International Business Review 23 (2014) 993–1007

Contents lists available at ScienceDirect

International Business Review

journal homepage: www.elsevier.com/locate/ibusrev

The performance effects of vertical and horizontal subsidiary knowledge outflows in multinational corporations

Cátia Fernandes Crespo [a,*], David A. Griffith [b], Luis Filipe Lages [c,d]

[a] Department of Management and Economics, Superior School of Technology and Management, Polytechnic Institute of Leiria, CIGS, ADVANCE, Campus 2, Morro do Lena, Alto do Vieiro, 2411 – 901 Leiria, Portugal
[b] College of Business and Economics, Lehigh University, Rauch Business Center, 365, 621 Taylor Street, Bethlehem, PA, USA
[c] Nova School of Business and Economics, Universidade Nova Lisboa, Portugal
[d] CERGAM, IAE Aix, Aix Marseille Université, France

ARTICLE INFO

Article history:
Received 22 October 2013
Received in revised form 26 February 2014
Accepted 3 March 2014
Available online 21 March 2014

Keywords:
Knowledge outflows
Multinational corporations
Subsidiaries

ABSTRACT

Horizontal and vertical subsidiary knowledge outflows in multinational corporations (MNCs) are argued to be central to effective MNC performance. Building on the knowledge-based view of the firm, we develop a conceptual model to investigate the performance consequences, determinants and interaction effects due to coordination and control mechanisms, of horizontal and vertical MNC subsidiary knowledge outflows. The hypotheses are empirically tested with a dataset comprised of survey and archival data from over 200 MNC subsidiaries. Results indicate that explicitness and communication positively influence vertical and horizontal subsidiary knowledge outflows and that national cultural distance, centralization, formalization, and specialized resources moderate these influences. We also find that knowledge outflows to headquarters and to peer subsidiaries enhance an MNC's financial performance (i.e., return on assets). The results provide substantive evidence as to how vertical and horizontal knowledge operate within MNCs.

1. Introduction

Firm competitive advantage is derived from the possession and configuration of appropriate tangible and intangible resources (Barney, 1991; Grant, 1996a, 1996b; Peteraf, 1993). Through the development and leveraging of unique combinations of heterogeneous and imperfectly mobile resources, firms are able to achieve and sustain competitive positions resulting in above normal returns (Ju, Zhou, Gao, & Lu, 2013; Peteraf, 1993). However, outside of natural resource monopolies, research indicates that competitive advantage is founded on heterogeneous intangible resources (Hitt, Bierman, Shimizu, & Kochhar, 2001). In fact, it is argued that knowledge, of all the resources a firm may hold, has the greatest ability to serve as a source of sustainable competitive advantage (Filipescu, Prashantham, Rialp, & Rialp, 2013; Fletcher, Harris, & Richey, 2013; Grant, 1996b; Griffith, Kiessling, & Dabic, 2012; Kogut & Zander, 1993; Roth, Jayachandran, Dakhli, & Colton, 2009).

The knowledge-based view of the firm rests on the idea that firms should be analyzed based on their knowledge resources (Grant, 1996b). Recognizing the importance of knowledge within a multinational corporation (MNC) (Cui, Griffith, & Cavusgil, 2005; Kogut & Zander, 1993; Michailova & Minbaeva, 2012), scholars have begun to map not only the MNC network, but the knowledge flows within these networks (Fletcher et al., 2013; Ghoshal & Bartlett, 1990; Noorderhaven & Harzing, 2009; O'Donnell, 2000), as it is argued that through knowledge flows a firm can leverage knowledge within its network for competitive advantage (Kogut & Zander, 1993). For example, Gupta and Govindarajan (2000) studied knowledge inflows and outflows of MNC subsidiaries, examining issues such as motivations, channels, and absorptive capacity. Similarly, Noorderhaven and Harzing (2009) examined social interaction among managers on intra-MNC knowledge flows. While these investigations into vertical and horizontal intra-MNC knowledge flows have substantively advanced our knowledge, research has yet to examine vertical and horizontal knowledge flow jointly, the mechanisms influencing or moderating these effects (e.g., MNC policies such as formalization, centralization, etc.), or the implications of subsidiary knowledge outflows to the financial performance of an MNC. Given these

* Corresponding author. Tel.: +351 244 820 300; fax: +351 244 820 310.
E-mail addresses: catia.crespo@ipleiria.pt (C.F. Crespo), david.a.griffith@lehigh.edu (D.A. Griffith), lflages@novasbe.pt (L.F. Lages).

http://dx.doi.org/10.1016/j.ibusrev.2014.03.002
0969-5931/

limitations, this work contributes to the literature in two distinct ways.

First, this research extends the current literature by building on the concept of the MNC as a network of multiple centers of knowledge (Kogut & Zander, 1993; Roth et al., 2009) and exploring the performance implications of intra-firm knowledge flows. We conceptualize the MNC as composed of multiple knowledge units, where each subsidiary serves as a key knowledge node capable of acquiring, converting, and transferring knowledge throughout the MNC. A considerable amount of previous studies on knowledge transfer do not distinguish between horizontal and vertical knowledge flows (Michailova & Mustaffa, 2012), treating knowledge as a single composite variable and therefore preventing the comprehension of the nature of and the mechanisms behind the different directions of flows. Our study contends that it is through these horizontal and vertical knowledge flows that MNC performance is enhanced. As such, we extend the literature by investigating the performance effects of subsidiary knowledge outflows (*horizontally* and *vertically*) within the MNC network. By doing so, we are able to isolate the contribution of subsidiary knowledge outflows (both to headquarters and to other subsidiaries) on MNC financial performance (i.e., return on assets). Examining the performance effects of knowledge flows is important as prior research has not jointly explored empirically horizontal and vertical knowledge flows, nor has it explored subsidiary knowledge flow effects on MNC financial performance.

Second, though knowledge can be considered a strategic resource, knowledge in itself cannot create sustainable competitive advantage. Rather, it is the 'effective integration of knowledge' that is the key driver of competitive advantage (De Luca & Atuahene-Gima, 2007). When viewing the MNC as a knowledge network (Kogut & Zander, 1993), the effective integration of knowledge requires the ability to transmit knowledge acquired from different national markets (Lee, Chen, Kim, & Johnson, 2008; Lee, 2010; Roth et al., 2009). Consequently, it becomes critical from both a theoretical and managerial perspective to understand the coordination and control mechanisms that an MNC can put in place to facilitate knowledge flows. To address this issue, this research analyzes the implementation of coordination and control mechanisms (e.g., formalization, centralization) as active elements that an MNC can engage in to influence subsidiary knowledge outflows. As such, this work extends the literature by shedding light on the coordination and control mechanisms of an MNC in facilitating or hindering vertical and horizontal subsidiary knowledge outflows.

We test our hypotheses with a dataset comprised survey and archival data from over 200 Portuguese subsidiaries of MNCs headquartered in North America, Europe, and Japan. We find that explicitness and frequency of communication are important antecedents of subsidiary knowledge outflows; national cultural distance, centralization, formalization, and specialized resources have significant moderator effects within the subsidiary knowledge outflows process; and subsidiary knowledge outflows to the headquarters and to peer subsidiaries enhance an MNC's financial performance (using the objective performance measure of MNC return on assets (ROA)). Implications of the work are discussed.

2. Theoretical background

'Knowledge has emerged as the most strategically-significant resource of the firm' (Grant, 1996a, p. 375). The ability to manage knowledge is perceived as the 'single most important strategic challenge of the multinational enterprises' (Becker-Ritterspach, 2006, p. 359). Firms and their business units differ not only in their abilities to create knowledge, but also in their abilities to transfer knowledge (Kogut & Zander, 1993; Martin & Salomon, 2003). Some MNCs are effect at accumulating knowledge, but lack the capacity to transfer it efficiently. Others MNCs have weak capacities to create knowledge, yet are quite able to understand, articulate, and transfer it (Martin & Salomon, 2003).

The knowledge-based view of the firm conceptualizes the MNC as a knowledge-sharing network whose existence is explained by its ability to transfer, create, and absorb knowledge more efficiently than markets (Foss & Pedersen, 2004; Kogut & Zander, 1993). According to this literature, knowledge and learning are at the root of understanding how competitive advantage is acquired and maintained (Foss & Pedersen, 2004; Grant, 1996b; Kogut & Zander, 1992). However, in spite of the argument that MNCs exist mainly due to their superior ability to transfer knowledge in the intra-corporate context (compared to external markets mechanisms) (Kogut & Zander, 1993), that does not imply that intra-corporate knowledge transfers occur on an effective and efficient basis (Gupta & Govindarajan, 2000). In fact, the main challenge to managing knowledge flows within the MNC is the development of mechanisms that facilitate the efficient creation, development, and sharing of knowledge (Fey & Furu, 2008, p. 1302).

Knowledge flows within MNCs occur within the context of an interorganizational network of differentiated units (Gupta & Govindarajan, 1991, 2000). Intra-organizational knowledge flows allow firms to leverage multiple competencies across geographically dispersed units of the MNC. In this study we focus on the knowledge outflows that the focal subsidiaries send to other subsidiary units within the MNC (i.e., horizontal outflows) as well as to headquarters (i.e., vertical outflows). This perspective is important because as Michailova and Mustaffa (2012) emphasize, subsidiary knowledge outflows have received considerably less research attention than knowledge inflows. Consequently, 'the idea of subsidiaries as sources of knowledge for the entire MNC is still under-researched and less understood' (Michailova & Mustaffa, 2012, p. 389). Subsidiaries have traditionally been treated as passive recipients of knowledge from headquarters (Michailova & Mustaffa, 2012), however past research has revealed that foreign subsidiaries are critical to the international competitiveness of the MNC, taking into consideration their important role as a source of strategic resources (Birkinshaw, 1996; Gupta & Govindarajan, 1991; Roth & Morrison, 1992; Tippmann, Scott, & Mangematin, 2012), as MNC subsidiaries develop unique, differentiated sets of competences and capabilities due to their different local environments (Birkinshaw, Hood, & Jonsson, 1998; Ghoshal & Nohria, 1989). Within the MNCs context, the traditional role of headquarters as leading source of knowledge is changing, due to its increasing role as receivers of knowledge from multiple international subsidiaries (Ambos, Ambos, & Schlegelmilch, 2006). However, the focus of the majority of studies is placed on the traditional knowledge transfer direction (from the headquarters to subsidiaries), and consequently, lateral knowledge transfers (from subsidiary to subsidiary), and particularly as recognized by Ambos et al. (2006) the transfers from the subsidiary to the headquarters (also denominated as reverse knowledge transfer), have been investigated by very few studies. As such, this work specifically answers the call by Michailova and Mustaffa (2012) who recommend that future research should examine outcomes of subsidiary knowledge outflows, both horizontal and vertical.

We develop a conceptual model (Fig. 1), building on the knowledge-based view of the firm and the extant literature on knowledge flows (e.g., Nonaka, 1991; Ambos & Schlegelmilch, 2007). We argue that subsidiary vertical and horizontal knowledge outflows are influenced by the explicitness/tacitness of knowledge (Nonaka, 1991) as well as by the frequency of communication within the MNC (vertical and horizontal) (Monteiro, Arvidsson, & Birkinshaw, 2008), as these factors reflect both the characteristic of knowledge and the channel through which knowledge can flow. While type of knowledge and channel influence vertical and