will progressively rise to extract the individual's maximum effort (Bock et al., 2005). In anticipation of this progressive increase, controlled-motivated boundary spanners minimize their efforts to share knowledge in order to avoid engaging in a race to meet progressively higher requirements associated with smaller marginal benefits. Boundary

spanners driven by controlled motivation then put forth only the minimum required effort, thereby drastically limiting their contributions to intra-MNC knowledge sharing. Instead of creating choices and finding multiple interpretations, controlled-motivated boundary spanners are more likely to translate all of the information into a more manageable and specific format that can be utilized for their own personal gain. In other words, they act as knowledge brokers, which undermines their contributions to intra-MNC knowledge sharing. Accordingly, we expect:

> **Hypothesis 2 (H2)** *The more boundary spanners are controlled motivated, the less they share knowledge across MNC units.*

3.2 | Boundary spanners' immediate context

In a world in which innovation is the keystone of sustainable competitive advantage, knowledge is increasingly perceived as a valuable private good and as a source of power (Blackler et al., 2000; Brown & Woodland, 1999; Davenport, 1997; Gupta & Govindarajan, 2000; Mudambi & Swift, 2009). Tensions associated with knowledge sharing materialize across and within firms (Cantwell & Santangelo, 2002; Mudambi & Navarra, 2004; Narula & Santangelo, 2009; Perri, Andersson, Nell & Santangelo, 2013; Santangelo, 2012), as well as across individuals within organizations (Brown & Woodland, 1999; Jarvenpaa & Staples, 2001; Weiss, 1999). This tension arguably increases when more is at stake.

Indeed, one belief in every individual's mind is that any advantage he/she has relative to colleagues is related to "the quality and value of the knowledge he or she possesses" (Husted & Michailova, 2002, p. 65). Boundary spanners have more at stake than non-boundary spanners because, by virtue of their large MNC internal and external strong network ties, they enjoy significant opportunities to source new, nonredundant knowledge. In principle, they can engage in knowledge sharing within the MNC network to a larger extent (Zhao & Anand, 2013) but, at the same time, they may lose their advantage by engaging in knowledge sharing. The fear of losing such an advantage is especially relevant in connection to other colleagues located in the same immediate context, which motivates boundary spanners to withhold knowledge and reduce their knowledge sharing. O'Neill and Adya (2007) point out that the potential to lose individual power and status can be particularly pertinent for knowledge withholding in organizations.

The risk of losing power by sharing knowledge takes on a key role in organizational contexts where individuals' competition is knowledge based and knowledge is a highly valued "good" (Alvesson, 1993; Armbrecht et al., 2001; Empson, 2001). In these contexts, knowledge sharing may be highly rewarded in the short and medium terms, but may harm the advantage of the individuals that have more at stake, such as boundary spanners, in the long run.

In this regard, within the MNC's network structure, different units play different roles (Gupta & Govindarajan, 2000). In those units serving as knowledge hubs for the MNC network, the advantage of boundary spanners is likely to be eroded by individuals located within the immediate unit's context who aspire to enhance their value and bargaining power. In such competitive environments, boundary spanners may have a strong feeling of personal ownership related to the accumulated knowledge because such knowledge is often "hard won." Boundary spanners regard knowledge as a private good and are reluctant to share that knowledge with someone who "has put less or no effort into her/his own development" and is, therefore, regarded as a "knowledge parasite" (Husted & Michailova, 2002, p. 66). This competitive context favors a strong feeling of personal ownership of accumulated knowledge, which is often "highly personal." As a result, knowledge sharing is

perceived as potentially harmful to the individual's value, bargaining power, and advantage relative to other colleagues in the same context (Alvesson, 1993; Empson, 2001). Thus, in more knowledge-intensive organizational units, boundary spanners carefully evaluate how much knowledge to share, as well as when and with whom to share it (Andrews & Delahaye, 2000) because they fear knowledge expropriation by knowledge parasites and a consequent loss of their advantage.

Therefore, we argue that in MNC units serving as knowledge hubs (as opposite to non-knowledge hubs), boundary spanners engage in intra-MNC knowledge sharing to a lesser extent than non-boundary spanners. Accordingly, we expect:

> **Hypothesis 3 (H3)** *Boundary spanners share knowledge across MNC units to a lesser extent when they are located in knowledge hubs than when they are located in non-knowledge hubs.*

4 | METHODOLOGY

4.1 | The context of the study

All data used in our analysis were collected from Rambøll Group, a global engineering, IT, and management consultancy firm founded and headquartered in Denmark. To ensure the suitability of this firm for the study (Siggelkow, 2007), a number of preliminary interviews were conducted with the corporate human resources director and other key corporate managers, and archival data were collected. Moreover, one researcher participated in the development and rollout of the Rambøll Knowledge Management Strategy in 2009, which centered on networks for knowledge sharing. That project provided numerous opportunities for observation and for development of deep knowledge of the study's context. We also engaged in several follow-up conversations with Rambøll's managers to reflect upon our findings.

The history of Rambøll Group A/S spans more than 60 years. Børge Johannes Rambøll and Johan Georg Hannemann, two young engineers, founded Rambøll & Hannemann in Copenhagen on October 15, 1945. Today, Rambøll has a notable presence in several regions, including northern Europe and the Middle East, and it is one of the 10 largest technical consultancies in the world. After a series of acquisitions, the number of employees reached 4,000 in 2003, after which it doubled by the end of 2008.

Our focus on this single, large MNC enabled us to keep certain external factors that might influence intra-MNC knowledge sharing constant (Siggelkow, 2007). Therefore, we could concentrate on internal organizational heterogeneity across MNC units. In addition, this focus offered a unique opportunity to collect multisource individual-level data (e.g., Rousseau, 1985) by including many employees from different national and organizational contexts who might be involved in knowledge sharing. The setting of the study in an MNC context allowed us to investigate individual actions and the implications of those actions for strategic management in an organizational context in which struggles and inconsistencies were more complex than in multidivisional domestic firms. In particular, Rambøll had formally acknowledged knowledge sharing as a key task for each employee. Like any global engineering and design consultancy, Rambøll largely depended on the company-wide sharing of knowledge and experience to help it navigate its clients through difficult problems. In addition, Rambøll's organizational setup had historically required collaboration and effective internal knowledge sharing. More specifically, Rambøll was organized as a project-based organization, such that projects and teams (involving 2−100 employees with complementary competencies) were

formed around the demands of clients or to develop project proposals for open tenders. The teams were dissolved upon the completion of each project, and new teams with new employee compositions were established whenever a new project started.

Finally, driven by its strategy to be "among the best," Rambøll invested heavily in developing both its technical and local knowledge. However, as the company grew and diversified, existing knowledge management mechanisms became incapable of handling the company's increasing complexity and global scale. The newly developed Rambøll Knowledge Management Strategy stated that "our development from a predominantly locally based company to a globally oriented one presents new challenges—also in the way we manage and share our knowledge. For this reason, we need to work more strategically with our knowledge management, and we need to maintain a strong business focus in doing so." This strategic priority was pursued by promoting cross-functional, cross-national, and cross-organizational networks. As our respondents explained, everyone at Rambøll came to rely on networks, which developed organically and eventually became a backbone for the firm's knowledge management strategy. In the words of the group director for markets and knowledge:

"In Rambøll, we establish and maintain networks because we believe in the importance of the collective effort as a means of bringing about the best solutions and increasing the knowledge of our people. We believe that by bringing people together, we will make it easier for them to know whom to ask when questions arise. Thus, our networks link individuals to each other and serve as an important mechanism for identifying where to find knowledge in our organization. Similarly, Rambøll Networks play a crucial role in bringing knowledge from our own organization to and from clients, partners, and competitors."

In sum, the strategic importance of knowledge for business growth, an organizational context in which knowledge is highly valued, the promotion of networks for knowledge sharing, and highly knowledge-intensive work requiring ongoing collaboration and knowledge sharing with colleagues across MNC boundaries made Rambøll an ideal empirical case for our study.

4.2 | Data collection

Quantitative data collection started in March 2008 with the distribution of a questionnaire to 1,992 employees in all the company's business units (i.e., management consulting, informatics, oil and gas, Denmark, Sweden, Norway, Finland, and the United Kingdom), but the unit in the Middle East, which could not participate in the survey due to political reasons. Yet, the exclusion of this unit should not introduce any substantial sample bias because, based on the memorandum of the company's representatives, the sample units ensure "a range from high to low on a knowledge-sharing scale."

The data were collected using a web-based questionnaire developed on the basis of a focused literature review. The questionnaire was pretested with managers and management scholars to ensure that each item and the overall format were easily understood. The questionnaire was available in Danish and English. In line with the procedure suggested by Brislin (1986), the questions were translated and back-translated, thereby reducing the risk of comprehension problems. Rambøll representatives also tested the questionnaire to ensure that the questions and their wording made sense within the firm.

Eight hundred and twenty four employees (a 41% response rate) completed and returned the questionnaire. Due to missing values, the final analysis covered 482 employees (60% of the respondents for whom information on their business unit's location was available). The questionnaire was anonymous, and nonresponse bias risks were discussed with a Rambøll representative, who assured

us that there were no visible differences between those responding to the survey and the overall distribution of employees in terms of business unit demographics. In addition, we compared the demographic characteristics of respondents in Rambøll's Denmark unit with those of all employees. This comparison confirmed the lack of bias between this set of respondents and the overall population. Finally, demographic variables were used to compare early and late respondents based on the assumption that the group of late respondents with missing values was closer to the nonresponding group than the group of early respondents (Rogelberg & Stanton, 2007). The analysis of variance of the differences in the two groups' means for the demographic variables led us to reject the hypothesis of differences in the means. Thus, nonresponse bias does not appear to be an issue in our data.

4.3 | Measures

Based on the idea that the key element in knowledge sharing is "the extent to which the receiver acquires potentially useful knowledge and utilizes this knowledge in own operations" (Minbaeva, Pedersen, Björkman, Fey, & Park, 2003, p. 587), we measure *intra-MNC knowledge sharing* as the average of four items covering both the extent of a respondent's knowledge acquisition from individuals located in other business units as well as the extent of a respondent's knowledge provision to individuals located in other business units. This is in line with Davenport and Prusak's (1998) argument that knowledge sharing simultaneously involves knowledge provision and acquisition because typically individuals are not able to disentangle the two when sharing knowledge. Respondents were asked to use seven-point Likert scales (ranging from "no or very little extent" to "very large extent") to indicate the extent to which they had (a) used and (b) received knowledge from colleagues located in other business units. They were also asked to indicate the extent to which colleagues in other business units had (c) used and (d) received knowledge from the focal individual (Cronbach's alpha = .92).

To test H1, based on our structural definition of boundary spanners, we relied on a binary variable to identify individuals with boundary spanner roles (Adams, 1976; Aldrich & Herker, 1977; Friedman & Podolny, 1992). The following questions were asked: "How many persons *outside* the Rambøll Group do you share knowledge with on a *regular* basis?" and "How many persons *within* the Rambøll Group do you share knowledge with on a *regular* basis?" *Boundary spanner* was set equal to 1 if the number of direct contacts with whom the individual regularly shared knowledge both within and outside Rambøll was greater than the respective sample's average. The number of regular contacts enabled us to capture the size of the individual's strong network ties, and the MNC-internal and external dimensions of network contacts enabled us to capture the spanning of structural holes (Granovetter, 1973; Tortoriello & Krackhardt, 2010).

To test H2, in line with SDT, which interprets controlled motivation as the extreme type of extrinsic motivation (the other extreme being autonomous motivation), and as a continuous construct (i.e., the extent to which an individual is controlled motivated), we measured controlled motivation by asking respondents to assess their underlying reasons for engaging in knowledge sharing using seven-point Likert scales (ranging from "no or very little extent" to "very large extent"). Based on Reinholt et al. (2011), *controlled motivation* is the average of five items: "It may help me get promoted," "I want my supervisor(s) to praise me," "I want my colleague(s) to praise me," "I want to avoid negative reactions from the head of my department," and "I might get a reward" (Cronbach's alpha = .84).

To test H3, following Gupta and Govindarajan's (2000) argument that units have different roles within the MNC structure, we classified the Rambøll business units as knowledge hubs and non-knowledge hubs. To this end, first we asked respondents to indicate which units they share

knowledge with on a regular basis and count these units. Then, for each business unit we calculated the average number and compared it with the sample mean. *Knowledge hub unit* is a binary variable set equal to 1 for units sharing knowledge on a regular basis with a number of corporate units greater than the sample mean and set to 0 otherwise.

We included a number of controls to account for the effects of individual and job characteristics. With regard to individual characteristics, we used a binary variable (*female*) to control for gender. We also accounted for the level of *education* measured on a six-point scale (0 = "other," 1 = "high school or below," 2 = "middle-range training," 3 = "bachelor's degree," 4 = "master's degree," and 5 = "Ph.D."). Moreover, we included a measure for the number of years respondents had been employed by Rambøll (*tenure*; included as a logarithm).

We control for the individual's ability to share knowledge in terms of knowledge extensiveness and diversity, both of which affect the individual's ability to engage in knowledge sharing. To this end, we followed Reinholt et al. (2011) in asking respondents to use a seven-point Likert scale (ranging from "no or very little extent" to "very large extent") to assess the extent to which they were included in: (a) job rotations, (b) general management training, and (c) specialized professional training. *Knowledge-sharing ability* is the average of these three items (Cronbach's alpha = .70). Employees involved in these activities have an opportunity to develop a wide range of knowledge that overlaps with the knowledge held by other organizational members (Reinholt et al., 2011). As a result, they are more able to effectively share knowledge with colleagues (Reagans & McEvily, 2003).

In addition, the extant research has widely acknowledged the relevance of individuals' intrinsic motivations for knowledge sharing (e.g., Foss et al., 2009). As Osterloh and Frey (2000) suggest, when tacit knowledge is involved and multiple-task problems are combined with the problem of "free riding" in teams, intrinsic motivation enables knowledge transfer under conditions in which extrinsic motivation fails. Schotter and Beamish (2011) argue that intrinsic motivation is crucial if boundary spanners are to fulfill their role. In line with these studies, we control for intrinsic motivation. *Intrinsic motivation* is the average of two items that use seven-point Likert scales (ranging from "strongly disagree" to "strongly agree") to measure the extent to which the respondent shared knowledge because he/she: (a) enjoys and (b) liked sharing knowledge (Cronbach's alpha = .73).

Job characteristics may also ease or hamper knowledge sharing. In this regard, we controlled for personnel holding leadership positions with the binary variable *leadership position.* To account for Rambøll's project-based organizational nature, we included a binary variable indicating whether the individual's job included project management (*project management*). *Task identity* is the average of three items that used seven-point Likert scales (ranging from "strongly disagree" to "strongly agree") to measure the extent to which the job gave the respondent the opportunity to: (a) complete work that he/she started, (b) do the job from beginning to end, and (c) do the job independently from others (Cronbach's alpha = .62). The *feedback* variable controls for whether the respondent's job was characterized by the opportunity to obtain feedback on his/her job performance from his/her: (a) department head and (b) project manager (7-point Likert scales ranging from "strongly disagree" to "strongly agree"). The measure is the average of these two items (Cronbach's alpha = .76). We also followed Foss et al. (2009) in controlling for "the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out" (Hackman & Oldham, 1976, p. 258). To do so, we used the variable *autonomy*, which is the average of the extent to which the respondent's job was characterized by: (a) the freedom to carry out the job in the way the respondent desires,

(b) the opportunity for independent initiative, and (c) a high level of variety. Each of these three items was measured using seven-point Likert scales (ranging from "strongly disagree" to "strongly agree"). We averaged the three items (Cronbach's alpha = .71).

Finally, we included business units' fixed effects in order to account for business units' unobserved heterogeneity.

Table 1 presents the correlation matrix and descriptive statistics for all variables.

4.4 | Common method bias

One concern often raised about survey questionnaires—especially when measures are operationalized through self-reports—relates to common method variance (Eden, van Witteloostuijn, & Chang, 2010). Despite the well-known weaknesses of these measures, they are particularly useful in studies of human behavior (Howard, 1994), and the bulk of studies on intraorganizational knowledge processes rely on self-reported measures (e.g., Gupta & Govindarajan, 2000; Szulanski, 1996).

We adopted a number of measures to remedy any potential common method bias (Podsakoff, MacKenzie, & Lee, 2003). First, the variables were based on different scales, and some of them were transformed into dummy variables. Second, participation in the internet-based survey was voluntary, and respondent anonymity was guaranteed through the survey software. Moreover, all questionnaires were returned to the research team, and only aggregated data were provided to the company. Third, the questions relating to the dependent and independent variables were located in different parts of the questionnaire. Fourth, our findings are based on a model that involves multiple independent variables and an interaction term. Consequently, they are unlikely to emerge solely as a result of common method bias (Evans, 1985; Siemsen, Roth, & Oliveira, 2010). Based on these arguments, we are confident that common method bias does not affect the validity of our findings.

To confirm this view, we performed a Harman's single-factor test on the items included in our econometric model (Podsakoff & Organ, 1986). If common method bias existed in the data, a single factor would emerge from a factor analysis of all measurement items included in the study or one general factor would account for most of the variance. The factor analysis revealed six factors with eigenvalues of more than 1, the first of which (eigenvalue = 3.689) explained 18.44% of the total variance. Hence, the test suggests that there is no single background factor, which supports the validity of the data.

In addition, following Podsakoff et al. (2003), we checked for common method variance by introducing a method variance factor in our model. This factor is operationalized as the first unrotated factor identified when conducting an explorative factor analysis of the items derived from the survey and included in the study. The method variance factor "is assumed to contain the best approximation of common method variance" (Podsakoff et al., 2003, p. 893). Therefore, when it is added to the model, its effect is partialled out, and it is possible to determine whether the relationships among the variables of interest are still significant. The results of this check are reported next.

5 | RESULTS

Given the nature of our dependent variable, which is both left and right censored, we utilized Tobit model estimations. Intra-MNC knowledge sharing varies between 1 and 7, with 1 representing those individuals "not" sharing knowledge and those sharing knowledge to a "very little extent" as a single value, and 7 representing individuals who are not truly equal in sharing knowledge to a "very large extent" as a single value (Greene, 2000, p. 905).

TABLE 1 Descriptive statistics and correlation matrix (observations: 482)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Intra-MNC knowledge sharing	1													
2	Female	−0.0238	1												
3	Education	0.1609*	−0.0026	1											
4	Tenure	0.1371*	−0.0501	−0.1409*	1										
5	Knowledge sharing ability	0.1181*	−0.0469	0.021	−0.0835	1									
6	Intrinsic motivation	0.1174*	0.1058*	0.0801	−0.0002	0.1227*	1								
7	Controlled motivation	−0.0197	0.0636	0.0149	−0.1426*	0.0773	0.0556	1							
8	Leadership position	0.1902*	−0.1602*	−0.08	0.1893*	0.2097*	0.1274*	−0.0719	1						
9	Project management	0.1322*	−0.1236*	0.1204*	0.2471*	0.1249*	0.1038*	−0.1143*	0.2731*	1					
10	Task identity	0.0299	−0.033	0.0384	0.1381*	0.0704	0.1651*	−0.1517*	0.2047*	0.1468*	1				
11	Feedback	0.0933*	0.0244	0.0203	0.0343	0.2719*	0.1101*	0.0193	0.0844	0.0494	0.1132*	1			
12	Autonomy	0.2381*	−0.0189	0.1496*	0.1989*	0.2098*	0.3014*	−0.1031*	0.2174*	0.3092*	0.5084*	0.2781*	1		
13	Knowledge hub unit	0.2143*	0.0320	0.1114*	0.1412	−0.0557	0.0636	0.0254	−0.0525	0.1306*	0.0271	0.0293	0.1896*	1	
14	Boundary spanner	0.3216*	−0.0839	0.1695*	0.2151*	0.0823	0.1480*	−0.0462	0.2265*	0.2090*	0.0911*	0.1058*	0.2878*		1
Mean		2.030	0.286	3.280	1.279	2.689	5.838	3.462	0.297	0.712	5.177	3.803	5.297	0.303	0.214
Std. dev.		1.417	0.453	1.140	1.048	1.353	0.861	1.204	0.457	0.453	1.081	1.356	1.063	0.460	0.41
Min		1	0	0	0	1	2.5	1	0	0	1	1	1	0	0
Max		7	1	5	3.784	7	7	7	1	1	7	7	7	1	1

*$p < .05$.

Table 2 provides the results of our analysis. We test our baseline hypothesis (H1) in Model 1. In Model 2, we introduce the interaction between *boundary spanner* and *controlled motivation* to test H2. In Models 3a and 3b, we split the sample based on the variable *knowledge hub unit* to test H3. Models 4, 5, and 6 report additional estimations to assess the robustness of our findings.

For each of the four main models, we checked for possible multicollinearity problems by calculating the variance inflation factors (VIF). The highest VIF value is 2.58 in Models 4 and 5. This suggests that multicollinearity is not an issue.

Boundary spanners share knowledge across MNC units to a greater extent than non-boundary spanners (*boundary spanner* is statistically significant and positive at $p < .01$ in Model 1). This result supports H1. H2 is also supported, as the interaction between *boundary spanner* and *controlled motivation* is statistically significant and negative at $p < .01$ in Model 2. Boundary spanners share knowledge across MNC units to a lesser extent when their motivation for knowledge sharing is controlled. Figure 1 plots the effect of boundary spanners (including confidence intervals) at several levels of controlled motivation on the linear predictions of intra-MNC knowledge sharing.

H3 is also supported. In Models 3a and 3b, the *boundary spanner* coefficients are positive, with the coefficient in Model 3b larger and statistically significant ($p < .01$). The difference between the two coefficients is statistically significant ($p < .01$), as reported at the bottom of Table 2. In less competitive environments, such as non-knowledge hub units, boundary spanners perceive knowledge sharing as less harmful because in these environments, knowledge is less a valuable good, and non-boundary spanners are then less eager to free ride on their boundary-spanner peers. Then, boundary spanners share knowledge across MNC units to a greater extent when they are located in non-knowledge hubs (Model 3a) than when they are located in knowledge hubs (Model 3b).

A number of controls yield statistically significant results. This is the case for the positive coefficients of *education*, tenure, *knowledge-sharing ability*, *leadership position*, and *autonomy* and for the negative coefficient of *task identity* in all models.

To test the robustness of our results, we reran our analysis by estimating a standard OLS model, and our results are confirmed.[1] Also, based on Davenport and Prusak (1998), we understand knowledge sharing as simultaneously involving knowledge provision and acquisition because typically individuals are not able to disentangle the two when sharing knowledge. To assess the robustness of our findings to the distinction of knowledge sharing into knowledge provision and knowledge acquisition, following Reinholt et al. (2011), we split our dependent variable (i.e., *knowledge sharing*) into two variables: *knowledge provision,* measured on seven-point Likert scales (ranging from "no or very little extent" to "very large extent") representing the extent to which colleagues in other business units had (a) used and (b) received knowledge from the focal individual (Cronbach's alpha = .97); and *knowledge acquisition,* measured on seven-point Likert scales (ranging from "no or very little extent" to "very large extent") representing the extent to which the respondent had (a) used and (b) received knowledge from colleagues located in other business units (Cronbach's alpha = .99)). We then rerun our main findings in two different sets of estimations, which replicate our results as reported in Table 3, confirming that knowledge sharing simultaneously involves both dimensions.

In addition, we rerun our analysis after adopting a stricter cutoff for *boundary spanner.* More specifically, *boundary spanner* was set equal to 1 if the number of direct strong contacts with whom the individual regularly shared knowledge both within and outside Rambøll was greater than the 75th percentile of the respective distributions. These estimations confirm our results.[2] In relation to H3, Model 4 in Table 2 reports the estimates for the full sample and includes the interaction

[1]This robustness test is not reported but available upon request.
[2]This robustness test is not reported but available upon request.

TABLE 2 Tobit estimations[a]

	Model 1	Model 2	Model 3a *Knowledge hub*	Model 3b *Non-knowledge hub*	Model 4	Model 5	Model 6
Female	0.017	0.012	0.666*	−0.53	−0.026	−0.029	−0.009
	[0.256]	[0.254]	[0.384]	[0.333]	[0.253]	[0.252]	[0.252]
Education	0.201*	0.198*	0.477**	0.013	0.198*	0.195*	0.197*
	[0.109]	[0.106]	[0.187]	[0.131]	[0.107]	[0.104]	[0.105]
Tenure	0.251**	0.246**	0.648***	0.02	0.256**	0.251**	0.237**
	[0.120]	[0.118]	[0.195]	[0.146]	[0.119]	[0.117]	[0.117]
Knowledge-sharing ability	0.216**	0.211**	0.2	0.15	0.218**	0.213**	0.11
	[0.094]	[0.091]	[0.151]	[0.112]	[0.093]	[0.091]	[0.137]
Intrinsic motivation	0.126	0.112	0.023	0.201	0.137	0.122	−0.071
	[0.152]	[0.149]	[0.224]	[0.192]	[0.151]	[0.148]	[0.243]
Controlled motivation	−0.112	0.048	−0.339**	−0.025	−0.113	0.041	0.335
	[0.098]	[0.113]	[0.142]	[0.123]	[0.097]	[0.114]	[0.317]
Leadership position	0.795***	0.753***	0.562	0.702*	0.754***	0.716**	0.705**
	[0.284]	[0.282]	[0.399]	[0.386]	[0.284]	[0.282]	[0.280]
Project management	−0.311	−0.31	−0.139	−0.371	−0.329	−0.326	−0.331
	[0.313]	[0.309]	[0.564]	[0.376]	[0.315]	[0.310]	[0.308]
Task identity	−0.360***	−0.324***	−0.483**	−0.206	−0.360***	−0.325***	−0.577**
	[0.122]	[0.121]	[0.197]	[0.149]	[0.120]	[0.119]	[0.278]
Feedback	0.078	0.089	−0.093	0.141	0.075	0.086	−0.028
	[0.092]	[0.091]	[0.161]	[0.108]	[0.092]	[0.091]	[0.153]
Autonomy	0.324**	0.330**	0.651***	0.206	0.315**	0.321**	−0.051
	[0.144]	[0.142]	[0.239]	[0.170]	[0.143]	[0.141]	[0.418]
Boundary spanner	1.195***	1.137***	0.069	2.033***	1.771***	1.687***	1.421***
	[0.273]	[0.271]	[0.370]	[0.354]	[0.339]	[0.336]	[0.419]
Boundary spanner × Controlled motivation[b]		−0.619***				−0.598***	−0.566***
		[0.216]				[0.210]	[0.212]
Boundary spanner × Knowledge hub unit					−1.313***	−1.248***	−1.270***
					[0.476]	[0.471]	[0.471]
Method variance factor							0.906
							[0.932]
Business unit dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.866	−1.522	−1.316	−0.922	−0.569	−1.209	2.958
	[1.114]	[1.149]	[1.819]	[1.350]	[1.115]	[1.152]	[4.453]
Sigma	2.120***	2.091***	1.787***	2.162***	2.102***	2.075***	2.070***
	[0.101]	[0.098]	[0.132]	[0.134]	[0.100]	[0.097]	[0.096]
Intermodel test chi2				14.76***			
Observations	482	482	146	336	482	482	482
Log-likelihood	−651.92	−647.761	−214.5	−421.015	−648.781	−644.867	−644.425

TABLE 2 (Continued)

	Model 1	Model 2	Model 3a *Knowledge hub*	Model 3b *Non-knowledge hub*	Model 4	Model 5	Model 6
F	9.296***	9.032***	8.504***	5.815***	9.214***	8.926***	8.589***
Observations summary							
Left-censored observations at intra-MNC knowledge sharing ≤1	248		56	192	248		
Uncensored observations	232		89	143	232		
Right-censored observations at intra-MNC knowledge sharing ≥7	2		1	1	2		

[a] Robust standard errors are reported in brackets.

[b] *Controlled motivation* was normalized around its mean value before being interacted.

*$p < .10$; **$p < .05$; ***$p < .01$ (two-tailed test applied).

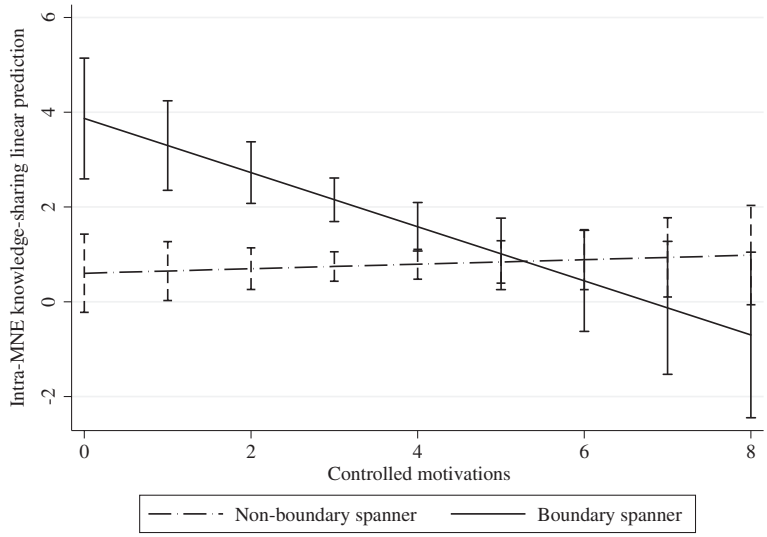

FIGURE 1 Predictive margins of boundary spanner with 95% CIs

between *boundary spanner* and *knowledge hub unit.* This interaction is statistically significant and negative ($p < .01$). Model 5, which includes all interaction terms, confirms our findings.

To assess common method variance bias, we added the method variance factor to the full model in Model 6. All of the significant correlations remained significant. Accordingly, we conclude that common method variance does not play an important role in our findings.

6 | DISCUSSION AND CONCLUDING REMARKS

Boundary spanners are often assumed to unambiguously contribute to knowledge sharing across MNC units (Kogut & Zander, 1992; Reiche, 2011). We suggest that the knowledge sharing behavior

TABLE 3 Tobit estimations with dependent variable = intra-MNC knowledge provision and dependent variable = intra-MNC knowledge acquisition[a]

	Model 1	Model 2	Model 3a	Model 3b	Model 4	Model 5	Model 6a	Model 6b
	Intra-MNC knowledge provision		*Knowledge hub*	*Non-knowledge hub*	*Intra-MNC knowledge acquisition*		*Knowledge hub*	*Non-knowledge hub*
Female	−0.193	−0.214	0.642	−0.931*	0.052	0.063	0.855*	−0.645
	[0.383]	[0.382]	[0.578]	[0.496]	[0.338]	[0.338]	[0.465]	[0.478]
Education	0.221	0.211	0.339	0.093	0.259*	0.253*	0.661***	−0.002
	[0.161]	[0.158]	[0.249]	[0.194]	[0.148]	[0.145]	[0.243]	[0.187]
Tenure	0.441**	0.430**	1.268***	−0.022	0.221	0.218	0.372	0.092
	[0.174]	[0.173]	[0.274]	[0.214]	[0.160]	[0.158]	[0.229]	[0.209]
Knowledge-sharing ability	0.304**	0.299**	0.177	0.216	0.248**	0.252**	0.368**	0.179
	[0.134]	[0.133]	[0.222]	[0.160]	[0.122]	[0.118]	[0.156]	[0.157]
Intrinsic motivation	0.122	0.116	0.145	0.117	0.193	0.171	−0.217	0.443
	[0.227]	[0.224]	[0.336]	[0.280]	[0.201]	[0.200]	[0.272]	[0.275]
Controlled motivation	0.003	0.194	−0.245	0.122	−0.13	0.059	−0.396**	−0.048
	[0.141]	[0.163]	[0.198]	[0.177]	[0.135]	[0.156]	[0.183]	[0.183]
Leadership position	0.978**	0.927**	0.316	1.303**	0.823**	0.764**	0.776*	0.427
	[0.393]	[0.391]	[0.591]	[0.535]	[0.379]	[0.380]	[0.453]	[0.550]
Project management	−0.228	−0.232	0.201	−0.597	−0.414	−0.422	−0.247	−0.397
	[0.474]	[0.469]	[0.822]	[0.566]	[0.411]	[0.408]	[0.602]	[0.532]
Task identity	−0.332*	−0.296*	−0.868***	0.019	−0.551***	−0.514***	−0.268	−0.570***
	[0.174]	[0.173]	[0.275]	[0.221]	[0.168]	[0.166]	[0.247]	[0.217]
Feedback	−0.006	0.007	−0.363	0.149	0.069	0.079	−0.083	0.142
	[0.134]	[0.134]	[0.241]	[0.155]	[0.122]	[0.121]	[0.168]	[0.162]
Autonomy	0.381*	0.397*	0.829**	0.177	0.508***	0.516***	0.734***	0.447*
	[0.218]	[0.217]	[0.349]	[0.262]	[0.190]	[0.188]	[0.280]	[0.245]
Boundary spanner	1.569***	1.523***	0.42	2.460***	1.380***	1.318***	−0.085	2.707***
	[0.385]	[0.385]	[0.522]	[0.502]	[0.355]	[0.353]	[0.412]	[0.495]

TABLE 3 (Continued)

	Model 1	Model 2	Model 3a	Model 3b	Model 4	Model 5	Model 6a	Model 6b
	Intra-MNC knowledge provision		*Knowledge hub*	*Non-knowledge hub*	*Intra-MNC knowledge acquisition*		*Knowledge hub*	*Non-knowledge hub*
Boundary spanner × Controlled motivation[b]		−0.689**				−0.746**		
		[0.310]				[0.288]		
Business unit dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−2.882*	−3.716**	−1.812	−3.324*	−1.857	−2.586	−2.161	−2.013
	[1.696]	[1.749]	[2.779]	[2.004]	[1.550]	[1.575]	[2.160]	[1.981]
Sigma	2.951***	2.925***	2.518***	2.979***	2.798***	2.770***	2.142***	3.042***
	[0.154]	[0.152]	[0.219]	[0.185]	[0.148]	[0.145]	[0.160]	[0.217]
Intermodel test chi2				7.96***				18.86***
Observations	492	492	152	340	512	512	158	354
Log-likelihood	−609.525	−606.96	−218.71	−373.013	−682.28	−678.783	−233.66	−430.355
F	7.243***	7.045***	7.133***	4.667***	6.799***	6.702***	5.389***	5.026***
				Observations summary				
Left-censored observations at intra-MNC knowledge sharing ≤1	306		74	232	295		70	225
Uncensored observations	180		74	106	209		86	123
Right-censored observations at intra-MNC knowledge sharing ≥7	6		4	2	8		2	6

[a]Robust standard errors are reported in brackets.

[b] *Controlled motivation* was normalized around its mean value before being interacted.

*$p < .10$; **$p < .05$; ***$p < .01$ (two-tailed test applied).

of boundary spanners should not be taken for granted, as it is affected by the motivation to share knowledge, and it is contingent upon the immediate organizational context in which boundary spanners are located. In particular, we argue that boundary spanners share knowledge to a significantly lesser degree when they are highly controlled motivated and when they are located in a unit that serves as a knowledge hub for the rest of the MNC.

Our study offers two contributions to research on boundary spanners and intra-MNC knowledge sharing. First, we suggest that the awareness that boundary spanners are important for knowledge sharing is useless without clear indications as to how boundary spanners' contributions to intra-MNC knowledge sharing can be promoted through the use of certain governance mechanisms. In line with the knowledge governance approach (Foss, 2007; Gooderham, Minbaeva, & Pedersen, 2011), our study reveals the relevance of governance mechanisms that favorably influence intra-MNC knowledge sharing by decreasing controlled motivation of boundary spanners. Previous research indicates that the introduction of pecuniary rewards creates an incentive for individuals to withhold knowledge for future gains (see also Bock et al., 2005). Notably, however, the use of acknowledgement schemes and positive feedback may weaken an individual's desire to hoard knowledge (Husted et al., 2012). Governance mechanisms that stimulate an individual's sense of volunteerism and intrinsic drive should also help decrease the controlled motivation of boundary spanners. Furthermore, organizational structures that create a need-supportive context (as opposed to a controlling context) provide a meaningful rationale for doing one's own job, create a desire to belong, and promote a sense of shared identity. All of these elements are decreasing controlled motivation. In addition, our study highlights the importance of the immediate context for boundary spanners by suggesting that the highly competitive environments typical of knowledge hubs are not conducive for boundary spanners' contributions to intra-MNC knowledge sharing. In our follow-up conversations, Rambøll managers indicated that the units we identified as knowledge hubs were "more competitive" and that they often saw "pockets of a 'knowledge is power' culture" in such knowledge hubs.

A second contribution relates to our focus on knowledge sharing *across* MNC units. Our knowledge of boundary spanners' contributions to intra-MNC knowledge sharing is limited to vertical knowledge flows (Reiche, 2011). However, the competitive advantage MNCs enjoy relative to domestic firms is contingent on the former's ability to exploit knowledge sourced from a variety of external contexts (Kogut & Zander, 1993). Therefore, our focus on knowledge sharing across intra-MNC units enables us to shed light on the importance of making the best use of local talent worldwide and clarifies the conditions under which individual boundary spanners enable MNCs to achieve this goal.

Finally, our study contributes to the general debate on the need for microfoundations in international and strategic management research (Morris, Hammond, & Snell, 2014) and for studies on internal knowledge sharing (Minbaeva, 2013). Scholars in macro-management disciplines, such as strategic management, have long highlighted firm-level knowledge assets and their attributes as key drivers of differences in organizational performance. Over the last few years, scholars have increasingly recognized that the macro-level explanatory mode of such research should be equipped with microfoundations (e.g., Felin & Foss, 2005; Teece, 2007). This implies a need to theorize about individual heterogeneity (Felin & Hesterly, 2007) and individual interactions (Felin & Foss, 2005). Given their fundamental interest in individual characteristics, studies of boundary spanners are uniquely positioned to contribute to this discourse. Our study begins to fill this gap by explicating the so far overlooked moderating role of individual's controlled motivation in the knowledge-sharing behavior of boundary spanners, thus advancing Foss et al. (2009), Minbaeva and Pedersen (2010), and Reinholt et al. (2011). Also, we distance from Reinholt et al. because we understand

knowledge sharing as simultaneously involving knowledge provision and acquisition based on Davenport and Prusak's (1998) argument.

We also take the arguments of extant research one step further by, in addition to analyzing the effect of controlled motivation, specifying a potentially strong interdependence between the actions of an individual and those of others in the same context. We stress the importance of the immediate context since organizations are systems of interdependent actions and so suffer from such common problems as free riding, moral hazard, and opportunism, as well as problems associated with coordinating actions.

One unique feature of our study is that it is based on a large sample of individual-level data collected from one large, global firm. This allowed us to keep the external factors influencing intra-MNC knowledge sharing constant and to bring in and use deep contextual knowledge to understand and interpret our findings. However, this feature also limits the generalizability of our findings. We acknowledge that research should span not only large samples of individual-level data, but also large samples of MNCs. Therefore, we highlight the need to collect and analyze individual-level data across different MNCs. Such data collection would also offer a chance to gather information on knowledge sharing from other employees, who can be asked to indicate from whom they receive knowledge. This information is missing in our data.

Another limitation of our study relates to the use of perceptual measures for knowledge sharing. Although self-reported measures are used in the majority of studies on knowledge sharing (Wang & Noe, 2010), future research should try to combine subjective and objective measures in order to develop more elaborate measures of knowledge sharing. Finally, future studies should aim to include a finer measure to capture the strength of the ties in internal and external networks because by looking at regular contacts, we are unable to assess the magnitude of the frequency/strength of these contacts.

One might also question how boundary spanners operating in MNCs differ from those active in large, domestic firms. Kostova et al. (2008, p. 997) refer to MNC environments as "complex internal environments, with spatial, cultural, and organizational distance, language barriers, inter-unit power struggles, and positive inconsistencies and conflict among the interests, values, practices, and routines used in the various parts of the organization." How do these "inconsistencies" and "struggles" affect boundary spanners? We need a deeper understanding of the theoretical implications of the MNC context for boundary-spanning behavior that, according to Kostova et al., utilizes the distinctiveness of MNCs as organizational fields. In fact, when talking about knowledge sharing, the issue of context is highly pertinent (Alvesson, 1993; Armbrecht et al., 2001; Empson, 2001). Nevertheless, we call for research that goes beyond the general argument that "context matters," as we need "more direct contextualization of theoretical propositions as opposed to *post hoc c*ontextualizing" (May, Stewart, Puffer, McCarthy, & Ledgerwood, 2011, p. 719; see also Michailova, 2011; Minbaeva, 2016). The use of the context as a *source* for theorizing provides international management researchers with an opportunity to make a more compelling theoretical contribution (Cheng, 2007; Whetten, 2009). In particular, future research on boundary spanners in MNC subsidiaries should extend the analysis to the role of the local context in determining boundary-spanning behavior by closely examining the differential impacts of factors related to the external context (e.g., formal and informal institutions) on boundary-spanning behavior and the effectiveness of boundary spanners as transferors of knowledge.

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