

Autonomy, Embeddedness, and the Performance of Foreign Owned Subsidiaries

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Abstract: This paper investigates whether changes in autonomy and embeddedness in host locations by foreign owned subsidiaries are associated with improvements in performance by subsidiaries. The results provide evidence that increasing operational decision-making autonomy is associated with enhanced performance as measured by both subjective and more objective measures of performance. The results on the importance of increasing strategic decision-making autonomy and embeddedness are less clear, with improved performance being detected in some cases, but only for the subjective measure of performance.

INTRODUCTION

In the resource-based and network theory views multinational corporations (MNCs) are considered to be able to boost their performance by developing differentiated networks that enable them to gather, process, and transfer information, knowledge and other desirable resources across frontiers (Ghoshal and Bartlett 1989, Holm and Pedersen 2000, and Peng 2001). These theories indicate that foreign owned subsidiaries (FOS) may enhance their performance if they are granted increased autonomy because of

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increased powers to take advantage of locally available resources. Subsidiaries that embed themselves into their host locations can also improve access to, and the benefit from, locally available resources (Birkinshaw and Hood 1998, O'Donnell 2000, Moore 2001). The OLI (ownership, location, and internalisation) view of MNC development also predicts that developing autonomy and embeddedness can improve performance by reducing transaction costs and enhancing the ability to leverage ownership and location advantages (Dunning 2000). These views have led to arguments that granting autonomy and embeddedness mandates are likely to lead to improved performance (Edwards et al. 2002, Schmid and Schurig 2003, David and Meyer 2004).

The evidence that autonomy and embeddedness in host locations mandates are associated with enhanced performance is mainly based on the level of such mandates. Some studies, based on levels of mandates, have found evidence that FOS that have significant autonomy and embeddedness mandates experience improved performance, but that this is normally contingent on factors such as age, entry mode, role of subsidiary, and industry (Holm and Pedersen 2000, Andersson et al. 2001 and 2002, Andersson and Forsgren 2002). There are however few studies that have sought to test the association between changes in autonomy and embeddedness mandates and performance. Investigation of the links between increases of autonomy and embeddedness and the subsequent impact on performance is needed because many parent companies face pressures to increase the mandates in their subsidiaries (Birkinshaw and Morrison 1995, Nohria and Ghoshal 1997, Taggart 1999). It is therefore important to assess if improved performance is likely to be positively associated with increases in these types of mandates. Moreover, there is evidence that some subsidiary managers engage in entrepreneurial behaviour that leads to increases in autonomy and embeddedness because the control policies of some MNCs are unable to detect and/or control such actions (Birkinshaw 1996, Young and Tavares 2004). Hence evidence on the relationships between increasing autonomy and embeddedness mandates and the impact on performance is useful to help in the effective management of subsidiaries. The importance of examining the links between changes in autonomy and embeddedness mandates and performance has also been reinforced by literature that focuses on the strategic development of FOS as an evolutionary process (Birkinshaw and Hood 1998, Egelhoff, et al. 1998).

Measurements of autonomy have focused on strategic mandates in areas such as the power to make decisions about policies in R&D, marketing, and over adoption and development of production systems (Birkinshaw and Hood 1998, Pearce 1999, Davis and Meyer 2004). However, many subsidiaries appear to have the highest levels of autonomy in operational decision-making in areas such as the management of day-to-day process and systems, and fine-tuning production and sales and distribution operations (McDonald et al. 2005, Williams 2008). This paper therefore separates autonomy into two components—strategic decision-making

autonomy and operational decision-making autonomy. Various measures of embeddedness in external organizations in host locations have been used in the literature including use of networks for gathering and processing information and knowledge, and for helping to marshal and making better use of resources (Halinen and Tornroos 1998, Holm and Pedersen 2000, Andersson et al. 2001 and 2002, Moore 2001, Andersson and Forsgren 2002). The use of local supply chains to improve the price and quality of inputs has been widely identified as an important embeddedness factor (Görg and Ruane 2001, Perez and Sanchez 2002). This paper follows these studies by using increases in domestic sourcing and the use of networks as the means of measuring increased embeddedness.

Another issue of importance is to assess whether the development of mandates leads to benefits mainly for the MNC as a whole, or for the subsidiary. Rent seeking by subsidiaries occurs when managers appropriate benefits from the operations of subsidiaries, which should go to the parent companies. This can occur by hiding the size of benefits and/or engaging in activities of which the parent company is unaware and which lead to benefits to the subsidiary at the expense of the MNC as a whole. Rent-seeking activities by subsidiaries has been identified as a serious problem (Almedia and Phene 2004, Mudambi and Navarra 2004). It is possible that subsidiary managers overestimate the benefits accruing to the MNC as a whole from increased autonomy and embeddedness in order to obtain increased mandates (Dörrenbächer and Gammelgaard 2006). Such overestimation may not be deliberate, but results from zeal on the part of entrepreneurial subsidiary managers about the benefits of enhancing autonomy and embeddedness (Verbeke and Yuan 2005).

In the light of these issues about the evolution of autonomy and embeddedness and improved subsidiary performance and the possibility of rent-seeking behaviour, this paper investigates three research questions.

1. Are there positive associations between increasing autonomy and embeddedness and improved performance?
2. Which types of increases in autonomy and embeddedness are more likely to be associated with improved performance?
3. Is there evidence of rent-seeking behaviour in foreign owned subsidiaries?

AUTONOMY AND EMBEDDEDNESS AND PERFORMANCE

The idea that increasing autonomy and embeddedness mandates will be associated with improved performance for the MNC as a whole can be questioned if subsidiary managers engage in rent-seeking behaviour, or if FOS have reached a stage of development where no further improvements in performance are possible. Expanding autonomy and embeddedness can have a detrimental effect on the performance of MNCs if FOS are granted too much autonomy or if they become too embedded because this may lead

to the inappropriate allocation, or over-use, of the MNC's resources (Almeida and Phene 2004, Mudambi and Navarra 2004). Some studies however have found that increases in subsidiary autonomy and embeddedness are common (see, for instance, Egelhoff et al. 1998) and that they are associated with improved performance (Birkinshaw 1996, O'Donnell 2000). There is also evidence that suggests that very few FOS have "too much" autonomy or embeddedness, as most subsidiaries do not experience significant reductions in their mandates (Birkinshaw 1996, Taggart 1999).

The ability of FOS to acquire autonomy and to develop embeddedness depends on their bargaining power (Taggart 1999, Dörrenbächer and Gammelgaard 2006), industry and market factors, the characteristics of headquarter-subsidiary relationships and control systems, and the entrepreneurial activities of subsidiary managers (Burgelman 1983, Birkinshaw and Hood 1998, Harzing and Sorge 2003, Young and Tavares 2004). Some FOS may reach a stage where strategic development stops because the ability to reap benefits from strategic development ends. In these circumstances the subsidiary would enter steady state equilibrium. In situations where FOS performance deteriorates there may be a decline in strategic development or even the termination of the subsidiary. There may also be cases where changes in market, technological, and regulatory conditions, perhaps backed by entrepreneurial activities by subsidiary managers, lead to a revival from steady state or decline situations. In these cases strategic development could take off after a period of stagnation or decline.

This paper investigates if increases in autonomy and embeddedness are associated with improved performance on the basis of a large representative sample of the population. If a positive and significant association is found, this provides evidence that, on average, a link exists between increased autonomy and embeddedness and improved performance. If a positive association is not found this would indicate that most subsidiaries have reached steady state equilibrium, or decline, stages in their evolution. If market, technological and regulatory conditions in host countries were static and therefore did not require subsidiaries to be strategically developed in order for them to fulfil their strategic objectives, this would also explain the lack of positive associations.

AUTONOMY

Autonomy is connected to the extent to which a subsidiary has the right to make decisions with a degree of independence from headquarters (O'Donnell 2000, Birkinshaw et al. 2004, Young and Tavares 2004). Strategic decision-making autonomy is concerned with mandates to make major policy decisions in areas such as R&D, production systems, product developments, and marketing. Operational decision-making autonomy is the ability to make tactical decisions on the type and scope of operations, such as operational decisions connected to production, sales and distribution, and the management of day-to-day operating processes and systems.

Strategic Decision-Making Autonomy

The development of strategic decision-making autonomy and the performance of FOS have been widely studied (see, for instance, Birkinshaw and Hood 1998, Holm and Pedersen 2000). Strategic decision-making autonomy helps the subsidiary to build up unique knowledge by tapping into external networks that cannot be accessed by other parts of the MNC (Andersson et al. 2001 and 2002, Holm and Pedersen 2000, Holm, et al. 2003). Moreover, FOS with mandates to make major policy decisions in areas such as production methods, product development, marketing and R&D can enhance performance not only by improving the use of locally available assets, information and knowledge (Pearce 1999, Davis and Meyer 2004), but also by reducing transaction costs connected to the processes of managing intra-MNC relationships (Birkinshaw, et al. 2004, Young and Tavares 2004). The literature outlined above suggests (assuming that there is no rent-seeking behaviour by subsidiary managers) that increasing strategic decision-making autonomy induces lower transaction costs for intra-MNC activities due to shorter and simpler chains of command and increased capabilities to explore new ventures, such as new markets, new or improved products, and other types of innovative activities. This in turn will lead to increased learning, innovation, and access to desirable resources, which will result in improved performance. This leads to the first hypothesis.

H1. Increased strategic decision-making autonomy is positively associated with improved subsidiary performance.

Operational Decision-Making Autonomy

Expanding operational decision-making autonomy creates opportunities to reap economies of scale as well as learning effects in operational issues. Increased operational decision-making autonomy also leads to learning associated with the power to modify new technology and "know-how" from other parts of the MNC and to effectively harness locally available assets that enhance the potential to improve operational effectiveness (Nohria and Ghoshal 1997, Taggart and Hood 1999). Such development leads to economies of scale and scope that reduce production and distribution costs. They also decrease the transaction costs of managing operations. Such developments are common not only in the area of exploiting product and production innovation, but also in R&D activities (Pearce 1999, Tavares and Pearce 2002). This leads to the second hypothesis.

H2. Increased operational decision-making autonomy is positively associated with improved subsidiary performance.

EMBEDDEDNESS

Embeddedness in host locations is associated with the development of locally based networks and local supply chains (Halinen and Tornroos 1998, Andersson et al. 2001, Davis and Meyer 2004). Embeddedness can be split into two broad categories: the development of host-country sourcing based on enhancing the use of domestic supply chains and the expansion of host location networks between firms and supporting organisations to help in the gathering, processing, and dissemination of information and knowledge that are useful for achieving the strategic objectives of FOS.

Host-Country Sourcing

The development of local supply chains by FOS to improve performance has been extensively studied and evidence has been found on the importance of the development of host-country sourcing for the performance of FOS (Görg and Ruane 2001, Perez and Sanchez 2002). Some studies, however, indicate that there are a number of problems associated with poor quality, reliability, and low skill levels in workforces that often hinder the growth of the use of local suppliers (Potter et al. 2003). The increasing use of global supply chains by MNCs (Yip 2003, Tavares and Young 2006) also calls into question the value of developing local sourcing. Nevertheless, an important strand of the literature suggests that increases in host-country sourcing generate improved quality of inputs and more flexibility in important areas, such as meeting tight delivery schedules and the speedy adjustment to changing demand patterns. These benefits lead to reduced production and distribution costs and improvements in flexibility. This leads to the third hypothesis.

H3. Increased host-country sourcing is positively associated with improved subsidiary performance.

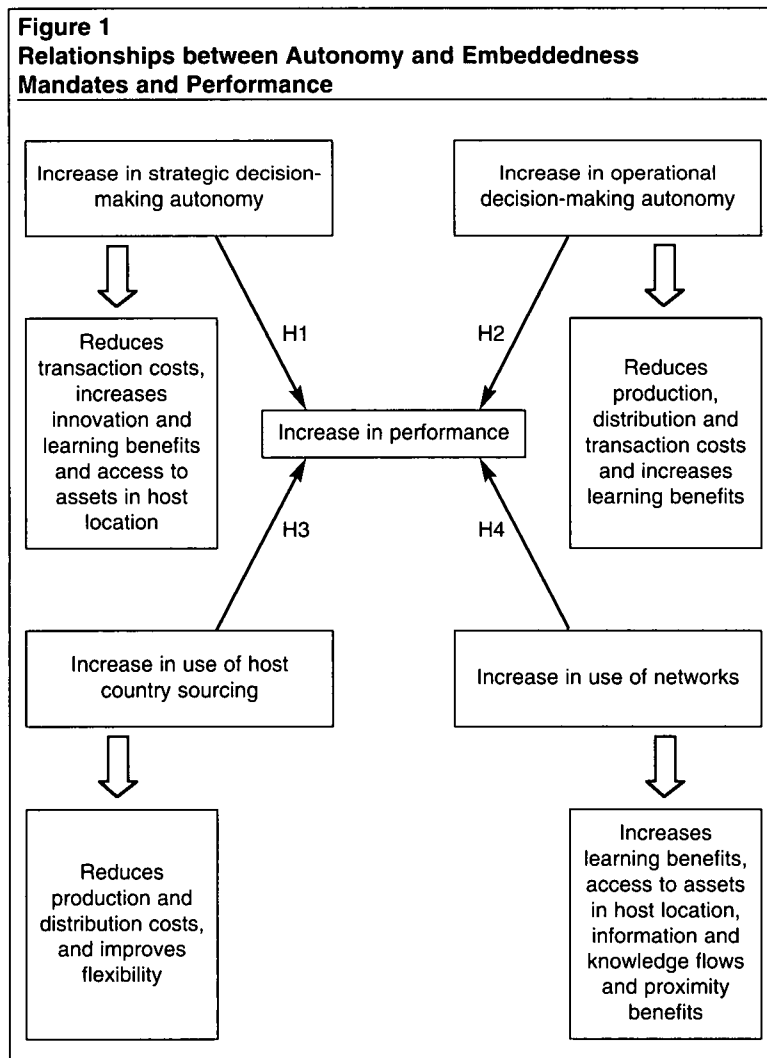
The Use of Local Networks

Local networks are considered to be crucial for developing efficient information-gathering and information-processing systems that enable MNCs to obtain and expand the desirable assets base of their FOS (Schmid and Schurig 2003). The enhancement of competitiveness that follows from being embedded into such networks has been highlighted in research on the role of geographical factors in the internationalisation process (Dunning 2000). The use of local networks composed of other firms, R&D agencies (such as universities and government research bodies), local authorities, chambers of commerce, and other organisations has been identified as helping FOS to attain their objectives (Moore 2001, Andersson et al. 2001 and 2002). These local networks increase the abilities of the MNC as a whole as well as the subsidiary to benefit from collective learning and to realise innovation advantages based on enhanced potential to acquire benefits associated with linkages to valuable sources of information and knowledge in host locations (Schmid and Schurig 2003, Davis and Meyer 2004). Local networks in

the same or similar industries are at the core of industrial clusters that have been shown to deliver competitive advantages to FOS that locate in these areas by providing proximity benefits (Birkinshaw and Hood 2000). Thus, FOS that increase embeddedness in local networks are more likely than those that are not to have better performance. This leads to the fourth hypothesis.

H4. The increased use of local networks is positively associated with improved subsidiary performance.

Figure 1 provides a summary of the major reasons advanced for the beneficial effects on performance of increasing autonomy and embeddedness mandates.



DATA COLLECTION

The data was collected using a survey of German, French and U.S. manufacturing subsidiaries in the UK. These countries accounted for 60 percent of the book value of manufacturing FDI stock in the UK between 1998 and 2004 (Office for National Statistics 2005). The databases, with the addresses and the names of the managing directors, were provided by the German-British Chamber of Industry and Commerce, the Chamber de Commerce Francaise de Grande-Bretagne in London, British-American Business, Inc. and the Regional Development Agencies in the UK. It was not feasible to survey the large population of U.S. subsidiaries in the UK (approximately 10,000), so a stratified sample based on industry and region was used for U.S. subsidiaries.

The composition of the questionnaire was guided by the approaches used in previous studies on the activities of the FOS (Holm and Pedersen 2000, Andersson et al. 2001 and 2002, Holm et al. 2003). The questionnaire did not, however, ask for self-assessment by respondents of the extent, or importance, of changes in autonomy and embeddedness. Only basic information was sought for the four broad categories of autonomy and embeddedness outlined above. The approach taken in this study was chosen to encourage a large response rate.

The questionnaire was piloted in twenty FOS of different nationalities, sizes, and industry. Feedback from the pilot was used to amend the questionnaire. The feedback indicated that simpler questions would induce more respondents to return completed questionnaires therefore the questions on autonomy and embeddedness were simplified. This reduced the richness of the data returned but we believe it improved the number of returns. The feedback from the pilots also indicated a need to provide information that would allow respondents to clearly differentiate between strategic and operational decision-making autonomy and to properly identify what was meant by the categories within these factors, for example, marketing, R&D, and HRM systems. This was done by providing examples, in the questionnaire, of what was meant by strategic and operational decision-making autonomy and the different categories within these factors.

After reminders were sent out, a total of 391 useable returns were obtained, a response rate of 27.3 percent. Using the approaches of Osterman (1994) and Schmitt (2003), checks for non-response bias were conducted using logistic regression with the probability of response as the dependent variable and entry mode, industry, and establishment age as the independent variables. These tests revealed that the probability of response by the U.S. owned subsidiaries that belong to the "Vehicles," "IT and Telecommunication Equipment" industries was significantly different from that of FOS that belong to "Other Manufacturing." French owned subsidiaries in the "Chemicals and Pharmaceutical" industry also had a significantly different probability of response. However, no significant difference

in the probability of response was found in the case of German owned subsidiaries. Following the approach of Malhorta and Birks (2003), weighting was used to account for possible bias. Therefore, the responses from the French and the U.S. foreign owned subsidiaries were weighted according to their industrial distribution.

Dependent Variables

The subjective measure of performance was based on the Workplace Employee Relations Survey 1998 (WERS98) method of estimating changes in labour productivity. This measure (Measure 1) is based on the respondent's estimates of changes in labour productivity in their establishment compared to their main competitors. Following the WERS98 system, Measure 1 has three categories, where 1 = decrease, 2 = stayed the same, and 3 = increase in the labour productivity. The more objective performance measure (Measure 2) was based on the reported change in sales turnover, where 1 = below average, 2 = average, and 3 = above average. Allocation to the average categories was decided by use of the mean value and standard deviations. Measure 2 is not fully objective because it is based on the respondent's reported change in sales turnover. However, it is more objective than Measure 1 because it is not based on a subjective assessment of performance relative to any comparator. If the productivity of subsidiaries relative to their main competitors improves (Measure 1) it would be expected to show up, in a large sample, in an above average increase in sales (Measure 2). This effect should result from the cost advantages that the subsidiary gains from its improved productivity. This measure is therefore a good proxy for assessing if performance improvements, as subjectively assessed by subsidiary managers, are backed up by a more objective measure of performance.

Explanatory Variables

The change in strategic decision-making autonomy variable was assigned a score of 1 if the subsidiary had increased autonomy in more than one of the following policy areas: production process development, R&D (including product development), and marketing. The change in operational decision-making autonomy variable was assigned a score of 1 if the subsidiary had increased in more than one of the following areas of tactical control: manufacturing processes, research and development processes, and human resource management systems. The questions asked respondents to rule out very small changes that did not require approval from senior management at either subsidiary or HQ level. This scoring system reduced the likelihood of trivial changes in only one area being recorded as increases in autonomy. The change in the use of networks variable took a value of 1 if the use of at least two network partners had increased. The change in host-country sourcing variable was measured by above-average increases in the use of domestic sourcing. Allocation to the average categories was decided

by use of the mean value and standard deviations. A score of 0 was assigned to all the explanatory variables that did not fulfil these conditions.

A five-year period (1998–2002) was used to measure the changes in the dependent and explanatory variables. While this is not a long period of time, it does give some insight into the evolution of autonomy and embeddedness. The feedback from the pilots indicated that asking for longer periods of time would cause difficulties for most respondents because many of them would not be able to accurately recall what had happened beyond five years. To obtain a more accurate measure of the evolution of autonomy and embeddedness would require cross sectional time series data (panel data). This would provide data from the same samples to the same questions taken at different points of time. Unfortunately, the researchers did not have access to such panel data.

Control Variables

Control variables were used to take into consideration those factors that are expected to have an association with subsidiary performance. The choice of control variables was based on those factors included in similar studies (see, for example, Taggart 1999, Holm and Pedersen 2000, Andersson et al. 2001 and 2002). The following control variables were included: industry, region, main activity of the establishment, age, entry mode, subsidiary size (measured by number of employees), and number of skilled employees, whether the subsidiary was part of a multiple-establishment entity, and technology transfer from the parent company. The variables used in the regressions together with their frequencies are shown in **Table 1**.

Data Analysis

The dependent variables in this study are nominal. Therefore, conventional linear regression techniques are not appropriate due to the violation of the assumptions on the nature of the limited dependent variable. Ordered probit regression techniques are suitable for nominal data of the type used in this study (Agresti 2001, Greene 2003). Survey data often give rise to deviation from the assumption of homoscedasticity adopted in conventional limited dependent variables models (Greene 2003). Therefore, heteroscedasticity is a potential problem when using probit regression techniques (Yatchew and Griliches 1984). In order to test for the possible presence of heteroscedasticity prior modelling heteroscedasticity techniques were used as suggested by Greene (2003). Heteroscedastic ordered probit models were adopted using the STATA 8.0 package. For those specifications for which the null hypothesis of homoscedasticity was not rejected by the likelihood ratio tests, the results of the conventional ordered probit model are reported. The STATA 8.0 package automatically tests for multicollinearity by rejecting variables with significant correlation between the independent variables (Long and Freese 2003). The results in this paper are therefore robust to problems of heteroscedasticity and multicollinearity in the variables.

Table 1
Variable Frequencies and Scores

DEPENDENT VARIABLES				%
Increase in labour productivity—Measure 1				
1. Below sample average				24.8
2. About average in the sample				36.6
3. Above sample average				38.6
Increase in sales turnover—Measure 2				
1. Below sample average				33.2
2. About average in the sample				48.3
3. Above sample average				18.4
Explanatory variables				
Increase in operational autonomy	1 = Yes	0 = No		47.8*
Increase in strategic autonomy	1 = Yes	0 = No		34.3*
Increase in host-country sourcing	1 = Yes	0 = No		25.6*
Increase use of networks	1 = Yes	0 = No		28.1*
CONTROL VARIABLES				
Region				
1. East				21.2
2. North				16.9
3. South				33.0
4. West				28.9
Industry				
1. Mechanical and Electrical Engineering				39.1
2. Vehicles				16.6
3. Chemicals and Pharmaceuticals				17.4
4. IT and Telecommunication Equipment				8.2
5. Other Manufacturing				18.7
Main activity of FOS				
1. Manufacturing and R&D				38.9
2. Sales and Distribution				61.1
Age of the establishment				
1. Up to ten years				35.8
2. Eleven to twenty years				31.5
3. More than twenty years				32.7
Entry Mode				
1. Greenfield				43.7
2. Mergers and Acquisitions				56.3
Size (number of employees)				
1. 1–49				55.0
2. 50–249				30.2
3. 250 or more				14.8
Proportion of skilled employees				
1. Smaller than sample average				18.7
2. About average				52.9
3. Larger than sample average				28.4
Multiple-establishment subsidiary	1 = Yes	0 = No		43.7*
Technology transfer	1 = Yes	0 = No		49.9*

Notes:

Period of change is five years (1998–2002).

* Indicates percentage for yes category

n = 391

RESULTS

Examination of the frequencies of the dependent variables (see Table 1) reveals that the objective measure of performance (Measure 2) has a considerably lower incidence of above-average performance than is the case for the subjective Measure 1. About a quarter of FOS have increased embeddedness, and around a third has increased strategic decision-making autonomy. Increases in operational decision-making autonomy were reported by nearly 50 percent of FOS. Nearly 65 percent were eleven or more years old, and 56 percent used a merger and acquisition entry mode. Over 60 percent are primarily engaged in sales and distribution activities. The large proportion of FOS that have not expanded autonomy and embeddedness mandates may be connected to the large number of establishments that have already developed appropriate levels of autonomy and embeddedness because they are in a steady state stage due to their age or because they had extensive autonomy and embeddedness mandates when they were acquired by a MNC. Some FOS may not experience any increases in these mandates because the main focus of their activities is sales and distribution (over 60 percent) and these activities are not likely to require extensive autonomy or embeddedness mandates.

In the sample containing all subsidiaries the results for Measure 1 reveal that change in strategic and operational decision-making autonomy and use of networks have positive signs that are significant at the 1 percent or 5 percent levels (see Table 2). This indicates support for H1, H2, and H4 for the subjective measure of performance. However, for the more objective measure of subsidiary performance (Measure 2) only change in operational decision-making autonomy is positive and statistically significant. Thus only H2 is supported for both measures of performance. There is no support for H3 for any of the measures of performance.

To investigate if FOS with different characteristics displayed different outcomes a number of sub-samples were tested. The available data generated six sub-samples that had robust models. These were subsidiaries whose main activity was manufacturing or R&D; young subsidiaries (five to ten years); older subsidiaries (over eleven years); small subsidiaries (up to fifty employees); larger subsidiaries (over fifty employees); and subsidiaries in high and middle-technology sectors. The latter were identified as being in high or middle technology industries using the OECD measure of technological status of industries. There were insufficient observations of FOS in low technology sectors (seventy-three) to obtain a robust model.

In the sub-samples for manufacturing and R&D—older subsidiaries, small subsidiaries and those in high and middle technology sectors—operational decision-making autonomy is significant for both measures of performance (see Table 2). The sub-samples for young subsidiaries and larger subsidiaries do not provide support for H2 for both measures of performance. However, H2 is supported for Measure 1 for young subsidiaries and for Measure 2 for larger subsidiaries. The results from most

Table 2
Results of Regressions

Explanatory Variable	Model 1		Model 2		Model 3	
	Measure		Measure		Measure	
	1	2	1	2	1	2
Strategic autonomy	0.37 (2.81) **	-0.01 (-0.03)	-0.15 (-0.74)	0.20 (0.91)	0.42 (1.66)	0.27 (1.26)
Operational autonomy	0.39 (3.08) **	0.43 (4.26) **	0.72 (3.34) **	0.80 (3.29) **	0.55 (2.96) **	0.40 (1.87)
Host country sourcing	0.12 (0.49)	-0.19 (-0.12)	-0.09 (-0.36)	0.06 (0.27)	-0.11 (-0.41)	0.12 (0.51)
Use of networks	0.28 (2.08) *	0.11 (1.06)	0.24 (0.96)	0.44 (1.76)	0.21 (0.96)	0.45 (1.83)
Pseudo R ²	0.09	0.08	0.14	0.13	0.11	0.10
Prob > chi ²	0.00	0.00	0.00	0.00	0.00	0.01
n	391	391	153	153	140	140

Explanatory Variable	Model 4		Model 5		Model 6	
	Measure		Measure		Measure	
	1	2	1	2	1	2
Strategic autonomy	0.32 (1.82)	-0.06 (-0.38)	0.34 (1.65)	0.15 (0.83)	0.43 (2.14) *	-0.10 (-0.75)
Operational autonomy	0.37 (2.24) *	0.52 (3.32) **	0.58 (3.37) **	0.33 (1.97) *	0.26 (1.36)	0.69 (4.16) **
Host country sourcing	0.05 (0.25)	-0.10 (-0.62)	0.04 (0.25)	-0.06 (-0.30)	0.01 (0.03)	-0.06 (-0.33)
Use of networks	0.25 (1.45)	0.02 (0.11)	0.46 (2.58) **	-0.01 (-0.02)	0.10 (0.49)	0.09 (0.39)
Pseudo R ²	0.10	0.07	0.08	0.08	0.06	0.09
Prob > chi ²	0.00	0.00	0.05	0.00	0.08	0.00
n	251	251	215	215	176	176

Model 7		
Explanatory Variable	Measure	
	1	2
Strategic autonomy	0.31 (2.65) **	0.03 (0.27)
Operational autonomy	0.35 (3.11) **	0.50 (3.75) **
Host country sourcing	0.10 (0.59)	0.01 (0.01)
Use of networks	0.28 (2.27) *	0.15 (1.17)
Pseudo R ²	0.08	0.06
Prob > chi ²	0.00	0.00
n	318	318

Notes

**, * denote significance at 1 percent and 5 percent levels, respectively.

Values of the z-statistics are indicated in parentheses.

Standard errors are calculated using Huber-White estimator robust to the deviations from the normality assumption.

Model 1: All subsidiaries, Model 2: Subsidiaries main activity manufacturing and R&D, Model 3: Young subsidiaries (five to ten years), Model 4: Older subsidiaries (over eleven years), Model 5: Small subsidiaries (up to fifty employees), Model 6: Larger subsidiaries (over fifty employees), Model 7: High and middle technology subsidiaries.

of the sub-samples therefore reinforce the support for H2 that was found in the sample for all subsidiaries. The results therefore provide strong evidence that increases in operational decision-making autonomy are clearly associated with enhanced performance for FOS in most cases.

Support for H1 is found in the sub-samples for larger subsidiaries and those in high and middle technology sectors, but only for Measure 1. The sub-samples for small subsidiaries and those in the high and middle technology sectors provide support for H4 for Measure 1. These results suggest that if rent-seeking behaviour is evident in areas of strategic autonomy it is most likely to be found in FOS in the high and middle technology sectors and in larger subsidiaries. The possibilities of rent-seeking from the use of networks appear to be most likely in small subsidiaries and those in the high and middle technology sectors.

DISCUSSION

The results suggest that there are links between changes in autonomy and embeddedness and enhanced performance, but that only operational autonomy appears to be clearly associated with improved performance. Increasing operational decision-making autonomy is significantly associated with both measures of performance in nearly all cases. The benefits of developing autonomy in this area are easy to understand as subsidiary managers are normally in a better position than headquarters to make informed judgements on operational issues connected to production and distribution matters and on how employee relations are best managed. The large number of FOS that have experienced increases in operational decision-making autonomy (about 50 percent, see Table 1) indicates that for many FOS continuous development in this type of autonomy is likely to be important for improved performance.

Increasing strategic decision-making autonomy is significant for larger subsidiaries and those in high and middle technology sectors, but only for the subjective measure of performance. Subsidiary managers in larger subsidiaries may be able to gain mandates from parent companies because their size may mean that they have managerial capacity to undertake strategic tasks. Those FOS in high and middle technology sectors may have leverage to make a case for strategic autonomy because it is considered important for them to be able to have autonomy to pursue innovation and learning activities. Subsidiary managers in these types of FOS may also have high levels of entrepreneurial drive because they will tend to be in subsidiaries located in industries that are fast growing and dynamic. No evidence of a positive association between strategic decision-making autonomy and any measure of performance for those FOS that are primarily engaged in manufacturing and R&D suggests that even in the core business of subsidiaries in the manufacturing sector increasing strategic decision-making autonomy is not important for improved performance.

The fact that about a third of FOS have increased their strategic decision-making autonomy (see Table 1) is rather a large figure given the lack of evidence that increasing autonomy in this area is clearly associated with good subsidiary performance, especially with regard to the objective measure of performance. Moreover, the large number of FOS that are old (over eleven years) and that had a mergers and acquisitions entry mode implies that many subsidiaries are likely to already have significant levels of strategic decision-making autonomy. In these circumstances it is difficult to understand why about 35 percent of subsidiaries increased their strategic decision-making autonomy. It is possible that some subsidiary managers are able to expand strategic decision-making autonomy, despite the lack of accompanying improvement in performance, either by convincing headquarters that granting mandates in this area will lead to improved performance, or that the control strategies used by many MNCs are not able to prevent subsidiaries from enhancing their autonomy in this area. Another reason for the ability to increase strategic decision-making autonomy mandates may be that it leads to benefits other than improvements in sales turnover. This argument is reinforced by the study by Young and Tavares (2004) that made the case that acquiring benefits from granting autonomy is dependent on a number of important contingency factors, not simply on improved financial and/or productivity areas. It is, however, possible that at least part of the explanation for the increase in strategic decision-making autonomy is rent-seeking behaviour by subsidiary managers.

There is some evidence in support of the contention that increasing the use of networks is associated with improved subsidiary performance, but only for the subjective measure of performance, especially for FOS that are small and in high and middle technology sectors. This result suggests that some of the literature (for example, Schmid and Schurig 2003, Davis and Meyer 2004) may be overstating the benefits associated with learning and access to desirable assets in host locations. The lack of a clear link between the increased use of networks and enhanced performance may be because many FOS already have optimal usage of such networks because of the large numbers of older subsidiaries and those that are connected to merger and acquisition entry modes. However, nearly 30 percent of subsidiaries have increased their use of networks, suggesting that significant numbers of subsidiary managers have been able to expand the use of networks despite the lack of clear evidence that such actions are associated with enhanced performance. This may be because of similar reasons to those expounded above for the increase in strategic decision-making autonomy.

There is no evidence that increasing host-country sourcing is connected to improved performance, because no support was found for H3 in any of the regressions. This suggests that MNCs, at least those with subsidiaries in the UK, that seek to develop global supply chains (Yip 2003), or at least those that decide not to extend host-country sourcing, are pursuing policies that are sensible in terms of improving the performance of their subsidiaries. It could also indicate that many FOS are already using host-country sources at

an optimal level because they developed their local supply chains during the early stage of their existence as FOS, or already had well developed local supply chains when they were acquired by a foreign parent company. This implies that many FOS are at the steady state, or even declining, stage with regard to developing host country sourcing. Nevertheless, about a quarter of subsidiaries have expanded their use of local supply chains, suggesting that some subsidiary managers have the power to develop local supplies despite the lack of any evidence that this is linked to improved performance.

The results provide some support for the idea that rent seeking by increasing autonomy and embeddedness may be taking place. The failure to find any significant link between strategic decision-making autonomy, host country sourcing or use of networks and the more objective measure of performance in any of the sub-samples maybe indicative of rent seeking. This is reinforced by the significant positive associations that were found for strategic decision-making autonomy and use of networks for the subjective performance measure in a number of the sub-samples. The results of this study provide support for the view that rent seeking may be prevalent in FOS (Mudambi and Navarra 2004). However, more robust tests using better data is required to further probe into this topic. In particular, better data is required on benefits that accrue primarily to FOS rather than to the MNC as a whole.

It is possible that interactions between changes in autonomy and embeddedness factors result in enhanced performance. Evidence of such interaction, using levels of autonomy and embeddedness, has been found (Holm et al. 2003). Robust tests are required to assess interactions between changes in autonomy and embeddedness factors and enhanced performance. Unfortunately, this requires different data than was available for this study.

CONCLUSION

This study found evidence that increasing autonomy and embeddedness in host locations is associated with improved performance. The strongest evidence was found for increases in operational decision-making autonomy. Some support was found for the view that increasing strategic decision-making autonomy and increasing the use of networks is associated with improved performance, but evidence for improved performance from increases in mandates in these areas was not found for the objective measure of performance. No support was found for the view that increasing host country sourcing was linked to better performance. The failure to find any link to the more objective measure of performance, with the exception of operational decision-making autonomy, may indicate that rent-seeking behaviour is taking place in some FOS connected to expanding mandates in strategic decision-making, the use of networks, and host country sourcing. This suspicion is reinforced by the presence of significant associations between strategic decision-making autonomy and the use of networks and the subjective measure of performance. This is the especially the case for

large subsidiaries and those in high and middle technology for increases in strategic decision-making, and for small subsidiaries and those in high and middle technology for increases in the use of networks. However, only increases in operational decision-making autonomy experienced substantial increases. This may indicate that parent companies are aware of the limited benefits that are likely to arise from expanding mandates in strategic decision-making autonomy and embeddedness mandates, and they are therefore curbing expansion of mandates in these areas. The study also found evidence that suggests that many subsidiaries in the UK are probably at the steady state equilibrium stage of development and are therefore unlikely to experience increases in autonomy and embeddedness mandates.

The results of this study expand on the literature on links between autonomy and embeddedness and performance by stressing the importance of operational autonomy for enhancing performance. The results also draw attention to the importance of more robustly investigating the links between the evolution of autonomy and embeddedness factors and performance by use of, for example, panel data. The study also highlights the need to assess the extent and type of activities that may be associated with rent seeking by FOS managers. Further research is needed to probe the importance of different types, levels, and mixtures of autonomy and embeddedness mandates for enhanced performance. Studies that assess interaction between changes in autonomy and embeddedness factors and the links to improved performance are required. Different concepts of performance are needed in order to shed light on the importance of changes in autonomy and embeddedness for the performance of FOS in areas such as profitability, innovation, and the acquisition of useful information and knowledge. Cross-country studies are also required to assess the impact of different economic and institutional structures in host locations.

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