

Reverse Knowledge Transfer and Subsidiary Power

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Abstract

Rather than looking at the more typical inter-company level adopted in most B2B marketing, this study investigates how a subsidiary gains power within the context of the multinational corporation. Building on network theory and dependence theory, two approaches well-known in the B2B marketing literature, this study aims to test empirically the impact of reverse knowledge transfer, knowledge transfer from a subsidiary to headquarters, on subsidiary influence and autonomy. The survey-based data from 183 subsidiaries located in the UK suggests that reverse knowledge transfer significantly enhances the relative influence of the subsidiary within the broader multinational corporation. Moreover, we find that this association is (a) stronger when the level of internal embeddedness is high and (b) weaker when the level of external embeddedness is high. Finally, our results indicate that a higher level of subsidiary autonomy only occurs in conjunction with internally embedded reverse knowledge transfer.

Keywords: influence, autonomy, reverse knowledge transfer, external and internal embeddedness.

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1. Introduction

Recent contributions on multinational corporations indicate that subsidiaries differ in terms of their scope of knowledge development and contribution to the whole corporation (Bartlett & Ghoshal, 1988; Birkinshaw, 1997; Frost, Birkinshaw, & Ensign, 2002). There also exists further anecdotal evidence of subsidiaries that use these differences to compete with each other, not only to increase their degree of freedom, but also to influence the functions and strategy of the multinational corporation (Ambos, Andersson, & Birkinshaw, 2010; Mudambi & Navarra, 2004). Therefore, the concept of the subsidiary power is important for advancing our understanding of how multinational corporation strategy and structure are evolved and developed.

There has been increasing scholarly interest on subsidiary power in which some important issues have been investigated: internal and external network characteristics (Andersson, Forsgren, & Holm, 2002), knowledge-based activities such as knowledge development and reverse knowledge transfer (Ciabuschi, Dellestrand, & Kappen, 2012; Mudambi & Navarra, 2004), the level of attention from headquarters (Ambos et al., 2010), and the degree of dependence on the subsidiary's competencies (Mudambi, Pedersen, & Andersson, 2014). However, a systematic review of these contributions suggests limits to existing knowledge, which this article directly addresses. First, while the literature on subsidiary power indicates that a subsidiary can gain more influence if it engages in the process of reverse knowledge transfer (Najafi-Tavani, Giroud, & Andersson, 2014), surprisingly, it is not clear whether transferring knowledge to headquarters can also increase a subsidiary's ability to pursue its own goals. To address this limitation, we focus on both autonomy and influence as two dimensions of subsidiary power. We argue that autonomy and influence are two orthogonal

needs of subsidiaries through which a subsidiary may employ its knowledge resources not only to achieve more freedom in pursuing its own goals but also to influence multinational corporation strategy (Ambos et al., 2010). Our article thereby adds to this strand of research by examining two subsidiary power dimensions (autonomy and influence) in conjunction with reverse knowledge transfer.

Second, building on the network and dependency theory, one may expect that the extent of subsidiary embeddedness with its internal and external actors may impact its position within the whole corporation. The underlying idea is that such relationships may represent strategic resources on which the multinational corporation may rely (Andersson, Forsgren, & Holm, 2007). While theory suggests that internal and external embeddedness can impact subsidiary power, prior studies have not, to our knowledge, provided empirical support for the association in the context of reverse knowledge transfer. To fill this gap, our study investigates the interaction effects of internal and external embeddedness on the association between reverse knowledge transfer and power (influence and autonomy). We are interested in finding out whether different levels of internal and external embeddedness can influence the relationship between reverse knowledge transfer and the subsidiary's power base (influence and autonomy).

The rest of the article is organised as follows. After explaining the theoretical background, we develop the related hypotheses regarding the direct effects of reverse knowledge transfer on subsidiary autonomy and influence. We also present a number of hypotheses regarding the moderating impacts of internal and external embeddedness on the relationship between reverse knowledge transfer and subsidiary autonomy and influence. The research methodology, including sample, measurements, and validity of measures, is then explained.

We conclude by presenting our results and providing a discussion of the key findings and their relevance to current managerial issues.

2. Theoretical background

The research on multinational corporations indicates a significant change in the role of subsidiaries from implementers of headquarters instructions to the creators of competitive advantages (Cantwell & Mudambi, 2005; Chang, Cheng, & Wu, 2012; Rugman & Verbeke, 2001). While subsidiaries are legally owned by the headquarters, given the large size of many multinational corporations and the large geographical distances often involved, it is reasonable to assume that headquarters are not in full control of their subsidiaries' actions. Therefore, subsidiaries can be considered as semi-autonomous units that not only have their own independent goals (Ambos et al., 2010) but also, are interested in exercising power within the multinational corporation (Mudambi & Navarra, 2004).

To explain subsidiary power, a number of studies have tried to understand how a subsidiary's ability to develop new knowledge enhances subsidiary power base within the multinational corporations (Andersson et al., 2007; Mudambi & Navarra, 2004). However, it has been shown that subsidiary knowledge resources are not enough for achieving power within the multinational corporation (Mudambi & Navarra, 2004). To gain power, a subsidiary should showcase their competencies, or in other words attract headquarters' attention, through engaging in the process of reverse knowledge transfer (Najafi-Tavani et al., 2014).

In addition to subsidiary knowledge-based activities, other determinants of the extent of subsidiary power are based on characteristics of subsidiary relationships with either its internal or external environments (Andersson et al., 2002; Birkinshaw & Hood, 1998). Amongst various relational characteristics, the importance of embeddedness for the

subsidiary's power base has been consistently highlighted by earlier studies (Andersson et al., 2007; Ciabuschi, Holm, & Martín Martín, 2014). Building on network theory, it is expected that embedded relationships increase subsidiaries' accessibility to external strategic resources, and enable them to tap into opportunities residing in their local environment on which the multinational corporation may depend. This dependency then enables a subsidiary to ask for certain advantages (e.g. autonomy, resource allocations, etc.) from its headquarters (Auh & Merlo, 2012).

The impact of the internal embeddedness (that is the embeddedness between a subsidiary and its headquarters) on subsidiary power has also been highlighted by the earlier studies (Ciabuschi et al., 2014). Relational characteristics matter, since the only way for subsidiaries to attain headquarters' attentions, and thus gain power, is through developing internal embeddedness (Yamin & Andersson, 2011). This is because subsidiary knowledge resources are often tacit and difficult to be recognized and internationally exchanged (Lane & Lubatkin, 1998; Szulanski, 1996). Through facilitating the absorptive capacity of the headquarters, internal embeddedness has substantial impact on the extent to which subsidiary strategic resources (e.g. knowledge resources and external embeddedness) can serve as platforms for gaining power (Najafi-Tavani et al., 2014).

Building on resource dependency theory and the network perspective, and combining the key contributions of earlier studies, we investigate the direct impact of reverse knowledge transfer and the indirect impact of internal embeddedness and external embeddedness on the extent of subsidiary power within the multinational corporation. We consider subsidiary power as a multidimensional construct comprising autonomy (that is a subsidiary's ability to shape its destiny without intervention from headquarters) and influence (the ability to impact the strategic future of the entire corporation) (Ambos et al., 2010). While these two dimensions

represent two somewhat conflicting needs of subsidiaries, their inclusion is likely to provide a more comprehensive overview of the subsidiary's power base.

3. Hypotheses development

3.1. Reverse Knowledge Transfer

The international business literature has consistently emphasized subsidiary knowledge-based activities as being a platform for the development of subsidiary power (Andersson et al., 2007; Mudambi & Navarra, 2004). In the subsidiary power literature, knowledge-based activities often refer to either knowledge development or reverse knowledge transfer. The latter can be defined as the transfer of knowledge from a subsidiary to its headquarters (Najafi-Tavani, Giroud, & Sinkovics, 2012b). We argue that subsidiaries cannot gain power only through engaging in knowledge development, but that they also need to engage in reverse knowledge transfer. This process can increase subsidiaries' power in two ways. First, it has been shown that frequent transfer of knowledge legitimizes subsidiary competencies that serve as a source of power for a subsidiary (Schulz, 2001). Second, subsidiaries' knowledge resources are mainly tacit in nature since they are not only locally specific, but also reside in the subsidiaries' organizational practices and employees' experiences and skills. The size of many multinational corporations makes it impossible for headquarters to fully identify and appreciate the value of their subsidiaries' knowledge resources. Yet, it has been noted that headquarters' attention and recognition of subsidiary capabilities are directly linked to subsidiary power (Ambos et al., 2010). Therefore, through engaging in reverse knowledge transfer, subsidiaries' capabilities become more and more visible to headquarters, which can then boost subsidiary power.

For these reasons, we argue that subsidiary power is directly linked to the extent of reverse knowledge transfer. Subsidiaries can use their power either to resist headquarters control and thus gain more autonomy, or to influence the strategic decisions of the whole corporation. Therefore we suggest that:

Hypothesis 1. The greater the extent of reverse knowledge transfer, the greater the level of subsidiary influence within the multinational corporation.

Hypothesis 2. The greater the extent of reverse knowledge transfer, the greater the level of subsidiary autonomy within the multinational corporation.

3.2. Internal embeddedness

Although reverse knowledge transfer can increase a subsidiary's power within the multinational corporation, its ultimate impact may depend on the characteristics of the relationship between a subsidiary and its headquarters. We conceptualize the subsidiary-headquarters relationship as being the level of internal embeddedness and, following prior studies, define it as the mutual adaptation of activities between subsidiaries and their headquarters (Granovetter, 1982; Uzzi, 1996). Embeddedness is a process that takes time but, once developed, it results in the effective exchange of resources and joint problem solving (Uzzi, 1996).

The recognition that subsidiaries are semi-autonomous and that they can pursue their own objectives may create a challenge for headquarters. While some subsidiaries use their freedom to pursue value adding activities that can benefit the whole corporation, others may engage in activities that benefit the subsidiary at the expense of the multinational corporation itself (Ambos et al., 2010). Given that headquarters cannot predict the intentions of subsidiaries, they usually adopt a somewhat tentative approach towards their subsidiaries'

activities. For instance, headquarters may have two opposite perceptions about a subsidiary's intention when it engages in reverse knowledge transfer: (a) adding value to the multinational corporation or (b) engaging in the rent-seeking behaviours. In other words, the headquarters may not be certain that the subsidiary is trustworthy and whether or not it will seek to abuse its knowledge advantages (Kaufmann & Roessing, 2005). Embedded relationships between headquarters and subsidiaries ease the tension through the creation of mutual trust (Saliola & Zanfei, 2009) through which headquarters believe in the benevolence of its subsidiary's behaviours and intentions. Therefore, it is not surprising that the headquarters becomes more willing to grant more power to the subsidiary when the level of internal embeddedness is high. Furthermore, instead of using formal control mechanisms and thus limiting a subsidiary's autonomy, headquarters can use internal embeddedness to ensure that its subsidiary does not engage in opportunistic behaviour (Lin, Huang, Lin, & Hsu, 2012; Liu, Liu, & Li, 2014). Accordingly, we argue that the effect of reverse knowledge transfer on subsidiary power at higher levels of internal embeddedness is positive and significant. This is because trusting subsidiaries would be difficult without the existence of internal embeddedness. We therefore hypothesize that:

Hypothesis 3. The positive association between reverse knowledge transfer and subsidiary influence is greater as internal embeddedness increases.

Hypothesis 4. The positive association between reverse knowledge transfer and subsidiary autonomy is greater as internal embeddedness increases. .

3.3. External embeddedness

In addition to the headquarters, subsidiaries may also develop and maintain close relationships with their local actors (e.g. suppliers, customers, etc.). We conceptualize these relationships as external embeddedness, which we define as the mutual adaptation of

activities between a subsidiary and its local business partners. It has been shown that variations in subsidiaries' ability to develop new knowledge are due to the differences in the network attributes, given that these attributes lead to significant learning opportunities (Liu, Li, & Xue, 2010; Powell, 1990). Access to external knowledge is one of the key requirements of knowledge development (Almeida & Phene, 2004; Chang, Witteloostuijn, & Eden, 2010; Inemek & Matthyssens, 2013). However, given the highly context specific nature of local market knowledge (Fang, Jiang, Makino, & Beamish, 2010; Roth, Jayachandran, Dakhli, & Colton, 2009), subsidiaries need to be fully embedded in their local environment to acquire such knowledge (Miles, Kastrinos, & Flanagan, 1995). In addition, companies that are strongly linked together are more willing and capable of exchanging knowledge, and in a better position to learn from each other (Lane & Lubatkin, 1998). Therefore, subsidiaries that are highly embedded in their local environment may have access to valuable resources such as new knowledge and ideas or key suppliers and customers that can be employed by them as the major source of bargaining power to win political fights against headquarters (Mudambi & Navarra, 2004). However, the empirical results of earlier studies did not support the association between external embeddedness and subsidiary's influence (Andersson & Forsgren, 2000; Andersson et al., 2007). Nevertheless, although potentially important, the indirect impacts (particularly moderation effects) of the external embeddedness are mainly neglected.

We thereby add to the extant literature by investigating the moderating impacts of external embeddedness on the association between reverse knowledge transfer and subsidiary power. Building on prior studies we argue that external embeddedness may improve subsidiaries' ability to develop new knowledge (Najafi-Tavani, Giroud, & Sinkovics, 2012a). However, if subsidiaries become too embedded in their local environments, they may be distracted from the main goals and objectives of the multinational corporation, which in turn can result in

conflict (Asakawa, 2001). If not managed well, this conflict will then create distrust between a subsidiary and its headquarters which would not only restrict the subsidiary's influence on strategic decisions, but would also result in less subsidiary autonomy (Kaufmann & Roessing, 2005). Consequently, we argue that the effect of reverse knowledge transfer on subsidiary power at higher levels of external embeddedness should be negative because such a situation creates conflict and distrust between the subsidiary and headquarters. We thus hypothesise the following:

Hypothesis 5. The positive association between reverse knowledge transfer and subsidiary influence is lower as the level of external embeddedness increases.

Hypothesis 6. The positive association between reverse knowledge transfer and subsidiary autonomy is lower as the level of external embeddedness increases.

4. Research method and results

4.1. Sample and data collection

The data for this study was derived from an online questionnaire mailed to the UK subsidiaries of non-UK parent companies in the knowledge intensive business service sector. Knowledge intensive business service firms can be defined as those whose “economic activities are intended to result in the creation, accumulation, or dissemination of knowledge” (Miles et al., 1995, p. 18). These companies are amongst the fastest growing sectors in developed countries (Koch & Strotmann, 2008; Zaefarian, Henneberg, & Naudé, 2013) and are usually small to medium size or recently established firms (Najafi-Tavani et al., 2012a). While the knowledge intensive business service sector dominates the economies of developed countries, most of the studies on subsidiary power have been conducted on the manufacturing sector (except Najafi-Tavani et al., 2014). Consequently, given the lack of research and the growing importance of this sector, our article investigates the factors impacting subsidiary

power within the knowledge intensive business services. The survey was implemented amongst “computer services”, “research and development”, “economic services”, “technical services” and “advertising” companies (Aarikka-Stenroos & Jaakkola, 2012; Simmie & Strambach, 2006). The list of companies was built using the FAME database (which provides information on UK-based public and private companies). Given that the survey focuses mainly on intra-firm activities (i.e. knowledge transfer) and overall organizational issues (i.e. characteristics of the relationships between a subsidiary and its local and internal environment), it was addressed to the managing directors, general managers and chief executives of the subsidiaries.

The survey design and implementation were based on the tailored design method (Dillman, 2000). The questionnaire was pre-tested on 50 subsidiaries, selected academics, and 15 PhD students. The main aim of pre-testing the questionnaire was to check its relevance and clarity. This resulted in several changes to the questionnaire. The pre-tested questionnaire was then administered online (in order to avoid unwanted responses, respondents could only access the survey through a given link). Subsidiaries’ top managers were contacted first by telephone, and after that a personalized covering letter containing a link to the survey was emailed to them. In total, 523 questionnaires were emailed to chief executives, managing directors, and general managers within the subsidiaries, out of which 209 (183 usable cases) responded, resulting in a very high response rate of 39 percent. This is a very good response rate considering the profile of the respondents and the sensitive nature of some questions. A total of 26 cases were found to be unusable due to a number of reasons (e.g. some of which contained more than 15% missing values, some not having a non-UK parent company). Out of the 183 usable cases, 45% of the parent companies are located in Europe, 41% in North America, and the rest in Asia, Australia, South America and Africa.

We tested for non-response bias by comparing responding versus non-responding companies based on the subsidiaries' number of employees, the location of parent firms, and the subsidiaries' age (Gerbing & Anderson, 1988). The results show no significant differences between responding and non-responding companies. Furthermore, we compared early responses with late responses (Armstrong & Overton, 1977) based on the research's key variables including the levels of external embeddedness, subsidiary-parent firm embeddedness, and knowledge development. Since t-tests reveal no significant differences between early and late responses, we conclude that non-response bias is not problematic in our study.

4.2. Common Method Variance

Given that we measured all of our constructs using the same survey instrument, a possibility of common method variance exists in this research. Multiple remedies were employed to alleviate concerns about common method variance (Podsakoff, MacKenzie, & Lee, 2003). In the ex-ante research design and administration of the questionnaire, ensuring anonymity, avoiding the use of overly academic terms, and providing explanations on ambiguous terms were amongst the strategies employed to decrease the possibility of common method variance.

We followed several steps to assess ex-post whether common method bias is problematic within our data. First, we checked for common method variance following common method factor approach. In assessing the method bias, we re-estimated the structural model of our study with one additional first-order factor that we labelled "common method factor". All indicators of all the latent constructs in our model were added to this "common method factor" as suggested by Podsakoff et al, (2003). The addition of this "common method factor" to our SEM model controls for the amount of the variance in the indicators that results from

measuring all of our constructs using the same survey instrument. Comparing the overall results of our two SEM models suggests that the overall pattern of significant/insignificant paths does not change i.e. those paths that were significant in our original SEM model (the model in which we do not control for the common method bias) remained significant in the new SEM model (i.e. the model to which we added “common method factor” to control for the common method bias). Thus we can conclude that using the same survey instrument for measuring all the constructs in our model does not have a significant effect on our findings.

4.3. Measures

All the measures are taken from the extant literature. Table 1 represents the measures and the sources from which they are taken. As can be seen, all of the variables are measured using multiple indicators. All the measures are assessed based on 7-point Likert scale ranging from 1 “not at all” to 7 “to a very great extent”. To measure reverse knowledge transfer (Cronbach’s alpha= 0.899) respondents were asked to address the following question: “To what extent, during the last three years, did your company transfer ... to its parent company?” Since this study is conducted within the context of the knowledge intensive business service sector, we specifically focus on the development of four types of knowledge: sales and marketing know-how, distribution know-how, service production strategy know-how, and management systems and practices know-how. The measures were adapted from Gupta and Govindarajan (2000) and Yang et al.(2008).

To measure external embeddedness and internal embeddedness, following Lane and Lubatkin (1998), Andersson et al. (2005), and Andersson et al. (2001), we asked respondents to assess “the extent to which the subsidiary’s (1) most important external relationships with customers, suppliers, universities, and research institutes and (2) relationship with a parent company have caused mutual adaptation concerning a) sales and marketing practices, b)

distribution practices and c) management systems and practices.” The Cronbach’s alpha score for external embeddedness and internal embeddedness scale is 0.754 and 0.888 respectively.

The measures for autonomy (Cronbach’s alpha= 0.864) were taken from Ghoshal and Bartlett (1988). The respondents were asked to assess the relative overall influence of the subsidiary and its headquarters in deciding upon the following issues for the subsidiary: (1) introduction of new services, (2) restructuring of the subsidiary organization involving creation or elimination of departments, and (3) hiring and firing of the subsidiary’s top managers. Finally, to measure influence, the subsidiaries’ top managers were asked to evaluate the relative level of influence of the subsidiary on the headquarters’ or sister subsidiaries’ decision-making regarding (1) new products/services, (2) determining and changing prices of services, and (3) expanding/diminishing activities. The measures were adapted from Ahituv and Carmi (2007) and Andersson et al. (2007). The Cronbach’s alpha score for influence is 0.885.

4.4. Measurement model

Prior to testing our hypotheses, we performed a confirmatory factor analysis (CFA), using AMOS 21 to test our measurement model. The results provided in Table 1 indicate a satisfactory model fit ($\chi^2(df = 94) = 126.27$; $\chi^2/df (\leq 2) = 1.34$; CFI (>0.9) = 0.98; NFI (>0.9) = 0.93; IFI (>0.9) = 0.98; RMSEA (<0.08) = 0.043). All item loadings are significant ($p < 0.01$) and ranged between 0.66 and 0.90, providing support to the convergent validity of the constructs. All construct reliabilities (α) are above 0.754, with scale composite reliabilities all above 0.762. These results indicate good internal reliability for all the constructs in our model. To confirm the discriminant validity, we used two different approaches. First, we calculated the average variance extracted (AVE) for each construct and verified that they are greater than the squared correlations with other constructs in the model (See Table 2) (Fornell

& Larcker, 1981). Second, following the suggestion of Anderson (1987), we examined all pairs of constructs in a series of two-factor CFA models (the f coefficient in model one was set as free, while it was set to unity in model two) and performed a χ^2 -difference test on the paired nested models. For each given pair, the critical value ($\Delta\chi^2(df = 1) = 3.84$) was exceeded. These results provide additional support for discriminant validity.

Insert Tables 1 and 2 about here

5. Analysis and findings

Given that the focus of our model is on predictive accuracy with regard to both Influence and Autonomy, variance-based structural equation modelling approaches were deemed appropriate (Hair, Sarstedt, Ringle, & Mena, 2012). A variance-based SEM model is recommended when the sample is relatively small and/or the model is relatively complex (Fornell & Cha, 1994; Hair et al., 2012). To test our hypotheses, we specifically chose a variance-based partial least squares approach, and used SmartPLS 2.0M3. This approach is more advantageous in testing interaction effects (i.e. our moderating hypotheses). While partial least squares modelling fits well for testing interaction effects (Mitchell, Mitchell, & Smith, 2008), the use of a multi-group structural model analysis approach may raise potential concerns regarding the power of the test and the validity of the findings when the model is applied to a small to medium sample size (Chin, Peterson, & Brown, 2008). Moreover, researchers in the business marketing and management fields have increasingly used partial least squares in recent years (see Hair et al. (2012) for an assessment of the use of partial least squares modelling in marketing research. For more recent application of partial least squares in marketing research see Ng, Ding, & Yip (2013), Antico, Moenaert, Lindgreen, & Wetzels (2008), and Ernst, Hoyer, Krafft, & Krieger (2011)).

5.1. Direct effects model

We used a path weighting procedure with a maximum of 300 iterations to test our hypotheses. We also applied bootstrapping technique with 5000 samples to compute the t-statistics (Hair et al., 2012). Table 3 reports the results of the proposed main effects. To assess the nomological validity of the proposed model, we examined the explained variance for each endogenous construct in our model (Sarkar, Echambadi, & Harrison, 2001). These are Influence ($R^2 = 0.197$) and Autonomy ($R^2 = 0.076$). We further used a blindfolding procedure to cross-validate both communality and redundancy for these two constructs with an omission distance of 9 (this is to ensure that the sample size is not a multiple integer number of the omission distance). Both of our dependent constructs have values above 0, hence meeting this criterion: Influence (CV COM = 0.799; CV RED = 0.139); Autonomy (CV COM = 0.541; CV RED = 0.016).

As we show in Table 3, reverse knowledge transfer from subsidiaries to headquarters leads to a higher level of the subsidiary's influence ($\beta = 0.604$, t-value = 7.308). This path in particular is very strong, significant and in the expected direction (i.e. positive), supporting H1. The R^2 for subsidiary influence is 0.129. However H2 is not corroborated: the path from reverse knowledge transfer to subsidiary autonomy is non-significant, negative and low ($\beta = -0.038$, t-value = 0.362). The R^2 for subsidiary autonomy is 0.024.

5.2. Interaction effects model

To test our four moderation hypotheses, we computed four interaction terms. Selecting influence as one of the two dependent constructs, we computed the following interaction terms for this dependent construct: 1) Internal Embeddedness \times reverse knowledge transfer and 2) External Embeddedness \times reverse knowledge transfer (we first mean-centered item values prior to multiplication). We then linked each of these two interaction terms to the

pertinent dependent construct (i.e. Influence). We repeated this procedure for our second dependent construct (i.e. autonomy). In total, we have four interaction terms added to our model, examining the four moderation hypotheses H3 to H6. Of the four moderation effects, three are supported: internal embeddedness positively moderates the reverse knowledge transfer – influence relationship ($\beta = 0.082$, $t\text{-value} = 3.245$) as well as the reverse knowledge transfer – autonomy relationship ($\beta = 0.141$, $t\text{-value} = 4.276$), hence supporting H3 and H4. We also found support for our H5: external embeddedness negatively moderates the link from reverse knowledge transfer to Influence ($\beta = -0.335$, $t\text{-value} = 3.111$); however this does not hold true for H6: external embeddedness is not found to moderate the link from reverse knowledge transfer to Autonomy ($\beta = 0.052$, $t\text{-value} = 0.859$).

Overall, our model explained 19.7% of the total variance in subsidiary influence as our dependent construct, and 7.6% of the total variance in subsidiary autonomy. By adding these four interaction terms to our direct model, the analysis shows a significant incremental R2 over the baseline model of both subsidiary influence ($F= 3.746$, $p < 0.01$, $\Delta R^2 = 0.068$) and subsidiary autonomy ($F= 3.112$, $p < 0.01$, $\Delta R^2 = 0.052$), thus indicating the existence of moderating effects.

Insert Tables 3 about here

6. Conclusion and discussion

This study investigates the antecedents of subsidiary power within the multinational corporation. While it is generally accepted that subsidiary knowledge-based activities, and in particular reverse knowledge transfer, is conducive for subsidiary power, the adaptation of reverse knowledge transfer in the earlier studies is limited, given that they mostly investigate the link between reverse knowledge transfer and subsidiary influence and only a few, if any,

contributions examine the impact of reverse knowledge transfer on subsidiary autonomy. Moreover, while subsidiary embeddedness has been considered as one of the key predictors of subsidiary power, the majority of the existing studies have focused on the direct impacts of embeddedness on subsidiary power. By contrast, our study contributes to the literature on subsidiary power by investigating the direct impacts of reverse knowledge transfer on influence and autonomy. Our article also makes an empirical contribution by testing how the association between reverse knowledge transfer and subsidiary power is moderated by internal and external embeddedness.

The results of our study provide theoretical contributions. First, it adds to the resource dependence theory by supporting the view that the structure of interdependence for resources between units determines the structure of power (Gupta & Govindarajan, 1991, 2000), while pointing specifically to reverse knowledge transfer as a means for subsidiaries to strengthen their position within the organization. Second, our results also add to the multinational corporation network theory by further exploring the mediating role of internal and external networks for the position of subsidiaries. Internal and external embeddedness does not solely serve a purpose of knowledge creation and accumulation, but it plays a significant role in enhancing the potential for subsidiaries to raise their power through reverse knowledge transfer, and as such, shape power relationships within the multinational corporation (Andersson et al., 2007). Importantly, our results confirm the distinct moderating effects of internal and external embeddedness. Unambiguously, our results support the view that to attain power, a subsidiary must strike a balance between internal and external embeddedness (Mudambi et al., 2014).

6.1. Specific findings related to subsidiaries' power within MNEs

By proposing a dual measure, we are able to better explore the way through which subsidiaries can raise their power when engaging in reverse knowledge transfer. Like earlier studies (e.g. Mudambi & Navarra, 2004; Najafi-Tavani et al., 2014), our results confirm that the extent of reverse knowledge transfer positively impacts the influence of a subsidiary within the multinational corporation. When a subsidiary engages in reverse knowledge transfer, it is in a better position to showcase its unique capabilities and thus attract headquarters' attention which in turn increases the subsidiary's ability to influence strategic decisions of the whole corporation (Ambos et al., 2010). By contrast, the relationship between reverse knowledge transfer and subsidiary autonomy is positive and significant, but only when moderated by internal embeddedness. This suggests that even though subsidiaries' knowledge resources significantly improve the competitive advantages of the multinational corporation thus enabling them to negotiate for more autonomy (Grant, 1996; Kogut & Zander, 1992), subsidiaries may need to develop close internal relationships first to use reverse knowledge transfer as a leverage for increased autonomy.

Thus, another contribution of our paper is to point to the positive and significant role of internal embeddedness as a moderator between reverse knowledge transfer and subsidiary power. This is because internal embeddedness raises trust between multinational corporation units as well as facilitate knowledge identification and absorption. First, the existence of close relationships between a subsidiary and headquarters raises the level of trust between units, re-assures headquarters that the subsidiary will not abuse its position and engage in rent-seeking behaviour (this could happen if, as a result of reverse knowledge transfer, the headquarters became dependent on its subsidiary; and if, taking advantages of this dependency, the subsidiary engaged in opportunistic behaviour) (Ciabuschi et al., 2012; Liu et al., 2014). Second, internal embeddedness increases awareness of the usefulness of the knowledge generated by subsidiaries overseas and raises the ability of headquarters to

identify, absorb and utilize such knowledge (Mudambi & Navarra, 2004; Saliola & Zanfei, 2009). Internal embeddedness increases the absorptive capacity of headquarters and thus it enhances headquarters' ability to recognize the value of knowledge existing in their subsidiaries. Such recognition may then be employed by the subsidiaries to gain more influence within the whole corporation (Garcia-Pont, Canales, & Noboa, 2009). Furthermore, the existence of internal embeddedness may decrease headquarters' reliance on formal control mechanisms (more subsidiary autonomy) where opportunism exists (Kohtamäki, Partanen, & Möller, 2013; Ng et al., 2013). Therefore, by making headquarters more aware of its capabilities and good will, a subsidiary is able to achieve increased autonomy and influence the multinational corporation's strategic decisions.

As pointed out in earlier studies, external embeddedness can have an ambiguous effect on a subsidiary's position within the multinational corporation (Andersson et al., 2002). Similarly, our results demonstrate that the impact of reverse knowledge transfer on subsidiary influence at higher levels of external embeddedness is negative and significant. One explanation for this is that subsidiaries with high levels of local embeddedness are more inclined to respond to their environmental stimulus rather than those of the whole corporation, and this, in turn, can create conflict and decrease the trustworthiness of the subsidiary in the eyes of the headquarters (Asakawa, 2001). When doubts exist about the trustworthiness of a subsidiary, headquarters will be more inclined to block attempts by a subsidiary to exert influence over the multinational corporation. Consequently, while a high level of local embeddedness is essential for subsidiary's innovativeness, it can also create conflicts and distrust with the headquarters, and reduces the ability of the subsidiary to raise its power within the organization.

Context specificity can play a big part in explaining our results. This research is based on the knowledge intensive business services sector. It is broadly accepted that knowledge existing in these companies is highly context specific and tacit in nature, as it resides in the experiences and daily activities of employees. Specifically, knowledge resources concerning the local environment play an important role in innovativeness of knowledge intensive business service firms (Najafi-Tavani et al., 2012a), and the subsidiary may only access such knowledge through developing and maintaining embedded relationships with local actors (Andersson et al., 2001). As a result of the nature of this sector, headquarters may have difficulties in recognizing and absorbing subsidiary knowledge, which would explain the enhanced role of internal embeddedness, while also creating tension and opposite effect for external embeddedness.

6.2. Practical managerial implications

Our study has several significant managerial implications for the managers of multinational corporations at both the headquarters and subsidiary levels. The results indicate that subsidiary managers can gain more influence through contributing to the knowledge base of their headquarters. However, transferring knowledge to the headquarters does not significantly enhance subsidiary autonomy. To gain more autonomy, the managers of subsidiaries should also use other mechanisms such as establishing and maintaining close relationships with their headquarters, since these can enhance subsidiaries' trustworthiness and may also help them to attract the attention of headquarters. While relationships with players in the local environment are important for the subsidiaries' ability to develop new knowledge, subsidiary managers should recognize the negative impact of such relationships on their position within the multinational corporation. To minimize these negative impacts,

subsidiary managers should communicate to headquarters that local relationships do not divert them from, and thus hurt, the multinational corporation's overall goals.

Managers at the headquarters should recognize the value of maintaining embedded relationships with their subsidiaries. Such relationships can benefit the headquarters in two distinct ways: first, valuable knowledge within the subsidiary is mostly context specific, and therefore highly tacit in nature. This means that the chances of the headquarters not fully appreciating and recognizing the value of their subsidiary's knowledge resources are high. The existence of embedded relationships is thus important, since they facilitate the process of knowledge transfer from a subsidiary to its headquarters considerably (Najafi-Tavani et al., 2012b). Second, headquarters can use the level of internal embeddedness as an informal control mechanism through which they not only monitor their subsidiaries' actions and thus minimize opportunistic behaviours, but also they enhance their subsidiaries' knowledge development through granting them more freedom (Gupta & Govindarajan, 1991; Nobel & Birkinshaw, 1998).

6.3. Limitations and directions for future research

This study does not come without limitations, and hence its results should be interpreted with the appropriate level of care. First, we tested the proposed hypotheses using data collected at one point in time. Ideally, data collected at different phases could further our understanding of the association between reverse knowledge transfer and both aspects of power. Furthermore, while subsidiaries are the best units for providing information about reverse knowledge transfer, having headquarters' opinion on the applicability and value of transferred knowledge can shed more light on the phenomenon of subsidiary power. Future studies may further our understanding of subsidiary power through incorporating subsidiaries' as well as headquarters' perspectives. Given that this research was conducted on

UK-based subsidiaries that operate in the knowledge intensive business service sector, its generalizability is limited to such firms. In addition, since some of the hypotheses (the moderating impacts of internal and external embeddedness and the association between reverse knowledge transfer and subsidiary autonomy) are tested for the first time, it is not clear whether the results of this study hold across other sectors. Future research may investigate the similarities and differences in drivers of subsidiary power in other industries. Finally, this research was conducted within the economic downturn which may influence the perception of subsidiaries' managers regarding their autonomy and influence.

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Figure 1: Conceptual Model

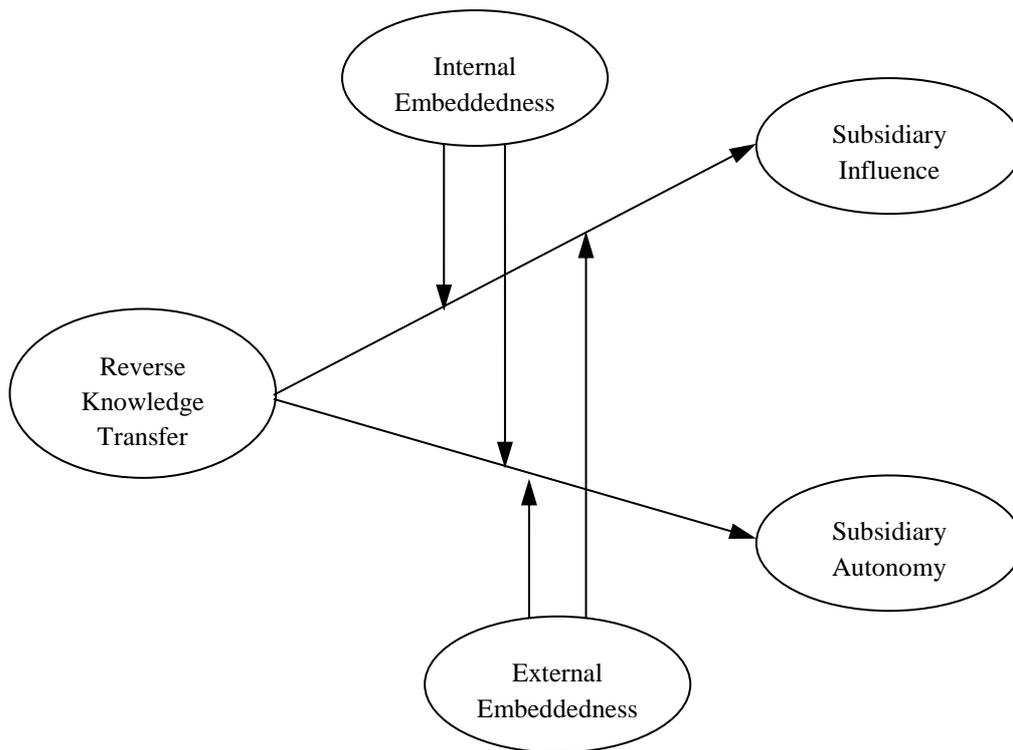


Table1: The constructs and their indicators

Indicators	Mean	SD	λ	R ² -value
Reverse knowledge transfer , taken from Gupta and Govindarajan (2000) and Yang et al.(2008), $\alpha= 0.899$, AVE= 0.698, CR=0.902				
➤ Transfer of Sales and Marketing Know-how	4.58	1.72	0.71	0.50
➤ Transfer of Strategy Know-how	3.74	1.78	0.87	0.76
➤ Transfer of Distribution Know-how	4.52	1.87	0.85	0.72
➤ Transfer of Management Systems and Practices Know-how	4.06	1.76	0.90	0.81
Influence , taken from Andersson et al.(2007) and Ahituv and Carmi (2007), $\alpha= 0.885$, AVE= 0.724, CR=0.887				
The relative level of influence of the subsidiary on headquarter or sister subsidiaries decision-making				
➤ Decision on new product/service	3.24	1.22	0.87	0.76
➤ Determining and changing prices of services	3.20	1.21	0.80	0.64
➤ Expanding/diminishing activities	3.26	1.22	0.88	0.77
Autonomy (Ghoshal & Bartlett, 1988), $\alpha= 0.864$, AVE= 0.684, CR= 0.866				
Relative overall influence of the subsidiary and its headquarters in deciding upon the following issues for the subsidiary:				
➤ Introduction of new services	3.47	1.27	0.85	0.72
➤ Restructuring of the subsidiary organization involving creation or elimination of departments	3.04	1.43	0.80	0.64
➤ Hiring and firing of the subsidiary's top managers	3.67	1.32	0.83	0.69
Internal embeddedness , adapted from Lane and Lubatkin (1998), Andersson et al. (2005), and Andersson et al. (2001), $\alpha= 0.888$, AVE= 0.723, CR=0.887				
Adaptation of the following practices from headquarters:				
➤ Adaptation in sales and marketing practices	4.54	1.65	0.84	0.71
➤ Adaptation in distribution practices	4.54	1.70	0.89	0.79
➤ Adaptation in management practices	4.73	1.58	0.82	0.67
External embeddedness , adapted from Lane and Lubatkin (1998), Andersson et al. (2005), and Andersson et al. (2001), $\alpha= 0.754$, AVE= 0.519, CR=0.762				
Adaptation of the following practices from suppliers, customers, universities, and competitors:				
➤ Adaptation in sales and marketing practices	4.81	1.49	0.66	0.44
➤ Adaptation in distribution practices	4.57	1.47	0.67	0.45
➤ Adaptation in management system and practices	4.55	1.46	0.82	0.67

Fit Statistics: $\chi^2_{(df=94)}= 126.27$, CFI= 0.98, NFI= 0.93, IFI= 0.98, RMSEA= 0.043

Table 2: AVE, CR, and Correlations

Construct	AVE	CR	1	2	3	4	5	6	7	8	9	10	11
1- Reverse knowledge transfer (RKT)	0.698	0.902	1.000										
2- Influence	0.724	0.887	0.383	1.000									
3- Autonomy	0.684	0.866	0.094	0.208	1.000								
4- Internal Embeddedness	0.723	0.887	0.333	0.181	-0.041	1.000							
5- External Embeddedness	0.519	0.762	0.315	0.169	0.056	0.362	1.000						
6- Internal Embeddedness × RKT → Influence	NA	NA	0.894	0.344	0.102	0.422	0.630	1.000					
7- Internal Embeddedness × RKT → Autonomy	NA	NA	0.897	0.351	0.110	0.425	0.639	0.998	1.000				
8- External Embeddedness × RKT → Influence	NA	NA	0.207	0.095	0.184	-0.117	0.103	0.254	0.261	1.000			
9- External Embeddedness × RKT → Autonomy	NA	NA	0.176	0.127	0.158	-0.116	0.107	0.229	0.236	0.974	1.000		
10- Subsidiary Age	NA	NA	0.034	-0.128	-0.082	-0.049	-0.187	-0.037	-0.050	-0.088	-0.089	1.000	
11- Subsidiary Size	NA	NA	0.129	0.066	0.023	0.122	0.105	0.157	0.160	-0.017	-0.018	0.001	1.000

Note: AVE: Average variance extracted; CR: Composite Reliability

Table 3: Partial least squares Estimation of the Structural Model

	Main Model
<i>Step 1: Direct Effects</i>	
RKT → Influence	0.367*** (5.895)
RKT → Autonomy	0.016 (0.145)
$R^2(\text{Influence})$	0.129
$R^2(\text{Autonomy})$	0.024
<i>Step 2: Interaction Effects</i>	
RKT → Influence	0.604*** (7.308)
RKT → Autonomy	-0.038 (0.362)
Internal Embeddedness × RKT → Influence	0.082*** (3.245)
Internal Embeddedness × RKT → Autonomy	0.141*** (4.276)
External Embeddedness × RKT → Influence	-0.335*** (3.111)
External Embeddedness × RKT → Autonomy	0.052 (0.859)
<i>Control Variables</i>	
Subsidiary Size → Influence	0.019 (0.739)
Subsidiary Age → Influence	-0.127 *** (4.145)
Subsidiary Size → Autonomy	0.018 (0.835)
Subsidiary Age → Autonomy	-0.071** (1.999)
$R^2(\text{Influence})$	0.197
$\Delta R^2(\text{Influence})$	0.068*** (3.746)
$R^2(\text{Autonomy})$	0.076
$\Delta R^2(\text{Autonomy})$	0.052*** (3.112)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$