〔Research Note〕

INCREASING OR DECREASING PCNS IN SUBSIDIARIES: THE IMPLICATIONS FOR SUBSIDIARY PERFORMANCE *

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ABSTRACT

Previous studies on the effect of subsidiary staffing on subsidiary performance have examined the relationship between the two variables at certain points in time. These studies demonstrate that subsidiaries with more (or fewer) parent country nationals (PCNs) tend to demonstrate higher performance. However, these studies do not fully analyze whether the performance of a focal subsidiary improves by increasing (or decreasing) the number of PCNs assigned to the subsidiary. To answer this research question, this study addresses the way in which changes in a focal subsidiary's staffing affect the subsidiary's performance. It analyzes a panel dataset consisting of 11,286 observations of foreign subsidiaries owned by multinational corporations. This study demonstrates that a change in the deployment of PCNs has a U-shaped relationship with subsidiary performance, and the curve indicates that the performance of a focal subsidiary improves by both increasing and decreasing the deployment of PCNs. This study also finds that the slope of the U-shaped curve is flatter in institutionally distant host countries than in institutionally similar countries. This finding indicates that institutional differences between the host and home countries diminish the positive effect of increasing and decreasing the deployment of PCNs.

Key words: expatriate, institutional distance, subsidiary staffing, subsidiary performance.

INTRODUCTION

Previous studies have investigated the relationship between staffing and performance in foreign subsidiaries (Colakoglu and Caligiuri, 2008; Dutta and Beamish, 2013; Konopaske, Werner, and Neupert, 2002) and have reported inconsistent results: they have demonstrated the positive (Gong, 2003), negative (Gaur, Delios, and Singh, 2007), and inverted U-shaped (Dutta and Beamish, 2013) relationship between the assignment of parent country nationals (PCNs) to a subsidiary and subsidiary performance. These previous studies are cross-sectional and only weakly show a causal relationship between staffing and performance in foreign subsidiaries. When examining the staffing-performance link, they have focused predominantly on a temporal state of subsidiary staffing and its relationship with subsidiary performance (Ando, 2014). For example, studies demonstrating the positive (negative) impact of the assignment of PCNs revealed that subsidiaries with a higher (lower) deployment of PCNs at a given point in time tend to show higher performance (e.g., Gaur et al., 2007; Gong, 2003). This finding does not suggest that subsidiaries can improve performance by raising (or lowering) the deployment of PCNs.

Although subsidiary staffing is not time invariant, in previous studies, staffing has been implicitly assumed to be static and time invariant. As a result, the effects of a change in subsidiary staffing and the direction of the change have not attracted researchers' attention. Thus, whether

increasing or decreasing the assignment of PCNs to a focal subsidiary leads to higher subsidiary performance remains an open question. To fill this research gap, this study sheds light on a change in staffing from one period to the next (i.e., a change toward reliance on PCNs or reliance on host country nationals (HCNs)). By incorporating a shift in subsidiary staffing into its analysis, this study examines how a change in staffing policy and the direction of the change affect subsidiary performance.

This paper is organized as follows. The next section reviews the literature on the staffing of foreign subsidiaries. Then, the hypotheses predicting the relationship between a change in staffing and subsidiary performance are developed, followed by a description of the dataset and method of analysis. After reporting the results of the empirical analysis, the implications of this study are discussed.

LITERATURE REVIEW

Human resources are among critical resources that can affect the performance of multinational enterprises (MNEs) (Dutta and Beamish, 2013; Konopaske et al., 2002; Wang et al., 2009). Thus, how to deploy and capitalize on human resources is a primary concern for MNEs (Au and Fukuda, 2002; Harzing, 2001). Foreign subsidiaries are staffed primarily by a combination of PCNs, HCNs, and third-country nationals (TCNs) (Harzing, 2001; Tungli and Peiperl, 2009). Each category of managers has distinct expertise and plays a distinct role.

PCNs are assumed to be a means to control foreign subsidiaries because they have a propensity to maintain the parent firm's interests by internalizing the corporate culture and accepting the strategic roles the parent firm assigns to subsidiaries (Harzing, 2001; Tan and Mahoney, 2006; Tungli and Peiperl, 2009). In addition, PCNs are a means of transferring knowledge from parent firms to foreign subsidiaries, as PCNs have internalized firm-specific assets through their experiential learning in parent

firms (Fang et al., 2010; Furuya et al., 2009). They also bring information accumulated in host countries back to the parent firm through repatriation and informal personal ties (Furuya et al., 2009; Gaur et al., 2007). Furthermore, PCNs enhance the efficiency of communication with parent firms and other subsidiaries (Au and Fukuda, 2002; Furuya et al., 2009; Johnson and Duxbury, 2010). Since they speak the same language as the parent firm's managers, PCNs overcome communication inefficiency when cultural differences and language barriers are salient (Beechler, 2005; Harzing, 2001; Harzing, Koster, and Magner, 2011).

HCNs are assumed to be a source of local knowledge because of their familiarity with formal and informal institutions in the host country (Bruning, Bebenroth, and Pasch, 2011; Fang et al., 2010; Tan and Mahoney, 2006). Additionally, they are familiar with local markets and sensitive to local demands and market conditions (Bruning et al., 2011; Harzing, 2001). TCNs are assumed to have intermediate attributes between PCNs and HCNs (Tarique, Schuler, and Gong, 2006). As a result of their work experience in sister subsidiaries, TCNs may be more effectively socialized in the parent firm's corporate culture than HCNs (Collings et al., 2010). TCNs from a country within the same region as the host country may also be better informed about the host country environment than PCNs (Collings et al., 2010).

These competences and functions of PCNs, HCNs, and TCNs are considered to significantly affect the relationship between staffing and performance in foreign subsidiaries (Ando, 2014; Colakoglu and Caligiuri, 2008; Dutta and Beamish, 2013; Konopaske et al., 2002). Taking these competences and functions into account, previous studies have examined the relationship between the degree of reliance on PCNs or HCNs and subsidiary performance. The degree of reliance on PCNs or HCNs has been operationalized predominantly as the ratio of PCNs to subsidiary employees (the PCN ratio, hereafter) (Dutta and Beamish, 2013; Lam and

Yeung, 2010). Another often-used proxy is the nationality of a subsidiary's general manager (Gaur et al., 2007; Gong, 2003). Using these proxies, previous studies have examined whether subsidiaries with more PCNs show higher performance than those with more HCNs. Gong (2003), for example, demonstrated a positive effect of the assignment of PCNs on subsidiary performance, whereas Gaur et al. (2007) found a negative effect. Meanwhile, Dutta and Beamish (2013) demonstrated an inverted U-shaped relationship between the assignment of PCNs and subsidiary performance. A review of these previous studies shows inconsistent results. Given that the expertise of PCNs and that of HCNs both significantly contribute to the operations of foreign subsidiaries in a distinct way, the relative size of PCNs' contributions to HCNs' contribution may be undetermined *ex ante*.

In general, these previous studies have examined an association between staffing in a single point in time and subsidiary performance. Because these studies are cross-sectional, however, they do not give information about whether raising (or lowering) reliance on PCNs improves subsidiary performance. A positive association between the assignment of PCNs and subsidiary performance, for example, does not necessarily mean that increasing the deployment of PCNs to a focal subsidiary improves the subsidiary's performance; it indicates merely that subsidiaries with higher PCN deployment tend to have higher performance. The effect of the same PCN deployment level on subsidiary performance may differ depending on the PCN deployment level in preceding periods. For example, a subsidiary has, say, 10 PCNs in the current period. In the previous period, the subsidiary might have had more or fewer than 10 PCNs (e.g., the subsidiary might have had 15 PCNs or 5 PCNs in the previous period). The effects of current staffing (in this example, 10 PCNs at a subsidiary) on subsidiary performance may differ depending on whether the current staffing is realized by an

increase or decrease in PCNs from the previous period. This example implies the importance of analyzing the degree of a change in subsidiary staffing and its direction instead of focusing on staffing at a given point in time (Ando, 2014; Bruning et al., 2011). Previous studies' failure to address a change in staffing may be attributed to their implicit assumption that subsidiary staffing is a static construct (Ando, 2014). MNEs may change the staffing composition of foreign subsidiaries depending on factors such as a subsidiary's strategies, the degree of accumulated local knowledge, and the turbulence of local environments (Bonache Pérez and Pla-Barber, 2005; Bruning et al., 2011; Delios and Björkman, 2000). Most previous studies, however, have not paid attention to the dynamic nature of subsidiary staffing and its effect on subsidiary performance (Ando, 2014; Bruning et al., 2011). Thus, how a change in staffing and the direction of the change affect subsidiary performance has remained unexplored. Given that substantial knowledge about the way in which a shift in staffing affects subsidiary performance has not been accumulated, this topic might be an intriguing research question.

HYPOTHESIS DEVELOPMENT

Previous studies have argued that the assignment of PCNs to a subsidiary is associated with the need for knowledge transfer (Fang et al., 2010; Furuya et al., 2009). MNEs exploit firm-specific assets overseas to mitigate liabilities of foreignness (Hennart, 2007; Jiang, Beamish, and Makino, 2014; Minbaeva et al., 2003; Rugman and Verbeke, 2001). Firm-specific assets are often a bundle of tacit knowledge and are embedded within the MNE (Barney, Wright, and Ketchen, 2001; Dutta and Beamish, 2013; Wang et al., 2009). Because of these attributes, transferring firm-specific assets to foreign subsidiaries incurs high transaction costs (Jensen and Szulanski, 2004; Song, 2014; Szulanski and Jensen, 2006). PCNs are considered a medium for the transfer of firm-specific assets at a reduced transaction cost (Connelly et al.,

2007; Delios and Björkman, 2000; Dutta and Beamish, 2013). They may also better capitalize on firm-specific assets because understanding and internalizing firm-specific assets require substantial experience in parent firms. Therefore, PCNs are often used as a means to transfer intangible assets from parent firms to foreign subsidiaries (Fang et al., 2010: Wang et al., 2009). An increase in PCNs may strengthen subsidiaries' knowledge base and facilitate the effective exploitation of firm-specific assets, which may improve subsidiary performance.

In comparison, a decrease in PCNs, i.e., an increase in HCNs, may also have a positive effect on subsidiary performance (Ando, 2014; Lam and Yeung, 2010). Foreign subsidiaries are embedded in the host country's context, which varies from country to country (Meyer, Mudambi, and Narula, 2011). To successfully manage foreign subsidiaries within the host country's context, MNEs need to access local knowledge, which entails political, legal, economic, and socio-cultural dimensions. Local knowledge is mostly tacit and incrementally acquired through experiential learning in the host country (Dow and Larimo, 2011; Estrin, Baghdasaryan, and Meyer, 2009). HCNs can function as a source of local knowledge (Harzing, 2001). They have been embedded in the host country context, profoundly understand the host country's business environment, and are sensitive to subtle changes within it (Fayol-Song, 2011). By increasing HCNs, a subsidiary can be successfully managed in the local context. In addition, HCNs are knowledgeable about local markets. They can find business opportunities by sensing local demands and detecting changes in market conditions (Harzing, 2001; Tan and Mahoney, 2006). Further, through HCNs, subsidiaries may be able to explore local resources that are not available in the home country (Yiu and Makino, 2002). Given these factors, an increase in HCNs may have a positive effect on subsidiary performance.

These arguments suggest that both increasing and decreasing PCNs may have a positive impact on subsidiary performance. A change in the level of PCN deployment may be implemented in accordance with subsidiaries' internal and external conditions. Under conditions that require an increase (a decrease) in the deployment of PCNs, subsidiaries may raise (lower) the reliance on PCNs to adapt themselves to and take advantage of these conditions. Based on this assumption, this study posits that increasing PCNs enhances the competitiveness subsidiaries derive from PCNs' competences, while increasing HCNs (i.e., decreasing PCNs) strengthens the competitiveness they derive from HCNs' competences. Therefore, this study predicts a U-shape relationship between a change in staffing and subsidiary performance.

Hypothesis 1: An increase in PCNs has a U-shaped relationship with subsidiary performance.

Institutional distance refers to differences in institutions between two countries (Kostova and Zaheer, 1999). Institutions function as political, legal, economic, and socio-cultural grounds for actions of individuals and organizations in a society (North, 1990; Scott, 2008). Institutional distance between the host and home countries may affect the impact of a change in the level of PCN deployment on subsidiary performance.

Firm-specific knowledge and resources have been developed within the context of its home country and, thus, accommodate and work better in the institutional environments of the home country (Banalieva and Dhanaraj, 2013; Kostova, 1999). When institutional distance is large, knowledge transfer by PCNs may be less effective because of firm-specific assets' incompatibility with host-country institutions (Brouthers, Brouthers, and Werner, 2008; Kostova, 1999; Schmidt and Sofka, 2009). Given large institutional distance, knowledge and resources transferred from parent firms may not be effectively assimilated by subsidiaries (Brouthers et al., 2008; Jensen and Szulanski, 2004). In addition, PCNs' understanding of the host country's institutional environment is limited, and thus, they

may not be able to exploit knowledge transferred from parent firms in a productive way (Ando and Paik, 2013; Schmidt and Sofka, 2009). As a result, firm-specific assets may produce less economic value than they do in the home country (Brouthers et al., 2008; Jensen and Szulanski, 2004; Kostova, 1999; Schmidt and Sofka, 2009). Thus, under large institutional distance, the economic value produced by PCNs' competence may erode, which suggests that increasing the deployment of PCNs to a subsidiary may less enhance subsidiary performance than under small institutional distance.

HCNs may function as an interpreter of local environments in an institutionally distant host country by re-contextualizing firm-specific assets to make them compatible with the local institutional context (Ando and Paik, 2013; Dikova and Van Witteloostuijn, 2007; Kostova and Roth, 2002). Large institutional distance, however, may hinder the effective re-contextualization of knowledge and resources developed in the MNE's home country (Brouthers et al., 2008; Jensen and Szulanski, 2004; Kostova and Roth, 2002). Because resources' incompatibility with institutional environments is severe under large institutional distance, HCNs' ability to adapt home-country-based resources to a local context may be constrained (Gaur and Lu, 2007; Gelbuda, Meyer, and Delios, 2008).

Institutional distance between the host and home countries raises the uncertainty perceived by parent firms (Dow and Larimo, 2009; Gaur and Lu, 2007; Meyer et al., 2009). Facing great uncertainty, parent firms may exert tight control over subsidiaries, which reduces the subsidiaries' autonomy (Gaur et al., 2007; Sanchez-Peinado and Pla-Barber, 2006; Tseng and Lee, 2010). Due to the decreased flexibility of the subsidiaries' actions, strategic action taken by HCNs in a timely and productive manner may be impeded. These arguments suggest that under large institutional distance, the positive effect of increasing HCN deployment (i.e., decreasing PCNs) may diminish.

In summary, large institutional distance likely erodes the positive effect of an increase in both PCNs and HCNs. Therefore, the following hypothesis is proposed.

Hypothesis 2: The U-shaped curve that presents the relationship between an increase in PCNs and subsidiary performance flattens as institutional distance between the host and home countries increases.

METHOD

Sample and dataset

This study uses a sample of foreign direct investments by Japanese listed firms. Data on foreign subsidiaries owned by Japanese firms were collected from the CD-ROM version of the Overseas Japanese Companies Data (*Kaigai Shinshutsu Kigyo Soran* in Japanese), which has been compiled by *Toyo Keizai Shimposha*. The panel dataset was developed using this database (the 1997, 1999, 2001, 2003, 2005, 2007, 2009, and 2011 editions). The observation period of the panel dataset ranges from 1999 to 2011, while the observation year is every two years. Because MNEs often establish or close down subsidiaries, subsidiaries enter or exit in the middle of the observation period. As a result, the panel dataset is unbalanced.

In its initial stage, a subsidiary may experience lower or unstable performance. Thus, the dataset included subsidiaries that had operated for at least five years. In addition, MNEs repatriate PCNs to parent firms once they decide to close down subsidiaries. Thus, subsidiaries that exited in the observation period *t+1* were excluded from the observations for period *t*. Both manufacturers and non-manufacturers were included in the sample. Exclusion of observations with missing data yielded a final sample with 11,286 subsidiary-year observations.

Measures

The dependent variable in this study is the performance of foreign subsidiaries. Using available

data from the Overseas Japanese Companies Data, the productivity of foreign subsidiaries was calculated as subsidiary sales divided by the number of subsidiary employees. Productivity captures some aspects of subsidiary performance (Li, 2004; Ma, Tong, and Fitza, 2013) and was therefore used as a proxy for subsidiary performance. Because previous studies operationalized subsidiary performance in a similar manner (Gaur et al., 2007; Gong, 2003), this operationalization enhances its comparability with other studies.

A change in the level of PCN deployment was operationalized by using the number of PCNs assigned to a subsidiary. This study did not use the PCN ratio because it varies in response to the number of subsidiary employees, even when the number of PCNs in the subsidiary remained the same (Ando, 2014). PCNs are generally assigned to a subsidiary as middle or senior managers (Dutta and Beamish, 2013). When a PCN who has been assigned to a middle or senior management position is repatriated, his or her replacement will be either sent from parent firms or chosen from HCNs because keeping a middle or senior management position open may impede the subsidiary's efficient operations (Lam and Yeung, 2010). Thus, a change in the number of PCNs is considered to better represent a change in staffing. To calculate a change in PCN deployment, the number of PCNs at time t was subtracted from that of PCNs at time $t+1$. This variable has a positive (a negative) value when the number of PCNs increased (decreased) since the last observation period, while it has a value of zero when the number remained unchanged. Because this study predicted a quadratic relationship, the scores were squared for inclusion in the analysis.

Institutional distance between the host and home countries was operationalized using data from the World Bank's Governance Indicators (Kaufmann, Kraay, and Mastruzzi, 2009). The five dimensions of the governance indicators were incorporated: *political stability and absence of violence/terrorism, government effectiveness,*

regulatory quality, rule of law, and *control of corruption* (Kaufmann et al., 2009). The *Voice and accountability* dimension was excluded because it is less likely to be associated with institutions in which economic transactions are conducted (Kaufmann et al., 2009; North, 1990). To operationalize the institutional distance, this study adopted the approach employed by Ando and Paik (2013), which was based on Kogut and Singh's (1988) method to measure cultural distance. Scores for institutional distance were calculated using the following formula:

$$\text{Institutional Distance}_j = \frac{1}{5} \sum_{i=5}^{5} \left\{ \frac{(I_{ij} - I_{ih})^2}{\sigma_i^2} \right\}$$

where Institutional Distance$_j$ is the institutional distance between the host country j and the home country, I_{ij} is country j's score on the i-th institutional dimension, I_{ih} is the home country's score on the i-th institutional dimension, and σ_i^2 is the variance of the i-th institutional dimension.

In addition to the variables that appear in the hypotheses, several control variables were incorporated. Host country experience, foreign sales ratio, research and development (R&D) intensity, and parent firm performance were included as control variables at the parent firm level. Host country experience may deepen the understanding of local business environments and mitigate uncertainty associated with operations in the host country (Delios and Beamish, 2001; Paik and Ando, 2011). Host country experience was operationalized as cumulative experience. Years since establishment were counted for each subsidiary. Then, subsidiary ages of all subsidiaries in the host country owned by the parent firm were summed. The scores were log-transformed for inclusion in the analysis. A higher foreign sales ratio may indicate more exposure to foreign markets, which may produce capabilities to manage foreign operations (Banalieva and Dhanaraj, 2013; Ruigrok, Amann, and Wagner, 2007). The foreign sales ratio was calculated as foreign sales divided by the parent firm's total sales. The

intensiveness of R&D activities is indicative of the amount of intangible assets owned by parent firms, which are transferred to subsidiaries and fuel these subsidiaries' competitiveness (Chang, Chung, and Moon, 2013; Zhang et al., 2007). The R&D intensity was measured by R&D expenditures divided by the parent firm's total sales. Firms that show higher performance may possess proprietary assets, which can be exploited as a source of competitiveness in the host country (Chang et al., 2013; Dunning, 2000). Parent firms' performance was measured by operating income divided by total sales.

Subsidiaries' size and ownership structure were included as control variables at the subsidiary level. Larger subsidiaries may have more organizational slack, which affects subsidiary performance (Sui and Baum, 2014). Subsidiary size was operationalized as the number of subsidiary employees. The scores were standardized by the parent firm. Subsidiaries' ownership structure may affect their access to local complementary assets, the uncertainty they perceive, and the speed of decision-making (Chang et al., 2013). The ownership structure was measured as the parent firm's ownership stake, expressed as a ratio. As control variables at the host country level, cultural distance, GDP, and growth of GDP per capita were included. Cultural differences between the host and home countries may cause uncertainty among MNEs and increase liabilities of foreignness (Cuypers and Martin, 2010). Cultural distance was calculated using Kogut and Singh's (1988) approach, which used the scores of four cultural dimensions developed by Hofstede (2001). The host country's GDP and growth rate of GDP per capita were incorporated into the analysis because subsidiary performance is vulnerable to the host country's economic conditions. In addition, to control for differences in performance across industries, 28 industry dummy variables based on 2-digit ISIC classification were included. Finally, to control for effects specific to an observation year, six dummy variables representing each observation year were included.

RESULTS

Table 1 presents the descriptive statistics and correlation coefficients of the variables included in this analysis. On average, 4.4 PCNs were assigned to a subsidiary. The average PCN ratio was 8.7 percent. The mean subsidiary age was 16.1 years, while the mean number of subsidiary employees was 316.3. Wholly owned subsidiaries accounted for 46.2 percent of the observations. The correlation coefficients displayed in Table 1 did not indicate a serious concern about severe multicollinearity.

A multilevel model with a random intercept was employed to test the hypotheses. Subsidiaries are embedded in the context of parent firms, and thus, the performance of subsidiaries can be influenced by factors at the parent-firm level, such as strategy, management style, and corporate culture. Multilevel models address this hierarchical nature of the data structure and account for intra-class dependence (Rabe-Hesketh and Skrondal, 2012). The multilevel model in this study used parent firms as the level-two group.

Table 2 presents the results of multilevel models. Model 1 contains a linear effect of a change in the number of PCNs, and Model 2 adds its squared term. Model 2 lends support to Hypothesis 1 since the squared term of a change in the number of PCNs is positive and significant. Figure 1 shows the graphical presentation of the relationship between a staffing change and subsidiary performance. Figure 1 indicates that both increasing and decreasing the number of PCNs positively affect subsidiary performance.

To test Hypothesis 2, the sample was split by the median of institutional distance. Model 3 shows the results from the sub-sample of higher institutional distance, while Model 4 shows ones from the sub-sample of lower institutional distance. Figure 2 compares the two curves corresponding to Models 3 and 4. The slope is steeper for the sub-sample of lower institutional distance, as the

Table 1. Descriptive statistics and Correlation coefficients

	Variables	Mean	S.D.	1	2	3	4	5	6	7	8
1	Subsidiary performance	5.450	1.709	1.000							
2	Change in the number of PCNs	0.024	2.359	-0.025	1.000						
3	Institutional distance	0.868	0.523	-0.535	0.044	1.000					
4	Host country experience	3.199	0.824	0.096	-0.018	-0.073	1.000				
5	Foreign sales ratio	0.352	0.286	0.156	-0.008	-0.070	0.149	1.000			
6	R&D intensity	0.033	0.029	0.113	0.020	-0.102	0.102	0.203	1.000		
7	Parent firm performance	0.111	0.118	0.080	0.016	-0.032	0.037	0.204	0.265	1.000	
8	Subsidiary size	0.121	0.995	-0.350	0.062	0.256	0.091	-0.006	0.005	0.002	1.000
9	Ownership structure	0.668	0.384	0.146	0.002	-0.097	-0.185	-0.012	-0.041	0.027	-0.060
10	Cultural distance	2.774	1.000	0.009	-0.018	-0.020	-0.032	-0.049	-0.065	-0.053	-0.003
11	GDP	3.261	4.509	0.230	0.001	-0.327	0.270	0.024	0.025	0.127	-0.004
12	Growth of GDP per capita	3.963	3.942	-0.231	0.019	0.439	0.028	0.029	-0.069	-0.016	0.100
13	Year dummy 1	0.070	0.255	0.020	0.011	-0.083	-0.040	-0.336	0.065	-0.096	-0.008
14	Year dummy 2	0.139	0.346	-0.055	-0.022	-0.048	-0.059	-0.078	-0.029	-0.233	-0.004
15	Year dummy 3	0.150	0.358	-0.067	0.007	0.019	-0.050	-0.057	0.009	-0.291	-0.001
16	Year dummy 4	0.150	0.357	-0.007	0.002	0.012	-0.011	-0.021	-0.018	-0.197	0.004
17	Year dummy 5	0.160	0.367	0.004	0.005	0.003	-0.001	0.033	-0.073	-0.171	0.017
18	Year dummy 6	0.176	0.381	0.048	-0.016	0.049	0.092	0.161	0.065	0.418	-0.015

	Variables	9	10	11	12	13	14	15	16	17	18
1	Subsidiary performance										
2	Change in the number of PCNs										
3	Institutional distance										
4	Host country experience										
5	Foreign sales ratio										
6	R&D intensity										
7	Parent firm performance										
8	Subsidiary size										
9	Ownership structure	1.000									
10	Cultural distance	0.067	1.000								
11	GDP	0.002	-0.258	1.000							
12	Growth of GDP per capita	-0.005	-0.028	-0.155	1.000						
13	Year dummy 1	-0.026	0.022	-0.043	-0.342	1.000					
14	Year dummy 2	-0.015	0.023	-0.088	0.071	-0.110	1.000				
15	Year dummy 3	-0.010	0.020	-0.075	-0.102	-0.115	-0.169	1.000			
16	Year dummy 4	0.007	0.012	-0.034	0.097	-0.115	-0.169	-0.177	1.000		
17	Year dummy 5	0.013	-0.013	0.022	0.109	-0.120	-0.176	-0.184	-0.184	1.000	
18	Year dummy 6	0.003	-0.033	0.120	0.223	-0.127	-0.186	-0.195	-0.195	-0.202	1.000

Note: Correlations equal or greater than |0.019| are significant at $p<0.05$. Twenty-eight industry dummy variables are not reported.

Table 2. Results of multilevel model

	Model 1		Model 2		Model 3		Model 4	
Change in the number of PCNs	0.003	(0.005)	-0.001	(0.005)	0.009	(0.007)	-0.005	(0.006)
(Change in the number of PCNs)^2			0.002 ***	(0.000)	0.002 *	(0.001)	0.002 ***	(0.000)
Institutional distance	-1.090 ***	(0.028)	-1.084 ***	(0.027)	-0.876 ***	(0.052)	-0.614 ***	(0.153)
Host country experience	0.105 ***	(0.018)	0.102 ***	(0.018)	0.036	(0.025)	0.162 ***	(0.026)
Foreign sales ratio	0.288 ***	(0.073)	0.291 ***	(0.072)	0.389 ***	(0.106)	0.252 **	(0.087)
R&D intensity	-1.655 *	(0.841)	-1.618	(0.839)	-1.291	(1.096)	-1.521	(1.028)
Parent firm performance	-0.054	(0.206)	-0.049	(0.206)	0.120	(0.289)	-0.299	(0.266)
Subsidiary size	-0.216 ***	(0.012)	-0.225 ***	(0.012)	-0.204 ***	(0.016)	-0.255 ***	(0.019)
Ownership structure	0.389 ***	(0.031)	0.387 ***	(0.031)	0.301 ***	(0.046)	0.378 ***	(0.042)
Cultural distance	0.053 ***	(0.012)	0.051 ***	(0.012)	0.209 ***	(0.021)	-0.048 **	(0.016)
GDP	0.029 ***	(0.003)	0.028 ***	(0.003)	0.095 ***	(0.007)	0.013 **	(0.004)
Growth of GDP per capita	0.005	(0.004)	0.005	(0.004)	-0.015 **	(0.004)	0.015 *	(0.007)
Year dummy 1	-0.193 *	(0.078)	-0.198 *	(0.078)	-0.355 **	(0.117)	-0.273 **	(0.102)
Year dummy 2	-0.423 ***	(0.062)	-0.426 ***	(0.062)	-0.522 ***	(0.086)	-0.470 ***	(0.090)
Year dummy 3	-0.366 ***	(0.063)	-0.367 ***	(0.063)	-0.342 ***	(0.083)	-0.718 ***	(0.097)
Year dummy 4	-0.225 ***	(0.059)	-0.227 ***	(0.059)	-0.210 *	(0.082)	-0.304 ***	(0.085)
Year dummy 5	-0.145 **	(0.056)	-0.145 **	(0.056)	-0.046	(0.076)	-0.208 **	(0.078)
Year dummy 6	-0.045	(0.040)	-0.044	(0.040)	0.056	(0.053)	-0.162 **	(0.058)
Industry dummy	*Included*		*Included*		*Included*		*Included*	
Constant	4.994 ***	(0.131)	4.991 ***	(0.131)	4.178 ***	(0.205)	5.202 ***	(0.175)
Wald Chi squared	9392.558 ***		9448.989 ***		3763.072 ***		1994.817 ***	
Level 2 ICC	0.252		0.251		0.226		0.332	
Observations	11286		11286		5612		5674	

Note: ICC stands for intra-cluster correlation
*** $p<.001$; ** $p<.01$; * $p<.05$

## Figure 1. The relationship between a change in PCN deployment and subsidiary performance
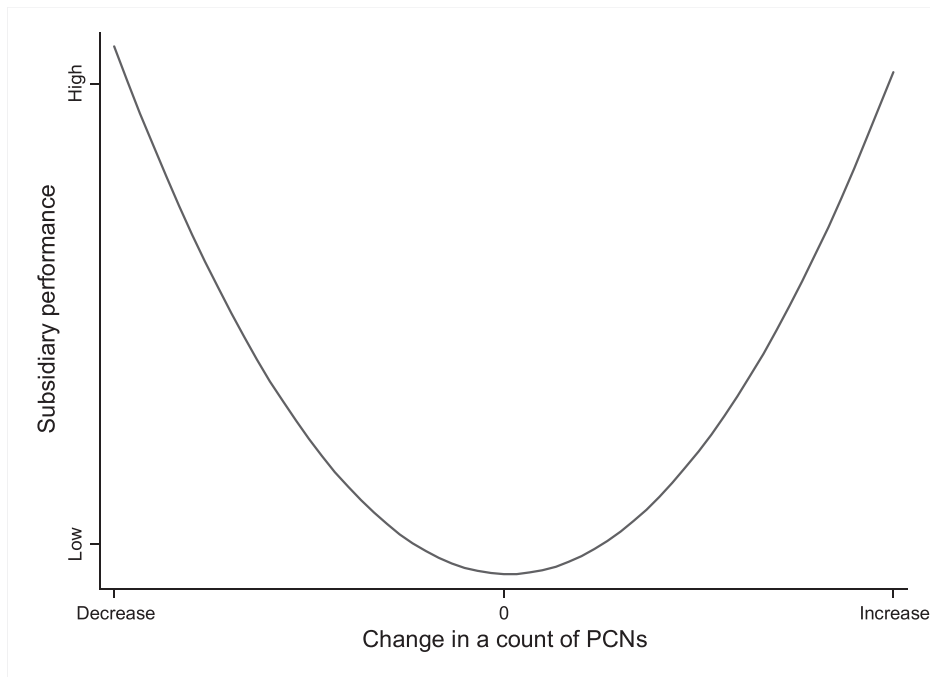
marginal effect of a change in staffing on subsidiary performance increases 0.006 per a one-unit change in Model 3 and 0.008 in Model 4. In addition, Figure 2 shows that subsidiaries in host countries with low institutional distance outperform those in host countries with high institutional distance, as the curve of the former is positioned above the curve of the latter. These support Hypothesis 2.

To check the robustness of the results, the Heckman selection model was employed as an alternative specification of a regression model. In the process of producing the final dataset, a large number of observations were eliminated due to missing data, which may cause selection bias. The Heckman selection model estimates coefficients while accounting for selection bias (Heckman, 1979). The number of local parent firms that have an ownership stake in the subsidiary was incorporated in the selection equation. This variable has a value of 0 in the case of wholly owned subsidiaries and a positive value in the case of joint ventures. The selection equation estimates the probability that observations in the final sample will be selected (Belderbos and Zou, 2007; Deephouse and Carter, 2005; Heckman, 1979). The selection equation yields an inverse Mills ratio, which is used in the second step to correct for selection bias (Belderbos and Zou, 2007; Deephouse and Carter, 2005; Heckman, 1979). The results of the Heckman selection model shown in Model 5 in Table 2 indicate that the relationship between a change in the number of PCNs and subsidiary performance has a U-shaped relationship.

This study assumes that MNEs increase or decrease the level of PCN deployment in accordance with internal and external conditions, which implies

Figure 2. The relationship between a change in PCN deployment and subsidiary performance under high and low institutional distance
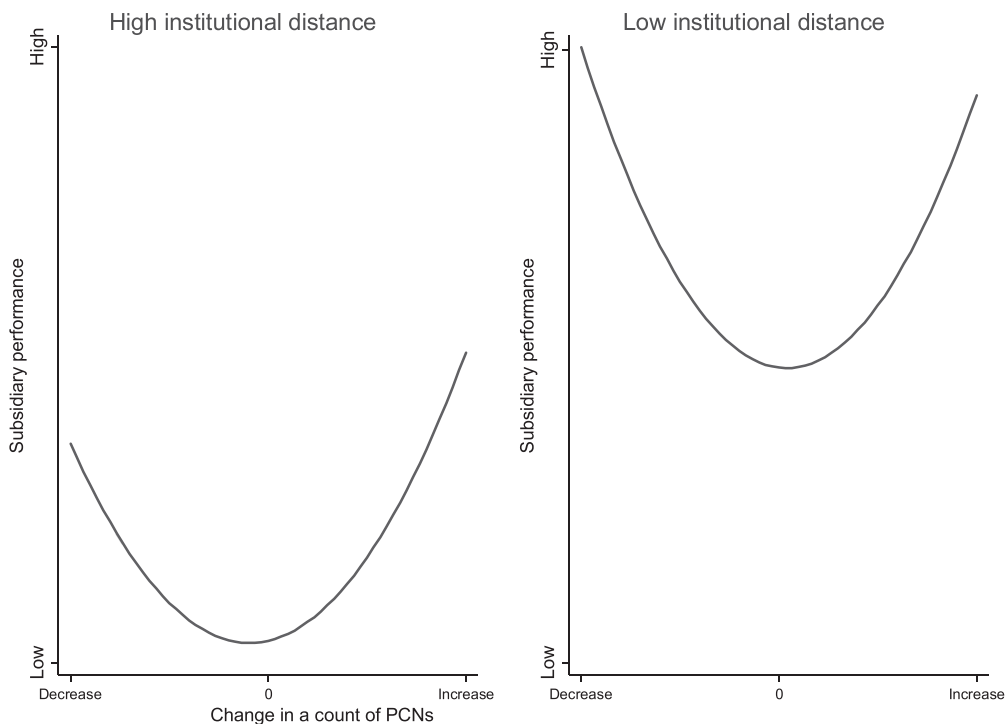
that a change in the number of PCNs is endogenously determined. Failure to incorporate the endogeneity of a change in staffing may produce bias for coefficient estimation (Wooldridge, 2010). To account for this possible bias derived from the endogeneity, an instrumental variable regression is conducted for a further robustness check. As in the Heckman model, the number of local parent firms that have an ownership stake in the subsidiary was used as an instrumental variable. The endogeneity of the instrumented variable (i.e., a change in the number of PCNs) was tested by Wu-Hausman and Durbin tests (Cameron and Trivedi, 2010;

Wooldridge, 2010). Both tests rejected the null hypothesis that a variable treated as endogenous in the model is exogenous (Wu-Hausman $F = 7.381$, $p<.001$; Durbin $\chi^2 = 14.807$, $p<.001$). The result of the second-stage estimation was reported in Model 6 of Table 3. The squared term of a change in the number of PCNs was positive and significant after controlling for endogeneity.

DISCUSSION AND CONCLUSION

This study examined the relationship between subsidiary staffing and performance in a different way than previous studies. Previous studies have

Table 3. Results of Heckman model and IV regression

| | Model 5 | | Model 6 | |
	Heckman		IV regression	
Change in the number of PCNs	-0.003	(0.005)	-0.102	(0.123)
(Change in the number of PCNs)^2	0.003 ***	(0.000)	0.038 **	(0.014)
Institutional distance	-1.107 ***	(0.029)	-1.011 ***	(0.061)
Host country experience	0.131 ***	(0.016)	0.036	(0.046)
Foreign sales ratio	0.396 ***	(0.049)	0.313 ***	(0.078)
R&D intensity	1.925 ***	(0.457)	1.012	(0.699)
Parent firm performance	-1.188 ***	(0.161)	-0.735 *	(0.302)
Subsidiary size	-0.235 ***	(0.013)	-0.384 ***	(0.056)
Ownership structure	0.346 ***	(0.032)	0.312 ***	(0.045)
Cultural distance	0.052 ***	(0.012)	0.043 *	(0.017)
GDP	0.026 ***	(0.003)	0.017 **	(0.005)
Growth of GDP per capita	0.001	(0.004)	-0.001	(0.005)
Year dummy 1	0.131	(1.193)	-0.557 ***	(0.107)
Year dummy 2	-0.536 *	(0.256)	-0.680 ***	(0.080)
Year dummy 3	-0.590 ***	(0.113)	-0.631 ***	(0.077)
Year dummy 4	-0.466 ***	(0.081)	-0.442 ***	(0.073)
Year dummy 5	-0.416 ***	(0.099)	-0.333 ***	(0.073)
Year dummy 6	-0.152	(0.136)	-0.048	(0.062)
Industry dummy	*Included*		*Included*	
Inverse Mills ratio	-1.500	(3.303)		
Constant	7.490	(5.272)	5.105 ***	(0.163)
Wald Chi squared	8529.242 ***		5712.662 ***	
Observations	11286		11286	

Note: Standard errors are in parentheses. IV stands for instrumental variables. In model 5, observations indicate the number of uncensored observations.
*** $p<.001$; ** $p<.01$; * $p<.05$

examined the association between subsidiary staffing and subsidiary performance at a given point in time based on the implicit assumption that the staffing of foreign subsidiaries is static (Ando, 2014). Even if a positive (a negative) relationship between PCN deployment and subsidiary performance is found, it does not mean that a focal subsidiary can improve its performance by raising (lowering) PCN deployment. In a sense, previous studies have captured a static picture of the relationship between subsidiary staffing and performance. Thus, we have not known whether increasing or decreasing the level of PCN deployment boosts subsidiary performance. To fill this research gap and advance studies on the staffing-performance link, this study shed light on the effect of a change in staffing and the direction of the change. By using a change in PCN deployment as a predictor, this study found a different relationship than those reported by previous studies. Whereas previous studies have found a positive, negative, and inverted U-shaped relationship between PCN deployment and subsidiary performance, this study found a U-shaped relationship between a change in PCN deployment and subsidiary performance. The results of this study suggest that the performance of a focal subsidiary improves as a result of increasing the number of PCNs (the right half of Figure 1). At the same time, increasing the deployment of HCNs (i.e., reducing PCN deployment) can also improve the focal subsidiary's performance (the left half of Figure 1).

Parent firms likely increase (decrease) PCN deployment to subsidiaries when it is considered rational under certain internal and external conditions. The results show that when the adjustment of PCN deployment is based on rational choice under certain conditions, the action to change staffing positively affects subsidiary performance. In addition, the results of this study imply that both directions of the adjustment are positively associated with subsidiary performance and, thus, have an economic rationale. As discussed in the previous section, PCNs and HCNs have different competences and take different strategic roles within subsidiaries. It seems that under conditions that require PCNs' (HCNs') competence more than HCNs' (PCNs'), increasing the level of PCN (HCN) deployment makes economic sense. In addition, Figure 1 shows that the apex of the curve is located around zero on the x-axis, which implies that taking appropriate strategic moves, i.e., increasing or decreasing PCN deployment, by accommodating the conditions that subsidiaries face works to enhance subsidiary performance.

Japanese firms are often considered to have an ethnocentric orientation and assign more PCNs to subsidiaries (Beechler, 2005; Chung, Gibbons, and Schoch, 2006; Dutta and Beamish, 2013; Tungli and Peiperl, 2009). The results of this study, however, may suggest that Japanese firms adopt an ethnocentric staffing policy based on a rational choice because the results indicate that increasing PCN deployment is associated with higher performance. At the same time, the left half of Figure 1 implies that localizing subsidiaries, i.e., decreasing the deployment of PCNs, is another favorable strategy for Japanese firms under certain conditions.

The results show that the positive effect of raising PCNs or HCNs erodes when institutional distance between the host and home countries is large. The difference in institutional environments may prevent PCNs from effectively functioning as a means of knowledge transfer and control (Brouthers et al., 2008; Jensen and Szulanski, 2004; Xu, Pan, and Beamish, 2004). The results also suggest that even HCNs' competence may become less valuable in institutionally distant countries. Previous studies have argued that HCNs help MNEs' adaptation to a local environment by using their local knowledge (Gaur and Lu, 2007; Gelbuda et al., 2008). However, the results of this study imply that large institutional distance reduces HCNs' ability to re-contextualize firm-specific assets that have been

developed in a different institutional environment. It can be interpreted that localizing a subsidiary is a less favorable strategy in institutionally distant countries.

This study has practical implications for managers. MNEs may need to keep adjusting subsidiary staffing in accordance with internal and external conditions. The results suggest that both directions of the adjustment, i.e., raising PCN deployment or HCN deployment, can enhance subsidiary performance. However, managers may need to consider in which direction and to what degree they change staffing when they are faced with severe institutional differences. The results of this study also suggest that maintaining the same PCN deployment level may result in lower subsidiary performance. Conditions that surround subsidiaries may vary rapidly. Thus, managers may need to monitor external conditions, decide to which direction they change staffing under these conditions, and promptly implement a decision.

This study is subject to limitations. To operationalize a change in staffing, this study used a change in the number of PCNs. This variable does not include the information about the PCNs' positions, which may significantly affect subsidiary performance. In addition, a decrease in PCNs may not always be equivalent to localization, which is the replacement of PCNs with HCNs (Selmer 2004; Law et al., 2009). Furthermore, this study considered that subsidiaries comprise only PCNs and HCNs and did not consider other options for MNEs, such as PCNs hired locally, HCNs hired in the MNE home country, or TCNs. These managers could not be incorporated into the analysis because of the unavailability of data. Regarding the operationalization of subsidiary performance, this study could not access data that directly indicate subsidiary profitability. In general, data on financial performance at the subsidiary level are unavailable because MNEs are not required to disclose them (Chang et al., 2013). Even if data on subsidiary profitability are collected, differences in financial reporting standards across countries may make them less comparable, and MNEs' internal practices, such as transfer pricing, may distort records of subsidiary profits (Chang et al., 2013; Ma et al., 2013). By mobilizing available data, this study calculated productivity as a proxy for subsidiary performance. Productivity can capture at least a certain aspect of subsidiary performance (Li, 2004). Finally, the sample used in this study consists solely of foreign subsidiaries of Japanese firms. This research design limits the generalizability of the findings to firms from other countries.

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